Events and highlights on the progress related to recovery operations at Fukushima Daiichi Nuclear Power Station

February, 2016

Section 1: Summary of updates from October 2015 through January 2016

1. Decommissioning and Contaminated Water management

(1) Effects of the sea-side impermeable wall

As the result of the completion of the sea-side impermeable wall in October 2015, it has been confirmed that the radiation level inside the port area significantly decreased and that the marine environment around Fukushima Daiichi Nuclear Power Station (NPS) has been improved.

(Reference: Website of the Ministry of Economy, Trade and Industry (METI))

(2) Removal of contaminated water and filling of Unit 4 seawater pipe trench completed

For the Unit 4 seawater pipe trench, removal of contaminated water and filling of the parts running over release channels were completed in December 2015. This work removed 10,000 m^3 of highly contaminated water from the Unit 2-4 seawater pipe trenches.

(3) Opening of Naraha Remote Technology Development Center

In October 2015, a new institution for the development and demonstration test of remote control equipment was established in Naraha town, Fukushima. Equipped with state-of-the-art virtual reality (VR) systems used for training workers, the institution is expected to contribute to our efforts towards decommissioning of Fukushima Daiichi NPS.

For more information on the situation at Fukushima Daiichi NPS, please refer to Section 2.

(4) Video clip “Fukushima Today -Towards new horizons-”

METI has produced a short video clip on the current situation in Fukushima. It has been distributed through many Japanese embassies and at ministerial-level meetings, etc. This video is available on the following METI’s website:

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html

2. Monitoring results

There were no significant changes in the monitoring result of air dose rate, dust, soil, seawater, sediment and marine biota during the period from October 2015 to January 2016.

3. Off-site decontamination

The Ministry of Environment (MOE) has completed the planned decontamination works in the additional two municipalities, Katsurao village and Kawamata town, by the end of December 2015.

4. Food products

Monitoring inspections of radioactive materials in food continue to be conducted, and restrictions of food distribution and removal of these restrictions are taken based on monitoring results. Restrictions of several agricultural products were lifted during the period from October 2015 to January 2016.

According to the monitoring results of fishery products in Fukushima, from October 2015 to January 2016, the excess ratio* was 0.07 % (total: 2758 samples). In the other prefectures, the excess ratio was 0.03 % (total: 2928 samples).

*excess ratio: No. of samples more than 100 Bq/kg / Total no. of samples

5. Radiation protection of workers

The Ministry of Health, Labour and Welfare (MHLW) has provided guidance on the prevention of radiation hazards to workers engaged in the decommissioning works at Fukushima Daiichi NPS or decontamination and related works; as well, the Ministry has taken relevant and necessary measures such as provision of long-term healthcare for emergency workers.

Section 2: Decommissioning and contaminated water management at Fukushima Daiichi NPS

2.1: Basic strategies

(1) Basic Policy for the Contaminated Water Issue at the Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi NPS (decided on September 3, 2013)

(Summary)
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20130903_01a.pdf

(2) Preventive and Multi-layered Measures for Decommissioning and Contaminated Water Management (decided on December 20, 2013)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20131226_001.pdf

(3) Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station (revised on June 12, 2015)

(Summary)
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150725_01a.pdf

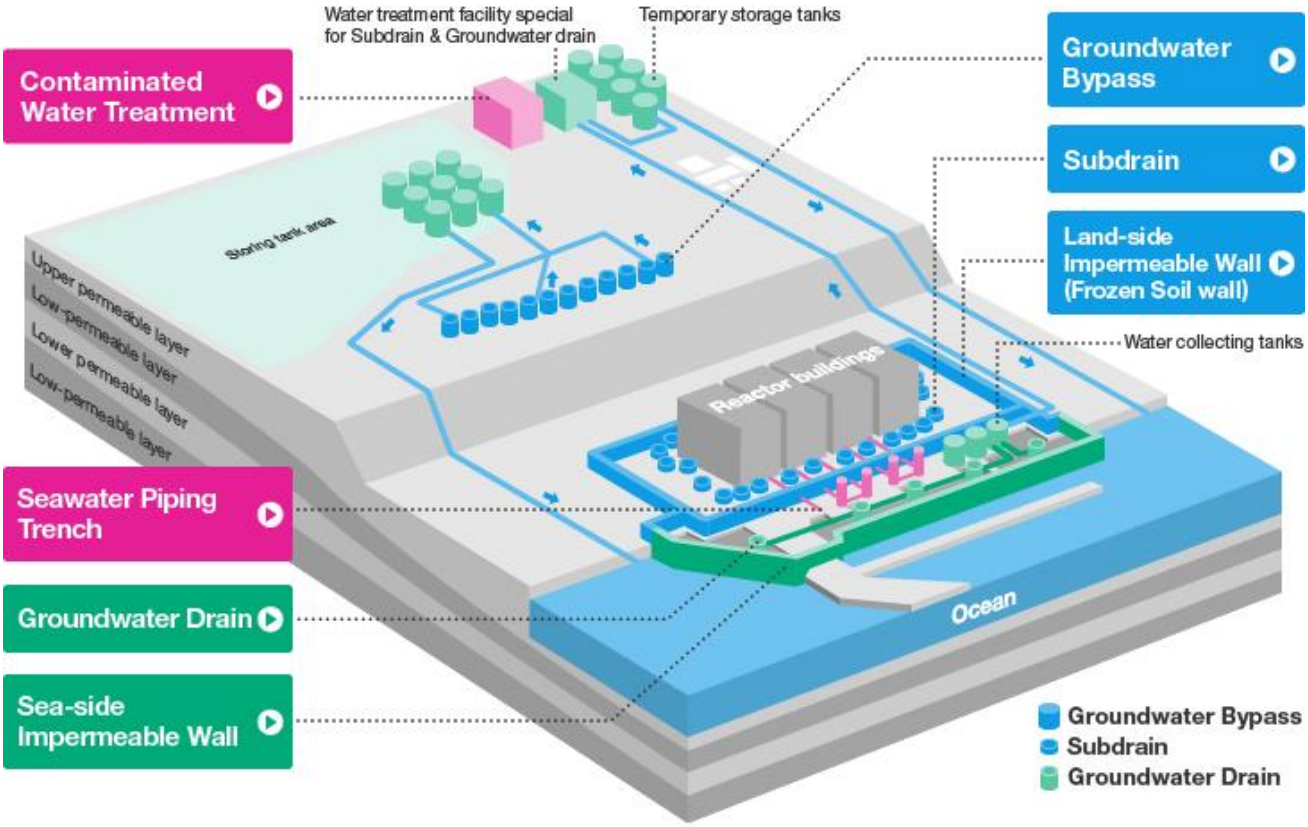
(Full texts)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150725_01b.pdf

2.2: Measures for decommissioning and contaminated water management

(1) Major initiatives for water management

The preventive and multi-layered measures against contaminated water issue are implemented based on the three principles; "Remove sources of contamination", "Isolate water from contamination" and "Prevent leakage of contaminated water".



Source: TEPCO

(ⅰ) Subdrain and groundwater drain systems

(a) Objective

The subdrain system aims to "isolate water from contamination" by pumping up groundwater and preventing its inflow of the groundwater into the reactor buildings, and thus to reduce generation of contaminated water.

The groundwater drain system aims to "prevent leakage of contaminated water" by pumping up groundwater before flowing into the port.

(b) Mechanism

From the wells installed in the vicinity of the reactor buildings (called "the subdrain") and the wells installed in the bank protection area (called "the groundwater drain"), where groundwater slightly contains radioactive materials, groundwater is pumped up and then treated through special purification equipment to meet the operational targets set by TEPCO. The purified groundwater is discharged into the port area after passing water quality inspections.

(c) Recent situations

The operation of these systems started on September 3rd, 2015. It is confirmed, as of January 2016, that the inflow of groundwater into the reactor buildings decreased by a third. Meanwhile, because it was found that the concentration of radioactive materials in groundwater pumped up from the groundwater drain was too high to be discharged, the groundwater is provisionally transferred into the turbine buildings. For this reason, the amount of contaminated water in the buildings has increased temporarily as of January 2016. According to TEPCO, the situation is believed to be improved, as the amount of groundwater

pumped up from the subdrain increases and pavement work at the bank protection area advances to prevent radioactive materials from infiltrating into the soil.

From October 2015 through January 2016, purified groundwater was discharged 65 times in total. Nevertheless, the result of sea area monitoring confirms that the radiation level of seawater outside the port area remains low enough compared to the density limit specified by the Reactor Regulation, and no significant change in the radioactivity has been observed.

TEPCO's website related to the subdrain and the groundwater drain systems:

http://www.tepco.co.jp/en/decommision/planaction/sub-drain/index-e.html

Detailed analysis results on purified groundwater (published by Ministry of Economy, Trade and Industry (METI)):

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20160106_02a.pdf (January 6, 2016)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151202_02a.pdf (December 2, 2015)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151016_01a.pdf (October 16, 2015)

(ⅱ) Groundwater bypass

(a) Objective

The groundwater bypass aims to "isolate water from contamination" by pumping up groundwater and reduce the inflow of the groundwater into the reactor buildings.

(b) Mechanism

From the wells installed on the mountain-side area of the reactor buildings, clean groundwater is pumped up and discharged into the port area after passing water quality inspections.

(c) Recent situations

Since the beginning of the operation on May 21st, 2014, inflow of groundwater into the reactor buildings is estimated to be reduced by up to 100 tons per day.

From October 2015 through January 2016, the groundwater was discharged 17 times in total. However, the result of sea area monitoring shows that the radiation level of seawater outside the port area remains low enough compared to the density limit specified by the Reactor Regulation and no significant change in the radioactivity has been observed.

TEPCO's website related to groundwater bypass:

http://www.tepco.co.jp/en/decommision/planaction/groundwater/index-e.html

Detailed analysis results on groundwater pumped up for bypassing (published by METI)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20160106_01a.pdf (January 6, 2016)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151202_01a.pdf (December 2, 2015)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151007_01a.pdf (October 7, 2015)

(ⅲ) Sea-side impermeable wall

(a) Objective

The installation of the sea-side impermeable wall aims to “prevent leakage of contaminated water” by installing a wall blocking groundwater flowing into the port area, and thus protecting the marine environment against pollution.

(b) Mechanism

A wall, approximately 780 meters long and composed of 594 steel pipes with a diameter of 1.1 meters and a length of 30 meters, is installed around the bank protection area near the rector buildings. The groundwater flowing from the site is blocked by the wall and pumped up by the subdrain and the groundwater drain systems. Consequently, the wall prevents groundwater from flowing into the port area and also reduces the risk of contaminated water flowing into the ocean in case of any leakage.

(c) Recent situations

On October 26th, 2014, the closing work of the wall was completed. It has been confirmed that the radiation level of seawater inside the port area substantially decreased. Together with the operation of the subdrain and the groundwater drain systems, the completion of the sea-side impermeable wall marks major progress in water management at Fukushima Daiichi NPS.

TEPCO’s website related to the sea-side impermeable wall:

http://www.tepco.co.jp/en/decommision/planaction/seasidewall/index-e.html

(ⅳ) Land-side impermeable wall (Frozen soil wall)

(a) Objective

The land-side impermeable wall aims to “isolate water from contamination” by surrounding the reactor buildings by frozen barrier and blocking groundwater from flowing into the buildings.

(b) Mechanism

A wall of approximately 1,500 meters, composed of frozen pipes driven into the ground, surrounds the Unit 1-4 reactor buildings. The circumference of the wall is approximately 1,500 meters. By supplying chilled brine (a freezing material) through the pipes and freezing the soil, a barrier is formed around the buildings to block groundwater inflow.

(c) Recent situations

The prior freezing operation started at some points on the mountain-side in April 2015. In November, installation of the frozen pipes had been completed. As of January 2016, the Nuclear Regulation Authority (NRA) is examining the condition of operation after the completion of the wall. The full-fledged freezing operation will be started, when the plan is authorized.

TEPCO’s website related to the land-side impermeable wall:

http://www.tepco.co.jp/en/decommision/planaction/landwardwall/index-e.html

(v) Removal of highly contaminated water in the trenches

(a) Objective

Removal of highly contaminated water in the trenches, the underground tunnels that lead to the reactor buildings, aims to “remove sources of contamination”.

(b) Mechanism

Right after the accident of March 2011, highly contaminated water flowed into and accumulated in the trenches. As the concentration level of radioactive materials of this contaminated water was as high as 100 million Becquerel/l at maximum, leakage of this highly contaminated water was the biggest risk with regard to water management. For this reason, TEPCO had tried to fill the trenches with special cement and to drain contaminated water from them, with high priority among other issues.

(c) Recent situations

In August 2015, TEPCO has completed the removal of highly contaminated water and the filling work of the trenches. The removed contaminated water was transferred to the turbine buildings and was treated for purification. As the result, the risk of leakage of highly contaminated water was substantially reduced.

TEPCO’s website related to removal of highly contaminated water in the trenches:

http://www.tepco.co.jp/en/decommision/planaction/trench/index-e.html

(vi) Purification treatment of contaminated water

(a) Objective

The purification treatment of contaminated water aims to “remove sources of contamination”.

(b) Mechanism

Contaminated water that accumulated in the site of Fukushima Daiichi NPS are treated in multiple facilities including Multi-nuclide Removal Facility (Advanced Liquid Processing System = ALPS). In this process, after the concentration of caesium and strontium in the contaminated water is reduced, ALPS removes most of the radioactive materials except tritium.

(c) Recent situations

In May 2015, TEPCO announced that it has completed the purification treatment of highly contaminated water in the storage tanks. While nearly 3,500 tons of contaminated water remains at the bottom of the tanks as of January 2016, it will be removed as the tanks are dismantled. As the result, the radiological risk in case of leakage of contaminated water has been significantly reduced.

Regarding the contaminated water with low radioactive concentration, which includes tritium, it is still under discussion among experts how to be disposed.

TEPCO’s website related to purification treatment of contaminated water:

http://www.tepco.co.jp/en/decommision/planaction/alps/index-e.html

(2) Fuel removal from the reactor buildings

(ⅰ)Basic information

At the time of the accident in March 2011, Unit 1, 2 and 3 failed to cool down their reactor cores due to power loss, which led to generation of a huge amount of hydrogen gas from the melted fuel. Hydrogen explosions then occurred and the buildings of Unit 1, 3 and 4 were damaged. However, since November 2011, these Units maintain a stable condition with a cooling system of the reactors, and the level of the release of radioactive materials from the reactors remains also stable and no significant change has been observed in these months.

The most important tasks in the decommissioning process are the fuel removal from the spent fuel pools in the reactor buildings and the removal of fuel debris (melted and solidified fuel) from the Primary Containment Vessels (PCV) in the buildings. Various measures are in progress toward these goals, including removal of rubble accumulating in the buildings and investigations on the condition inside the PCV by using state-of-the-art technologies.

(ⅱ) Unit 1

In July 2014, TEPCO started taking out the roof panels covering the reactor building as a step to start fuel removal from the spent fuel pool. In October of the same year, the removal of all the six roof panels was completed without any significant change in radiation dose rate around the reactor building, as the removal work proceeded carefully with anti-scattering measures.

To move on to fuel debris removal, investigation on the condition inside the PCV is in progress. In April 2014, TEPCO conducted an investigation on the inside of the PCV by using the “muon”, a kind of cosmic rays, and studied the condition of fuel debris inside. In addition, TEPCO sent some robots into the PCV for investigation and collected a lot of important information such as radiation level, temperature and images inside. Based on the results of these investigations, studies are now in progress to consider how to remove the fuel debris.

Removal of roof panels

Robot for investigation

Image inside PCV

(ⅲ) Unit 2

As for Unit 2, a hydrogen explosion did not occur and therefore the building escaped from being damaged. TEPCO concluded, however, that it would be better to dismantle the upper part of the reactor building to facilitate the fuel removal from the spent fuel pool. The dismantling work is scheduled for late FY2016. TEPCO is currently proceeding with preparation work, one of which is removal of rubble around the reactor building and scaffolding.

Another important preparation work is to find out the situation inside the building. Investigation around the PCV has been carried out by using robots to confirm conditions of the inside of the building. The next step is to study the inside of the PCV, however, the robots with required technology for the investigation are still under development.

Robots used for investigation into Unit 2

(ⅳ) Unit 3

In August 2015, TEPCO completed removal of the huge rubble from the spent fuel pool, which was originally Fuel Handling Machine (FHM). In last November, all rubble remaining in the pool was completely removed. In the next step, an equipment to cover the upper part of the building as well as a crane will be installed to start taking out spent fuel from the pool.

At the same time, investigation to find out current condition inside the PCV is underway. In October 2015, robots were sent into the PCV and successfully collected a lot of useful information. The images taken by the robots confirmed that the main structure and the walls inside the PCV had not been damaged. The next step is to analyze the collected data to study how to remove fuel debris from the PCV.

Removal of FHM

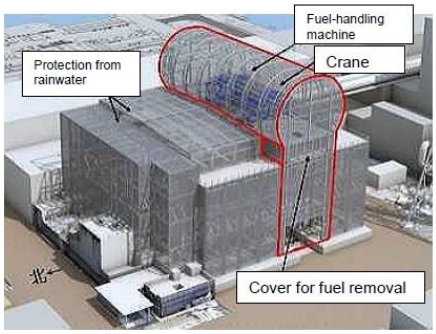


Image of the cover for fuel removal at Unit 3

Image inside PCV

(ⅴ) Unit 4

In spite of a hydrogen explosion, the fuel assemblies of Unit 4 were not damaged, as the plant had been suspended and all the fuel had been stored in the spent fuel pool before the accident. The fuel assemblies in the pool were taken out and transferred to the common pool located within the station site. This fuel removal operation started on November 2013 and was safely completed in December 2014. Fully utilizing this successful experience, the fuel assemblies remaining in the spent fuel pool of Unit 1, 2 and 3 are planning to be removed as well.

Equipment for fuel removal

Storage of removed fuel

(ⅵ) Unit 5 and 6

These reactors were suspended at the time of the accident in March 2011. In addition, unlike the case of Unit 1, 2 and 3, the reactors of Unit 5 and 6 escaped from power loss and the reactor cores were successfully cooled off.

The fuel assemblies are safely stored in the spent fuel pool in each building for the time being, given that the conditions of the buildings and the equipment for storing the fuel are stable and risks of causing any problem in the decommissioning process are estimated to be low compared to the other Units. In the next step, fuel removal work is to be so carefully conducted as not to affect the fuel removal process at Unit 1, 2 and 3.

Besides these efforts, various measures are ongoing at Fukushima Daiichi NPS. For more detailed information, please refer to the monthly "Progress Status Report" of METI below.

- The Progress Status Report as of January 28th, 2016:
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20160128_e.pdf
- The Progress Status Report as of December 24th, 2015:
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151224_e.pdf
- The Progress Status Report as of November 26th,2015:
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151126_e.pdf
- The Progress Status Report as of October 29th, 2015:
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151029_e.pdf
- The Progress Status Report as of October 1st, 2015:
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20151001_e.pdf

2.3: Organizations related to decommissioning and contaminated water management

(1) Fukushima Daiichi Decontamination & Decommissioning (D&D) Engineering Company

In April 2014, TEPCO established a company for the purpose of clarifying the responsibilities and authorities inside the company, and streamlining the process of decision making regarding decommissioning and contaminated water management at Fukushima Daiichi NPS.

In addition, the company invites nuclear specialists from outside TEPCO as Vice President in order to collect and share expertise and technology of manufacturers.

This company is playing an important role on the frontline of decommissioning and contaminated water management.

TEPCO's website related to Fukushima Daiichi D&D Engineering Company:

http://www.tepco.co.jp/en/decommision/team/index-e.html

(2) Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF)

In August 2014, Nuclear Damage Compensation Facilitation Fund, originally established in 2011 to support the compensation for nuclear damage resulted from the Fukushima Daiichi NPS accident, was reorganized into Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF).

The NDF's mission is supporting decommissioning activities at Fukushima Daiichi NPS. For example, it forms a strategy toward the decommissioning and plans research and development (R&D) program on technology necessary for decommissioning.

In addition, as part of international cooperation, the NDF will hold with METI an international forum on the decommissioning of Fukushima Daiichi NPS this April in Fukushima. The event is expected to gather knowledge and experience from the world and to share lessons learned from the accident with the international community.

NDF's booklet:

http://www.ndf.go.jp/soshiki/pamph_e.pdf

(3) International Research Institute for Nuclear Decommissioning (IRID)

In August 2013, IRID was established by 18 corporations and organizations related to R&D of technology for the decommissioning of Fukushima Daiichi NPS. In accordance with the Mid-and-long-term Roadmap written by the Japanese government, IRID is conducting R&D on removal of fuel from the spent fuel pools, removal of fuel debris from the PCVs and disposal of radioactive wastes, gathering domestic and international expertise. In these days, methods developed by IRID are being applied to investigations into the Unit 1-3 reactor buildings, such as various kinds of robots and the muon cosmic ray.

IRID's website:

http://irid.or.jp/en/

(4) Collaborative Laboratories for Advanced Decommissioning Science (CLADS)

In April 2015, Japan Atomic Energy Agency (JAEA) established the CLADS, based on the Acceleration Plan of Reactor Decommissioning R&D for Fukushima Daiichi NPS, written by Ministry of Education, Culture, Sports, Science and Technology (MEXT). This institution is aimed at being an international hub for R&D on decommissioning, and promoting cooperation in R&D and human resource development (HRD) among government, industry and academia.

JAEA will construct the International Collaborative Research Facility in Fukushima in March 2017, as a central facility of CLADS where educational and research institutions at home and abroad work together to conduct R&D on decommissioning. Furthermore, as its R&D bases in Fukushima, JAEA built the Naraha Remote Technology Development Center in October 2015. In addition, the Okuma Analysis and Research Center will be launched from FY2017. CLADS is expected to collaborate on research activities with these centers.

JAEA's website related to the CLADS:

http://fukushima.jaea.go.jp/english/index.html

*FY in Japan: April 1st to March 31st

2.4: Related information

- TEPCO stores rather than discharges from groundwater drain after monitoring detects higher contamination levels (TEPCO) (January 8, 2016)

http://www.tepco.co.jp/en/press/corp-com/release/2016/1265513_7763.html

- Research Management Building of Naraha Remote Technology Development Center completed (JAEA) (December 24, 2015)

http://fukushima.jaea.go.jp/english/topics/pdf/topics-fukushima071e.pdf

- Advances in water, cleanup at Fukushima Units 1 and 3 highlighted in latest progress report on nuclear safety (TEPCO) (November 20, 2015)

http://www.tepco.co.jp/en/press/corp-com/release/2015/1263498_6844.html

- TEPCO completes wall at Fukushima, blocking flow of water to the port (TEPCO) (October 26, 2015)

http://www.tepco.co.jp/en/press/corp-com/release/2015/1262806_6844.html

Section 3: Monitoring results

3.1: Onsite monitoring results reported by TEPCO

-3.1.1 Radionuclide releases to the atmosphere

(1) Outline of the item

On-going monitoring of the air at the site of Fukushima Daiichi NPS has detected no significant increase in radiation levels.

(2) Noteworthy change in data during the period from October 2015 to January 2016

The monitoring result is ND (ND indicates that the measurement result is below the detection limit). In this regard, no announcement has been made by TEPCO for this item.

(3) Monitoring result data

The monitoring results in the air at the site of the NPS are available in the following webpage (Please see the calendar titled “Air on the premises of Power Station”). This monitoring result is updated every day on this site.

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/index-e.html

- 3.1.2 Radionuclide releases to the sea (including groundwater monitoring results)

(1) General outline of the item

Results of radioactive nuclide analysis are published for the samples of groundwater at the east side of the Unit 1-4 turbine buildings and seawater at the port in order to monitor the source and the extent of the radioactive materials in the groundwater, and to determine whether the materials included in groundwater affect the sea.

Increased radioactivity has been observed within the port, in an area smaller than 0.3 km^2. However, ongoing monitoring in the surrounding ocean area has detected no significant increase in radiation levels outside the port or in the open sea, and has shown that radiation levels in these areas remain within the standards of the World Health Organizations guidelines for drinking water.

(2) TEPCO's report on radionuclide releases to the sea

TEPCO issued a report which includes progress and status of the ground improvement by sodium silicate. This report is available online: http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2015/images/handouts_150109_02-e.pdf

In addition, the historical data of radioactive concentration in the groundwater sampled at the Unit 1-4 bank protection are available online with the csv format. The data from north of Unit 1, between intakes of Units 1 and 2, between intakes of Units 2 and 3, and between intakes of Units 3 and 4 are available at the following sites respectively.

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest02-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest03-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest04-e.csv

http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-east-newest05-e.csv

(3) Related information

Analyses regarding radionuclide releases are conducted in different parts of the sea (outside of the port, inside of the port, and inside of the Unit 1-4 water intake channel). Results of these analyses and analysis results of groundwater are as follows (the information is automatically updated daily).

- Analysis Results of Seawater (Outside of the Port) http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2015/images/seawater_map-e.pdf
- Analysis Results of Seawater (Inside of the Port) http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2015/images/intake_canal_map-e.pdf
- Analysis Results of Seawater (Inside of Unit 1-4 Water Intake Channel) http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2015/images/2tb-east_map-e.pdf
- Analysis Results of Groundwater (Unit 1-4 Bank Protection) http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2015/images/tb-east_map-e.pdf

3.2: Offsite monitoring results

1. Monitoring results of air dose rates in the 20 Km radius zone around Fukushima Daiichi NPS

(1) Outline of the item

The monitoring of air dose rates in the 20 Km radius zone around Fukushima Daiichi NPS has been conducted at 50 points in the zone (the types of detectors

used for monitoring are NaI scintillation detectors and/or ionization chamber type survey meters). The air dose rates in the 20 Km radius zone have continuously been decreasing since May 2011 (after the accident at Fukushima Daiichi NPS on March 11, 2011).

(2) Noteworthy updates in the past months

As described in (1) above, the air dose rates in the 20 Km radius zone around the NPS have been in a downward trend, and the monitored air dose rates were stable from October 2015 to January 2016. Based on these results, any further announcement was not made on this item (e.g., significant increase of air dose rates in the 20 Km radius zone) during this period.

(3) Monitoring results

Each of the following URL leads to the monitoring results of air dose rates in the 20 Km radius zone around Fukushima Daiichi NPS from October 2015 to January 2016:

- October: http://radioactivity.nsr.go.jp/en/list/239/list-201510.html
- November: http://radioactivity.nsr.go.jp/en/list/239/list-201511.html
- December: http://radioactivity.nsr.go.jp/en/list/239/list-201512.html
- January: http://radioactivity.nsr.go.jp/en/list/239/list-201601.html

The following URL leads to an archive of monitoring results:

http://radioactivity.nsr.go.jp/en/list/239/list-1.html

2. Monitoring results of dust in air and soil in the 20 Km radius zone around Fukushima Daiichi NPS

(1) Dust

The monitoring results of dust obtained from October 2015 to January 2016 show that the concentrations of dust were either ND (ND indicates that the measurement result is below the detection limit) or very low. Based on the results, any further announcement was not made on this item (e.g., significant increase of the concentrations of dust) during this period.

The following URL leads to the monitoring results (dated 27 January, 2016) of dust:

http://radioactivity.nsr.go.jp/en/contents/11000/10736/24/223_20160127.pdf

(2) Soil

Radiation monitoring of soil is conducted as appropriate. The latest monitoring of soil was conducted in January 2016. The following URL leads to the monitoring results (dated January 22, 2016) of soil:

http://radioactivity.nsr.go.jp/en/contents/11000/10720/24/495_20160122.pdf

(3) Previous monitoring results

The following URL provides the previous monitoring results (from April 2011 to the present) of dust in air:

http://radioactivity.nsr.go.jp/en/list/240/list-1.html

3. Estimated values and measured values of environmental radioactivity at 1m height from the ground surface in other prefectures (46 prefectures in total) other than Fukushima Prefecture

(1) Outline

The air dose rates measured using the monitoring stations installed in other prefectures have mostly returned to the equal level of the air dose rates before the accident.

(2) Updates from October 2015 to January 2016

The estimated and measured values were relatively stable from October 2015 to January 2016. Based on the results, any further announcement was not made on this item (e.g., significant increase of the estimated and measured values) during this period.

(3) Monitoring results

The following URL leads to the estimated and measured values, and new monitoring results are uploaded nearly every day:
http://radioactivity.nsr.go.jp/en/list/192/list-1.html

3.3: Sea area monitoring results of seawater, sediment and biota

(1) Outline

Sea area monitoring results in the area around Fukushima Daiichi NPS have indicates that the radiation levels outside the port or in the open sea have been relatively stable.

(2) Updates during the period from October 2015 to January 2016

The sea area monitoring results from October 2015 to January 2016 were relatively stable as described in (1) above. Based on the results, any further announcement was not made on this item (e.g., significant increase of sea area monitoring results) during this period.

(3) Related information

Sea area monitoring is classified to be conducted in 5 areas (Area 1: Sea area close to TEPCO's Fukushima Daiichi NPS, Area 2: Coastal area, Area 3: Off-shore area, Area 4: Outer sea area, and Area 5: Tokyo bay area), and this information is available under the "Monitoring of Sea Water" section of the NRA webpage entitled "Readings of Sea Area Monitoring". This webpage also includes monitoring results of sediment under the "Monitoring of Marine Soil" section, and it is also classified into 4 areas (Area 1: Sea area close to TEPCO's Fukushima Daiichi NPS, Area 2: Coastal area, Area 3: Off-shore area, Area 4: Tokyo bay area). The NRA has been providing a weekly report on sea area monitoring results. The "Readings of Sea Area Monitoring" webpage covers various issues and the webpage's information is periodically updated several times a week. The

following URLs lead to this webpage and the weekly report on sea area monitoring results:

- Readings of Sea Area Monitoring
  http://radioactivity.nsr.go.jp/en/list/205/list-1.html
- Sea Area Monitoring (Weekly Report)
  http://radioactivity.nsr.go.jp/en/list/295/list-1.html
- F1 issues (NRA is providing monitoring results weekly to the IAEA which are openly shared with the public)
  http://www.nsr.go.jp/english/f1issues/index.html
  https://www.iaea.org/newscenter/focus/fukushima/status-update

Section 4: Off-site Decontamination

4.1: Outline

Off-site decontamination is in operation since the accident of the TEPCO Fukushima Daiichi NPS. Currently, target areas of decontamination are categorized as below.

4.1.1 Special Decontamination Area (SDA)

National Government is responsible for development of plans and implementation of measures for decontamination of SDA. SDA consists of the previous “restricted areas” located within a 20 km radius from the NPS and the previous “deliberate evacuation areas” which are beyond 20km radius from the NPS and where the additional annual effective dose for individuals was anticipated to exceed 20 mSv in the first year after the accident.

4.1.2 Intensive Contamination Survey Area (ICSA)

ICSA is the area where the air dose rate is over 0.23 uSv/h (equivalent to over 1 mSv/y of additional dose under a certain condition). At first, 104 municipalities in 8 prefectures were designated as ICSA. Decontamination for the area is implemented by each municipality with financial and technical supports by the national government.

4.2: Current status

4.2.1 SDA

- Development of decontamination plans for all 11 municipalities were completed.

- Decontamination work for 6 municipalities (Tamura-city, Kawauchi-village, Naraha-town, Okuma-town, additionally in Katsurao-village and Kawamata-town at the end of Dec. 2015) has been completed in accordance with the decontamination plans. And decontamination of residential areas was completed in Iitate-village at the end of June 2015.

4.2.2 ICSA within Fukushima Pref. as of the end of Dec. 2015 (Outside of Fukushima Pref. as of the end of Sep. 2015)

- Approximately 90% (almost all in other prefectures) of planned decontamination projects for public facilities have been completed.

- Approximately 70% (almost all in other prefectures) of planned decontamination projects for residential houses have been completed.

4.3: Related information

Since March 2015, MOE has started the transportation of excavated soil to the stock yards of the Interim Storage Facility that is to be developed to store soil and waste generated from decontamination in Fukushima Prefecture until the final disposal. It has been also negotiating with landowners to secure the lands for the facility.

MOE has been conducting the technology demonstration projects for decontamination, aiming to promote the development of such technologies for effective and efficient decontamination and for volume reduction of removed soil and wastes. The results of demonstration are to be published with the evaluation from the viewpoints of effectiveness, economic efficiency and so on.

The following URL leads to the web page of MOE's, which posts information related to Decontamination:

- Measures for Decontamination of Radioactive Materials Discharged by the accident at the TEPCO's Fukushima Daiichi NPS.

http://josen.env.go.jp/en/

Section 5: Food products

5.1: Summary of testing

Food samples are routinely monitored to ensure that they are safe for all members of the public.

During the month of October 2015, 28,298 samples were taken and analysed. Among these samples, 37 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.13 percent of all samples.

During the month of November 2015, 35,816 samples were taken and analysed. Among these samples, 29 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.08 percent of all samples.

During the month of December 2015, 35,460 samples were taken and analysed. Among these samples, 16 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.05 percent of all samples.

During the month of January 2016, 16,551 samples were taken and analysed. Among these samples, 7 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.04 percent of all samples.

Restrictions are imposed on the distribution of food products, if the level of radioactive contaminants of the food product exceeds the limit (caesium-134+caesium-137: 100 Becquerel/kg). Restrictions are to be removed, when the level of radioactive contaminants of the food product is monitored to be constantly below the limit for a certain period of time. Therefore, the products on which the distribution restrictions are newly imposed are the products whose radioactive contaminant level exceeded the limit in the past month. By the

same logic, the products whose restrictions are newly removed are the products whose radioactive contaminant level has been lower than the limit for a certain period of time.

5.2: Results of monitoring food products

(1) The current situation and protective measures

The fact sheet uploaded in the link below is the summary of the current situation and the measures taken by the Government of Japan:
http://www.mhlw.go.jp/english/topics/2011eq/dl/food-130926_1.pdf

(2) Noteworthy updates in the past months (during the period from October 2015 to January 2016)

The lists of food products whose status regarding the restriction was changed are as follows.

(i) Products whose distribution was newly restricted in October 2015
- none

(ii) Products whose restrictions were removed in October 2015
- Bamboo shoot produced in Ishioka-shi, Ibaraki prefecture
- Ocellate spot skate, Rockfish (white colour) and Stone flounder captured in Ibaraki offshore
- Azuki beans produced in Fukushima-shi (limiting to former Oozasou-mura) and Minamisoma-shi (limiting to former Ishigami-mura), Fukushima prefecture
- Soybeans produced in Fukushima-shi (limiting to former Noda-mura, Hirano-mura, Tatsugoyama-mura, Sakura-mura, Mizuho-mura and Niwatsuka-mura), Nihonmatsu-shi (limiting to former Obama-machi and Shibukawa-mura), Sukagawa-shi (limiting to former Naganuma-machi), Minamisoma-shi (limiting to former Ishigami-mura and Ota-mura) and Otama-mura (limiting to former Tamai-mura), Fukushima prefecture

(iii) Products whose distribution was newly restricted in November 2015
- none

(iv) Products whose restrictions were removed in November 2015
- Wild mushrooms (limiting to honey mushroom) produced in Aomori-shi, Towada-shi and Ajigasawa-machi, Aomori prefecture
- Wild mushrooms (limiting to matsutake) produced in Komoro-shi, Saku-shi, Koumi-machi, Sakuho-machi and Minamimaki-mura in Nagano prefecture
- Japanese seabass captured in Miyagi offshore

(v) Products whose distribution was newly restricted in December 2015
- none

(vi) Products whose restrictions were removed in December 2015
- Log-grown shiitakes (outdoor cultivation) produced in Ichikai-machi, Tochigi prefecture that are managed based on shipment and inspection policy set by Tochigi prefecture
- Chestnuts produced in Nihonmatsu-shi, Fukushima prefecture
- Panther puffer captured in Fukushima offshore
- Wild Japanese parsleys produced in Ichinoseki-shi, Iwate prefecture

(vii) Products whose distribution was newly restricted in January 2016
- Wild Japanese butterbur scape produced in Motomiya-shi, Fukushima prefecture

(viii) Products whose restrictions were removed in January 2016
- Bamboo shoot produced in Ryugasaki-shi, Ibaraki prefecture
- Bamboo shoot produced in Sakae-machi, Chiba prefecture
- Japanese seabass captured in Ibaraki offshore
- Log-grown shiitakes (outdoor cultivation) produced in Kamaishi-shi and Oshu-shi, Iwate prefecture that are managed based on shipment and inspection policy set by Iwate prefecture
- Log-grown shiitakes (outdoor cultivation) produced in Kurihara-shi, Miyagi prefecture that are managed based on shipment and inspection policy set by Miyagi prefecture
- Log-grown shiitakes (outdoor cultivation) produced in Nasukarasuyama-shi, Tochigi prefecture that are managed based on shipment and inspection policy set by Tochigi prefecture
- Log-grown shiitakes (outdoor cultivation) produced in Inzai-shi, Chiba prefecture that are managed based on shipment and inspection policy set by Chiba prefecture

(3) Monitoring results data

See the link below (new monitoring results are added once a week):
http://www.mhlw.go.jp/english/topics/2011eq/index_food_radioactive.html

(4) Information focused on the safety of the fishery products

The information that is provided above in (1)-(3) cover fishery products, but in addition to this information, further detailed information is available on the Fisheries Agency's website
http://www.jfa.maff.go.jp/e/inspection/index.html

(i) Summary of monitoring on fishery products

The first half of the website consists of summary of monitoring on fishery products. For further information and to see the actions taken to ensure the safety of fishery products, please refer to the fact sheet uploaded in the site. This fact sheet is available in English, French, Spanish, Russian, Chinese and Korean.

(ii) "Report on the Monitoring of Radionuclides in Fishery Products" was updated by the Fisheries Agency of Japan

Since the accident at the TEPCO's Fukushima Daiichi NPS, the Government of Japan and local authorities have cooperated closely with relevant bodies to secure the safety of fishery products. With an aim to promote accurate understanding on the safety of Japanese fisheries products at home and abroad, the data and information accumulated in the inspection of the last three years was evaluated comprehensively in the previous Report, which was published in May 2014.

In April 2015, the Fisheries Agency of Japan released updated Report, which reflects latest data and recent research results. It shows that, after four years from the accident, the level of radioactive Cs in fishery products has declined substantially.

The Report is available at the following URLs:

- Japanese version, full Report
  http://www.jfa.maff.go.jp/j/housyanou/pdf/report_zenbun.pdf
- Japanese version, summary
  http://www.jfa.maff.go.jp/j/housyanou/pdf/report_gaiyou_a.pdf
- English translation, full report
  http://www.jfa.maff.go.jp/e/inspection/pdf/report_on_the_monitoring_of_radionuclides_in_fishery_products.pdf
- English translation, summary
  http://www.jfa.maff.go.jp/e/inspection/pdf/summary_report_1_1.pdf

(iii) Monitoring results data

The second half of the website consists of various monitoring results on radioactivity measured in fishery products.

Section 6: Radiation Protection of Workers

Information pertaining to radiation protection of workers involving TEPCO's Fukushima Daiichi NPP Accident is updated on the following website of the Ministry of Health, Labour and Welfare (MHLW):

http://www.mhlw.go.jp/english/topics/2011eq/workers/index.html

6.1: TEPCO's Fukushima Daiichi NPP

The status on the exposure dose, health care management and radiation protection of the workers at TEPCO's Fukushima Daiichi NPP are as follows.

(1) Status of Radiation Exposure

Exposure doses of the workers at TEPCO's Fukushima Daiichi NPP are reported to the MHLW once a month. The latest monthly report is available on the following webpage:

http://www.mhlw.go.jp/english/topics/2011eq/workers/irpw/index.html

(2) Radiation Protection

Information on radiation protection of workers including measures to be taken and evaluation of committed effective dose of workers at the affected plant:

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/index.html

Results of supervision and instruction activities for employers of workers engaged in decommissioning of the TEPCO Fukushima Daiichi Nuclear Power Plant (from 11 March 2011 to 30 September 2015) (Updated on November 20, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/rp_151120.pdf

(3) Long-term Health Care

Updated Information on long-term health care of emergency workers including health examination and guidelines;

"Policies for Epidemiological Studies Targeting Emergency Workers at the TEPCO's Fukushima Daiichi Nuclear Power Plant Have Been Compiled." is available on the following webpage. (Updated on June 4, 2014)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/lhc/pr_140604.html

(4) Other Related Topics

Updated other related information on the workers at TEPCO's Fukushima Daiichi NPP:

Senior Vice-Minister of Health, Labour and Welfare Demands Thorough Implementation of Occupational Accident Prevention Measures (Updated on January 23, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/pr/pr_150123.html

6.2: Decontamination/Remediation

The status on radiation protection of the workers engaged in decontamination and remediation of contaminated materials derived from Fukushima Daiichi NPP Accident is as follows.

(1) Decontamination/Remediation

Updated Information on decontamination and remediation including guidelines and results of labour inspection:

Promotion of General Measures toward Improvement of Level of Compliance with Laws and Ordinances for Decontamination Works, etc (Fukushima Prefectural Labour Bureau Notification No. 1030-2) (Updated on October 30, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/dr/dr_151030.pdf

Results of supervision and instruction activities for employers of decontamination workers (from Jan. to June 2015) (Updated on October 9, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/dr/dr_151009.pdf

Results of supervision/instructions to employers of decontamination workers (July - December 2014) (Updated on March 5, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/dr/dr_150305.html

(2) Waste Disposal

Information on waste disposal work including guidelines:

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/index.html

(3) Other Related Topics

Other related information on waste disposal work:

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/index.html

6.3: Related Information

(1) Press Releases

Press releases from the MHLW on radiation protection of workers are updated on the following webpage.

Dose distribution of workers engaged in decontamination and related works, etc. per quarter [Flash report] [From July 2014 to June 2015] (by Radiation Effects Association) (Updated on October 15, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/ort/ort_151015.pdf

Measures to prevent radiation hazards for emergency workers at nuclear facilities were formulated- Ordinance on Prevention of Ionizing Radiation Hazards and related regulations were partially revised to be applied from 1 April 2016 - (Updated on August 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150831.html

Measures for occupational safety and health management will be enhanced at the TEPCO Fukushima Daiichi Nuclear Power Plant - A guideline was formulated - (Updated on August 26, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150826.html

Producing and Offering Graphic Presentations of Dose Statistical Data Based on the Information Registered with the System of Registration and Management of Radiation Exposure Doses for Decontamination and Related Works (2014) (by Radiation Effects Association) (Updated on July 14, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/dr/ort/pr_150714.html

Quarterly Radiation Exposure Dose Distribution of Workers for Decontamination and Related Works, etc. (Preliminary Figures) [From April 2014 to March 2015] (by Radiation Effects Association) (Updated on July 14, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ors/oi/pr_150714_a01.pdf

A recommendation received from the Labor Policy Council confirming the validity of the "Outline of the Draft Ministerial Ordinance for Partial Revision of the Ordinance on Prevention of Ionizing Radiation Hazards" (Updated on June 18, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150618.html

Senior Vice-Minister of Health, Labour and Welfare Demands Thorough Implementation of Occupational Accident Prevention Measures (Updated on January 23, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/pr/pr_150123.html

(2) Guidelines/Notifications

Guidelines and notifications from the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html

Guideline on Revision of Part of the Guidelines on Safety and Health Education for Those Who Are Currently Engaged in Dangerous or Harmful Operations (Labour Standards Bureau Notification No. 0831-6) (Updated on August 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150831_attachment09.pdf

Formulation of the Guideline: "Guidelines on Maintaining and Improving Health of Emergency Workers at Nuclear Facilities, etc." (Labour Standards Bureau Notification No. 0831-10) (Updated on August 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150831_attachment10.pdf

Formulation of the "Guidelines on occupational safety and health management at the TEPCO Fukushima Daiichi Nuclear Power Plant" (Updated on August 26, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150826_attachment03.pdf

(3) Regulations/Legislations

Regulations and legislations of the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html

Opinions on the Draft Ministerial Ordinance to Revise Part of the Ordinance on Prevention of Ionizing Radiation Hazards (Updated on August 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/rl/pr_150831.pdf

Enforcement of the Ministerial Ordinance for Partial Revision of the Ordinance on Prevention of Ionizing Radiation Hazards and Other Related Regulations (Labour Standards Bureau Notification No. 0831-13) (Updated on August 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/tepco/rp/pr_150831_attachment11.pdf

(4) Governmental reports

Governmental reports issued by the MHLW are available on the following webpage.

Result of review at the "review meeting on occupational /non-occupational ionizing radiation disease" and approval as occupational disease/injury(Updated on October 20, 2015)

http://www.mhlw.go.jp/english/policy/employ-labour/labour-standards/dl/151111-01.pdf

A Report Has Been Compiled on Methods etc. for Providing Health care and Exposure Dose Control during Emergency Works in Nuclear Facilities. (Updated on May 1, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/pr/pr_150520.html

Response and Action Taken by the Ministry of Health, Labour and Welfare of Japan on Radiation Protection at Works Relating to TEPCO's Fukushima Daiichi Nuclear Power Plant Accident. (Updated on March 31, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/gr/pr_150331_a01.pdf

(5) Leaflets/Brochures

Leaflets and brochures published by the MHLW on radiation protection of workers are available on the following webpage.

http://www.mhlw.go.jp/english/topics/2011eq/workers/ri/index.html

(6) Other Institutions

Statistics on Radiation Exposure Doses of Decontamination Workers and Other Items Have Been Announced. (Updated on April 15, 2015)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ors/oi/pr_150415.html

The launch of the organization for systematic control of radiation exposure doses, etc. for decontamination and related works (Updated on November 15, 2013)

http://www.mhlw.go.jp/english/topics/2011eq/workers/ors/oi/pr_131115.html

Section 7: Other issues on recovery operations

7.1: Public communication

1. Provision of updates to the IAEA

The Government of Japan has actively been strengthening its communication process to ensure timely dissemination of accurate information on the current status of activities

onsite in multiple languages for the international community. Japan provided updates in October on 2, 2015, in November on 4, 25, in December on 1, in January 7, 2016, and so far in February 2. All of the updates provided to the IAEA are available on this webpage:

https://www.iaea.org/newscenter/focus/fukushima/status-update

2. Relevant activities in disseminating information to the public

(1) Press Conference

Recovery operations at the Fukushima Daiichi NPS including contaminated water issues are one of the major issues which the Government of Japan has been focusing on. Since progress has been made frequently, there are updates arising on a daily basis. To explain the updates to the public, the Government of Japan disseminates the relevant information through press conferences. The Chief Cabinet Secretary and the Minister of Economy, Trade and Industry are the main briefers of the press conference, but other ministers or press secretaries may also be the briefer, depending on the subject.

(2) Information delivery to media

The government has been providing relevant information for both the domestic and the foreign press including that stationed in Tokyo and for other media, using various means such as press conferences, press briefings, press tours and press releases. For example, the Fisheries Agency has conducted a media tour to a radioactivity monitoring site for fishery products (Marine Ecology Research Institute) in order to facilitate better understanding for monitoring on fishery products.

(3) Providing information to foreign nations through diplomatic channels

Whenever there is a significant update, the Ministry of Foreign Affairs sends out a notification with relevant information to all foreign missions stationed in Tokyo. The same information is conveyed to all Japanese embassies, consulate generals, and missions. As necessary, the information would be shared with foreign nations and relevant organizations through these diplomatic channels.

In addition, the Ministry of Foreign Affairs holds briefing sessions on Fukushima Daiichi NPS issues for the foreign missions stationed in Tokyo, when there is a significant update. The information on the last briefing session is shown in the link below.

http://www.mofa.go.jp/dns/inec/page22e_000751.html

Furthermore, the Ministry of Economy, Trade and Industry (METI) has produced a short video clip on the current situation in Fukushima, in collaboration with the Support Team for Residents Affected by Nuclear Incidents under the Nuclear Emergency Response Headquarters under the Cabinet Office. This video was shared through many Japanese embassies and ministerial-level bilateral conversations, etc.

The video is available in the following link:

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html

(4) Measures taken by TEPCO

TEPCO has thus far been providing briefings on the status of Fukushima Daiichi NPS. In June and October 2014, in order to supplement such briefings, it has arranged

for field observation tours of Fukushima Daiichi NPS for diplomatic officials and employees of embassies to Japan.

These briefings have been conducted with the aim of facilitating a correct understanding through the expeditious communication of accurate information outside of Japan, as well as maintaining TEPCO's accountability as the main party responsible for the accident.

The purpose of the field tours is to enable participants to observe the actual circumstances as they are at the power station by viewing and touring the actual site, in conjunction with the briefings at diplomatic missions. Moreover, TEPCO expects to utilize the network of diplomatic officials to build a new relationship, and provide a connection with TEPCO which had not been open before conducting these tours.

(5) Disseminating information to Japanese populations

In general, the information is shared with Japanese populations through the channels shown above in (1)-(2). In addition to these efforts, the Government of Japan has improved public communication by enriching the content of relevant ministries' webpage and by hosting a local briefing session on a case by case basis. METI regularly informs the progress of the decommissioning activities and contaminated water countermeasures to Fukushima prefecture and 13 local municipalities surrounding the site through video conference and direct visits.

3. Risk Communication

(1) Policy package regarding radioactive risk communication aiming for evacuees returning their home

In order to address in detail each person's concern and apprehension, in February 2014, the Government of Japan adopted a policy package regarding radioactive risk communication aiming for evacuees returning to their homes

This package includes following measures:

(i) Reinforce the ongoing risk communication approaches to further address the individual's concern and apprehension

Up until now, the Government of Japan provided relevant information to the public regarding the impact of radiation on one's health through various measures such as hosting a lecture session or seminar by inviting radiation experts to the evacuation site or supplying a range of publication magazines to affected people.

In addition to these measures, it is necessary to provide open communication for people to freely ask any questions. The Government will address this issue by recognizing that the people's perception on the impaction of radiation on one's health varies from person to person.

The Government of Japan will reinforce its risk communication approaches by taking finely textured measures to alleviate individual's concern in evacuation order municipalities.

(a) Providing information in an accurate and straightforward manner

(b) Reinforcing risk communication approaches to small groups of people (man to man or in an intimate setting)

(c) Capacity building of experts in local areas

(d) Enriching risk communication services being delivered by therapists who closely support the local regions

(ii) Continuous delivery of risk communication service to other areas in Fukushima and expanding to the national audience

Regarding the measures (such as holding meetings to explain radioactive substances in food, providing telephone counseling service to respond to inquiries from people with health anxiety due to radiation, etc.) for risk communication which intend to cover Fukushima prefecture as well as rest of other prefectures in Japan, the Government will feedback the on-site challenges, improve the content and delivery of the measures to more effective ones and would make continuous effort.

(2) Practical measures for evacuees to return their homes by NRA

NRA formulated practical measures of radiation protection for the evacuees, who will return their homes, from scientific and technological points of view in cooperation with other governmental organizations. The practical measures stay on addressing the difficulties which the evacuees have been facing. It is expected that the practical measures will be helpful for the evacuees to make decisions whether they return their homes or not.

The detail of these measures taken by NRA is available in the following link:
https://www.nsr.go.jp/data/000067234.pdf

7.2: Websites for your reference

Further information on each section above is available at the following websites:

- The Prime Minister's Office

http://japan.kantei.go.jp/ongoingtopics/waterissues.html

- The Food Safety Commission (FSC)

http://www.fsc.go.jp/english/emerg/radiological_index_e1.html

- The Reconstruction Agency (RA)

http://www.reconstruction.go.jp/english/

- The Ministry of Foreign Affairs (MOFA)

http://www.mofa.go.jp/j_info/visit/incidents/index.html

- The Ministry of Health Labour and Welfare (MHLW)

http://www.mhlw.go.jp/english/topics/2011eq/index_food_policies.html

- The Ministry of Agriculture, Forestry and Fisheries (MAFF)

http://www.maff.go.jp/e/quake/press_110312-1.html

- The Fisheries Agency (FA)

http://www.jfa.maff.go.jp/e/index.html

- The Ministry of Economy, Trade and Industry (METI)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html

- The Ministry of Environment (MOE)

http://josen.env.go.jp/en/

- The Nuclear Regulation Authority (NRA)

http://www.nsr.go.jp/english/

- The Japan Atomic Energy Agency (JAEA)

http://www.jaea.go.jp/english/index.html

- Tokyo Electric Power Company (TEPCO)

http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html

- Fukushima Daiichi Decontamination & Decommissioning Engineering Company

http://www.tepco.co.jp/en/press/corp-com/release/2014/1235009_5892.html

- Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF)

http://www.ndf.go.jp/soshiki/pamph_e.pdf

- International Research Institute for Nuclear Decommissioning (IRID)

http://irid.or.jp/en/

- The Collaborative Laboratories for Advanced Decommissioning Science (CLADS)

http://fukushima.jaea.go.jp/english/topics/pdf/topics-fukushima066e.pdf

IAEA assessment on aspects presented in the February 2016 report *'Events and highlights on the progress related to recovery operations at Fukushima Daiichi Nuclear Power Station'*

Decommissioning and contaminated water management

Japan has confirmed that the radioactivity levels in the seawater inside the port of Fukushima Daiichi NPS have significantly decreased. Japan considers this to result from the completion of the sea-side impermeable wall in October 2015.

Japan reported that the removal of contaminated water and the filling of the Unit 4 seawater pipe trench were completed in December 2015. Japan also reported that the Remote Technology Development Centre in Naraha town was established in October, 2015 for the development and conduct of demonstration tests of remote control equipment which is expected to further contribute to their decommissioning efforts.

The IAEA recognizes the positive impact of the various countermeasures against groundwater ingress into the reactor buildings including the operation of various groundwater pumping systems. These countermeasures, together with the deployment of the sea-side impermeable wall, have led to a decrease in radioactivity in the port area.

The IAEA considers the removal of contaminated water from the Unit 4 seawater pipe trench and the plugging of the trench as important achievements for further risk reduction on-site.

Sea area monitoring results

Sea area monitoring data continues to be published regularly by NRA. According to NRA, the results of such monitoring show that radioactivity levels in the marine environment (seawater, sediment

and biota) in the areas around the Fukushima Daiichi NPS have not been adversely influenced by decommissioning and contaminated water management activities onsite. In particular the discharges of purified groundwater have had no detectable effect on the levels of radioactivity measured during the past three months in the marine environment in these areas. The results of hourly seawater radioactivity measurements at the port entrance of Fukushima Daiichi NPS, reported by Japan, confirm that levels are relatively stable over time. A decrease of the radioactivity levels in seawater inside the port area of Fukushima Daiichi NPS was reported after the completion of the sea-side impermeable wall in October 2015.

No significant changes were observed in the monitoring results for seawater, sediment and marine biota during the period from October 2015 to January 2016. The levels measured by Japan in the marine environment are low and relatively stable. For the purpose of public reassurance, the IAEA encourages continuation of sea area monitoring, particularly considering the on-going authorised discharges of treated and monitored groundwater into the ocean.

Sea area monitoring data quality assurance

The IAEA continues to assist the Government of Japan in ensuring that the regularly updated Sea Area Monitoring Plan is comprehensive, credible and transparent. A proficiency test and two inter-laboratory comparison exercises are organised annually to test the sampling and analytical performance of the Japanese laboratories for the analysis of radionuclides in seawater, sediment and marine organisms. The last inter-laboratory comparison exercise study included analysis of the levels of radioactive caesium in cod, flounder and mackerel caught near Fukushima in November 2015. The participating laboratories all found very small amounts of caesium in the fish. The levels measured were below 5 Bequerel per kilogram, which is far below the Japanese regulatory limit for human consumption of general foods, which is 100 Becquerel per kilogram.

The IAEA considers that the extensive data quality assurance programme helps to ensure that all stakeholders can be confident of the accuracy and quality of the sea area monitoring data.

Food Products

As reported by the authorities in Japan, a comprehensive system is in place to monitor, detect and publish data on levels of caesium radionuclides in food. This food monitoring underpins control measures such as restrictions on food distribution, should they be necessary to prevent foods with activity concentrations above national regulatory limits from reaching the consumer. This sampling programme includes foods from production areas (pre-market) and also foods on sale or in the distribution chain. Restrictions on food products from areas where radionuclide levels are found to be above the national regulatory limits are used to prevent their distribution. Food restrictions were lifted in many areas in line with the monitoring results, and only one new food restriction (of the wild Japanese butterbur scape produced in an area of the Fukushima prefecture in January) was imposed over the time period covered by this report.

According to the information provided by the Japanese authorities, the situation with regard to food, fishery and agricultural production continues to remain stable. Measurements of caesium radionuclides in foodstuffs, together with appropriate regulatory action and the publication of

monitoring results are helping to maintain confidence in the safety of the food supply. Food restrictions continue to be revised and updated as necessary, in line with food sampling and monitoring, and this indicates the continued vigilance of the authorities in Japan and their commitment to protecting consumers and trade. Based on the information that has been made available, the Joint IAEA / FAO Division understands that the measures taken to monitor and respond to issues regarding radionuclide contamination of food are appropriate, and that the food supply chain is under effective control of the relevant authorities.