Update of Japan's Comprehensive Report on Conditions at TEPCO's Fukushima Daiichi Nuclear Power Station on IAEA's webpage

The Government of Japan has updated the comprehensive report located on the IAEA's webpage. This report is provided by the Government of Japan to the IAEA with the purpose of disseminating the necessary information to the international society related to the events and highlights of the recovery operations at Fukushima Daiichi Nuclear Power Station (NPS).

The updated report as of February 17th, 2014 is uploaded in the following link:
http://www.iaea.org/newscenter/news/2014/infcirc_japan0214.pdf

The same information can also be found at the following websites.

Ministry of Foreign Affairs:
http://www.mofa.go.jp/dns/inec/page18e_000038.html

Prime Minister of Japan and His Cabinet:
http://www.kantei.go.jp/foreign/96_abe/decisions/2014/osensui_e.html

Summary of IAEA assessment on aspects presented in the February 2014 report *"Events and highlights on the progress related to recovery operations at Fukushima Daiichi NPS"*

1. Measurements taken in the sea and surrounding areas
   The IAEA considers the public is safe and sees no reason why this should not continue to be the case in the future.
2. High levels of Sr-90 measured in September 2013
   The water contamination is confined to the local area around the facility and therefore this issue does not have any radiological impact to the public.
3. Intermittently observed steam from Unit 3

The TEPCO's report on January 3, 2014 concluded that the vapor being observed since last July was not steam but in fact fog. The IAEA considers this technical conclusion to be reasonable.

4. Regarding the leak at Unit 3
   In January, TEPCO reported that there was water leakage on the first floor of the Unit 3 reactor building. TEPCO has been working on pinpointing the locations of the leaks. The identification of the locations of these leaks in the containment vessels will be important.
5. Regarding discharge limits
   In February, TEPCO announced water discharge criteria for the groundwater bypass system. The IAEA does not consider that the discharge of water within the proposed criteria would have any impact on the safety of the public.
6. Regarding the monitoring of food products
   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.
7. February 6 leak of treated water from the SARRY and RO system
   On February 6 TEPCO provided information to NRA on a leak of 600 liters of treated water. 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.

An excerpt from the IAEA's full report:

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

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). 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 up-dates 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.