

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

August, 2015

Section 1: Executive summary

(1) The fact sheet uploaded in the link below is a summary of the current situation
<http://japan.kantei.go.jp/ongoingtopics/waterissues.html>

(2) Information update from the previous fact sheet

The following information was updated from the previous fact sheet: 1) important events that happened after February 2014 were added and 2) Progresses of “Preventive and Multi-Layered” measures are reflected.

(3) The previous report is available online at
<https://www.iaea.org/sites/default/files/highlights-japan0615.pdf>

Section 2: Current conditions and forecast onsite

2.1: Relevant information pertaining to issues related to the recovery (including spent fuel and fuel debris management)

(1) New Information

(i) Newly added topics (in the past months since May)

Newly added topics in the past months since May are as follows. For additional details of these issues, please refer to the “related information” section.

- TEPCO completed removal of highly contaminated water from seawater piping trenches (Tokyo Power Electric Company (TEPCO)) (July 30, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1256382_6844.html
- Situation of storing and treatment of accumulated water including highly concentrated radioactive materials at Fukushima Daiichi Nuclear Power Station (TEPCO) (July 24, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1256080_6844.html
- Detailed analysis results regarding the water quality of the groundwater being pumped out for by-passing at Fukushima Daiichi Nuclear Power Station (Ministry of Economy, Trade and Industry (METI)) (July 6, 2015)
http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150706_01a.pdf
- Removal of contaminated “trench” water complete at Unit 2, with Unit 3 expected to follow with government’s approval (TEPCO) (June 30, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1253974_6844.html

- Latest review of Mid-and-Long-Term Roadmap towards the Decommissioning of Fukushima Daiichi Nuclear Power Station emphasizing safety and risk reduction in fuel removal (TEPCO) (June 12, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1252381_6844.html
- Workers in Fukushima Daiichi Nuclear Power Station got major new facility to provide rest areas, better meals and a social life (TEPCO)(June 1, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1251479_6844.html
- TEPCO completed treatment of water which includes high concentration of seawater that had been accumulating in the reactor facilities after 3.11 accident (TEPCO) (May 27, 2015)
http://www.tepco.co.jp/en/press/corp-com/release/2015/1251105_6844.html
- Receiving the Final Report of the Third IAEA Review on Plans towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station Units 1-4 (METI)(May 14, 2015)
http://www.meti.go.jp/english/press/2015/0514_01.html

(ii) Notable topics among recent updates

(a) Revision of Mid-and-Long-Term Roadmap

On June 12th, the Government of Japan revised “the Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station (NPS)” at the Inter-Ministerial Council for Contaminated Water and Decommissioning Issues. Ever since the first Roadmap was adopted in December 2011, the government has taken steps towards the decommissioning, while reviewing the plan continuously. With regard to the decommissioning and countermeasures for contaminated water, progress has been made since the previous version of the Roadmap was adopted (June 2013). This time, the revision of the Roadmap was done by incorporating elements such as opinions of local residents and the progress having been observed from June 2013 to the present. The detailed and background information of the revision are as follows;

- 1) In the past process, the government placed emphasis on how fast the implementation of policies could be done, but in revising this Roadmap, it has been decided that, in addition to the emphasis on the implementation speed, measures should be taken based on priority order, so as to inevitably reduce risks in the long run. Furthermore, short-term milestones (targeted schedule) regarding countermeasures for contaminated water are now clearly stipulated in the Roadmap, in response to the requests made by local communities.
- 2) Even though some delays are seen in the targeted schedule for some measures such as removal of the fuel, mainly due to implementation of additional works to ensure safety and security of the public, the overall schedule remains as planned (the timing of the beginning of the fuel debris removal and the end of decommissioning process remain as per schedule). These measures will be implemented safely and steadily, while putting importance on reducing risks.
- 3) With regard to countermeasures for contaminated water, the Roadmap set a target that the growing contaminated water will be reduced to under 100 tons per day within FY2016, by introducing measures such as frozen soil impermeable walls. Besides this, the government will start a preparation to dispose contaminated water including tritium, by first half of FY2016.

- 4) With regard to removal of the fuel debris, the Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF) will select the best means in the process of formulating the Strategic Plan. In particular, the NDF is aiming to determine a guideline for the fuel debris removal around 2 year later and to start removing the fuel debris within 2021. In this process, the NDF will put importance on reducing risks and implement the projects in a steadfast manner.

(b) Issues on treatment of contaminated water

(1) Treatment of highly contaminated water completed

On May 27th, TEPCO announced that the purification treatment of highly contaminated water in storage tanks has completed. The quantity of treated contaminated water totals nearly 620,000 tons.

These “highly contaminated water” comes from water injected into Pressure Containment Vessel (PCV) to cool melted fuel and groundwater that was flowing into reactor buildings and touched fuel in Reactor Containment Vessel (RPV). It includes as much as tens to hundreds million Becquerel/l of radioactive materials and could pose high risks to environment in case of leakage. Since March, 2013, TEPCO had been transferring it to storage tanks and treating with Multi-nuclide removal devices (ALPS). Regarding highly contaminated water including salt water, the treatment has completed as well on the same day, as devices worked smoothly, even though its treatment was difficult and had been estimated to take more time. Besides this, while 9,500 tons of contaminated water remains in the bottom of the tanks and pumping it out seems difficult, TEPCO intends to overcome the problem through some means, for instance, removing this contaminated water by using portable pumps or retrieving it when the tanks will be dismantled.

Low concentration contaminated water including tritium, a radionuclide that cannot be removed by ALPS, has yet to be treated and the method for disposal has yet been determined. However, it can be concluded that with this completion of highly contaminated water treatment, the radiological risk caused by leakage of contaminated water has been reduced significantly.

(2) Removal of highly contaminated water in trenches completed

On June 30th, TEPCO announced that it completed removal of highly contaminated water remained in a trench, an underground tunnel that leads to the Unit 2 reactor building. The trench is to be blocked entirely with cement or other materials. Nearly 4,500 tons of contaminated water that flowed into right after the accident stayed inside that trench. Since last autumn, TEPCO had been advancing the work using a method of infilling the trench with special cement, while draining contaminated water from it. That contaminated water is now being transferred to the reactor building, and will finally be treated.

Moreover, on July 31st, TEPCO announced that it also completed removal of highly contaminated water in a trench leading to Unit 3. The concentration levels of radioactive materials included in the contaminated water in trenches leading to Unit 2 and 3 were maximum 100 million Becquerel/l, so the Nuclear Regulation Authority (NRA) had pointed it as the biggest risk, concerning the leakage into the sea. As a result of these advances, the possibility that highly contaminated water leaks into the sea lowered, and the way became clear toward the building of the frozen soil impermeable walls, which aim to block groundwater inflow to reactor buildings, by freezing the soil around Unit 1 to 4.

(c) The contaminated water leakage from a hose into Drainage K

On May 29th, TEPCO announced that at the site of Fukushima Daiichi NPS, contaminated water had leaked from a hose attached on side ditch and part of it had flowed into inside the port through the Drainage K. The leakage was discovered in the morning on that day, as workers found a hole of approximately one centimeter in diameter on that hose. The leaked water was part of the ground water pumped out of wells near underground storage tanks, which had previously caused leakage of highly contaminated water from it and are now not being used for storing contaminated water. Since May 27th, TEPCO had been transferring the ground water including highly concentrated radioactive materials into the turbine building of the reactor No.3, by using the hose. Shortly after discovering the incident, TEPCO launched some countermeasures, such as placing sandbags in the side ditch and retrieving leaked contaminated water by vacuum car.

Regarding leaked contaminated water into the port, the amount of leakage is estimated nearly 7 to 15 tons during May 27th to 29th. Even though seawater collected at some points of inside the port on 29th showed 290 Becquerel/l radioactive materials radiating beta rays and it was a record-high concentration level inside the port, no significant fluctuation has been confirmed in analysis results of seawater outside the port, therefore the impact of leakage is deemed to be contained inside the port.

On June 3rd, NRA publicized a report on this incident submitted by TEPCO. According to NRA, since installation of a tentative hose in 2013, TEPCO had not conducted periodic inspection in it nor replaced it for tougher one. In addition, the hose had reportedly been bent forcibly and used. Following this, NRA directed TEPCO to investigate the management condition of transferring routes and strengthen monitoring on radioactive materials in seawater inside and outside the port.

(d) The dismantling works of Unit 1 building cover started

On May 15th, TEPCO started the dismantling works of the Unit 1 building cover. This is an important step toward retrieval of the fuel being left in the spent fuel pool of the reactor building.

At Fukushima Daiichi NPS, the reactor buildings of Unit 1, 3 and 4 were damaged by hydrogen explosion at the time of the accident. The whole of Unit 1 reactor building was covered on October 10th 2011 to prevent the scattering of radioactive materials. However, in order to retrieve the fuel from the spent fuel pool in the building, it is necessary to dismantle the cover and remove rubbles piled up on the upper part of the reactor building due to a hydrogen explosion.

In the dismantling works of the cover, preventing the scattering of radioactive materials is highly important. For this reason, anti-scattering agent was sprayed through holes on the roof panels. In addition, anti-scattering agent is being sprayed regularly into the operating floor of the reactor building, on where rubble is piled up.

Though, on May 21st, disconnect was found with the balloon, which has been installed inside the Unit 1 reactor building to reduce the release of radioactive materials, and the work has suspended, on July 28th TEPCO resumed the dismantling work of the cover on a full scale, after fixing the balloon.

TEPCO will remove the six roof panels of the building cover one by one from early August to December. It tries to bring forward the works carefully with spraying anti-scattering agent and keep monitoring the concentration level of radioactive materials around the reactor building. This dismantling work of the cover is aimed to be

completed within FY2016 and rubble removal is scheduled to start for FY2016. Then, fuel retrieval will start FY2019, if the process goes smoothly. In the process of decommissioning, fuel removal is the most important work to reduce risks of radioactive materials.

(e) Removal work of huge rubble lying in the spent fuel pool of Unit 3 reactor building was completed

On August 2nd, TEPCO started an operation to remove the huge rubble from the spent fuel pool of Unit 3 reactor building in the morning, and completed the operation successfully in the afternoon of the same day. This work is an important step toward the decommissioning of the Unit 3.

The huge rubble, which was removed in that operation, weighed close to 20 tons and was the largest among the rubble which had remained in the spent fuel pool of Unit 3 reactor building.

This huge rubble was originally a Fuel Handling Machine (FHM), which was used to put in and take out fuels of the reactor. FHM was deformed and fell off to the spent fuel pool when the hydrogen explosion of the Unit 3 reactor building took place in the course of the accident and it had been lying in the pool as rubble ever since.

Now the decommissioning operation is underway and to steadily implement the measures to decommission the Unit 3 reactor building, TEPCO decided to remove this rubble from the pool.

For the conduct of this removal operation, necessary measures were taken with enough care to mitigate the risks and ensure the safety of the site. Buffering boards were installed in the pool to cover and protect the fuel. During the operation, TEPCO suspended all of outdoor works at the site. In addition, a special apparatus was prepared for this pulling out operation and the work was at any time monitored carefully.

In the Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station (NPS), fuel retrieval from the spent fuel pool of Unit 3 is scheduled to start in Fiscal Year 2017.

(f) Labor environment for NPS workers has been improved

On May 31 2015, a large-scale rest house for workers opened at the site of Fukushima Daiichi NPS, where around 7,000 employees are working per day. As a result, it became possible to serve warm meals to workers in its restaurant of the facility and thus labor environment for workers has been improved significantly.

The rest house building is set up near the main gate of Fukushima Daiichi NPS and has 9 stories with steel frame and a housing capacity of about 1,200 workers. Through connecting corridor, the rest house links to the entry and exit management facility, where screening and decontamination are taken for workers. Without window on the rest house, workers don't need to wear protective clothing inside the building.

The rest house has internal radiation dose measuring equipment on the ground floor. The restaurant on the 3rd floor is able to serve nearly 3,000 meals per day with several varieties to workers. These meals are cooked at a facility in Okuma town, 8 kilometers away from NPS, and delivered into the rest house. The 4th to 7th floors are assigned for rest place.

Until recently, workers had to have frugal meal such as pot noodles or cold prepared foods. These situations turned more comfortable thanks to the rest house. This improvement of labor environment is expected to lead to the safety of works.

(g) The evacuation order was lifted in Naraha-town

On August 7th, the Nuclear Emergency Response Headquarters decided that the designation of “Areas to which evacuation orders are ready to be lifted” in Naraha-town would be lifted this September. It is the first case that the evacuation order on a municipality where all of its residents have evacuated is lifted.

Almost whole region of Naraha has been designated as “Areas to which evacuation orders are ready to be lifted”. Meanwhile, recently it was confirmed that Annual cumulative dose, the total radiation dose which residents in the town would receive per year, is surely below 20mSv, and also the reconstruction of infrastructure necessary for people’s dairy life and decontamination are steadily advancing. In the wake of consultation with Naraha-town and adequate explanation to the residents through briefing sessions or the other means, this lift of the evacuation order was determined.

(h) Interim Storage Facility

(1) Necessity of the Interim Storage Facility (ISF)

Large amount of contaminated soils and waste have been generated during the decontamination work in Fukushima Prefecture. This contaminated soil has been stored at temporary storage sites. Since it is currently difficult to specify the method of final disposal, it is necessary to establish ISF for safe and secured storage until final disposal facilities become available.

(2) Recent updates of this item

On October 3, 2014, the amendment of Japan Environmental Safety Corporation (JESCO) law on the final disposal of contaminated soil and waste outside Fukushima prefecture was approved by the Cabinet and was submitted to the Diet. It was enacted in November 2014.

On November 14, 2014, Ministry of the Environment (MOE) announced the Basic Transportation Plan and finalized the Transportation Implementation Plan on January 28, 2015. From December 2014 to January 2015, Okuma and Futaba towns made each decision to accept the construction of the ISF.

The construction of stock yards started on February 3, 2015.

On February 8, the Minister of the Environment and the Minister of Reconstruction Agency explained to the Governor of Fukushima the progress related to the five conditions which should be confirmed before the transportation of soil to ISF.

The Governor of Fukushima and both mayors of Okuma and Futaba conveyed the acceptance to the Ministry of the Environment and Reconstruction Agency on February 25.

Then “Pilot transportation” of soil from temporary storage sites to the stock yards started in Okuma on March 13 and sequentially in other municipalities. This “Pilot transportation” will be implemented for about a year to confirm safe and secure transport towards full-scale transportation of a large quantity of removed soil.

(iii) Information update on the decommissioning process

Progress status report is published monthly by METI. This report summarizes the recent progress on the decommissioning made after the last report. The summary can be seen under the following URL:

- The Progress status report as of April 30, 2015 is available online

<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150430-e.pdf>

The report describes recent updates on the decommissioning process such as start of coolant functioning test of land-side impermeable walls and investigation inside Unit 1 PCV. The following pictures show a part of the recent progress.



Pictures1: Investigation equipment (Robot)

- The Progress status report as of May 28, 2015 is available online

<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150528-e.pdf>

The report describes recent updates on the decommissioning process such as completion of purification of contaminated water (RO concentrated salt water) and operation of the large rest house. The following figure and pictures show some parts of the recent progress.



Picture 2: Large rest house

- The Progress status report as of June 25, 2015 is available online

<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20150528-e.pdf>

The report describes recent updates on the decommissioning process such as status of dismantling of Unit 1 building cover and acceptance of rubble at the 3rd temporary soil cover type storage.



Picture 3: First rubble acceptance at the 3rd temporary soil cover type storage

(2) Related information

Information provided in the links below includes the description and the schedule of preventive and multi-layered measures for the contaminated issues in order to remove the source of contamination, isolate groundwater from contamination, and prevent further leakage of contaminated water. A summary and a full report are available at the following links.

(Summary)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/131210gaiyou_E.pdf

(Full report)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/131210report_E.pdf

As for other relevant issues, “METI’s website for decommissioning” covers various issues in detail:

- METI's website for decommissioning

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

Progress Status and Future Challenges of the Mid-and-Long-Term Roadmap toward the Decommissioning of TEPCO’s Fukushima Daiichi NPS Units 1-4 (Outline) (METI) (Updated on September 25, 2014)

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20140925_e.pdf

- For NRA’s recent news releases, please see the following link.

<http://www.nsr.go.jp/english/newsrelease/>

- For TEPCO’s activities, please see TEPCO’s website.

TEPCO's website for current situation of Fukushima Daiichi and Daini NPSs

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

2.2 Recent incidents and progress (in the past months since February)

Related information:

- TEPCO Investigating cause of brief water incident at Fukushima Daiichi NPS (TEPCO) (February 24, 2015)

http://www.tepco.co.jp/en/press/corp-com/release/2015/1248327_6844.html

- TEPCO reports results of continuous investigation into relatively high radioactivity in one of several drainage channels in Fukushima Daiichi NPS (TEPCO) (February 24, 2015)

http://www.tepco.co.jp/en/press/corp-com/release/2015/1248334_6844.html

- Decrease of water level around H4 tank area (TEPCO) (March 12, 2015)

http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2015/images/handouts_150312_01-e.pdf

- Fire on the bank of the road on the west side of Units 5 and 6 in the premises of Fukushima Daiichi NPS(TEPCO) (April 1, 2015)

http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2015/images/handouts_150401_01-e.pdf

Section 3: Ongoing measures for decommissioning and contaminated water issues

(a) Effect on reduction of the groundwater inflow to the reactor building was brought about by “groundwater bypassing” at Fukushima Daiichi NPS

(1) Recent update

TEPCO announced this in September 2014 that the operation of “groundwater bypassing” showed effects and the amount of groundwater flowing into the reactor buildings was decreased by 80m³ at the maximum per day.

(2) Conduct of “groundwater bypassing”

“Groundwater bypassing” is one of the countermeasures to reduce the volume of groundwater flowing into the buildings at TEPCO’s Fukushima Daiichi NPS. This countermeasure is to pump out groundwater from wells at the mountainside area beside the reactor buildings and this groundwater will be released to the sea (bypassing) after passing the quality analysis survey. TEPCO and the Government of Japan have been explaining the content, function, and its effect of this countermeasure to the local stakeholders, such as Fukushima prefectural government and fishermen’s unions.

In April 2014, the fishermen’s unions showed their intention to accept the plan of conducting this groundwater bypassing. In addition, from April 9, TEPCO has been making effort to prepare for the actual release of the groundwater such as water quality analysis of the groundwater being pumped up. On May 16, TEPCO and the Government of Japan published water quality analysis results conducted by three different analysis agencies. These results show that the radioactive levels of sampled water were substantially below the operational targets (each of the target is set by TEPCO and these operational targets are set at the very low level compared to the legal discharge limits). As for the detailed analysis results of these three agencies, please refer to the table shown in the following link:

http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/21140514_01a.pdf

Following the fact that TEPCO and the Government of Japan have reported and explained about these detailed analysis results to the local stakeholders, the Government of Japan decided to announce that the groundwater bypassing would be operated (i.e. groundwater being pumped out will be released to the sea) on May 21 2014.

Whenever TEPCO releases groundwater, government officials (*) will check the entire process of the release. In addition to this, TEPCO and the Government of Japan will publish detailed analysis results of the groundwater being pumped up on a regular basis in order to ensure transparency.

* Staff from the Intergovernmental Liaison Office for Decommissioning and Contaminated Water Management near Fukushima Daiichi Nuclear Power Station.

Following this operation, the radioactive analysis of the sea water was conducted by TEPCO (the sea water used for this analysis was sampled during and after the operation at the nearest sea water sampling post from the groundwater releasing point) and no significant change of radioactivity was observed in the analysis.

For further detail of the analysis result, please refer to the following TEPCO’s website:

Section 4: Monitoring results

4.1: Onsite monitoring results reported by TEPCO

-4.1.1 Radionuclide releases to the atmosphere

(1) Outline of the item

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

(2) Noteworthy change in data during the period from May to July 2015

Except for the slight changes in the density of caesium-134, caesium-137 which were nearly negligible, 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.

*No changes in the density of caesium-134 were reported.

* Slight changes in the density of caesium-137 were reported in May on 1, 14, 21 and 28, in June on 4 and 30, and in July on 2 and 16.

(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 “in the air at the site 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>

- 4.1.2 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 km². 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 Groundwater (Unit 1-4 Bank Protection)
http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/tb-east_map-e.pdf
- Analysis Results of Seawater (Outside of the Port)
http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/seawater_map-e.pdf
- Analysis Results of Seawater (Inside of the Port)
http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/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/2014/images/2tb-east_map-e.pdf

4.2: 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 May 2015 to July 2015. 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 May 2015 to July 2015:

- May: <http://radioactivity.nsr.go.jp/en/list/239/list-201505.html>
- June: <http://radioactivity.nsr.go.jp/en/list/239/list-201506.html>
- July: <http://radioactivity.nsr.go.jp/en/list/239/list-201507.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 May 2015 to July 2015 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 10 July, 2015) of dust:

http://radioactivity.nsr.go.jp/en/contents/10000/9991/24/223_20150710.pdf

(2) Soil

Radiation monitoring of soil is conducted as appropriate. The latest monitoring of soil was conducted in July 2015. The following URL leads to the monitoring results (dated July 21, 2015) of soil:

http://radioactivity.nsr.go.jp/en/contents/11000/10030/24/495_20150721.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 May 2015 to July 2015

The estimated and measured values were relatively stable from May 2015 to July 2015. 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>

4.3: 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 May 2015 to July 2015

The sea area monitoring results from May 2015 to July 2015 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>
<http://www.iaea.org/newscenter/news/2013/japan-basic-policy-full.html>

Section 5: Off-site Decontamination

5.1: 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.

5.1.1 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.

5.1.2 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.

5.2: Current status

5.2.1 SDA

- Development of decontamination plans for all 11 municipalities were completed.
- Decontamination work for 4 municipalities (Tamura-city, Kawauchi-village, Naraha-town, Okuma-town) have been completed in accordance with the decontamination plans and decontamination of residential areas have been completed in further 3 municipalities (Katsurao-village, Kawamata-town and Iitate-village) at the end of June 2015.

4.2.2 ICSA within Fukushima Pref. (Outside of Fukushima Pref.) (As of the June 30, 2015)

- Approximately 90% (100% in other prefectures as of March 31, 2015) of planned decontamination projects for public facilities have been completed.
- Approximately 60% (90% in other prefectures as of March 31, 2015) of planned decontamination projects for residential houses have been completed.

5.3: Related information

The MOE has also 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 post 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 6: Food products

6.1: Summary of testing

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

During the month of May 2015, 22,689 samples were taken and analysed. Among these samples, 34 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.15 percent of all samples.

During the month of June 2015, 34,229 samples were taken and analysed. Among these samples, 63 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.18 percent of all samples.

During the month of July 2015, 27,448 samples were taken and analysed. Among these samples, 24 samples were found to be above the limits (caesium-134+caesium-137: 100 Becquerel/kg). This represents 0.09 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.

6.2: 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 May 2015 to July 2015)

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

- (i) Products whose distribution was newly restricted in May 2015
 - Japanese royal ferns produced in Tamura-shi, Fukushima prefecture
 - Koshiabura produced in Ichinoseki-shi, Iwate prefecture
 - Wild aralia cordata produced in Naraha-machi, Fukushima prefecture
 - Ostrich ferns produced in Hirono-machi, Fukushima prefecture
 - Giant butterbur produced in Katsurao-mura, Fukushima prefecture
 - Koshiabura produced in Kijimadaira-mura, Nagano prefecture
- (ii) Products whose restrictions were removed in May 2015
 - Pteridium aquilinum produced in Kitakata-shi, Fukushima prefecture
 - Ostrich fern produced in Kami-machi, Miyagi prefecture
- (iii) Products whose distribution was newly restricted in June 2015
 - none
- (iv) Products whose restrictions were removed in June 2015
 - Log-grown shiitakes (outdoor cultivation) produced in Utsunomiya-shi, Tochigi prefecture that are managed based on shipment and inspection policy set by Tochigi prefecture
 - Log-grown shiitakes (indoor cultivation) produced in Mibu-machi, Tochigi prefecture that are managed based on shipment and inspection policy set by Tochigi prefecture
 - Soybeans produced in Minamisoma-shi (limiting to former Ota-mura) and Motomiya-shi (limiting to former Shiroya-mura) in Fukushima prefecture which is controlled under the management policy set by Fukushima prefecture
 - Cultivated ostrich ferns produced in Osaki-shi, Miyagi prefecture
 - Whitespotted char (excluding farmed fish) captured in Watarase river in Tochigi prefecture (limiting area within Ashio-machi, Nikko-shi and including its branches)
 - Sea raven captured in Fukushima offshore
- (v) Products whose distribution was newly restricted in July 2015
 - none
- (vi) Products whose restrictions were removed in July 2015
 - Soybean produced in Ichinoseki-shi (limiting to former Iwashimizu-mura), Iwate prefecture
 - Hatakewasabi produced in Kawamata-machi (excluding Yamakiya area), Fukushima prefecture
 - Log-grown shiitakes (outdoor cultivation) produced in Kanegasaki-cho, Iwate prefecture that are managed based on shipment and inspection policy set by Iwate prefecture
 - Log-grown shiitakes (outdoor cultivation) produced in Minamisanriku-cho, Miyagi prefecture that are managed based on shipment and inspection policy set by Miyagi prefecture

- Bamboo shoot produced in Kurihara-shi (limiting to former Tsukidate-cho, former Shiwahime-cho, former Takashimizu-machi and former Semine-cho), Miyagi 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.ifa.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.ifa.maff.go.jp/j/housyanou/pdf/report_zenbun.pdf
- Japanese version, summary
http://www.ifa.maff.go.jp/j/housyanou/pdf/report_gaiyou.pdf
- English translation, full report
http://www.ifa.maff.go.jp/e/inspection/pdf/report_on_the_monitoring_of_radionuclides_in_fishery_products.pdf

(iii) Monitoring results data

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

Section 7: 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>

7.1: 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/tepc/index.html>

(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/tepc/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

7.2: 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:

[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>

7.3: Related Information

(1) Press Releases

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

[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/tepcu/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>

(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>

(4) Governmental reports

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

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 aiichi 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 8: Actions taken by the Japanese Government

8.1: Currently implemented public protective actions in place (i.e., food restrictions)

1. Actions have been taken regarding food safety during the period from May 2015 to July 2015
Actions to restrict food distribution or removal of these restrictions are taken based on monitoring results. For the products whose distribution was newly restricted or whose restrictions were removed during this period, please refer to 6.2(2)
2. Further information on this topic is available online:
http://www.mhlw.go.jp/english/topics/2011eq/index_food_press.html
3. Supplementary note (explanation for fishery products)
The scope of the protective actions covers not only agricultural products but also fishery products. For further information about the monitoring result of the fishery products, please refer to Section 6.2(4).

8.2: Measures implemented to improve public communication

1. Information from the last months
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. In 2015 Japan provided updates in May on 19, 26, in June on 9, 16, 30, in July on 7, 14, 21 and 28, and so far in August on 13. 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/page23e_000389.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 impact 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>

8.3: Related organizations dealing with decommissioning and contaminated water measures

1. Fukushima Daiichi Decontamination & Decommissioning Engineering Company

- (1) For the purpose of clarifying the responsibilities allocation and focusing solely on handling of decommissioning and contaminated water at the Fukushima Daiichi NPS, TEPCO established a new company on April 2014, which is an internal entity of the function dealing with decommissioning and contaminated water within TEPCO. For further information, please refer to the following webpage:

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

- (2) The organizational structure of the company

- i. General Administration Dept.
Overall management of the whole company, establishment of support and operational infrastructure, and supporting of the Chief Decommissioning Officer on site.
 - ii. Project Planning Dept.
Schemes of resolution policies and plans for issues related to decommissioning and contaminated water.
 - iii. Fukushima Daiichi NPS
Implementation of countermeasures against decommissioning and contaminated water.
2. Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF)
- (1) “Nuclear Damage Compensation Facilitation Fund”, which was established in 2011 in order to support the compensation for nuclear damage occurred during the accident at the TEPCO’s Fukushima Daiichi Nuclear Power Plant, was reorganized and became “Nuclear Damage Compensation and Decommissioning Facilitation Corporation (NDF).” The reorganized NDF is also in charge of some of the decommissioning issues and is expected to challenge the tasks with expertise and continuity which have not been sufficiently dealt with so far from Mid-and-long term landscape. For further information, please refer to the following webpage:
http://www.ndf.go.jp/soshiki/pamph_e.pdf
 - (2) The roles of the new NDF will be as follows:
 - i. Strategy planning of important issues including fuel debris retrieval and waste
 - ii. Planning and schedule control of R&Ds needs
 - iii. Support of schedule control of key items
 - iv. Enhancement of international cooperation
3. “The Collaborative Laboratories for Advanced Decommissioning Science”
- (1) Japan Atomic Energy Agency (JAEA) established the Collaborative Laboratories for Advanced Decommissioning Science bringing together expertise and knowledge from academia, industry and government in April, 2015. The laboratories are not only to provide TEPCO with technologies gathered during academia-industry-government cooperation and apply research results to the decommissioning and reconstruction of Fukushima, but also to provide a research database as an international public asset.
 - (2) The functions of the laboratories will be as follows:
 - i. Functioning as the center for international research with academia-industry-government
 - ii. Creating international collaborative research promotion system
 - iii. Contributing to human resources development
 - iv. Sharing research results with the international community
4. Related websites
- Information is frequently shared in English on the following websites:
- The Ministry of Foreign Affairs:
http://www.mofa.go.jp/policy/page3e_000072.html

- The Nuclear Regulation Authority:
<http://www.nsr.go.jp/english/>
- The Ministry of Economy, Trade and Industry:
<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html>
- The Food Safety Commission of Japan:
http://www.fsc.go.jp/english/emerg/radiological_index_e1.html
- The Ministry of Health Labour and Welfare:
http://www.mhlw.go.jp/english/topics/2011eq/index_food_policies.html
- The Ministry of Agriculture, Forestry and Fisheries:
http://www.maff.go.jp/e/quake/press_110312-1.html
- TEPCO (Information on water leakage):
<http://www.tepco.co.jp/en/nu/fukushima-np/water/index-e.html>
- TEPCO (General information on activities onsite):
<http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html>

IAEA assessment on aspects presented in the August 2015 report ‘Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS’

Removal of the fuel handling machine from Unit 3 spent fuel pool

TEPCO reported that, on 2 August 2015, the 20 ton fuel handling machine (FHM), “the largest and most complex piece of rubble” was successfully removed from Unit 3 spent fuel pool using two 600-ton cranes with special hooks and clamps. The report describes the comprehensive precautionary measures taken to ensure that the removal was completed safely. These measures included use of oil absorption materials for the possibility of oil leakage from the FHM, adapting special hooks and clamps to lift the FHM with fail-proof mechanisms, training operators in FHM lifting mock-up tests, sprinkling water or anti-scattering agent to prevent dust scattering, and adding a water injection function to the pool in case of water leakage.

The IAEA acknowledges the successful removal of the FHM from the spent fuel pool of Unit 3 by TEPCO and its contractors and the collaboration and cooperation in the preparation and completion of the removal work. The removal of the FHM will allow TEPCO to prepare for removal of the remaining rubble and the 514 spent fuel assemblies from the Unit 3 spent fuel pool. Removal of the fuel is scheduled to start in Fiscal Year 2017 under the Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station (revised in June 2015).

Removal of highly contaminated water from the seawater piping trenches

TEPCO reported that the highly contaminated water has been removed from the seawater piping trenches (underground tunnels housing pipes and cables) on the sea side of Units 2 and 3 and the trenches have been sealed with a special cement. Removal of the water from trenches of Units 2 and 3 was completed on 30 June and 30 July, respectively. TEPCO plans to fill the vertical shafts to block their connection with the turbine buildings and thereby prevent any further inflow of water from the turbine buildings to the trenches. It is also planned that the contaminated water

removed from the trenches will be treated through the water treatment systems, to remove caesium, strontium and other radionuclides.

The IAEA acknowledges TEPCO's removal of the highly contaminated water from the trenches of Units 2 and 3 which reduces the risk of contaminated water leakage.

Measures to control groundwater ingress

The IAEA is aware of the recent discussions with stakeholders, including fishermen's associations, concerning the resumption of the sub-drain system operation. In the final report of the third IAEA International Decommissioning Peer Review Mission, published on 14 May 2015, the IAEA noted that operation of sub-drain systems will contribute to further reduction of groundwater ingress.

Communication and public relation

[TEPCO's press release on 24 August 2015](#) describes the measures taken since February 2015 to improve its ways and actions in terms of communication and public relations, including information disclosure. The details of TEPCO's measures are presented in its report on "[Implementation of New Actions for Information Disclosure](#)". These measures address recommendations from the IAEA visit in April 2015, as described in the final report of the IAEA's third International Decommissioning Peer Review Mission, regarding the leakage of rainwater with relatively high contamination levels at the roof top of the entrance to the Unit 2 service building flowing into the K Drainage channel.

The IAEA encourages TEPCO to continue to review and strengthen its communication procedures within the organization and with external stakeholders and for disclosing information through comprehensive assessment and analysis on how disseminated information is understood by the media and the public at large, in line with the advice related to communication matters given by the past IAEA Decommissioning Missions.

Hydrogen gas in containers and water leakage from a hose

Following the [previous IAEA assessment made in May 2015](#), the IAEA received information from Japan in response to queries sent in June 2015 about two reported events at the Fukushima Daiichi NPS, namely, the generation of hydrogen gas in some containers (High Integrity Containers) and a leakage of water from a hose to the harbor.

The IAEA takes note of TEPCO's investigation of the generation of hydrogen gas inside high integrity containers which states that the possibility of ignition of hydrogen gas generated in the containers by water radiolysis has been assessed to be low. The IAEA also takes note of the measures introduced to address the related issue of liquid level increase inside the containers due to hydrogen gas accumulated in the slurry, resulting in some cases to the ejection of liquid through vents and gaps in the lids of the containers. To prevent leakage through the lid, TEPCO is in the process of draining liquid from the stored containers and, in line with measures suggested during the expert visit in April 2015, new containers are being filled less, with a lower amount of slurry, to prevent leakage through the lid.

Regarding the leakage of contaminated water from a hose into a drainage channel leading to the sea, it has been reported that the volume of leaked water was approximately 15 m³ and its impact was limited within the port, with no significant change in radioactive concentration of seawater outside. According to the information provided, TEPCO has replaced the hose with more durable polyethylene pipe and has taken measures, including enhancing their inspection program, to prevent similar occurrences while transferring contaminated water.

The IAEA takes note of TEPCO's investigation of the causes of the leakage of contaminated water from a hose, as well as of the measures adopted to prevent this kind of events in future.

Sea area monitoring results

Sea area monitoring data continues to be published regularly by NRA. The concentrations of tritium, Sr-90, Cs-134 and Cs-137 in seawater have been low and relatively stable, with no significant changes observed during the last three months (May 2015 to July 2015). The levels of Sr-90, Cs-134 and Cs-137 in marine sediment for the monitored marine areas defined by the Japanese government have also been stable during the past three months (May 2015 to July 2015).

Based on the sea area monitoring results published regularly by the NRA the IAEA notes that the levels of radionuclides in the marine environment remain stable. The IAEA recommends that for the purpose of public reassurance the sea area monitoring should be continued.

Sea area monitoring data quality assurance

An IAEA expert team visited Japan in May 2015 to collect seawater and marine sediment samples from near TEPCO's Fukushima Daiichi Nuclear Power Plant. In November 2015 a second interlaboratory comparison is planned and will include seawater and fish samples. Further proficiency tests and interlaboratory comparisons involving Japanese laboratories will be regularly organized by the IAEA until 2016 to support the quality assurance of reported monitoring data.

Food Products

A comprehensive system is in place to monitor the food supply. The levels of caesium radionuclides in foodstuffs are measured and action is taken to prevent foods with caesium radionuclide levels above the limit entering into the food supply chain. Restrictions are placed on food products from areas where radionuclide levels are found to be above the national regulatory limit. Such restrictions are lifted when extensive testing confirms that food collected from a location no longer exceeds the regulatory limit. Based on the information provided, national regulatory limits for levels of caesium radionuclides in food remain in force, and the authorities in Japan are continuing to implement a programme of food monitoring.

The Joint IAEA / FAO Division understands that systems are in place and are being implemented to prevent food products with caesium radionuclide levels in excess of the national regulatory limit from entering the food supply chain and that food restrictions continue to be revised and updated as necessary, which indicates the continued vigilance of the authorities in Japan and their commitment to protecting consumers and trade.