

# Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS

February, 2014

## Section 1: Executive summary

(1) The fact sheet uploaded in the link below is a summary of the current situation

[http://www.kantei.go.jp/foreign/96\\_abe/decisions/2013/pdf/factsheet.pdf](http://www.kantei.go.jp/foreign/96_abe/decisions/2013/pdf/factsheet.pdf)

(2) Information update from the previous fact sheet

There have been no updates from the previous fact sheet.

(3) The link of the previous fact sheet

There is no previous fact sheet at the moment.

## 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 topic (in past three months)

Newly added topics of the past three months are as follows. For the detail of these issues, please refer to “related information”.

- Decommissioning of Units 5 and 6 at Fukushima Daiichi Nuclear Power Station (Tokyo Electric Power Company (TEPCO)) (January 31, 2014)  
[http://www.tepco.co.jp/en/announcements/2014/1233973\\_5932.html](http://www.tepco.co.jp/en/announcements/2014/1233973_5932.html)
- Nuclear Emergency Response Headquarters decided Preventive and Multi-layered Measures for Decommissioning and Contaminated Water Management (Ministry of Economy, Trade and Industry (METI))(December 20, 2013)  
[http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20131226\\_001.pdf](http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20131226_001.pdf)
- The results of the investigation and examining on the unidentified and unsolved matters of the Fukushima Nuclear Accident (TEPCO)(December 13, 2013)  
[http://www.tepco.co.jp/en/press/corp-com/release/2013/1233101\\_5130.html](http://www.tepco.co.jp/en/press/corp-com/release/2013/1233101_5130.html)
- NRA’s Action to TEPCO’s Fuel Removal from Unit 4, <Vol. 3 >(Nuclear Regulation Authority (NRA))(December 9, 2013)  
<http://www.nsr.go.jp/english/data/131209.pdf>
- Fuel removal from Unit 4 spent fuel pool has started at Fukushima Daiichi NPS (TEPCO)(November 18, 2013)  
[http://www.tepco.co.jp/en/press/corp-com/release/2013/1232272\\_5130.html](http://www.tepco.co.jp/en/press/corp-com/release/2013/1232272_5130.html)
- Nuclear Regulatory Authority (NRA)’s actions toward TEPCO’s fuel removal from Unit 4 reactor building, Fukushima Daiichi NPS (NRA)(November 14 and 15, 2013)

<http://www.nsr.go.jp/english/data/131115-1.pdf>

<http://www.nsr.go.jp/english/data/131114-1r.pdf>

- METI (Ministry of Economy, Trade and Industry) has selected a successful applicant for subsidy project for the contaminated water issue (large scale demonstration project of multi- nuclide removal equipment with superior performance) (METI)(October, 10, 2013)

[http://www.meti.go.jp/english/press/2013/1010\\_01.html](http://www.meti.go.jp/english/press/2013/1010_01.html)

- METI has selected a successful applicant for subsidy project for the contaminated water issue (large scale demonstration project of land-side impermeable walls utilizing the frozen soil method)(METI) (October, 9, 2013)

[http://www.meti.go.jp/english/press/2013/1009\\_01.html](http://www.meti.go.jp/english/press/2013/1009_01.html)

## (ii) Information update on the decommissioning process

Progress status report is monthly made by METI. This report is the summary of the recent progress of the decommissioning made after the last progress status report was publicized. The link of the progress report is as follows:

- The latest Progress status report (as of Nov 28, 2013) is available online

<http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/pdf/20131128-e.pdf>

The report discusses many recent updates to the decommissioning process such as commencement of fuel removal from the Unit 4 spent fuel pool and identification of some of water leakage pathways from Unit 1 PCV. The figure below shows some parts of this new progress.

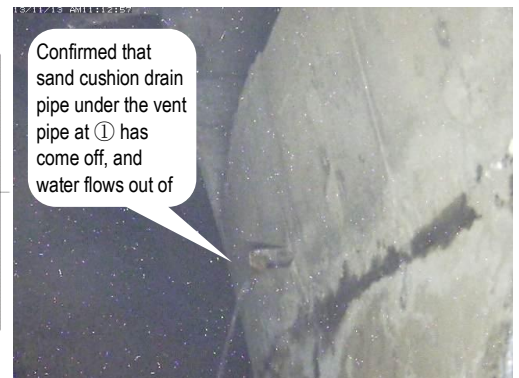
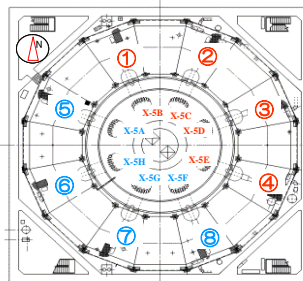


Figure 1: Fuel Removal Operation (Nov 18)

Figure 2: Identified water leakage location

- Archives of the status report are available online:

[http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/#progress\\_status](http://www.meti.go.jp/english/earthquake/nuclear/decommissioning/#progress_status)

## (2) Related information

As for other relevant issues, “METI’s website for decommissioning” covers various issues.

- METI's website for decommissioning

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

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

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

For TEPCO’s activity, please see TEPCO’s website.

- TEPCO's website for current situation of Fukushima Daiichi and Daini nuclear power station  
<http://www.tepco.co.jp/en/nu/fukushima-np/index-e.html>

## 2.2 Recent incidents and progress (in past months)

Related information:

- Water leakage was identified at first floor of Unit 3 Reactor Building at Fukushima Daiichi NPS (TEPCO) (January 21, 2014)  
[http://www.tepco.co.jp/en/press/corp-com/release/2014/1233734\\_5892.html](http://www.tepco.co.jp/en/press/corp-com/release/2014/1233734_5892.html)
- Explanation on steam generation on the operation floor at Unit 3 at Fukushima Daiichi Nuclear Power Station (TEPCO) (January 10, 2014)  
[http://www.tepco.co.jp/en/announcements/2014/1233524\\_5932.html](http://www.tepco.co.jp/en/announcements/2014/1233524_5932.html)
- Water leakage from a desalination system at TEPCO's Fukushima Daiichi NPS (NRA)(October 9, 2013)  
<http://www.nsr.go.jp/english/data/131010-2.pdf>
- Water leakage from a tank in B Tank South Area at TEPCO's Fukushima Daiichi NPS (NRA)(October 3, 2013)  
[http://www.nsr.go.jp/english/e\\_news/data/13/1003.pdf](http://www.nsr.go.jp/english/e_news/data/13/1003.pdf)

## 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 Nuclear Power Station has detected no significant increase in radiation levels.

##### (2) Noteworthy change in data in the past months

Except for the slight changes in the density of Cs-134, Cs-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.

\* Slight changes in the density of Cs-134 were reported on December 13<sup>th</sup>

\* Slight changes in the density of Cs-137 were reported on December 11<sup>th</sup>, 13<sup>th</sup> and 27<sup>th</sup>

##### (3) Monitoring result data

The monitoring results in the air at the site of Nuclear Power Station is available in the following webpage (Please see the calendar titled "in the air at the site of Power Station"). The monitoring result is updated every day in 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 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 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<sup>2</sup>. 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 WHO's guidelines for drinking water.

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

TEPCO issued a report which includes progress status of the ground improvement and historical data of radioactive concentration in the groundwater.

The report is available on: [http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2014/images/handouts\\_2tb-east-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2014/images/handouts_2tb-east-e.pdf)

(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 Unit 1-4 water intake channel). Results of these analyses and analysis results of groundwater are as follows (the information is automatically updated everyday).

- 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](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](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](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](http://www.tepco.co.jp/en/nu/fukushima-np/f1/smp/2014/images/2tb-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 Nuclear Power Station (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 55 points in the zone (the types of detectors used for monitoring are NaI scintillation detectors and/or an 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, 2013).

(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 have been stable in December 2013. 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) in December 2013.

(3) Monitoring results

The following URL leads to the monitoring results of air dose rates in the 20 Km radius zone around Fukushima Daiichi NPS in December 2013:

<http://radioactivity.nsr.go.jp/en/list/239/list-201312.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 in December 2013 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) in December 2013.

The following URLs lead to the monitoring results (dated 27 December, 2013) of dust:

[http://radioactivity.nsr.go.jp/ja/contents/9000/8604/24/223\\_1227.pdf](http://radioactivity.nsr.go.jp/ja/contents/9000/8604/24/223_1227.pdf)

(2) Soil

Radiation monitoring of soil is conducted as appropriate. The latest monitoring of soil was conducted in December 2013. The following URL leads to the monitoring results (dated December 19, 2013) of soil:

[http://radioactivity.nsr.go.jp/ja/contents/8000/7730/24/116\\_1219.pdf](http://radioactivity.nsr.go.jp/ja/contents/8000/7730/24/116_1219.pdf)

(3) Previous monitoring results

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

<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) 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 in December 2013

The estimated and measured values were relatively stable in December 2013. Based on the results, any further announcement was not made on this item (e.g., significant increase of the estimated and measured values) in December 2013.

(3) Monitoring results

The following URL leads to the estimated and measured values, and new monitoring results will be uploaded nearly every day:

<http://radioactivity.nsr.go.jp/en/list/192/list-1.html>

### **3.3: Marine monitoring results of seawater, sediment and biota**

(1) Outline

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

(2) Updates in December 2013

The marine monitoring results in December 2013 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 marine monitoring results) in December 2013.

(3) Related information

The 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 "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). And the NRA has been providing a weekly report on sea area monitoring results. "Readings of Sea Area Monitoring" webpage covers various issues and the webpage's information will be 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>

## Section 4: Food products

### 4.1: Summary of testing

Food samples are routinely monitored to ensure that they are safe for all members of the public. During the month of December 2013, 32,605 samples were taken and analysed. Among these samples, 90 samples were found to be above the limits (Cs-134+Cs-137: 100 Becquerel/kg). This represents 0.28 percent of all samples.

Restrictions are imposed on distribution of food products, if the level of radioactive contaminants of the food product exceeds the limit (Cs-134+Cs-137: 100 Becquerel/kg). Restrictions are to be removed, when the level of radioactive contaminants of the food product is 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.

### 4.2: Results of monitoring food products

#### (1) 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](http://www.mhlw.go.jp/english/topics/2011eq/dl/food-130926_1.pdf)

#### (2) Noteworthy updates in the past month

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

- (i) Products whose distribution was newly restricted in December
  - soybeans produced in Minamisoma-shi (limiting to former Ota-mura)
- (ii) Products whose restrictions were removed in December
  - Alaska Pollock captured in Fukushima offshore, Fukushima prefecture
  - Whitespotted char (excluding farmed fish) captured in Watarase river in Tochigi prefecture (limiting area within Ashio-machi, Nikko-shi and including its branches)
  - Ayu sweetfish (excluding farmed fish) captured in Shiroishi river (limiting upper reaches from Shirahata dam and including its branches) which is one of the branches of Abukuma river in Miyagi prefecture
  - Kiwi fruits produced in Minamisoma-shi (excluding area within 20 km radius from the TEPCO's Fukushima Daiichi Nuclear Power Plant and Planned Evacuation Zone), Fukushima prefecture

#### (3) Monitoring results data

See the link below (a new monitoring result will be added nearly every day):

[http://www.mhlw.go.jp/english/topics/2011eq/index\\_food\\_radioactive.html](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. Further information and the actions taken for the safety of the fishery products, please referred to the fact sheet uploaded in the site (this fact sheet is available in English, French, Spanish, Russian, Chinese and Korean.).

(ii) Monitoring results data

The second half of the website consists of various monitoring results on radioactive level in fishery products.

## **Section 5: Actions taken by the Japanese Government**

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

1. Actions having been taken regarding food safety in December, 2013

Restrictions of food distribution or removal of the restrictions are taken according to the monitoring results. For the products whose distribution was newly restricted or whose restrictions were removed in December, please refer to 4.2(2)

2. Further information is available online:

[http://www.mhlw.go.jp/english/topics/2011eq/index\\_food\\_press.html](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 4.2(4).

### **5.2: 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. During the month of December 2013 the Government of Japan provided several specific updates to the IAEA on 4, 11, 19, 20 and 27 December. In 2014 Japan provided updates in January on 9, 15, 22 and 30 and on 5 February. All of the updates provided to the IAEA are available on this webpage:

<http://www.iaea.org/newscenter/news/2013/japan-basic-policy-full.html>

2. Relevant activities in disseminating information to the public

(1) Press Conference



Recovery operations at 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 the other media, using various means such as press conferences, press briefings, press tours and press releases. For example, the Fisheries Agency 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/policy/page3e\\_000121.html](http://www.mofa.go.jp/policy/page3e_000121.html)

## (4) 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 the 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. 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](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](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](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](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 February 2014 report “*Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS*”**

**The final IAEA Peer review report**

The Final Report of the IAEA International Peer Review on the Mid- and Long-term Roadmap towards the Decommissioning of TEPCO’s Fukushima Daiichi Nuclear Power Station Units 1-4 was published on the IAEA website on 13 February 2014. The mission was conducted from 25 November to 4 December 2013. The report acknowledges Japan’s progress towards preparing Fukushima Daiichi for decommissioning and offers technical and policy advice on a range of issues, including fuel removal efforts, contaminated water management, and waste storage. As for the growing amounts of contaminated water at the site, the report advises that, to find a sustainable solution to the problem of managing contaminated water, TEPCO should consider all options, including the possible resumption of controlled discharges to the sea within authorized regulatory limits. TEPCO was advised to perform an assessment of the potential radiological impact to the population and the environment arising from the release of water containing tritium and any other residual radionuclides to the sea in order to evaluate the radiological significance and to have a good scientific basis for taking decisions. It is clear that final decision making will require engaging all stakeholders, including TEPCO, the NRA, the National Government, the Fukushima Prefecture Government, local communities and others. In this context, the report also stresses that the NRA should further enhance the seawater monitoring programme by coordinating interlaboratory comparisons to ensure good harmonization of the environmental data.

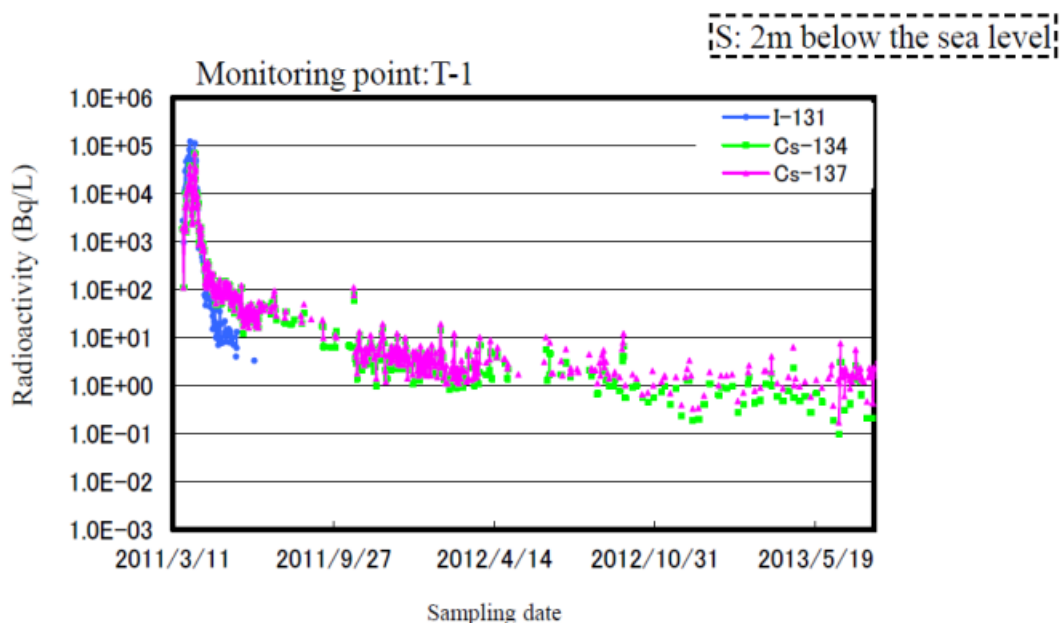
A press release describing the report is available on the IAEA webpage as is the full report:

- <http://www.iaea.org/newscenter/news/2014/decommissioning.html>
- [http://www.iaea.org/newscenter/focus/fukushima/final\\_report120214.pdf](http://www.iaea.org/newscenter/focus/fukushima/final_report120214.pdf)

## Measurements taken in the sea and surrounding areas

There is an intensive sea area monitoring programme established at the Fukushima Daiichi NPS. It comprises seawater collection, sediment and marine biota, and is also focused primarily on fish. Recent results in the sea area around Fukushima Daiichi NPS have indicated that the radionuclide concentration levels outside the port and in the open sea have been relatively stable.

The measures taken by TEPCO to prevent contamination of the sea have shown to be successful. The levels measured in seawater in the vicinity of the F1 area have remained relatively stable. Cs-134 and Cs-137 are in most cases below the detection limit of the analytical methods and are mostly below 1 Bq/L. As a comparison, the concentrations after the accident in March/April and May were about a factor of  $10^5$  (approximately 100,000 times) higher than the present levels. See the following figure to see the trend of some of the measurements at one location over time:



Please note this figure has been taken from this document:

- <http://radioactivity.nsr.go.jp/en/contents/8000/7742/24/engan.pdf>

The Japanese Government has been providing weekly updates to the IAEA on the monitoring results from the marine environment. Based on these reports and the information that has been made available, the IAEA considers the public is safe and sees no reason why this should not continue to be the case in the future.

### Levels of Sr-90:

Recently information has become available reporting some high levels of the radionuclide Sr-90 being measured in the ground water onsite. The high concentration measured in these onsite groundwater samples of Sr-90 (also tritium) show that there are still contamination control issues which will need to be resolved. The IAEA is aware that TEPCO is working on this issue. Based on the information available, this water contamination is confined to the local area around the facility and therefore this issue does not have any radiological impact to the public.

### **Intermittently observed steam from Unit 3**

According to TEPCO's Fukushima Daiichi NPS Prompt Report dated on 3 January 2014, steam has been intermittently observed at the top of the Unit 3 Reactor Building since July 18, 2013. The steam has been observed around the edge of the shield plug of the Primary Containment Vessel, which is the upper structure of the reactor. It was observed on days with comparatively low temperature, with high humidity and after rain had fallen.

TEPCO stated that there were no indications of any new leaks from the reactor vessel or the primary containment from Unit 3 in this time period based on the temperatures measured in the vessel, the monitoring results from onsite detectors and other routinely observed measurement parameters. TEPCO concluded that when there is high humidity in the air and the ambient temperature goes below the dew point of the air, the moisture condenses and water vapour forms. This vapour is fog and is not steam. Based on the information that has been made available, this technical conclusion seems reasonable to the IAEA, and the IAEA considers that reports about steam during this period were in fact about fog.

Note: The dew point is the temperature at which the water vapor in air at constant barometric pressure condenses into liquid water at the same rate at which it evaporates.

### **Regarding the leak at Unit 3**

In January, TEPCO reported that a robot deployed for removing debris had identified water leakage on the first floor of the Unit 3 reactor building. The water was found to be flowing into the basement of the building. Measurements of radioactivity and temperature of the water indicated that the water had likely been in contact with damaged fuel meaning it was coming from the cooling water being actively pumped into the Unit 3 reactor. The source of this leak is assumed to be a location somewhere on the primary containment vessel. TEPCO has been using robotics to pinpoint the locations of leaks in the containment vessels in some of the reactor units on site. The identification of the locations of these leaks in the containment vessels will be important. These locations will eventually need to be repaired which will pave the way for filling the vessels with water in preparation for the defueling operations to come.

### **Regarding discharge limits**

In February, TEPCO announced water discharge criteria for the groundwater bypass system ([http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2014/images/handouts\\_140203\\_04-e.pdf](http://www.tepco.co.jp/en/nu/fukushima-np/handouts/2014/images/handouts_140203_04-e.pdf)). Their proposed operational target discharge limits for Cs-134, Cs-137, gross beta activity (Sr-90) and tritium are lower than recommended limits for drinking water levels as per World Health Organization guidelines. For Cs-134 and Cs-137 the operational target values are the same as the current regulatory limits for discharge in Japan. For gross beta activity and tritium they are lower.

The IAEA considers that if all stakeholders agree and TEPCO is allowed to discharge groundwater as proposed, this would limit the accumulation of contaminated water at the site. The IAEA does

not consider that discharging of water within the proposed criteria would have any impact on the safety of the public.

### **Regarding the monitoring of food products**

The situation with regards to food and agricultural production remains stable. Monitoring of food and agricultural products, both on the market and from production areas, continues and has been in place since the early days of the emergency. The results of monitoring and surveillance of food items does not raise any new or any immediate issues for food products. The revisions and updates to food restrictions indicate the continued vigilance of the authorities in Japan and their commitment to protecting consumers and trade.

Sampling results indicate that caesium radionuclides in the majority of food items sampled are either not measurable or their concentration are below regulatory limits. However, some foods samples (much less than 1 percent) are found to contain levels of caesium radionuclides above regulatory limits (mainly in foods obtained from “the wild” in certain areas). A comprehensive surveillance and control regime remains in place in Japan. The monitoring and sampling regime is used to identify where and when foods become affected as the inventory of caesium radionuclides in the environment is dispersed. The mechanism for placing restrictions on affected food products is based on the results of the surveillance monitoring. Legal measures apply under domestic food law to prevent unacceptable food from being marketed and where necessary further legal restrictions are also applied or up-dated to cover production areas or activities related to the distribution of food. In summary, systems are in place to prevent food and agricultural products with caesium radionuclide levels in excess of the legal limits from entering the supply chain and these systems continue to be implemented.

Based on the information that has been made available, the Joint FAO / IAEA Division understands that the measures taken to monitor and rapidly respond to any issues in the food system regarding radionuclide contamination are appropriate and that the food supply chain is safely under control. The food supply in Japan remains safe.

### **February 6 leak of treated water from the SARRY and RO system**

On 6 February TEPCO provided information to NRA (which in turn provided it to the IAEA) on a leak of 600 liters of treated water from the Simplified Active Water Retrieve and Recovery System (SARRY) and the Reverse Osmosis Desalination Facility (RO). As the leak was isolated to one location on the site and as this leak was of treated water, the IAEA considers based on the information available that the actions taken in response were appropriate, and the IAEA does not consider that this event is significant nor has the safety of the public been impacted.