4. Current Status

(1) Fukushima Daiichi Nuclear Power Station

Plant Parameters (Fukushima Daiichi) as of October 12, 2012 at 5:00

RPV Water Injection [m³/h]

	Unit 1	Unit 2	Unit 3
FW	2.9	2.1	2.1
CS	2.0	4.5	4.6

RPV Temp [℃]

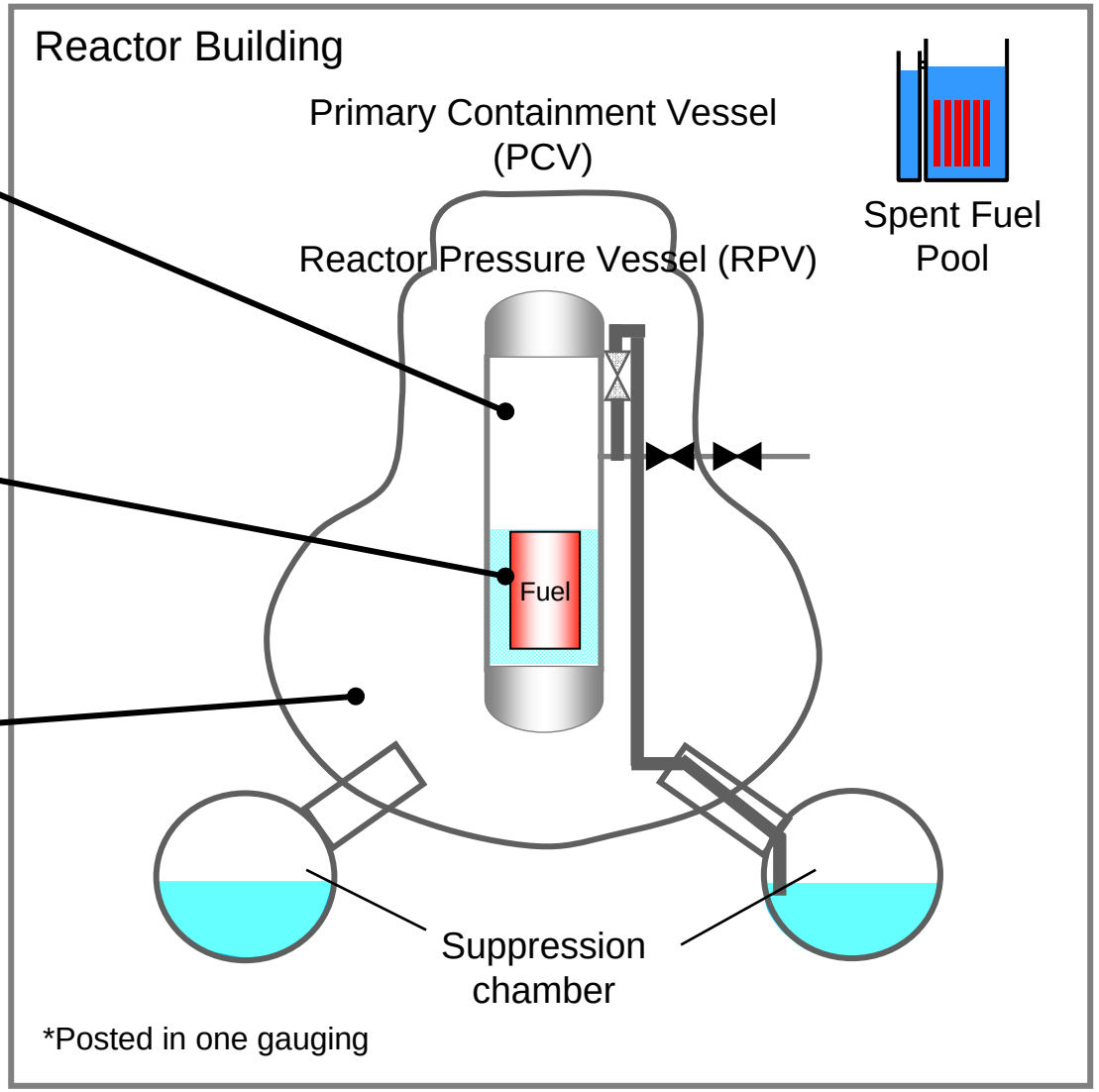
Unit 1	Unit 2	Unit 3
33.8	45.0	45.7

PCV Temp [℃]

Unit 1	Unit 2	Unit 3
35.5	44.7	42.7

Spent Fuel Pool Temp [℃]

Unit 1	Unit 2	Unit 3	Unit 4
24.5	24.6	22.6	30



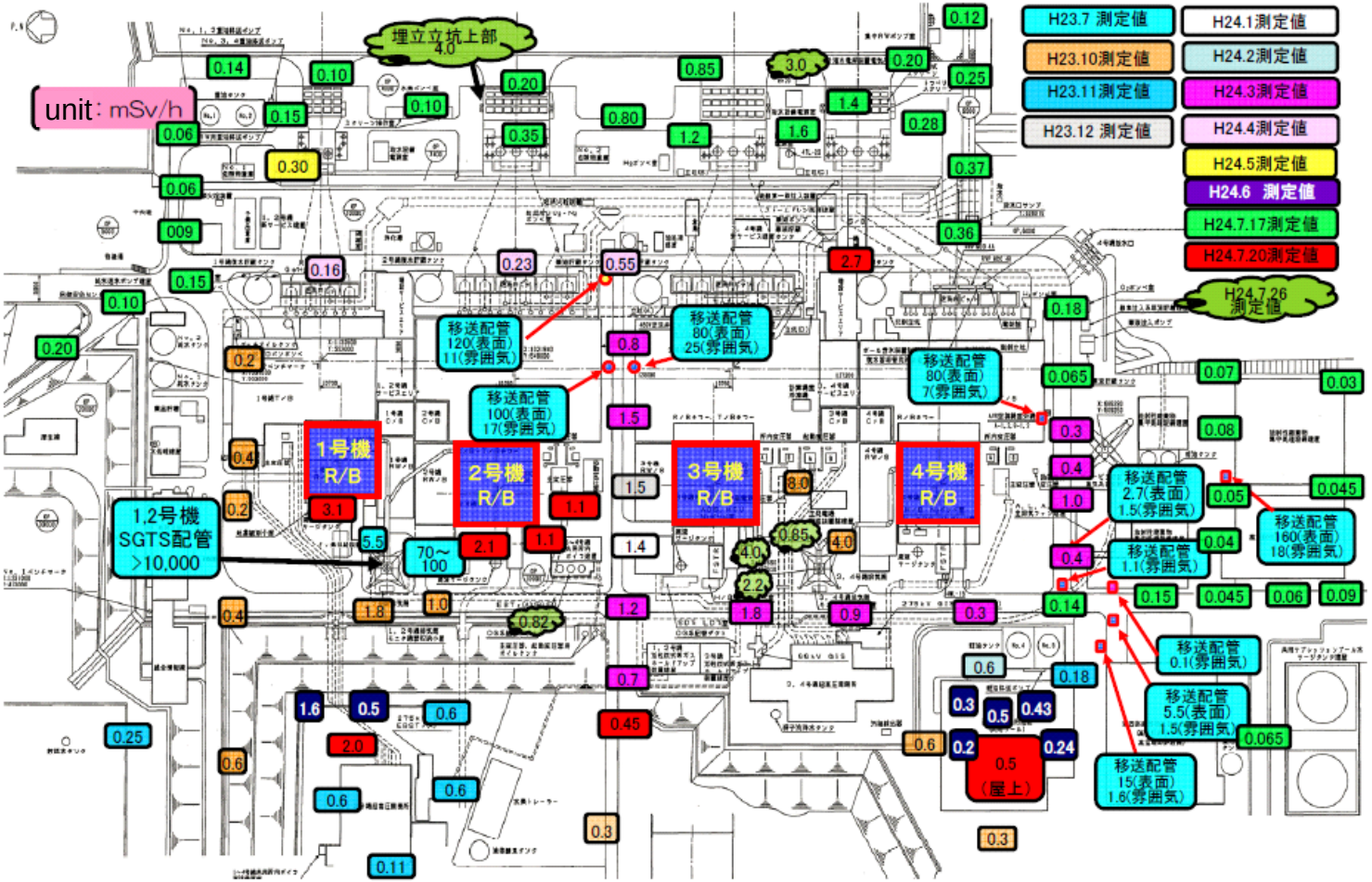
*We are judging the plant status by utilizing data obtained from multiple instruments including their changing trend in a comprehensive manner considering that some of them possibly are showing inaccurate data due to the irregular condition for use

Pressure conversion: Gauge pressure (MPa-g)=absolute pressure (MPa-abs)-atmospheric pressure(0.1013Mpa)

Measurement of Radiation Dose at the Power Station

- Onsite dose map has been compiled and attention has been called upon workers to reduce exposure during works on the site.
- Many debris are on the site and some of them are high radiation dose. These debris are being removed by using heavy machineries.

Fukushima Daiichi survey map (as of Jul. 26, 2012 at 17:00)

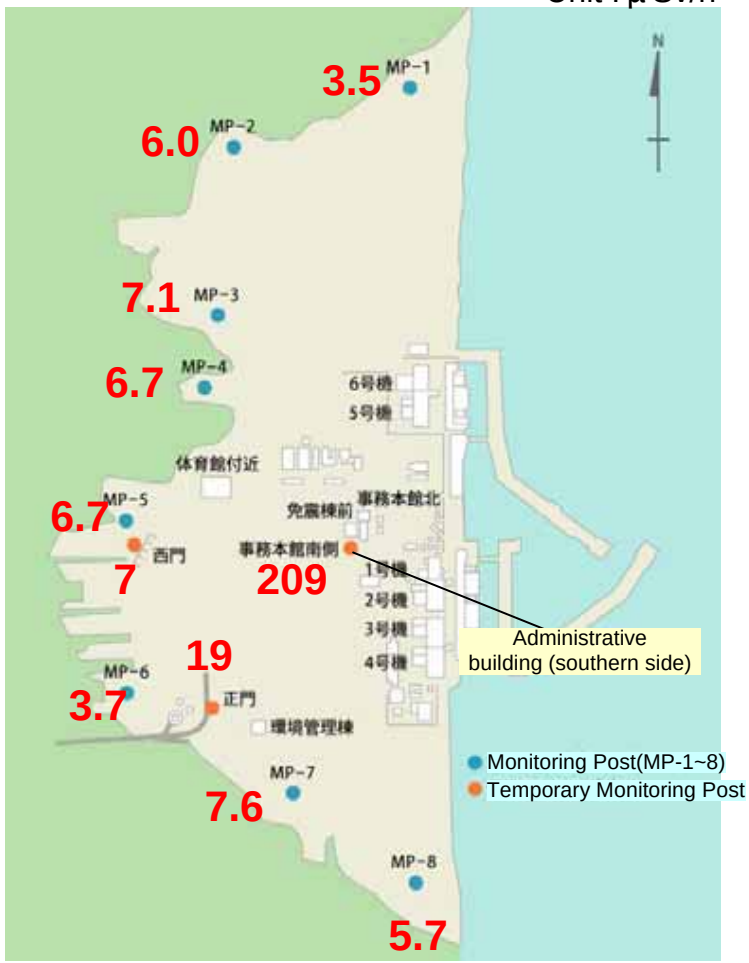


Monitoring Data (at Site Boundaries of Fukushima Daiichi)

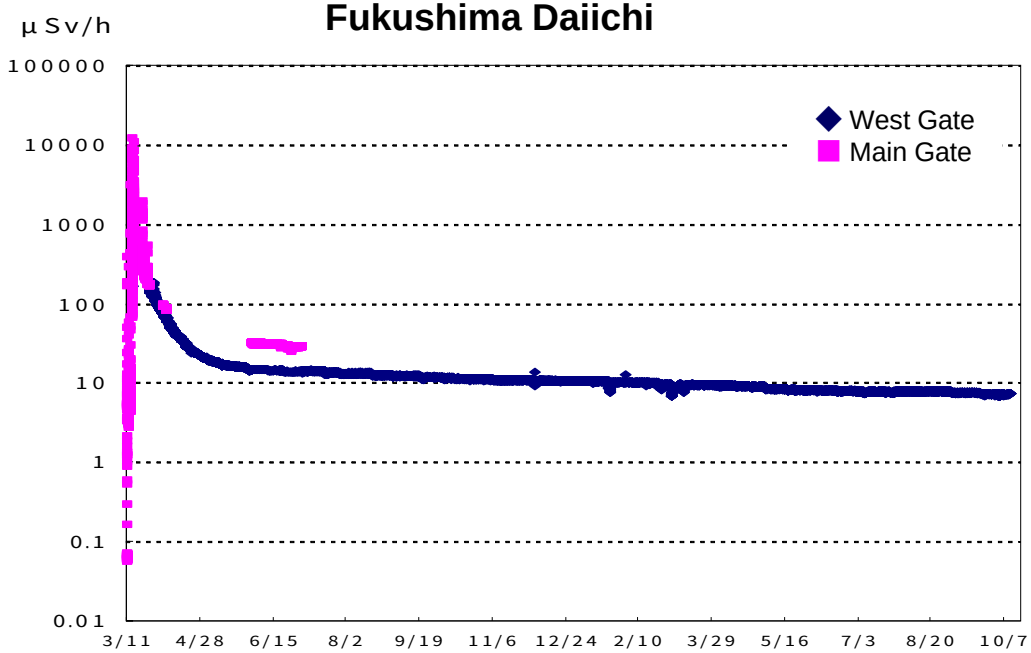
- Monitoring data at the site boundaries of Fukushima Daiichi.
- We continue to monitor the surrounding environment.

Monitoring post air dose rate

As of 12:00 on October 11, 2012
Unit : μ Sv/h



Dose Rate Trend at the Site Boundaries of Fukushima Daiichi



Soon after accident

March 2012

Nuclide Analysis Data Sampled in and Near the Site

- Plutonium and strontium were detected from the soil at the site.
- We continue to monitor the surrounding environment.

＜Radionuclide analyses results*＞

Units 5&6 North Discharge Channel [sampled on 10/10 8:30]
I-131: below detection limit
Cs-134: below detection limit
Cs-137: below detection limit

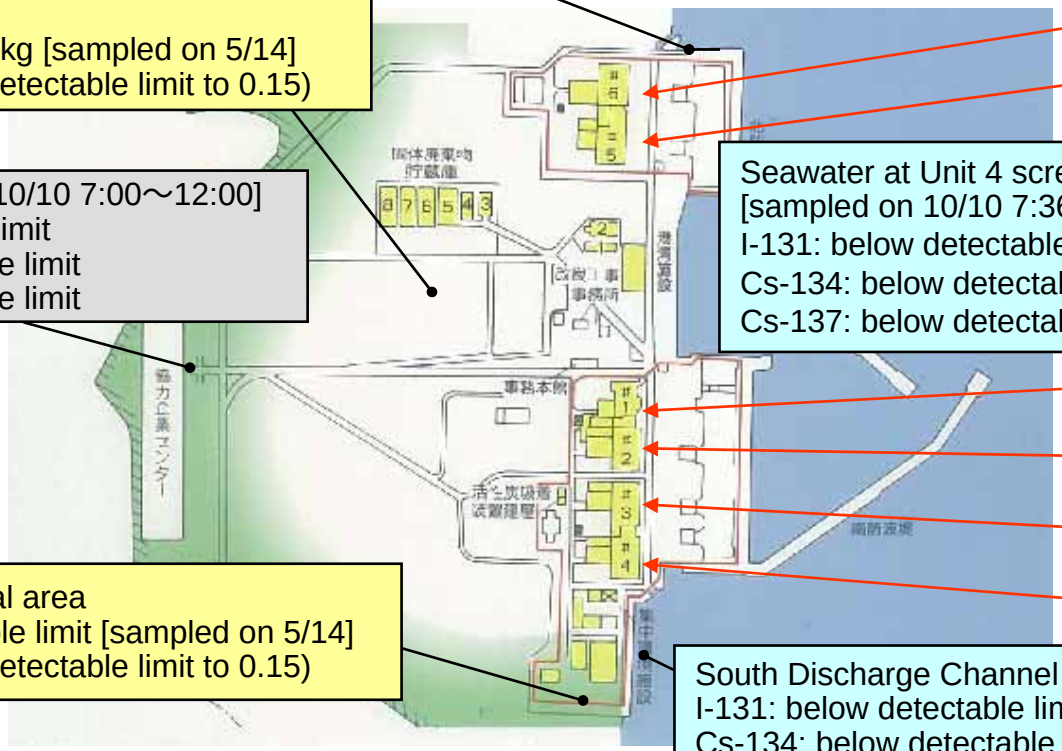
Ground
Pu-238: 0.95±0.11 Bq/kg [sampled on 5/14]
(normal level is below detectable limit to 0.15)

West gate [sampled on 10/10 7:00～12:00]
I-131: below detectable limit
Cs-134: below detectable limit
Cs-137: below detectable limit

Seawater at Unit 4 screen (outside the silt fence)
[sampled on 10/10 7:36]
I-131: below detectable limit
Cs-134: below detectable limit
Cs-137: below detectable limit

Industrial waste disposal area
Pu-238: below detectable limit [sampled on 5/14]
(normal level is below detectable limit to 0.15)

South Discharge Channel [sampled on 10/10 8:10]
I-131: below detectable limit
Cs-134: below detectable limit
Cs-137: below detectable limit



*Representative nuclides concentration described out of detected nuclides
(times in the bracket is the ratio of concentration limit by law)
*We have been sampling many other places.

: sea water : air : soil
I : Iodine, Cs : Cesium, Pu : Plutonium

Evacuation

➢ The government took measures such as taking shelters or evacuation as follows based on the reports from Fukushima Daiichi & Daini.

<2011>

Fri, March 11

14:46 The earthquake occurred
19:03 Emergency Declaration by the Gov't (Daiichi)
21:23 3 km radius evacuation (Daiichi)
10 km radius taking shelter (Daiichi)

Sat, March 12

5:44 10 km radius evacuation (Daiichi)
7:45 3 km radius evacuation (Daini),10 km radius taking shelter (Daini)
17:39 10 km radius evacuation (Daini)
18:25 20 km radius evacuation (Daiichi)

Tue, March 15

11:00 20-30 km radius taking shelter (Daiichi)

Thu, April 21

11:00 20 km radius is designated as "Restricted Area" (Daiichi)
Beyond 8km radius of evacuation has been lifted. (Daini)

Fri, April 22

9:44 20-30 km radius taking shelter has been lifted (Daiichi)
Establishment of "Deliberate Evacuation Area" and "Evacuation Prepared Area in Case of Emergency"

Thu, June 16

PM Establishment of "Specific Locations Recommended for Evacuation"

Fri, September 30

18:11 Evacuation Prepared Area in case of Emergency has been lifted.

Mon, December 26

Governmental Emergency Declaration was lifted (Daini)

<2012>

Fri, March 30

Restricted Area and Evacuation Area etc. were revised (Kawauchi, Tamura, Minami-soma)

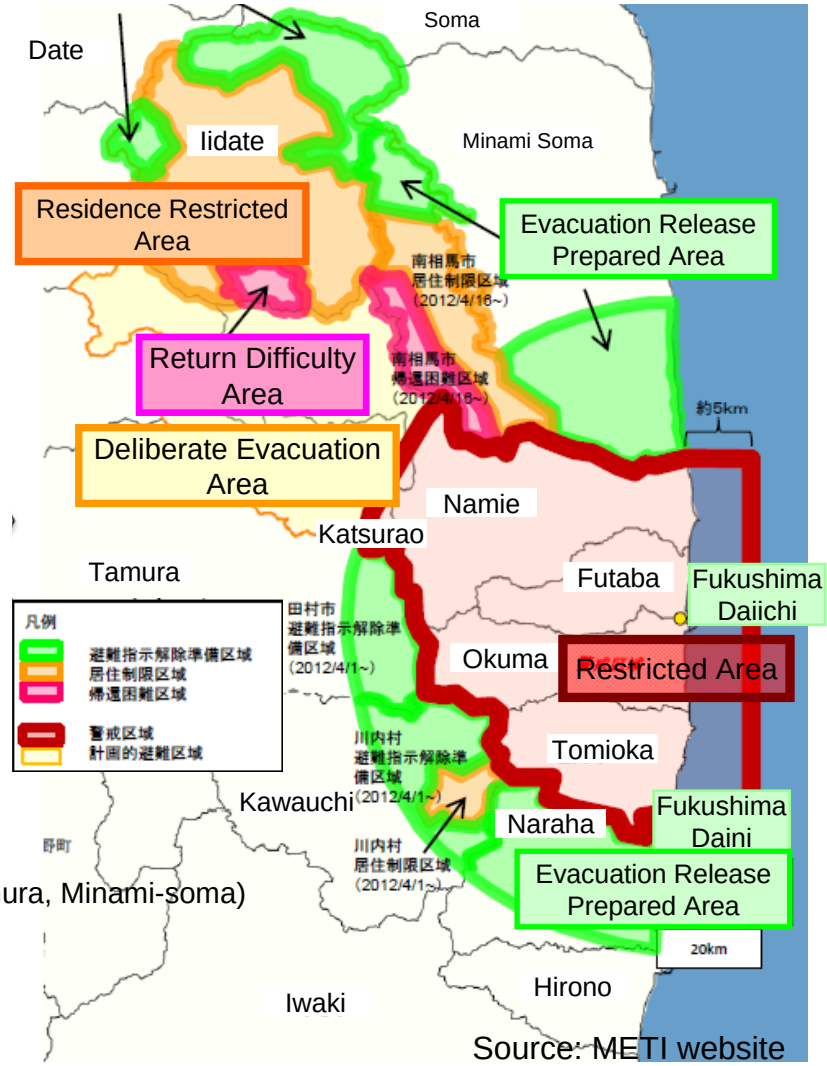
Fri, June 15

Deliberate Evacuation Area in Iidate was revised.

Fri, August 10

Restricted Area and Evacuation Area in Naraha was revised

Conceptual Diagram of Restricted and Evacuation Directed Area



Source: METI website

Estimated radioactivity release into the air by the accident

- Estimated release of radioactive materials into the air was announced on May 24, 2012.
- Estimated period is from March 12 to March 31, 2011 because the released amount after April is less than 1 % of that in March, 2011.
- Methodologies are different among several organizations, but TEPCO's result of Cs-137 is almost equivalent to the others. On the other hand, TEPCO's result of I-131 is about 3 times larger than the others and this reason still needs to be investigated.

	Release Unit : PBq (*1)				
	Noble Gas	I-131	Cs-134	Cs-137	INES (*3)
TEPCO (*2)	Approx. 500	Approx. 500	Approx. 10	Approx. 10	Approx. 900
Japan Atomic Energy Agency Nuclear Safety Commission (Apr. 12, May 12, 2011)	—	150	—	13	670
Japan Atomic Energy Agency Nuclear Safety Commission (Aug. 22, 2011)	—	130	—	11	570
Japan Atomic Energy Agency (Mar. 6, 2012)	—	120	—	9	480
Nuclear and Industrial Safety Agency (Apr. 12, 2011)	—	130	—	6.1	370
Nuclear and Industrial Safety Agency (Jun. 6, 2011)	—	160	18	15	770
Nuclear and Industrial Safety Agency (Feb. 16, 2012)	—	150	—	8.2	480
IRSN (France)	2000	200	30		—
Chernobyl (Reference)	6500	1800	—	85	5200

(*1) 1 PBq = 10^{15} Bq
(*2) Bq at the time of release. Rounded off at 2nd figure. Equivalent of 0.5 MeV for noble gas.
(*3) Radioactivity is converted to Iodine in INES. For comparison, only I-131 and CS-137 are used.
Example: approx. 500 PBq + 10 PBq X 40 (conversion factor) = approx. 900 PBq

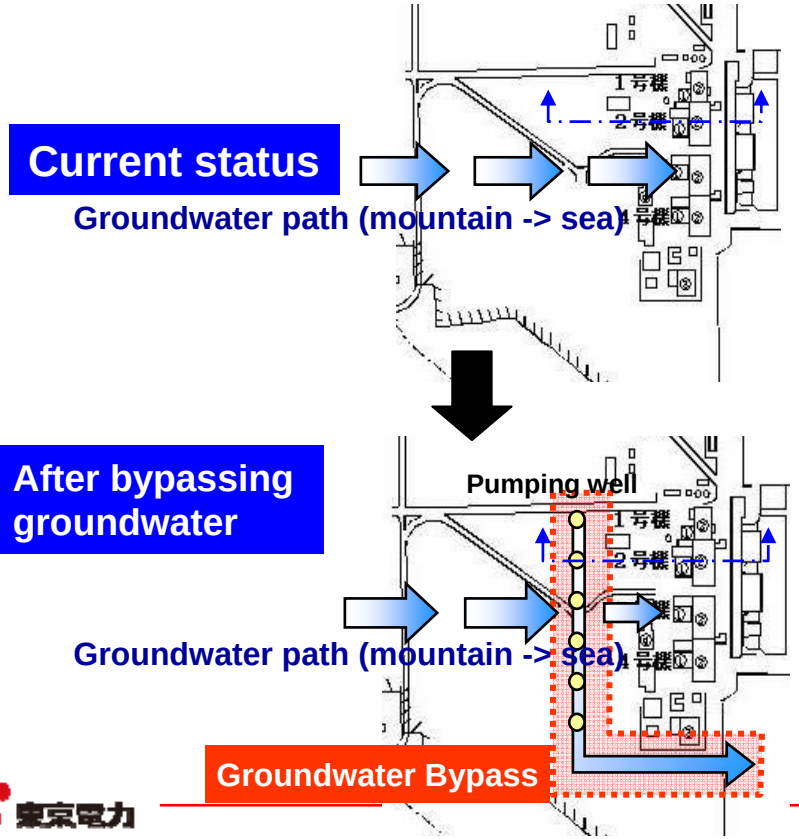
Countermeasure against Underground Water Inflow

Groundwater bypass : Suppressing groundwater inflow amount to the building by changing the water path via pumping up the water flowed from the mountain side.

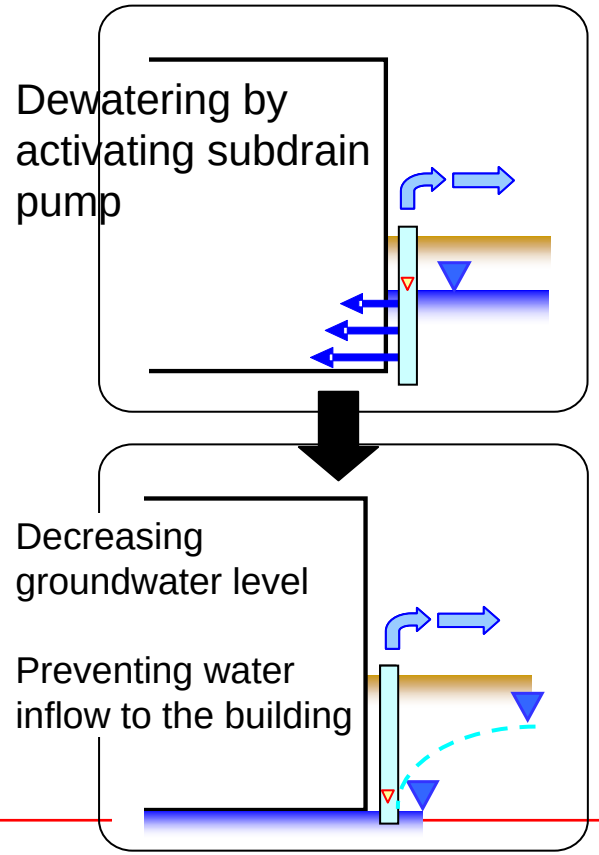
Pumping up groundwater (subdrain*) : Suppressing groundwater inflow amount to the building by decreasing groundwater level via pumping up the subdrain water.

*In order to balance groundwater level, groundwater in subdrain pits is periodically pumped up.

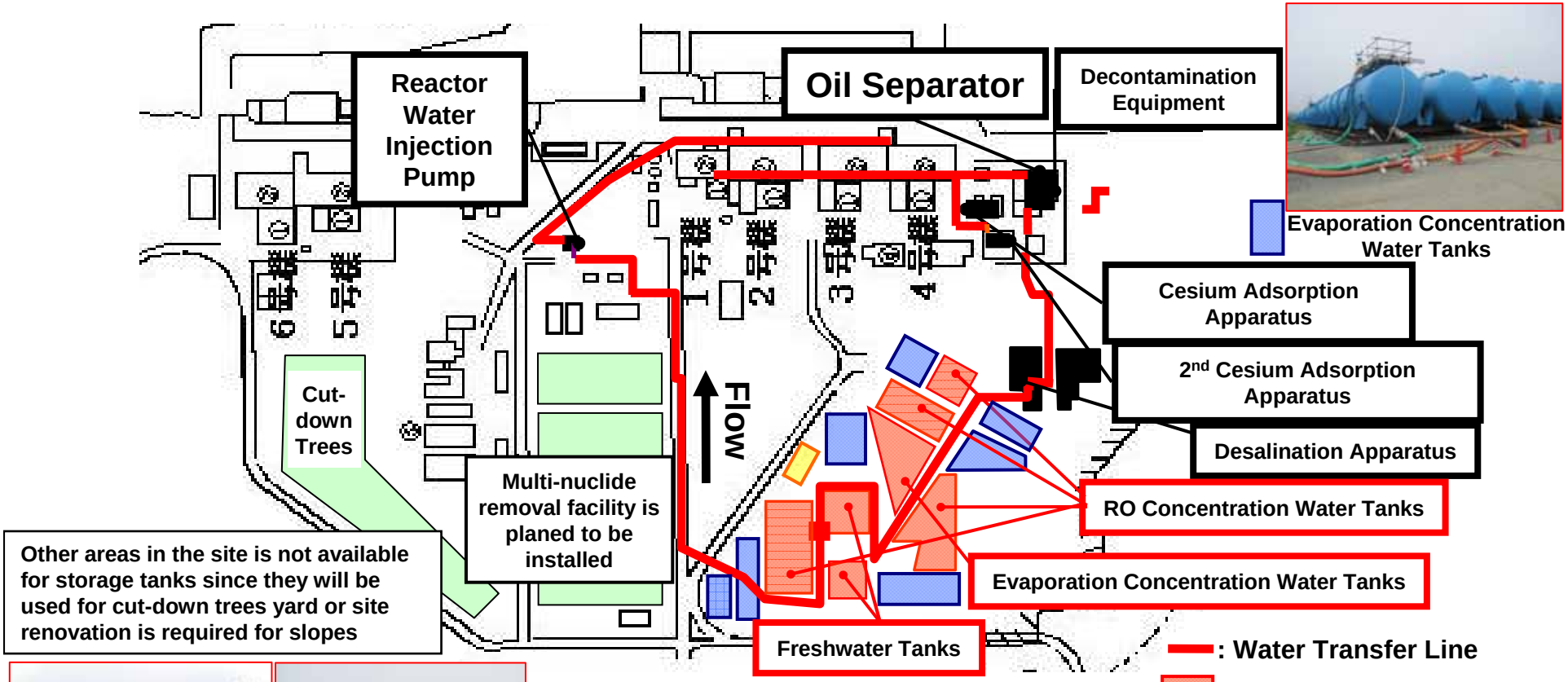
Groundwater bypass



Pumping up groundwater (subdrain)



Situation of Accumulated water storage tanks



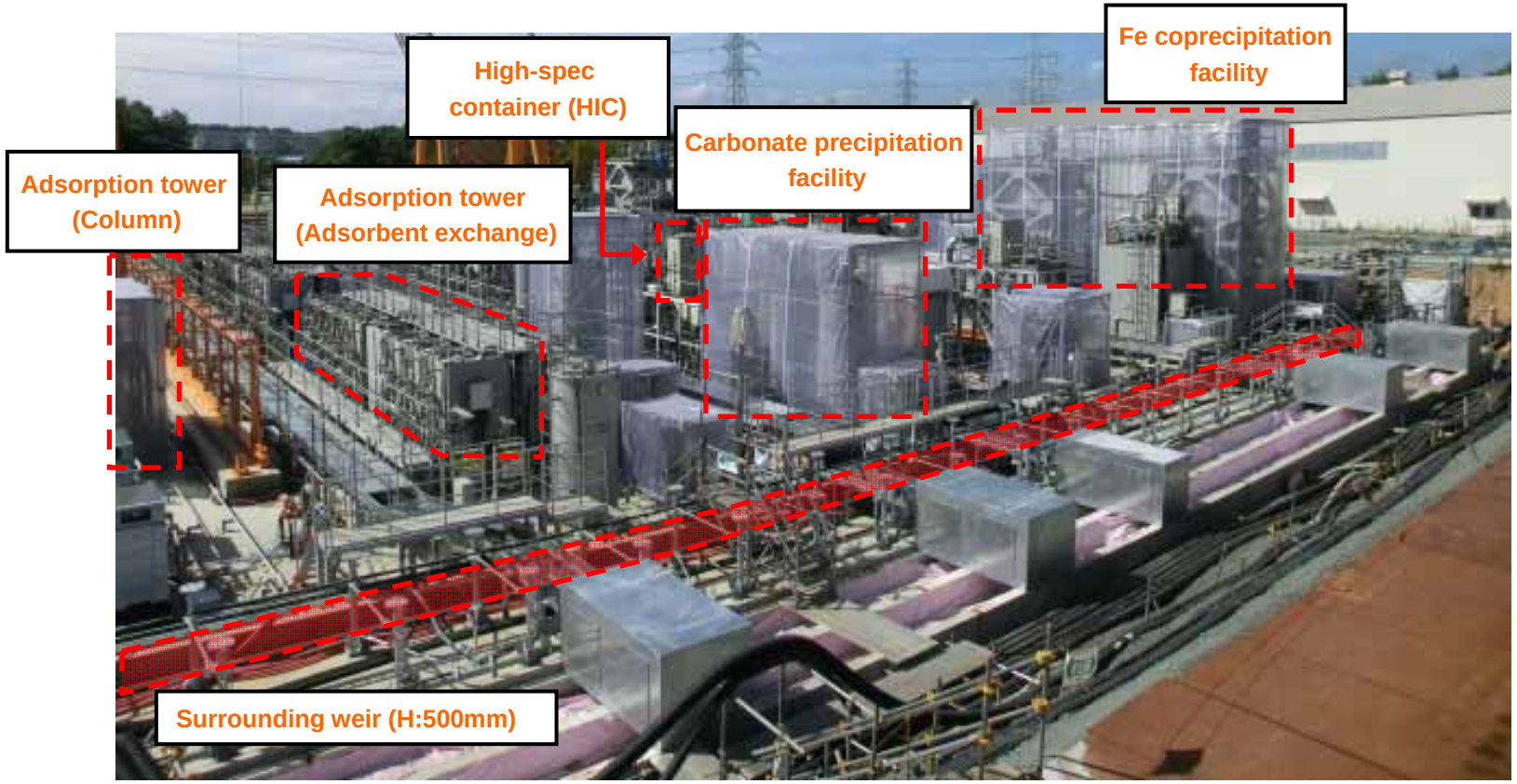
Arrangement of Water Processing Facility in Units 1 ~ 4

Fresh Water, RO Concentration Tanks

- Installed capacity is approx. 228,000 m^3 (remaining capacity is approx. 24,000 m^3 as of September 18, 2012)
- Replacement of tanks and installation of underground cisterns are underway.
- Plan to install additional tanks with the capacity of 80,000 m^3 and 300,000 m^3 (Total approx. 700,000 m^3)

Multi-nuclide Removal Facility

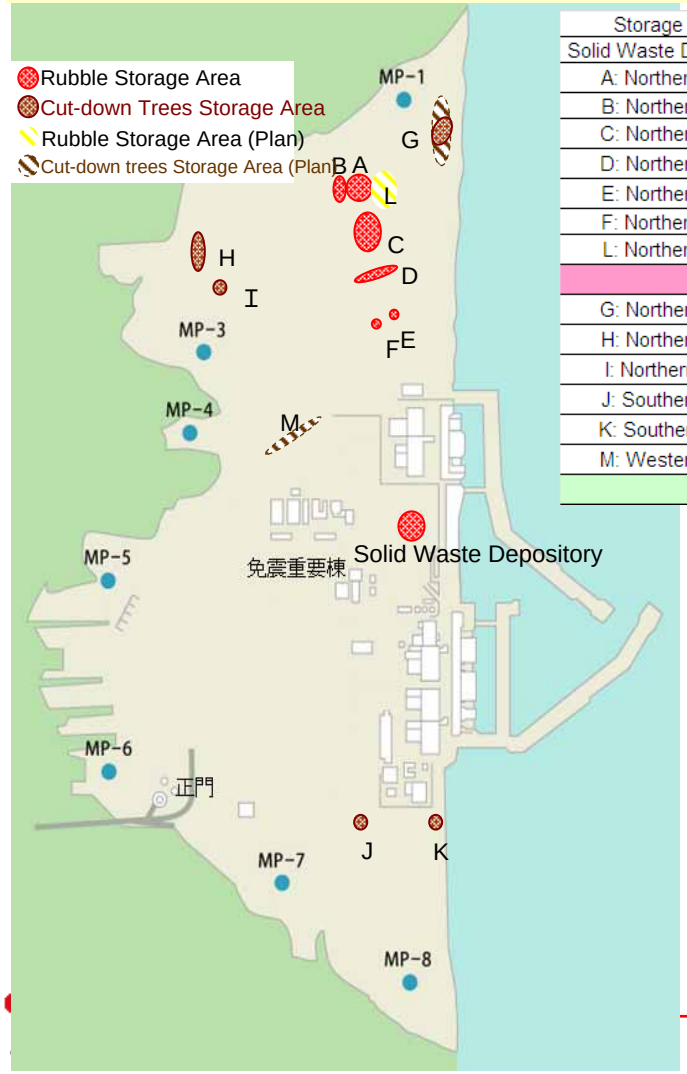
- The existing decontamination facility mainly removes Cesium. Multi-nuclide removal facility (ALPS) to remove radioactive materials other than Cesium is under installation to further reduce the radioactivity of the processed accumulated water. (Construction will be completed at the end of October.)
- The fundamental experiment results confirmed the target nuclides (62 nuclides) were removed and the concentration was below the announcement level and the detection limits.



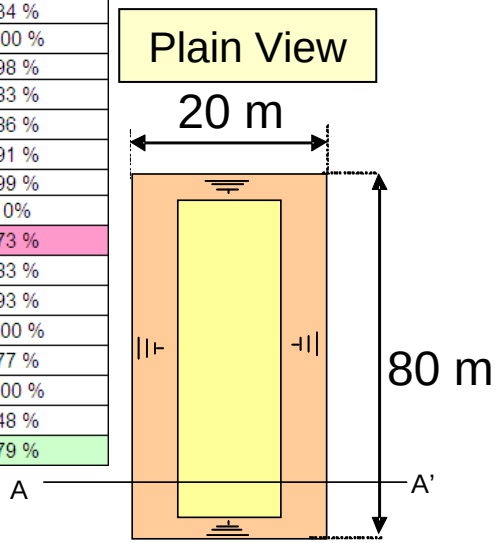
Overview of the Facility Installation Area (September 16, 2012)

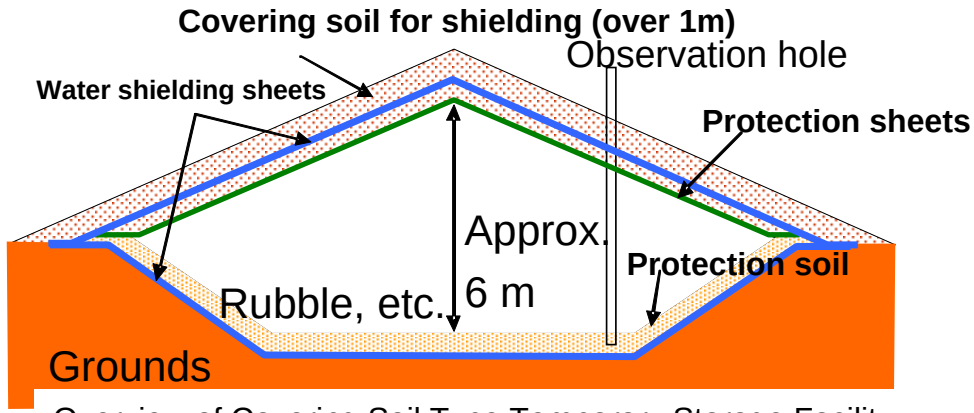
Countermeasures to reduce radiation dose at the site boundaries due to rubble, etc

- 52,000 m³ of concrete/metal and 72,000 m³ of Cut-down trees in accordance with its radiation dose are stored. (As of September 4, 2012)
- We will build temporary storage facilities with shielding measures using soil and sandbags, etc as an additional countermeasure to reduce radiation dose at the site boundaries.
  - Storage Capacity: 4000 m³/unit, Number: 2 units, Preparatory work for 1st unit has been competed.



Storage Area	Type	Storage Method	Amount		Area Occupancy
Solid Waste Depository	Concrete, Metal	Container	410	Unit	34 %
A: Northern Site	Concrete, Metal	Temporary Storage Facility	12,000	m³	100 %
B: Northern Site	Concrete, Metal	Container	450	Unit	98 %
C: Northern Site	Concrete, Metal	Outdoor Yard	28,000	m³	83 %
D: Northern Site	Concrete, Metal	Sheet Curing	2,000	m³	86 %
E: Northern Site	Concrete, Metal	Sheet Curing	3,000	m³	91 %
F: Northern Site	Concrete, Metal	Container	100	Unit	99 %
L: Northern Site	Concrete, Metal	Temporary Storage Facility	0	m³	0%
Total (Concrete, Metal)			52,000	m³	73 %
G: Northern Site	Cut-down trees	Outdoor Yard	18,000	m³	83 %
H: Northern Site	Cut-down trees	Outdoor Yard	16,000	m³	93 %
I: Northern Site	Cut-down trees	Outdoor Yard	11,000	m³	100 %
J: Southern Site	Cut-down trees	Outdoor Yard	12,000	m³	77 %
K: Southern Site	Cut-down trees	Outdoor Yard	5,000	m³	100 %
M: Western Site	Cut-down trees	Outdoor Yard	10,000	m³	48 %
Total (Cut-down trees)			72,000	m³	79 %





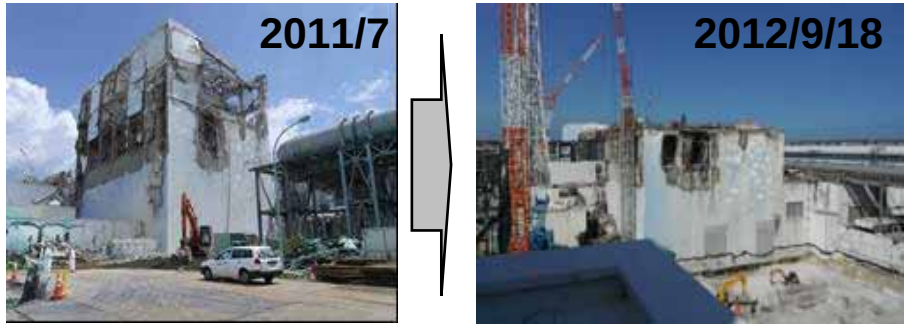
Overview of Covering Soil Type Temporary Storage Facility

Start of Removing Fuels from Spent Fuel Pool (Unit 4, within 2013)

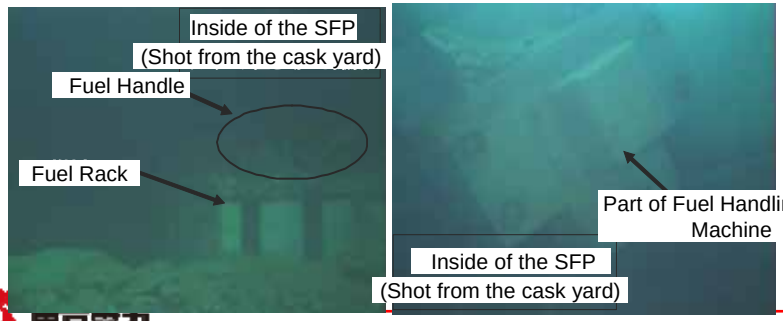
- In order to install a cover for debris removal, removing rubble from the top of the reactor building and building a gantry for rubble removal are underway.
  (Target completion date; around the end of FY 2012 for Unit 3 and around October 2012 for Unit 4)
- Unit 3: Surveyed inside the SFP using remote controlled underwater camera (April 13, 2012)
- Unit 4: Surveyed on rubble dispersion inside the SFP using Remotely Operated Vehicle (March 19 ~ 21, 2012), and created a rubble dispersion map (April, 2012).

Unit 3

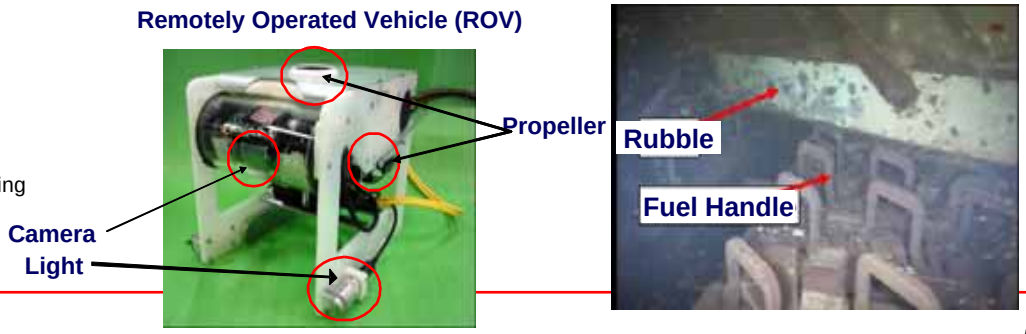
Unit 4



Pre-survey in the water of Spent Fuel Pool (SFP)



Survey on rubble dispersion inside the SFP

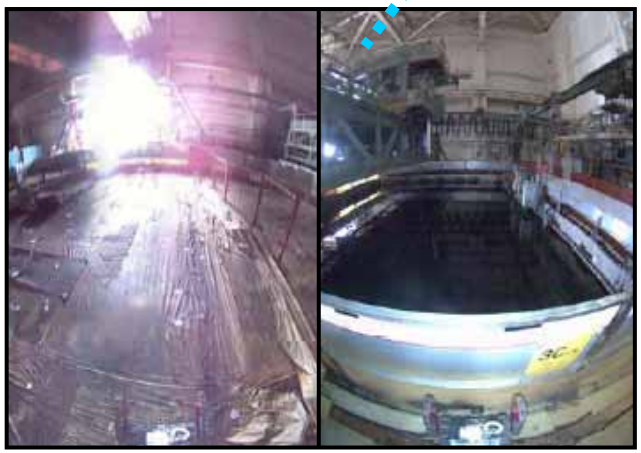


Introduction of Remote Controlling Machine such as Robots

- Implementing restoration work in consideration of how to utilize remote controlling machines including robots to reduce radiation exposures to workers.
- At the area where high dose is expected, robots carry out visual observation or surveillance of radiation dose or work like cleaning .

<Robots already adopted>

Name	Quince	Survey-runner	Packbot	Warrior
Appear-ance				
Operation	Surveys indoors etc	Surveys indoors etc	Surveys indoors and outdoors etc	Work indoors and outdoors



Survey on 5th floor in Unit 2 R/B
(June 13, 2012)

Survey inside the Unit 2's torus
(April 18, 2012)

Survey on radiation source and dose rate inside the Unit 1 R/B (photo by gamma camera)
(May 14~18, 2012)

IAEA Expert Mission To Japan

- IAEA expert mission visited Japan from May 24th to June 1st, 2011 for a preliminary investigation of the nuclear accident.
- The IAEA Mission urges the international nuclear community to consider the 15 conclusions and 16 lessons in order to take advantage of the unique opportunity created by the Fukushima accident to seek to learn and improve worldwide nuclear safety.

Source：NISA web site

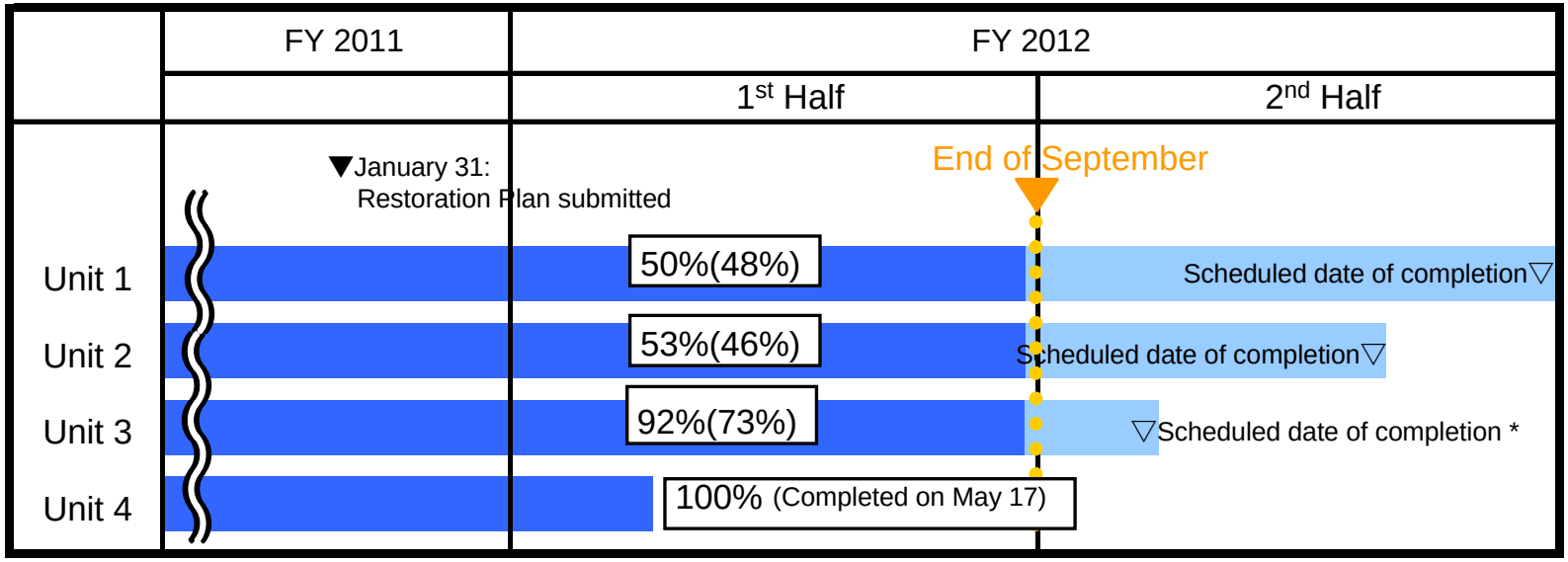
(2) Fukushima Daini Nuclear Power Station

Progress Status of Fukushima Daini Restoration Plan

At Fukushima Daini, restoration work such as restoring facilities needed to maintain cold shutdown of the plants is ongoing in line with the restoration plan that was developed based on Nuclear Operator Emergency Action Plan (submitted on January 31st 2012 and revised on May 31st.)

Progress Status at the end of September 2012

Restoration work of Units 1~3 has been going smoothly.
As for Unit 4, facilities needed to maintain cold shutdown have been restored back to the former condition and the self-inspection has been completed by May 17 2012. On May 31, these progress were reported to the Government.



➢ % in the chart shows the progress rate of the restoration work (the goal is the restoration to the former condition) in accordance with the Restoration Plan at the end of August 2012. () shows the rate at the end of the previous month.
➢ In the self-inspection conducted after the completion of restoration work, we check the soundness of target equipment listed on Restoration Plan (in each Unit.)
*Scheduled date of completion was revised from 1st Half to 2nd Half of FY2012, because the restoration of CUW *1 purge line *2 in Restoration Plan will be completed in mid-October. (Announced on September 14, 2012)
*1 CUW : System to maintain cooling water quality and reactor water level by removing impurities and discharging excess water
*2 Purge line : Sealing water line of CUW circulating pumps