Appendix 2

“Roadmap towards Restoration from the Accident at Fukushima Daiichi Nuclear Power Station, TEPCO”

November 17th, 2011

Nuclear Emergency Response Headquarters

Government-TEPCO Integrated Response Office

I. Cooling

(1) Reactor

1. Target for Step 2 “Cold Shutdown Condition”

- Circulating water cooling will be continued and enforced, thus bringing the reactors to a “Cold Shutdown Condition” monitoring the RPV temperatures, etc.
- Maintain stable operation of accumulated water processing facility (Implementation items are stated in II. (3).)
- NISA to continue confirming operating status and related matters.

Definition of “Cold Shutdown Condition”

- Temperature of RPV bottom is, in general, below 100℃.
- Release of radioactive materials from PCV is under control and public radiation exposure by additional release is being significantly held down. (Not exceed 1 mSv/y at the site boundary as a target.)

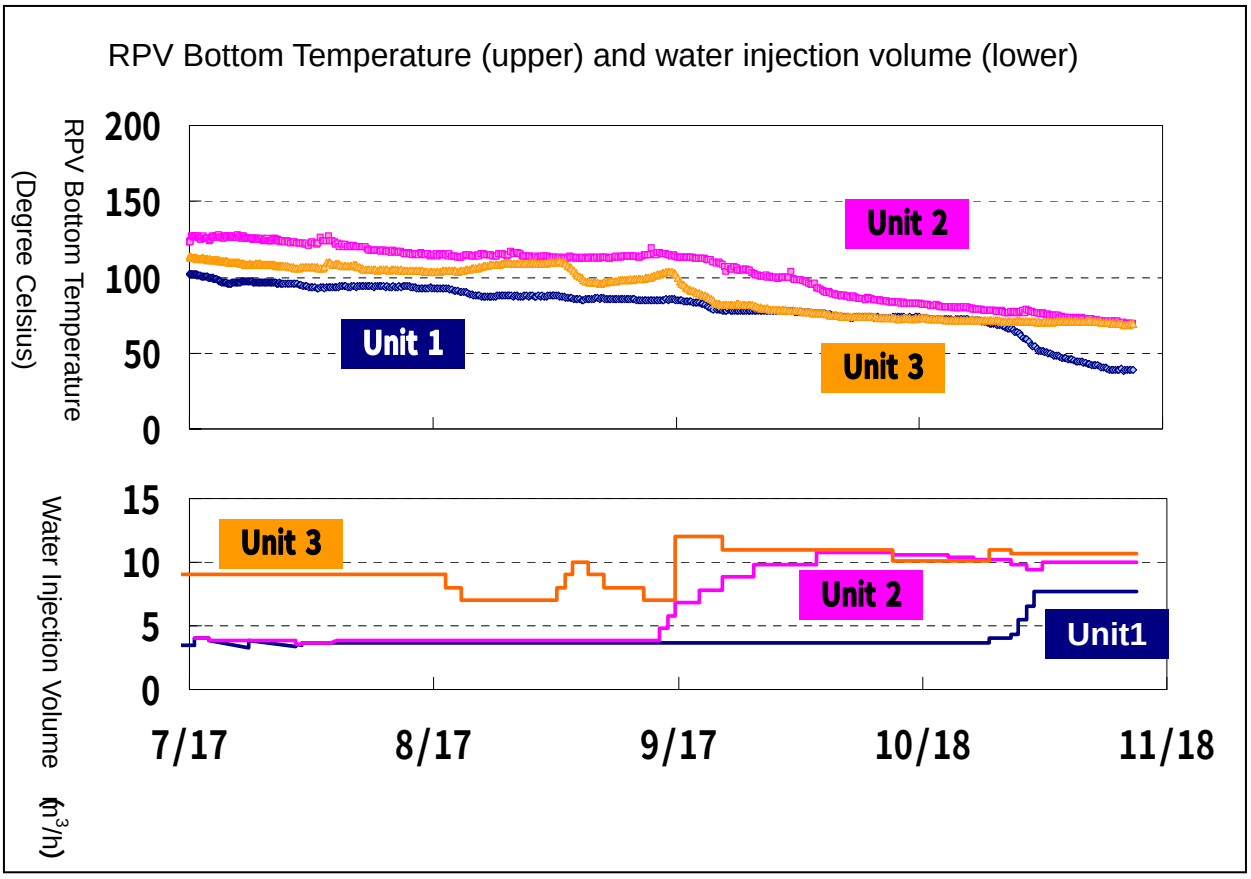
In order to keep satisfying the above two conditions, secure mid-term safety of the circulating water cooling system (reliability of parts and materials, redundancy and independency, assessment of time allowance for emergency, detection of failure and trouble, confirmation of restoration measures and recovery time, etc.)

2. Current status and work implemented

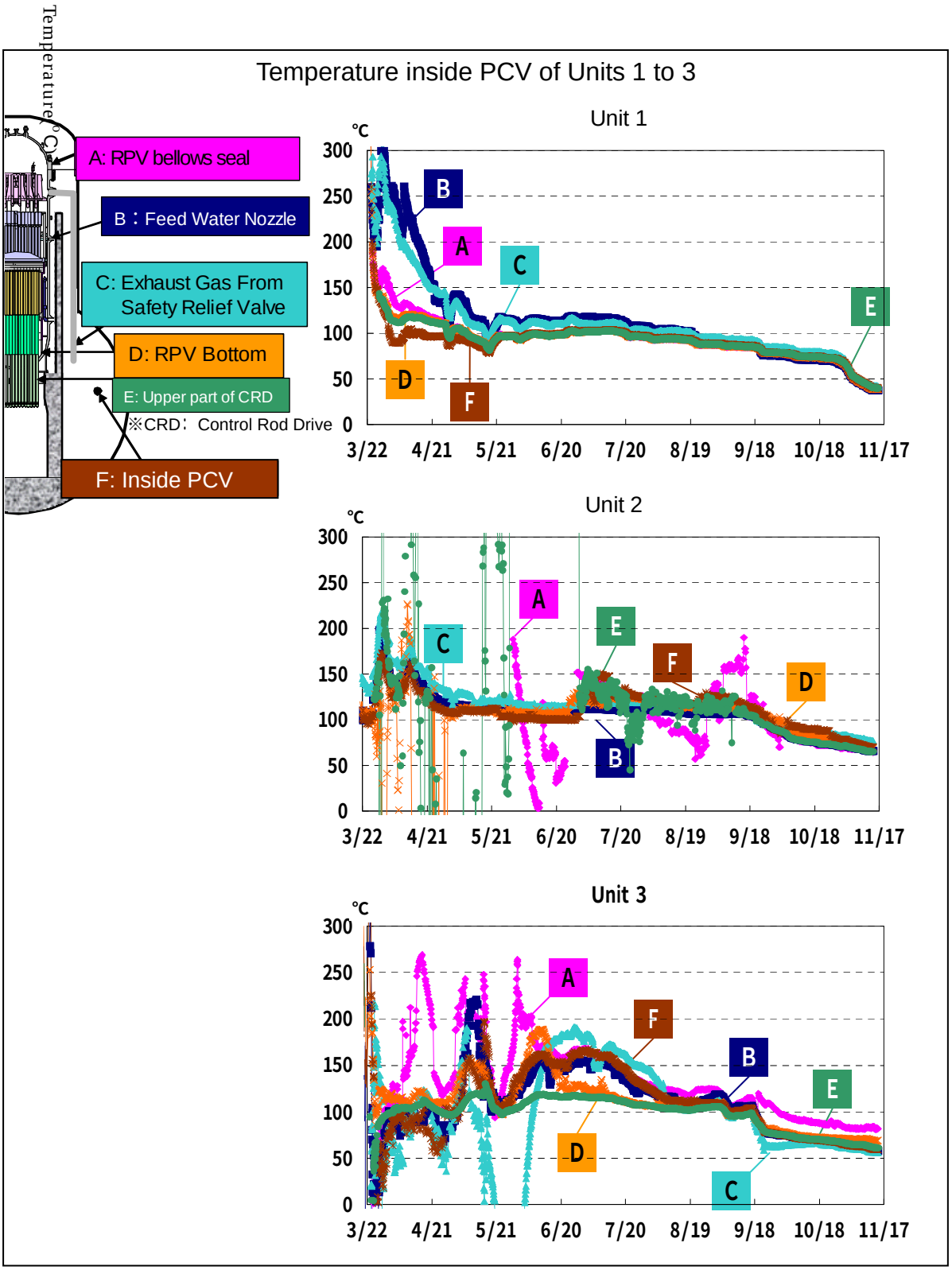
① Water injection has been ongoing towards the achieving “cold shutdown conditions.” [Countermeasures 12, 14, 45]

- RPV bottom temperature was 38℃ for Unit 1, 70℃ for Unit 2 and 69℃ for Unit 3 (as of Nov. 15.), having stabilized below 100℃.
- Currently, water injection is being implemented at the volume of approx. 7.7 m^3/h for Unit 1, approx. 10.1 m^3/h for Unit 2* and approx. 10.8 m^3/h for Unit 3* (as of Nov. 15.)

*Injecting water via Feed Water line and Core Spray line



- Because it is difficult to decide where damaged fuels are located exactly in each RPV and/or PCV, we need to confirm cooling status of the damaged fuels for their possible leakage into PCV.
- We measure temperatures at many points from lower to upper points in every PCV, and the temperature in each PCV was 40℃ for Unit 1, 70℃ for Unit 2 and 59℃ for Unit 3 (as of Nov.15), having stabilized below 100℃ in the same way of RPV bottom temperatures.
- We can also see the same tendency at other measuring points. Hence if damaged fuels have leaked into the PCVs, steam generation would be suppressed due to sufficient cooling, thus the release of radioactive materials from the PCVs has been kept under control.


Temperature (℃)
A: RPV bellows seal
B：Feed Water Nozzle
C: Exhaust Gas From Safety Relief Valve
D: RPV Bottom
E: Upper part of CRD
※CRD：Control Rod Drive
F: Inside PCV
Temperature inside PCV of Units 1 to 3
Unit 1
Unit 2
Unit 3
℃
300
250
200
150
100
50
0
3/22
4/21
5/21
6/20
7/20
8/19
9/18
10/18
11/17
A
B
C
D
E
F

② Installation of centralized monitoring system in the Main Anti-Earthquake Building [Countermeasures 12,14,45]

- Installed a system that enables the monitoring of various parameters such as the water injection volume, injection pressure, buffer tank water level, operation status of accumulated water treatment system, etc., from monitors installed in the Main Anti-Earthquake Building (Sep. 30.)
- That enables monitoring at the place with minimum radiation exposure in the Main Anti-Earthquake Building.
- Besides, the condition which enables accurate and prompt comprehension of the operation status of equipments was established.

(2) Spent Fuel Pool

1. Target for Step 2 “More stable cooling” [Achieved]

- “More stable cooling” (target for Step 2) for Units 2 and 3 was achieved by the end of Step 1 by having installed heat exchangers and maintaining pool water level.
- Circulating cooling systems for Units 1 and 4 have been installed, thus the target for Step 2 has been achieved in all Units (Aug. 10.)

2. Current status and work implemented

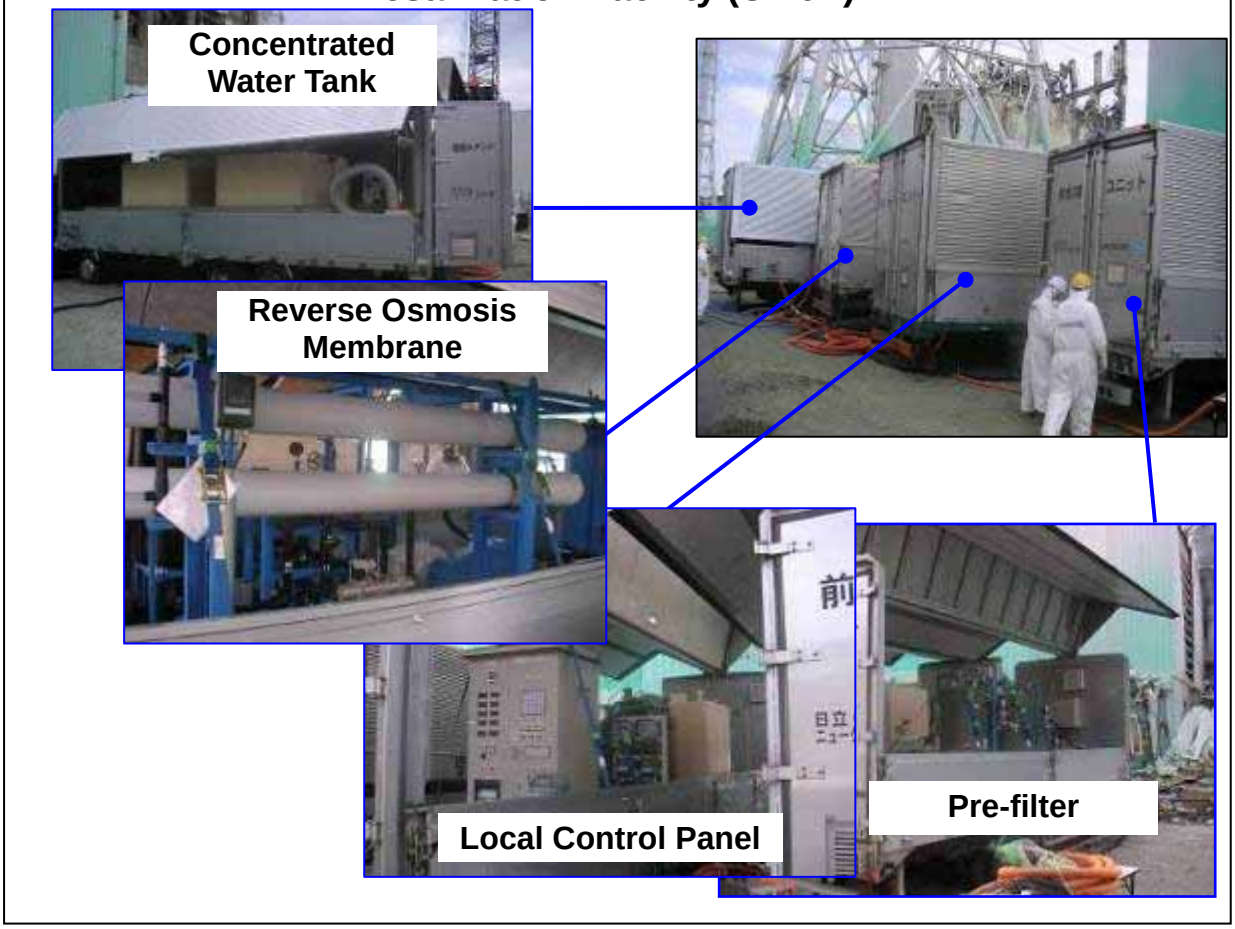
① Current status of Spent Fuel Pool

- Unit 1: 21℃, Unit 2: 23℃, Unit 3: 22℃ and Unit 4: 31℃ (as of Nov. 15)

② Desalination of the water in Spent Fuel Pool [Countermeasures 25, 27]

- In order to prevent corrosion of the spent fuel pool, the desalination facility has begun operation in Unit 4 (Aug. 20.)
- The salt concentration of water (chloride ion concentration) in the spent fuel pool in Unit 4 before the operation of the desalination facility was 1,944 ppm (Aug. 20), while its concentration after the operation was 150 ppm (Nov. 5.)
- The desalination for Unit 2 is now being prepared.
- The desalination for Unit 3, in which sea water injections were carried out, is planned to be implemented in turn.

Desalination Facility (Unit 4)



II. Mitigation

(3) Accumulated Water

1. Target for Step 2 “Reducing the total amount of accumulated water”

[Achieved]

- Reduction of the total amount of accumulated water by processing the accumulated water in the buildings via the stable operation of processing facility.
- Augmentation of reuse by expansion of high-level contaminated water processing facility, steady operation and desalination of decontaminated water.
- Begin consideration of full-scale water processing facilities for high-level contaminated water.
- Storage/management of sludge waste generated from high-level contaminated water processing facility.
- Implemented steel pipe sheet pile installation work at the port to mitigate contamination in the ocean.

2. Current status and work implemented

① Status of the accumulated water processing

- Regarding accumulated water processing performance, approx. 161,580 tons have been processed in total (as of Nov. 14.)
- The accumulated water level is being kept at the present target level (O.P 3,000.) In other words, the total amount of accumulated water is at the level where it is able to withstand heavy rains as well as long-term processing facility outages. Accumulated water in the Unit 1 turbine building was transferred into the Unit 2, thus the water level fell.
- Decontamination factor* of the processing facility for cesium is 10^6 in the apparatus of Kurion-Areva (as of Aug.9), 10^4 in Kurion (as of Nov.1) and 10^5 in SARRY (as of Nov.1.)

  * Decontamination factor＝cesium concentration of a sample before processing / cesium concentration of a sample after processing

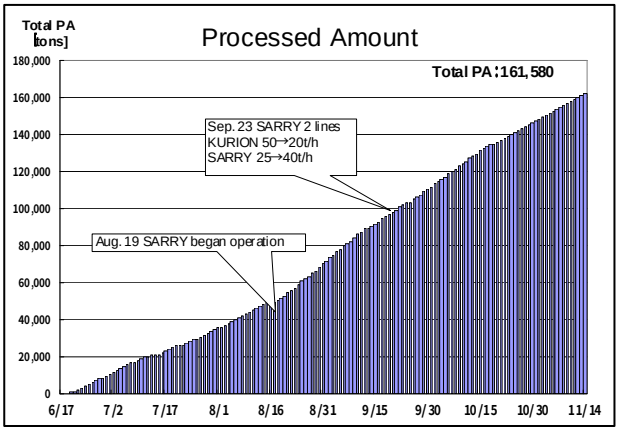
② Implemented reliability enhancement countermeasures towards stable processing [Countermeasure 43]

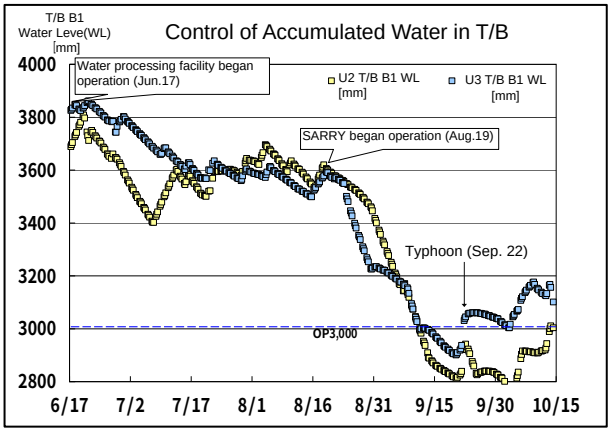
- Installed cesium adsorption apparatus (SARRY) and completed the augmentation of decontamination facility (Aug.18.)

③ Completed augmenting desalination processing facility [Countermeasure 43]

- Installed the evaporative concentration apparatus (two lines, Aug.7 and 31) in addition to the reverse osmosis membrane method (Jun.17.)

- Ascertained that chlorine concentration had been decreased from 3,000 ppm to approx. 3ppm by the reverse osmosis equipment (per the Nov.1 results) and that had been decreased from 9,000 ppm to approx. 2 ppm by the evaporative concentration apparatus (per the Nov. 1 results.)
- Completed augmentation of desalination processing facility via the evaporative concentration apparatus (Oct.9.)





④ Storage/management of sludge waste, etc. [Countermeasure 81]

- Sludge waste with high radioactive concentration generated by processing the high-level contaminated water and high radioactive used-adsorption tower are properly being secured and managed respectively in the Centralized Waste Processing Building and the adsorption tower storage facility.
- Implementing installation work for sludge waste storage facility in order to expand storage capacity.
- Implementing installation work for used-adsorption tower storage facility in order to expand storage capacity.

⑤ Securing storage [Countermeasure 42]

- Installed tanks for high-level contaminated water (2,800 tons) in order to expand storage facility (Sep.17.)

⑥ Prevent contamination in the ocean [Countermeasure 64]

- Completed the placement of the steel pipe sheet pile in order to block the damaged parts of permeation prevention structure due to the tsunami at the south side of the intake canal of Units 1 to 4 as a countermeasure to mitigate contamination in the ocean (Sep.28.)

Status of steel pipe sheet pile

(4) Groundwater

1. Target for Step 2 “Mitigating contamination in the ocean” [Achieved]

- Mitigate contamination in groundwater as well as contamination in the ocean via groundwater by controlling accumulated water inflow into groundwater.
- Commencing installation work for water shielding wall in front of existing seawalls of Units 1 to 4, with the expectation of mitigating contamination in the ocean via groundwater.

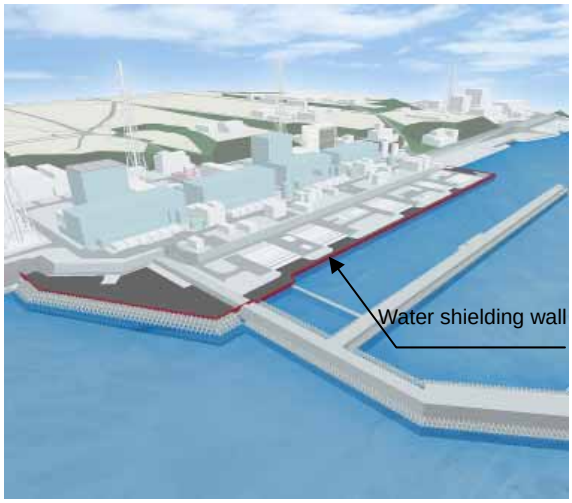
2. Current status and work implemented

①Consideration of water shielding wall [Countermeasure 68]

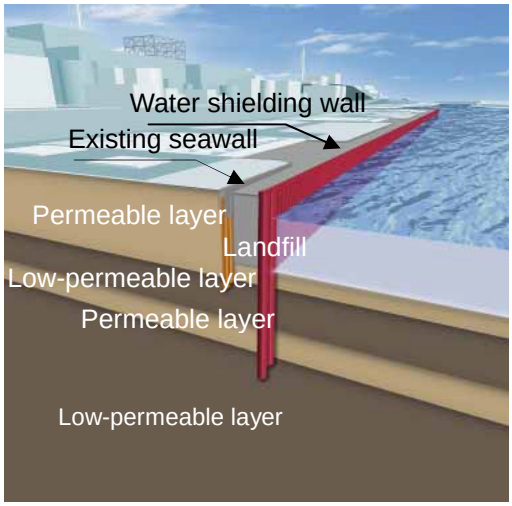
- In order to further ensure the mitigatation of contamination in the ocean via groundwater, installaton of the water-proof steel pipe sheet piles in front of the existing seawalls of Units 1 to 4 started (Oct. 28.) Geological investigations such as land surveys or boring are underway.
- After a comprehensive consideration of the effects or impacts of the shielding wall installation on the land side, it has been concluded that installation only on the ocean side should be appropriate at the present time.

Image for water shielding walls

Overview



Cross-section view



②Implementation of prevention against expansion of contamination in groundwater [Countermeasure 67]

- Installed pumps at sub-drainage pit on the turbine building side at seven places (Jul. 29.)

(5) Atmosphere/Soil

1. Target for Step 2 “Mitigating dispersion of radioactive materials”

[Achieved]

- Reduce dispersion of radioactive materials deposited in the site.
- Continue dust inhibitor spraying as well as removal of debris.
- Install the reactor building cover (Unit 1.)
- Commence removal of debris on top of the reactor buildings (Units 3 and 4.)
- Consider containers for the reactor buildings.

2. Current status and work implemented

①Installation work for Unit 1 reactor building cover [Countermeasures 54, 55]

- Installed auxiliary equipment such as exhaust systems.
- Completed the installation of the Unit 1 reactor building cover (Oct.28.)

Completion of Unit1 Reactor Building Cover

(Left: Cover, Right: Auxiliary equipment)

Reactor building cover

Filter unit

②Removal of debris at the upper part of the reactor buildings (Units 3 and 4) [Countermeasure 84]

- Removing debris at the upper part of the reactor buildings of Units 3 and 4.

Debris removal at Unit 3

As of Sep. 10

As of Nov. 7

Debris removal at Unit 4

③ Removal and management of debris [Countermeasures 53, 84, 87]

<Removal of debris>

- Approx. 28,000m^3 debris have been removed, out of which 6,000m^3 are stored in approx. 900 containers (as of Nov. 17) [Countermeasures 53, 84].
- The waste such as the removed debris or the trees cut down for site preparation are classified according to their kinds as well as the amount of radiation dose in the storage area and then will be transported.

<Management of debris>

- Debris are stored in the containers and reserved in the buildings according to the amount of radiation dose.
- The approach lane to the waste storage area is marked off and a No Entry sign was posted to prevent entrance of unauthorized personnel.
- Except for the radioactive accumulated water treatment facilities and the other areas under construction, the storage areas are secured, fully utilizing the land within the site.

Debris storage area (Left: Containers storing the debris, Right: Storage tent)

<Water spray in the site>

- Purified water, which satisfies the guideline for bathing water, is reused to spray in the site in order to prevent lumber from firing spontaneously and dust from dispersing.

Result of the purified water analysis and guideline for bathing water

(Unit : Bq/cm^3)

Nuclide	Result of purified water analysis (( ):detection limit)	Guideline for radioactive materials in bathing water (Ministry of the Environment)	<Reference> WHO basis
Iodine131	ND (<9.0×10^{-4})	3.0×10^{-2}	1.0×10^{-2}
Cesium134	ND (<1.3×10^{-3})	5.0×10^{-2} (Sum of Cesium 134 & 137)	1.0×10^{-2}
Cesium137	ND (<1.4×10^{-3})		1.0×10^{-2}
<Reference>			
Tritium	2.6×10^{0}		$1.0\times10^{+1}$
Strontium 89	ND (<8.4×10^{-5})		1.0×10^{-1}
Strontium 90	ND (<4.8×10^{-5})		1.0×10^{-2}

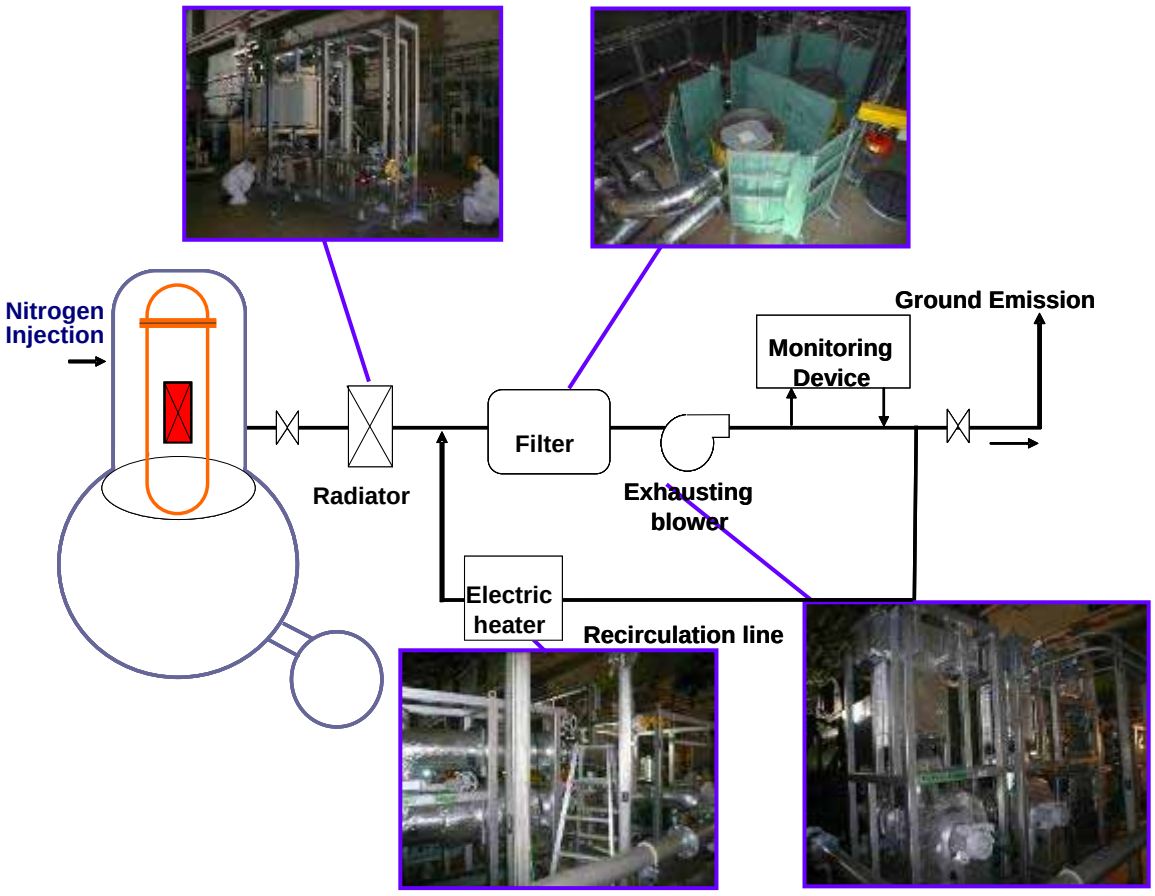
④ Installation of PCV gas control system [Countermeasure 86]

- The PCV gas control system started its operation at Unit 2 (Oct.28.)
- Installation work started at Units 1 and 3 (Unit 1- Oct 10, Unit 3- Sep.30.)
- Careful measures are taken such as nitrogen injection and adoption of static electricity resistant hose since highly concentrated hydrogen was detected in the piping arrangement on which are to be worked.

Conceptual Diagram of PCV Gas Control System

- A system to adjust the pressure in the PCV to the almost same level as the atmospheric pressure by extracting almost the same amount of gas as the nitrogen fill ration in the PCV in order to reduce the amount of radioactive materials released from PCV after the temperature at the bottom of the reactor is kept below 100°C.
- The extracted gas shall be released after being monitored in addition to being cleared of the radioactive materials via filters.
- The amount of radioactive materials released from PCV will be further reduced using the system, while it is expected to reduce due to the decline in the temperature of the reactor.

Image for PCV Gas Control System, Unit 2



- Xenon (noble gas) was detected in the PCV gas control system of Unit 2, however, an assessment determined that it was generated due to NOT a critical reaction, but due to spontaneous fission. Facilities which inject boric acid water to stop a critical reaction were installed at Unit 1 to 3 for a possible critical reaction.
- Xenon might be in PCVs of Unit 1 to 3, because there are some nuclides such as Curium, which are contained in usual spent fuels, bring spontaneous fission in each PCV.

- The hydrogen concentration in the PCV has been also monitored (1.3%, as of Nov. 14) and controlled below the lower flammability limit concentration (4%)* by adjusting nitrogen injection rate. Nitrogen injection rate is also adjusted at Unit 1 and 3, because hydrogen is generated by water radiolysis.

* Lower flammability limit 4%: The lowest concentration of hydrogen in Oxygen above 5% by volume capable of producing a flash of fire in presence of an ignition source.

III. Monitoring and decontamination

(6) Measurement, reduction, disclosure

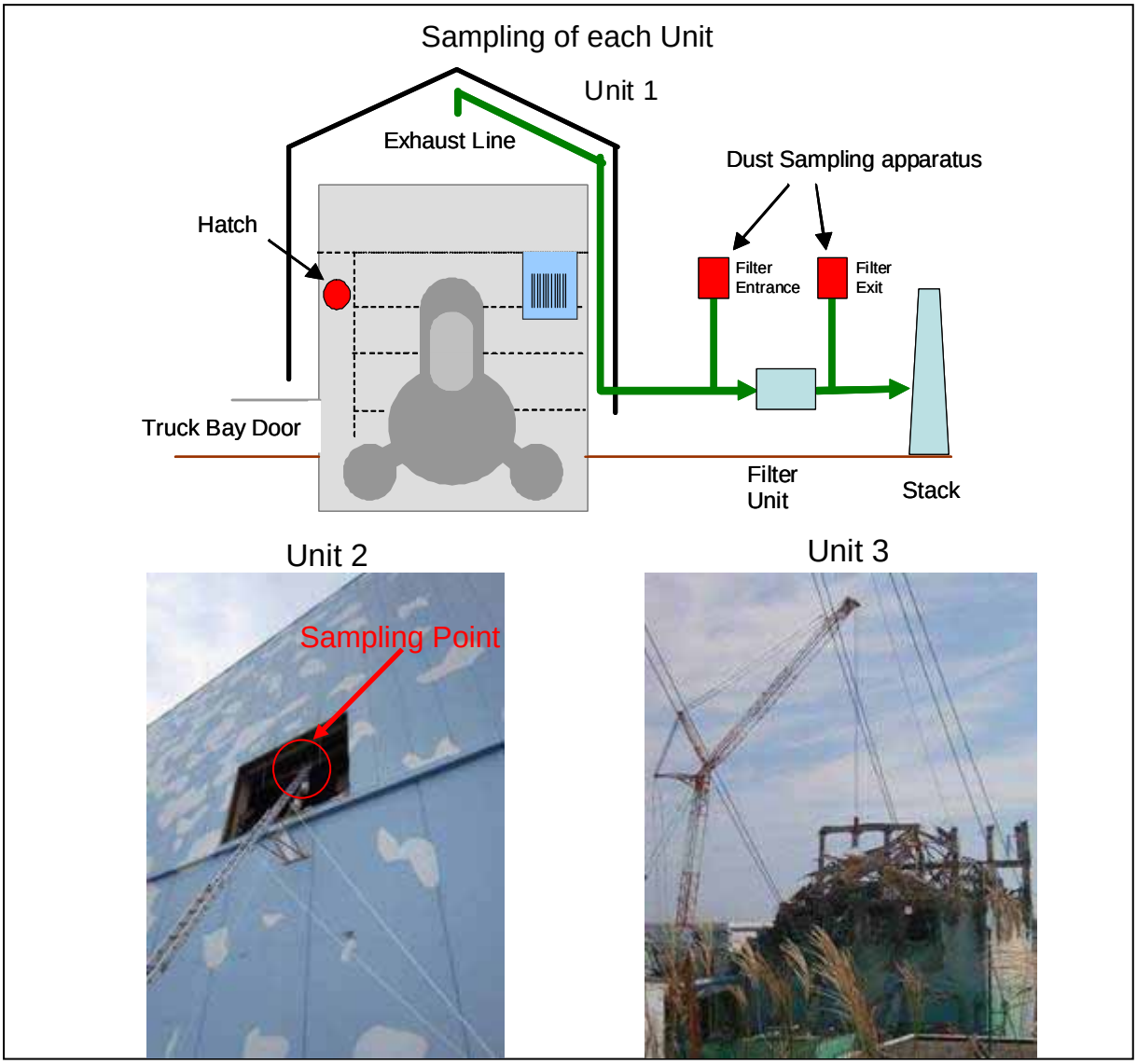
1. Target for Step 2 “Sufficient reduction of radiation dose” [Achieved]

- Expansion and enhancement of monitoring, and continuation of disclosure.
- Monitoring by government, prefectures, municipalities and TEPCO.
- Commencement of full-scale decontamination.

2. Current status and work implemented

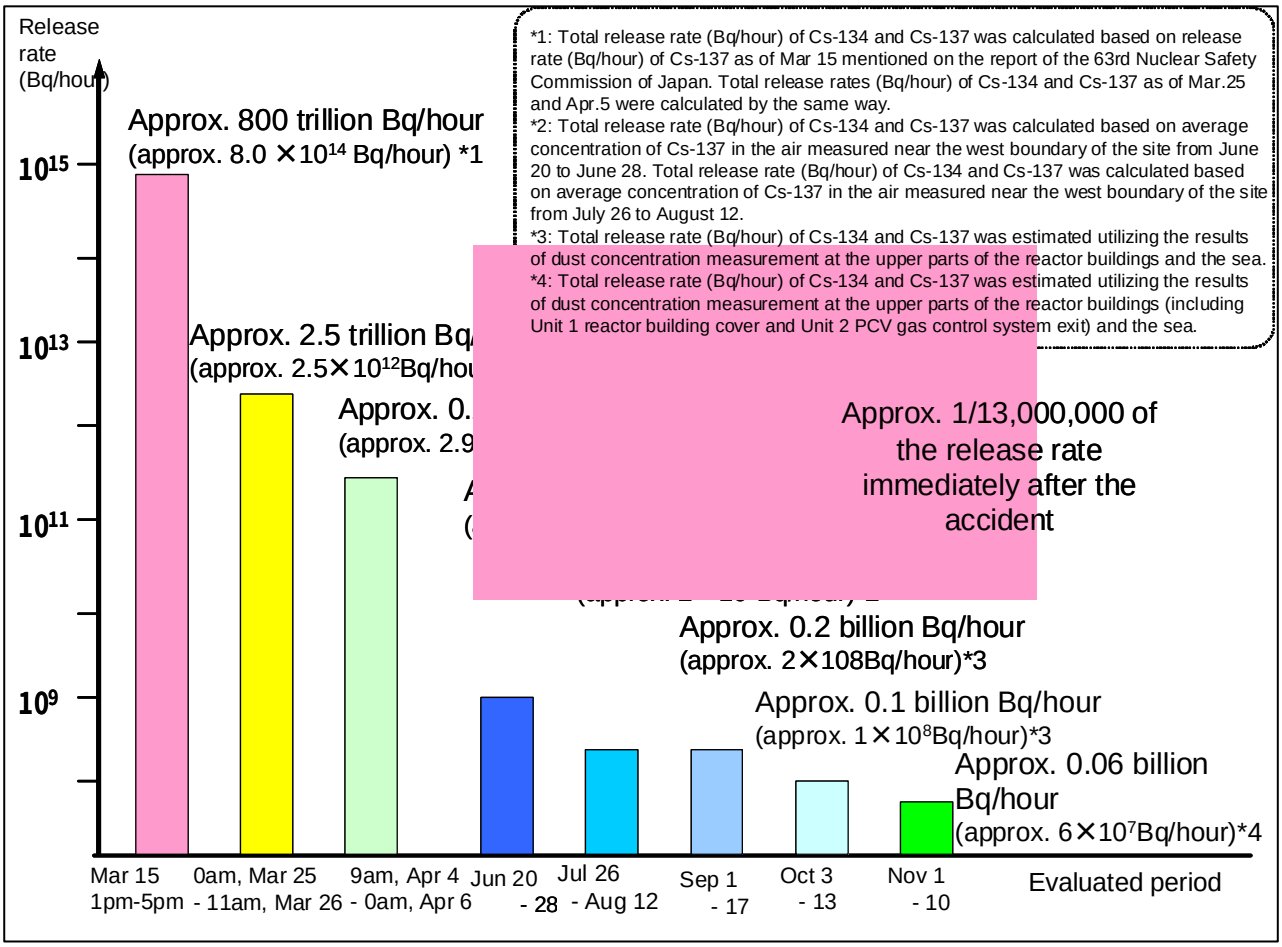
①Evaluated the amount of radioactive materials currently released from PCV [Countermeasures 60, 61]

- In order to estimate the individual current release rate from the PCV of Units 1 to 3, implemented the measurement of the airborne radioactivity concentration at the upper part of the reactor buildings etc.



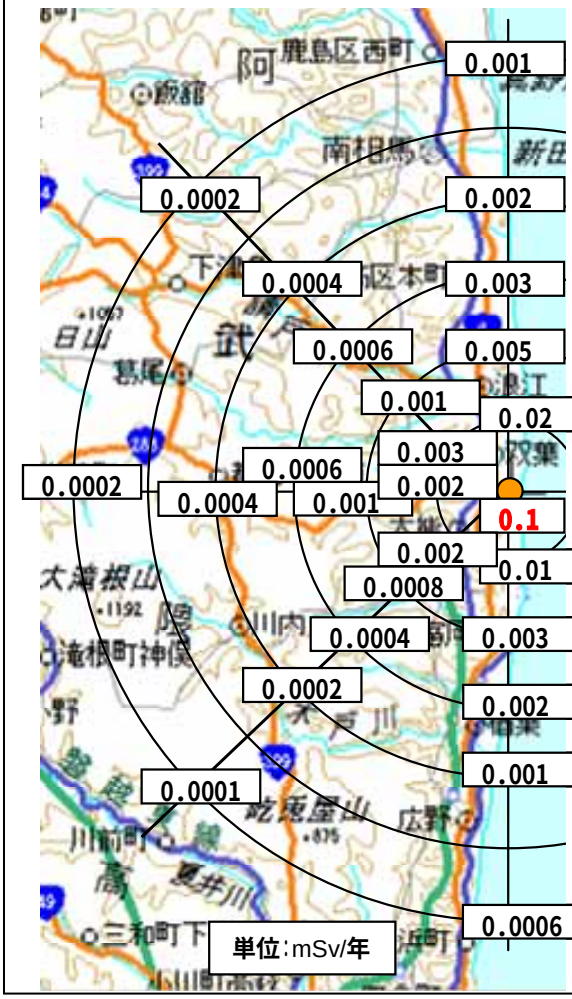
- Evaluated the current release rate for Cesium from PCV of Units 1 to 3 utilizing the airborne radioactivity concentration (dust concentration) at the upper parts of the reactor buildings etc.
  - The current release rate for each Unit is estimated at, Unit 1: approx. 0.01 billion Bq/h, Unit 2: approx. 0.01 billion Bq/h and Unit 3: approx. 0.04 billion Bq/h, respectively, using dust concentration at the upper parts of the reactor buildings.
  - The current total release rate from Units 1-3 based on the assessment this time is estimated to be approx. 0.06 billion Bq/h at the maximum, which is 1/13,000,000 of the release rate at the time of the accident.
- For reference, evaluated the current release rate for Cesium from PCV of Units 1-3 utilizing the airborne radioactivity concentration (dust concentration) at sea. The result was approx. 0.02 billion Bq/h (The previous version: 0.07 billion Bq/h.)

Release rates of radioactive materials (Cesium) per hour from Units 1 to 3



- The radiation exposure per year at the site boundaries is assessed at approx. 0.1 mSv / year at the maximum based on the aforementioned release rate (The target is 1 mSv / year, excluding the effect of the radioactive materials already released up until now.)

Exposure doses in case that the current release rate from PCVs of Units 1 to 3 continues for one year (mSv/year) (Excluding the effect of already released radioactive materials)



(Overview of the estimated figures)

Site boundary: Less than or equal to approx. 0.1 mSv/year

5km radius : Less than or equal to approx. 0.02 mSv/year

10km radius : Less than or equal to approx. 0.005 mSv/year

20 km radius : Less than or equal to approx. 0.002 mSv/year

As a reference, the dose limit by reactor facilities at an outside of a nuclear power station is 1 mSv/year.

[Map Source: “Digital Japan" URL http://cyberjapan.jp/]

- The current release rate of noble gas is estimated at approx. 14 billion Bq/h based on the data monitored by the PCV gas control system at Unit 2 (those of Units 1 and 3 are also estimated at the same rate of Unit 2.) The exposure dose based on the aforementioned release rate is assessed at 0.00012 mSv/y (those of Units 1 and 3 are also estimated at the same rate of Unit 2.) This rate is extremely lower than the exposure dose based on the release rate of Cesium, thus we utilize Cesium release rate as the main release rate.

② Joint monitoring by the central government, prefectures, municipalities and TEPCO [Countermeasure 62]

- Having instructions from the Ministry of Education, Culture, Sports, Science and Technology, TEPCO implemented sampling and measurement at land and sea as below.

[Land]

<Monitoring within 20km radius>

- Measurement of airborne radioactivity concentration by the support team from other electricity utility companies at 50 points (once a week.)
- Dust sampling at 5 points around 10 km radius by the same team (once a month.)

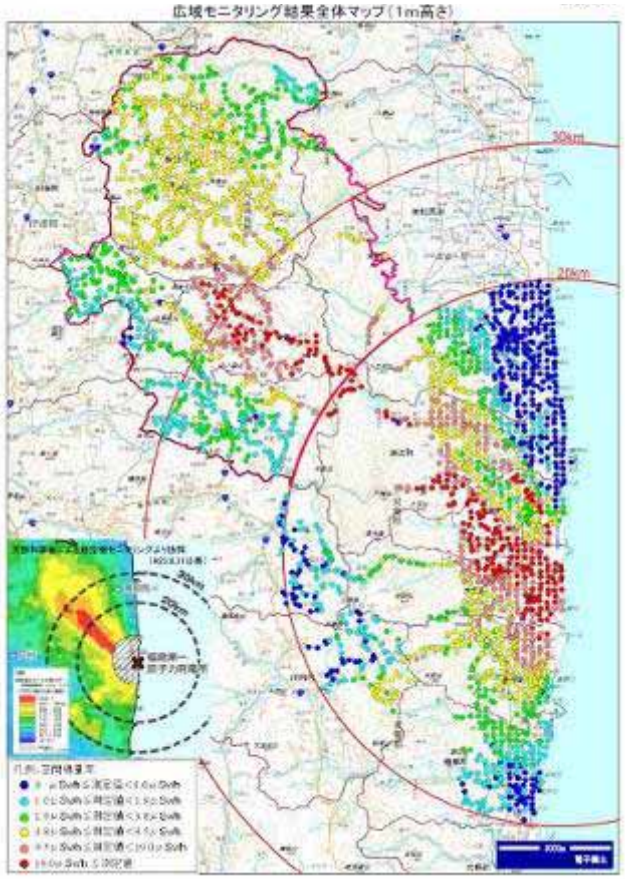
[Sea]

<Fukushima Prefecture> Seawater at 11 points within the site bay (once a day) Seawater at 4 points along the coast (once a day) Seawater at 8 points within 20km radius (every two days) Seawater at 3 points within 30km radius (once a week) Seawater at 10 points outside 30km radius (once a week) Seabed soil survey at 25 points (once a month)	<Ibaraki Prefecture> Seawater at 5 points (once a week)	<Miyagi Prefecture> Seawater at 6 points (twice a month)

- Sampling of seawater and seabed soil at a few kilometers offshore in front of the power station will be implemented with an unmanned survey boat.

- The Cabinet Office and the Ministry of Education, Culture, Sports, Science and Technology announced the implementation of “Wide Area Monitoring” at restricted areas and deliberate evacuation areas (Sep. 1.)

Wide Area Monitoring results map (height: 1m) and selection method of monitoring points



Divide the target areas by 2km x 2km meshes, selected approx. 20 points[*1] from each mesh based on the basic data collection results[*2] and monitor the airborne radioactivity concentration (Jul.4 – Aug.20.)

*1 Various places such as 16 points by dividing each mesh 500m x 500m as well as crowded places (schools, public facilities, parks, shopping malls, supermarkets, shrines and temples, etc.) were selected.

*2 Airborne radioactivity concentration was monitored at around Namie Station and Tomioka Town Station which have various types of environments. The distribution of air dose rate was developed based on the density of radioactive materials that were discharged by the accident and accumulated in the soil etc.

- TEPCO joined in developing the “Wide Area Monitoring” plan and conducting monitoring (approx. 800 persons in total.)

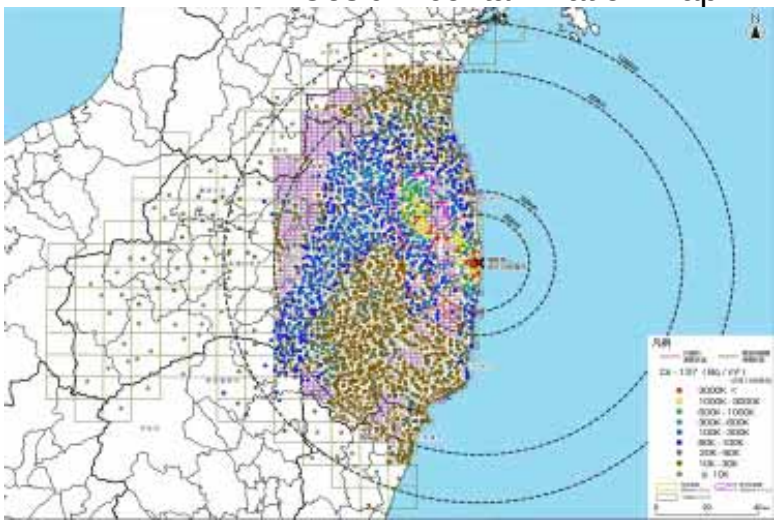
Measurement work of Wide Area Monitoring

- Based on the result of Wide Area Monitoring, the “Detailed Monitoring” on houses, roads and school grounds was being implemented in order to collect basic data for the development of implementation plan to improve the environment of these areas (mid-June – end of October.)
- Through the Wide Area Monitoring and the Detailed Monitoring currently in progress, TEPCO has collected information that would contribute to the effective decontamination work.

- TEPCO also started to support detailed monitoring in the area where the government will implement decontamination (Nov. 7).

- The Ministry of Education, Culture, Sports, Science and Technology published “Map of radioactive contamination (Cesium contamination map)” (Aug. 30.) After that, contamination maps of Iodine-131, Plutonium 238, 239+240, Strontium 89 & 90, Tellurium 129m and Silver 110m were sequentially published.

Cesium contamination map



This map is developed based on the measurement of airborne radioactivity concentration at approx. 2,200 points within about 100km from the station and the sampling of soil at 5cm depth from the ground surface at around 5 points for each radiation measurement point and their nuclide analysis.

- Measurement of airborne radioactivity concentration and soil sampling were conducted by universities, Japan Atomic Energy Agency, National Institute of Radiological Sciences, Japan Chemical Analysis Center and the support team from other electricity utility companies etc.

③ Consideration and commencement of full-scale decontamination [Countermeasure 63]

[Countermeasures implemented by the central government]

- The central government published “A work schedule for development of the interim storage facility (roadmap)” targeting transfer to the interim storage facility three years after full-scale transfer to the temporary storage yard per “The basic concept of the interim storage facility required in dealing with environmental contamination due to radioactive materials resulting from the accident at Fukushima Daiichi Nuclear Power Plant, TEPCO” (Oct. 29.)
- The central government began detailed monitoring in regions where the central government shall implement decontamination per the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials (Nov. 7.)

- Utilizing the Great East Japan Earthquake Recovery and Reconstruction Reserve Fund, in order to lower annual exposure dose at 12 municipalities designated as restricted areas and deliberate evacuation areas, the central government began the “Decontamination model project at the restricted areas and the deliberate evacuation areas, etc.” (Nov. 8.)
- Cabinet approved the basic policy per the Act on Special Measures concerning the Handling of Environment Pollution by Radioactive Materials (Nov .11.)

[Activities where TEPCO is participating]

- With the knowledge about the radioactivity management, work management etc., TEPCO will support JAEA, trustee of the decontamination model project conducted by the central government at the restricted area etc.
- In order to support the development of municipal decontamination plan, TEPCO started personnel support for the government’s expert allocation program (Oct. 3).TEPCO provided Fukushima Prefecture with personnel support for the model project to reduce radiation at general residential areas (Aug. 25 and 26.)
- TEPCO employees join the decontamination work implemented by municipalities in Fukushima Prefecture and they support pre-monitoring and decontamination work.

IV. Countermeasures against aftershocks, etc.

(7) Tsunami and reinforcement, etc.

1. Target for Step 2 “Mitigation of further disasters” [Achieved]

- Prevent situation from deterioration by mitigating disasters with countermeasures against emergencies (earthquakes and tsunami, etc.)
- Consideration of reinforcement work of each unit as necessary.
- Continue implementing various radiation shielding measures.

2. Current status and work implemented

① Implementation of seismic resistance evaluation for each unit [Countermeasure 71]

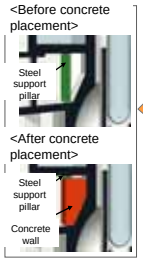
- Consideration of current seismic resistance and reinforcement, etc. for reactor buildings of Unit 2, Unit 5 and Unit 6 was implemented and evaluated by Aug. 26 (Unit 1 and Unit 4 were completed by May 28 and Unit 3 was completed by Jul. 13.)
- As a result of the analysis, it was evaluated that seismic resistance can be secured without any reinforcement.

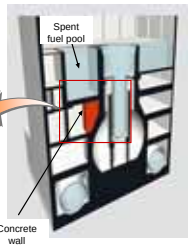
Installation status of support structures in Unit 4
(Completed on Jul. 30)

Before installing steel support pillars
(photographed on May 31)

Installation status of steel support pillars (photographed on Jun. 20)

Concrete placement status
(photographed on Jul.21)





Image

Grout filling status
(photographed on Jul. 30)

Completion of support structures
(photographed on Jul. 30)

- In adition to the aforementioned evaluation, visual inspections have been implemented for pipe support structures of the Reactor Feed Water System, which were evaluated as especially weakest points. As a result, it has been acertained that all support structures ramain sound status.

Pipe support structure

V. Environment improvement

(8) Living/ working environment

1. Target for Step 2 “Enhancement of Environment Improvement”

- Improve workers’ living/working environment that had been harsh during the initial phase of the accident, thus leading to maintaining workers’ motivation.
- Expansion of temporary dormitories and on-site rest stations.
- Improvement of environment such as meals, bath, laundry, etc.

2. Current status and work implemented

① Expansion status of temporary dormitories [Countermeasure 75]

- Completed construction of temporary dormitory able to accommodate 1,600 persons (Aug. 31). Approx. 1,200 persons have already moved in (as of Nov. 1.)

② Establishment status of on-site rest stations [Countermeasure 75]

- Twenty on-site rest stations have been established (approx. 4,750m^2 in size with a capacity to accommodate approx. 1,600 persons) (as of Nov. 1.)

Exterior (left) and interior (right) appearances of on-site rest stations

Inside of on-site rest stations (from left: drinking water, etc., restroom and air shower)

(9) Radiation control/ medical care

1. Target for Step 2 “Enhancement of Healthcare”

- Thorough radiation exposure control and countermeasures against heat stroke and influenza
- Reinforcement of radiation control by NISA
- Increase in the number of whole body counters, monthly measurement of internal exposure.
- Automated recording of personal radiation dose, report of personal exposure dose in writing, introduction of workers’ certificates with photos.
- Consideration of a long-term healthcare such as enhancement of workers’ safety training and establishment of a database.

2. Current status and work implemented

① Expansion of whole body counters (WBC) [Countermeasure 78]

- Increased WBCs as planned (12 units have already been added as of Oct. 3).
- Started measuring internal exposure once a month from September.

② Management of exposure dose, etc. [Countermeasure 78]

- Distribution of personal exposure recording format in every entry (Aug. 16), Introduction of workers’ certificates with photos step by step (Jul. 29), Currently preparing for automated recording of personal exposure (Exposure data are currently manually input for the future use.)
- The upper limit of exposure dose for workers newly appointed for emergency work after Nov.1 was lowered to 100mSv/y, except for emergency operation to deal with such as loss of reactor cooling function in the area with the possibility of over 0.1mSv/h in or around the reactor facilities, etc. (Nov. 1.)
- Airborne radioactivity concentration at the site has been kept below the standard of wearing full-face mask since mid-June stably. We have begun to allow workers to work without wearing a full-face mask (half-faced mask) in the limited area in order to reduce worker’s burden (from Nov. 8).

③ Consideration for long-term healthcare such as establishing a database [Countermeasure 78]

- Announced the report of expert committee on the database creation and long-term health management (Sep. 26.)
- Obligate TEPCO to submit exposure dose records and health check records for long-term health management by revision of the Ordinance on Prevention of Ionizing Radiation Hazards, and announced a guideline regarding implementation of examination, etc. according to exposure dose (Oct. 11.)

④ Continuous reinforcement of medical system [Countermeasure 80]

- Continuous assignment of medical specialists from emergency department,

nurses and radiation specialists to the Unit 5/6's emergency medical room.

- Reinforcement of medical facility and decontamination facility to enable the speedy transportation of patients and also the direct transportation of non-contaminated severely ill or injured patients to hospitals (prepared three transportation vehicles including ambulance.)
- Implementation of prevention and mitigation countermeasures against influenza (Nov. 1.)
- Check of recent health condition and medical history of new site workers (from Oct. 24.) Continuous assignment of medical specialists from emergency department, etc. to the Unit 5/6's emergency medical room after September, with making the emergency room to be the regular facility, which was planned to be opened only during this summer.

Influenza protective vaccination
(at J-Village)

(10) Staff training/personnel allocation

1. Target for Step 2 “Systematic staff training and personnel allocation”

- Promotion of staff training in conjunction with the Government and TEPCO

2. Current status and work implemented

① Promote staff training, etc. in conjunction with the government and TEPCO [Countermeasure 85]

- Conducting training for staffs engaged in radiation related work, who will be in great demand.
- TEPCO has been conducting “radiation survey staff training” targeted for employees and TEPCO group companies’ employees and has already trained approx. 3,700 personnel.
- The government has been conducting “radiation survey staff training” (7 times till Oct. 7 and approx. 200 personnel were trained.), “radiation protection staff training” (approx. 10 personnel were trained from Aug. 8 to 12, approx. 30 personnel were trained from Sep. 26 to 30) and will continue these trainings.
- According to affiliated companies needs, launched a new framework of looking for workers widely through Japan Atomic Industrial Forum (JAIF.)

Radiation survey staff training

② Stable secure of staff

- Since this October, TEPCO has made some reshuffles of 50 employees who have high radiation exposure dose.
- TEPCO has implemented a survey concerning the improvement of working environment in terms of securing staff stably. Based on the results of this survey, TEPCO has implemented some improvements (reduction of full-face

mask area, expeditious survey by utilizing a gate monitor, expansion of parking area at J-village, etc.)

- Developing measures to reduce exposure dose in the main anti-earthquake building.

VI. Action plan for mid-term issues

1. Target for Step 2

- Development of “the concept of securing the mid-term safety” by the government.
- Development of plant operation plans by TEPCO based on the above policy.

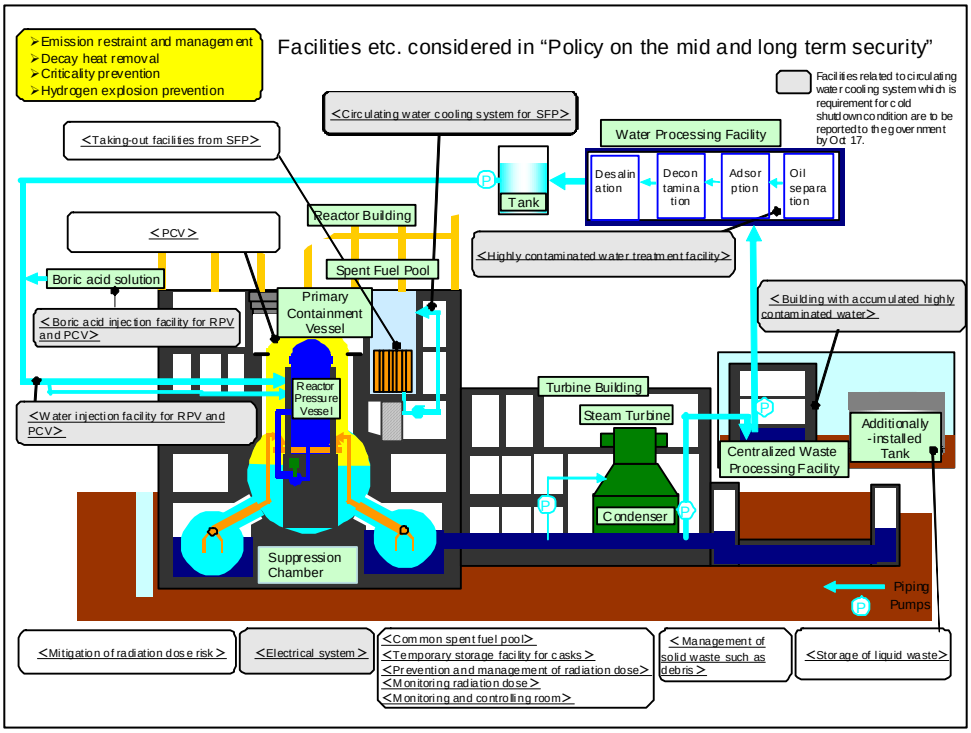
2. Current status and work implemented

① NISA instructed TEPCO to comply with “the concept of securing the mid-term safety”

- NISA disclosed (on Oct. 3) “the concept of securing the mid-term safety” concerning Units 1 to 4 of Fukushima Daiichi Nuclear Power Station of TEPCO” in order to secure safety during the period (mid-term: within approx. 3 years) which starts from completion of Step 2 and ends before starting the work for decommissioning the reactors”.

*In order to manage additional emission of radioactive materials from the nuclear reactor facilities and to restrain radiation dose, it requires the following four (4) items and also requires setting basic targets and necessary conditions for safety.

- To identify emission sources of radioactive materials, implement adequate restrain measures and monitor them (Emission restraining and managing functions)
- To adequately remove the decay heat of the reactor pressure vessels, the primary containment vessels and the spent fuel pools (Cooling function)
- To prevent criticality in the reactor pressure vessels, the primary containment vessels and the spent fuel pools (Criticality preventing function)
- To detect, adequately manage and treat flammable gasses (Hydrogen explosion preventing function)



② TEPCO shall report to NISA in accordance with the instructions

- TEPCO reported on the operating plan and safety assessment results regarding circulating water cooling system (Oct. 17 and Nov. 9). Other systems, etc. shall be reported on as well in a rapid manner.
- NISA is carefully reviewing that mid-term safety is secured.

On site inspection by inspectors

③ Direction to TEPCO, ANRE and NISA from Mr. Edano, The Minister of Economy, Trade and Industry, and Mr. Hosono, The Minister for the Restoration from and Prevention of Nuclear Accidents (Nov. 9)

- To develop a reasonable and specific timeline within the timeframe by the end of decommissioning.
- To develop a R&D plan for restoration from the accident and decommissioning.
- To secure sufficient number of on-site workers from both TEPCO and external source, taking care of improving their working condition.
- To improve reliability of systems such as the circulating water cooling system, and to treat highly concentrated contaminated water accumulated in the buildings in a rapid manner. To develop plans for them.
- To achieve decreasing radiation exposure dose at site boundaries due to newly discharged from the whole of the power station to the level less than 1 mSv/year as soon as possible. To develop plans for that.
- To conduct waste control and decontamination at the site appropriately. To develop plans for that.
- To start removal of spent fuels from the spent fuel pools in the reactor buildings within approx. 2 years. To develop plans for that.
- To set out removal of melted fuels within 10 years. To develop plans for that.

End