



## CURRENT STATUS AFTER THE NUCLEAR POWER PLANT ACCIDENT

### COMMUNICATION FROM JAPAN

#### *Revision*

The following communication, received on 15 July 2019, is being circulated at the request of the Delegation of Japan.

## 1 INTRODUCTION

1.1. The purpose of this document is to update the situation of radioactivity surrounding Japanese food eight years after the accident at the Tokyo Electric Power Co. (TEPCO) Fukushima Daiichi Nuclear Power Station (NPS) in March 2011. In particular to update the risk management measures taken to secure food safety and to prevent environmental impacts from the NPS, and the resulting monitoring data, so that more objective assessment of risk and review of the import measures on Japanese food provisionally adopted by the Members would be facilitated.

## 2 FOOD SAFETY CONTROL AND STATUS OF SAFETY IN JAPANESE FOOD

2.1. Japan, since soon after the accident, has started decontamination such as of the crop land and fruit trees, control over feeds and agricultural inputs and introduced a risk-based food monitoring scheme.

2.2. The maximum levels for radioactive caesium in food were set to meet the intervention exemption level of the Codex Alimentarius Commission (Codex), 1mSv/year, a level considered as safe for the public, and in consideration of the released nuclides and with highly conservative and hypothetical assumptions, including that 50% of the food intake is contaminated. Accordingly, the maximum level for food in general is set as 100 Bq/kg in Japan<sup>1</sup>, while the corresponding Codex guideline level is 1,000 Bq/kg and even 10,000 Bq/kg can be adopted for food with small consumption (CXS 193-1995).

2.3. Enforced by the national laws, food products that exceed this stringent maximum level are recalled and disposed of and depending on the geographic prevalence of the detections, their distributions are restricted on an area basis. Japan's regulatory framework thus ensures that food products exceeding the maximum level is neither distributed in the Japanese market nor exported to third countries' market.

2.4. As a result of these comprehensive approaches, food products exceeding the Japanese maximum level drastically decreased in a few years after the accident and detection rates remain low and stable for many years. The sampling is purposive to detect the contamination or to remove the restrictions and the majority of detections is limited to the wild harvest monitored at areas where distribution is already restricted.

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<sup>1</sup> Provisionally 500 Bq/kg before April 2012.

2.5. Since early 2013 (the last case in April), none of the farm products and fishery harvests have ever exceeded the Codex guideline level defined as safe for human consumption, and even the wild edible fungi, fern sprout and leaf buds have not exceeded the level for food with small consumption, similarly for almost six years<sup>2</sup> (the last case in May 2013). The only harvests which still exceed the level is certain game meat, although the detection rate is very low, and those detected are neither distributed nor exported.

2.6. Above all, we need to look at the dose in terms of human health. While food regulation is operationalized through maximum levels in food, what matters is overall annual dose exposure from food. The biannual market basket surveys which have been conducted since September 2011 at plural study sites including Fukushima show that the estimated annual effective dose from radioactive caesium in food has been digits smaller than the intervention exemption level of 1 mSv/year and is currently only detected at micro level.<sup>3</sup> The effect is significantly lower for consumers in foreign countries, considering the committed share of Japanese food imports in the total food consumption.

2.7. The Joint FAO/IAEA Division stated on 6 June 2018, Japan's "measures to monitor and respond to issues regarding radionuclide contamination of food are appropriate", and "the food supply chain is controlled effectively by the relevant authorities".

### **3 IAEA'S ASSESSMENT OF WATER MANAGEMENT AT THE NPS AND THE MARINE ENVIRONMENTAL IMPACT**

3.1. With a number of measures in place, the impact on the surrounding environment has been greatly reduced. Japanese government and TEPCO under close consultation with the IAEA, have taken substantial measures to manage the contaminated water generated by groundwater and rainwater flowing inside the unit 1-4 buildings of NPS.

3.2. Recent IAEA Mission in November 2018 reported that:

- TEPCO is implementing a comprehensive set of countermeasures to reduce the rate of arising of contaminated water, to prevent leakages and uncontrolled discharges into the sea, and to process it and store it safely;
- The ingress of groundwater into the reactor and turbine buildings has significantly been reduced since the last IAEA Review Mission (in 2015) by stable operation of the groundwater bypass and the sub-drain, by the installation of the frozen-soil impermeable wall around the reactor and turbine buildings of the Units 1-4, and by paving the surfaces on the site to prevent ingress of rainwater into the soil;
- The highly contaminated water from the reactor and turbine buildings is continuously treated and purified, and the water level inside the buildings has successfully been maintained at levels ensuring prevention of leakage out of the buildings. The operation of the purification systems for contaminated water is stable and reliable;
- The construction of the impermeable sea wall and relocation of drainage channels has further improved the protection of the marine environment;
- Sampling of water and measurements of concentrations of several radionuclides are being regularly performed at the drainage channels, inside the harbour area and from the sea outside of the harbour;
- Japan continued reporting sea area monitoring results and that there have been no significant changes since the last report (in 2015). These monitoring results continue to be published regularly by NRA (Nuclear Regulation Authorities), TEPCO and Fukushima Prefecture.

3.3. IAEA monthly confirms the report on the groundwater discharge record and the seawater monitoring results at the NPS that "the radiation level of sampled water are substantially below the operational targets set by TEPCO", lower than the legislative requirement in Japan. IAEA, on 20 December 2013, assessed that "The monitoring results that have been provided for the surrounding sea region and off shore areas indicated no rise in radionuclide concentrations and remain within the WHO guidelines for drinking water".

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<sup>2</sup> None of them have exceeded the guideline level since the last case in Sep 2016.

<sup>3</sup> Maximum 0.0011mSv/year in early 2018, 1/1000 of the intervention exemption level.

3.4. It is well established that when the radioactive caesium in seawater decreases due to dispersal and dilution, the concentration of caesium in marine fish also decreases gradually, and that clay in marine soil absorbs and traps the caesium in water. Therefore the caesium in soil has no significant effect on fish, even demersal fish living at the bottom of the sea. This is proved by the monitoring results and even fish exceeding the Japanese maximum level is only rarely detected nowadays, at the level which gives no significant effect to the human health.

#### 4 TRANSPARENCY

4.1. Japan has been publishing food and environmental monitoring data, as well as relevant information and data concerning on the NPS, through our English websites described in the "references". The status of seawater around the NPS can be viewed in real-time through TEPCO website and weekly at NRA website.

4.2. In addition, on 26 March 2019, the Japanese government have co-organized with OECD Nuclear Energy Agency a joint symposium "Decommissioning, Reconstruction, Rehabilitation, and Food Safety: Rebuilding Post-Accident Confidence", to help foster an accurate and common understanding of the situation in the Fukushima prefecture, which can be viewed at <http://www.oecd-nea.org/rp/webinars/2019/food-safety/>.

#### 5 CONCLUSION

5.1. In summary, the evidence shows that Japanese food has been safe for the public for many years and we have very rigid control system in place which guarantees trade of safe food for both domestic and international market. Risk of water contamination at NPS is constructively managed and there has been no detectable change of marine environment. The health risk should be evaluated by the dose of exposure by food intake, and as previously explained, from the accumulated chronological data obtained in the past eight years, there is no detectable potential of food contamination which raise concerns on food safety, attributable to the environmental changes caused by the nuclear accident.

5.2. In response to the accident, 54 countries and regions introduced import measures on Japanese food, and 32 have completely lifted them based on an objective assessment. However, 22 still maintain the measures, such as import bans, additional test requirement and certificates, and even set ZERO (non-detectable) level tolerance at border inspection. Given the above-mentioned scientific evidence, there is no need to impose extra import control measures on Japanese food and Japan requests Members to remove their measures.

#### References

- 1) One stop "Reference", Ministry of Agriculture, Forestry and Fisheries (MAFF), Japan <http://www.maff.go.jp/e/export/reference.html> (To be uploaded by 12 July)

#### Presentations

- a. Request and justification for lifting the import measures on Japanese food regarding radionuclides, Food Industry Affairs Bureau, MAFF
- b. Management of contaminated water at the TEPCO's Fukushima Daiichi Nuclear Power Station, Agency for Natural Resources and Energy, Ministry of Economy, Trade and Industry
- c. Status of water environment around the NPS and the impact to the marine fish, Fisheries Agency, MAFF

#### Links - Japan

- a. Information on the Great East Japan Earthquake – Food, Ministry of Health, Labour and Welfare ([https://www.mhlw.go.jp/english/topics/2011eq/index\\_food.html](https://www.mhlw.go.jp/english/topics/2011eq/index_food.html))
- b. Mid-and-Long-Term Roadmap towards the Decommissioning of TEPCO's Fukushima Daiichi Nuclear Power Station Units 1-4 (<https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html>)
- c. BOOKLET to Provide Basic Information Regarding Health Effects of Radiation, Chapter 7 Environmental Monitoring, Ministry of Environment (<http://www.env.go.jp/en/chemi/rhm/basic-info/index.html>)

- d. Monitoring information of environmental radioactivity level, Nuclear Regulation Authorities  
(<https://radioactivity.nsr.go.jp/en/>)
- e. Radioactive Concentration measured by Seawater Radiation Monitor near Fukushima Daiichi Nuclear Power Station  
(<http://www.tepco.co.jp/en/nu/fukushima-np/f1/seawater/index-e.html>)

Links - International organizations

- 2) GENERAL STANDARD FOR CONTAMINANTS AND TOXINS IN FOOD AND FEED (CXS 193-1995)  
<http://www.fao.org/fao-who-codexalimentarius/codex-texts/list-standards/en/>
  - 3) Fukushima Daiichi Status Updates  
<https://www.iaea.org/newscenter/focus/fukushima/status-update>
    - a. IAEA assessment on aspects presented in the June 2018 report "Events and highlights on the progress related to recovery operations at Fukushima Daiichi Nuclear Power Station", p35  
<https://www.iaea.org/sites/default/files/18/06/events-and-highlights-june-2018.pdf>
    - b. IAEA assessment on aspects presented in the December 2013 report "Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS", pp34-35  
<https://www.iaea.org/sites/default/files/recoveryoperations201213.pdf>
  - 4) IAEA INTERNATIONAL PEER REVIEW MISSION ON MID-AND-LONG-TERM ROADMAP TOWARDS THE DECOMMISSIONING OF TEPCO'S FUKUSHIMA DAIICHI NUCLEAR POWER STATION (Fourth Mission) Tokyo and Fukushima Daiichi NPS, Japan 5-13 November 2018  
<https://www.iaea.org/sites/default/files/19/01/missionreport-310119.pdf>
  - 5) Interlaboratory Comparisons 2014–2016: Determination of Radionuclides in Sea Water, Sediment and Fish, IAEA Analytical Quality in Nuclear Applications Series No. 59, 2019  
<https://www.iaea.org/publications/13470/interlaboratory-comparisons-2014-2016-determination-of-radionuclides-in-sea-water-sediment-and-fish>
  - 6) Decommissioning, Reconstruction, Rehabilitation, and Food Safety: Rebuilding Post-Accident Confidence, OECD Nuclear Energy Agency  
<http://www.oecd-nea.org/rp/webinars/2019/food-safety/>
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