

Information Circular

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Communication received on 17 November 2022 from the Permanent Missions of the People's Republic of China and the Russian Federation to the Agency

1. On 17 November 2022, the Secretariat received a communication from the Permanent Missions of the People's Republic of China and the Russian Federation.
2. As requested, the communication, together with its attachment, is herewith circulated for the information of all Member States.


H.E. Mr. Rafael Mariano Grossi
Director General
International Atomic Energy Agency
Vienna

Vienna, November 2022

Dear Director General,

We have the honour to inform Your Excellency that China and Russia would like to present our Feedback on Japan's Reply to the Joint List of Technical Questions by the People's Republic of China and the Russian Federation on the Disposal of the Japanese Fukushima Nuclear Contaminated Water, and kindly request the Secretariat of the IAEA to circulate this letter with the attachment as an Information Circular (INFCIRC) for information of all Member States.

Accept, Excellency, the assurances of our highest consideration.



Wang Qun
Ambassador Extraordinary and
Plenipotentiary and
Permanent Representative of the
People's Republic of China to the
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Organizations in Vienna



Mikhail Ulyanov
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**Feedback of China and Russia on Japan's Response to the Joint
List of Technical Questions by the People's Republic of China and
the Russian Federation on the Disposal of the Japanese
Fukushima Nuclear Contaminated Water**

After careful study by experts of China and Russia, we think most of the Japanese side's answers dated 20 July 2022 (INFCIRC/1007) to the *Joint List of Technical Questions by the People's Republic of China and the Russian Federation on the Disposal of the Japanese Fukushima Nuclear Contaminated Water* failed to address the concerns of China and Russia. Particularly on questions about crucial and fundamental issues such as the decision-making on the discharge of the nuclear contaminated water into the sea, its long-term safety impact, and the quality assurance of monitoring, the Japanese side has failed to answer either by distorting concepts, evading the crucial part or even refusing to talk about the matter at all. Detailed feedback from China and Russia is set out as follows:

I. Questions about Nuclear Contaminated Water Disposal

【Question 1】

The Japanese side stated that the storage tanks in which the nuclear contaminated water is currently stored occupy a vast amount of space, and dismantling the tanks is to construct facilities which temporarily store the removed fuel debris, these reasons are completely untenable. There is sufficient land space around the Fukushima Daiichi Nuclear Power Station (FDNPS) for the construction of decommissioned waste storage facilities. The Japanese government should do its best to solve the problem within its own territory, and should not transfer the risk of nuclear contaminated water to the ocean, which is the common wealth of human society, and to stakeholders including neighbouring countries.

【Question 2】

While the IAEA Task Force has not reached a final conclusion, the Nuclear Regulation Authority (NRA) of Japan has approved the construction of dilution and discharge facilities for nuclear contaminated water. This is a clear indication that the Japanese side has not seriously taken the review results of the IAEA Task Force as the basis for the decision-making on the discharge of nuclear contaminated water into the sea. With regard to disposal options for nuclear contaminated water, the IAEA recognized the feasibility of two disposal technologies including vapor release and discharge into the sea,

but the Japanese side did not explain the reason for choosing discharge into the sea but excluding vapor release, nor did it give a convincing explanation for denying other disposal methods.

The Japanese side has suggested that the discharge is planned to take place in Japan's territorial sea. However, the ocean is an open environment and the contaminants therein will not remain only in Japan's territorial sea, but also be distributed throughout the marine environment, which will certainly expand the scope of impact.

The Japanese side has stated that if the nuclear contaminated water is discharged to Japan's land territory, it would require transportation of a large volume of non-diluted nuclear contaminated water, which would bear the risks of leakage and other accidents. This fully reflects that the Japanese side also believes that these non-diluted nuclear contaminated water has safety risks and must rely on dilution and diffusion to the sea to mitigate its own impact. Therefore, discharging the nuclear contaminated water into the sea is actually transferring safety risks to the world.

【Question 3】

Whether the nuclear contaminated water can actually meet the standards after treatment by the ALPS is a critical issue that the Japanese side has been trying to circumvent. There is no detailed descriptions of the processing parameters and performance indicators of the ALPS from the current answer of the Japanese side. The Japanese side should fully explain the reliability of the ALPS treatment process, formulate a comprehensive and effective quality assurance procedure, and accept the supervision of stakeholders to ensure that the nuclear contaminated water does not affect the marine environment and neighbouring countries. Given the history record of data falsification by TEPCO, the data of the nuclear contaminated water treated by the ALPS has been questioned by various parties.

According to the answers provided by the Japanese side, TEPCO has conducted secondary treatment performance tests, and invited a third-party organization to conduct sample analysis. The results showed that the sum of ratios of legally required concentrations to discharge limit of radionuclides other than tritium was less than 1. Please indicate: What was the flow rate during the test? Is there a plan for the secondary (or multiple) treatment of all tanks?

【Question 4】

The Japanese side did not answer this question directly. This question is mainly about the radioactivity monitoring before, during and after the ALPS treatment of the nuclear contaminated water, but the Japanese side's reply focuses on the environmental

monitoring of the ocean after the discharge of the nuclear contaminated water, which is completely irrelevant.

Noting that the Japanese side has formulated a "Comprehensive Radiation Monitoring Plan", we hope to see the revised plan by Japan according to the opinions of the IAEA Task Force and the specific monitoring plan mentioned by the NRA, which will include the monitoring of seven major radionuclides (Cs-134, Cs-137, Co-60, Ru-106, Sb-125, Sr-90, I-129). In addition, the Japanese side should also highlight the quality assurance measures for monitoring.

Please explain how to set the early warning level of monitoring.

【Question 5】

With regard to the representativeness of sampling, the Japanese side has repeatedly stressed that homogeneity can be achieved, but has not yet fully explained it. We are concerned about the stirring method chosen by the Japanese side, the representative sampling method selected, and how to verify its homogeneity through simulation calculations and experiments.

【Question 7】

In addition to the detailed description of the 64 nuclides listed, the Japanese side should also explain what exactly are the so-called radionuclides with "extremely low concentration", what detection methods are used for these radionuclides, and what are the detection limits. If the Japanese side gives detailed information on the above issues, it can be used by other laboratories with testing ability to judge whether the detection limit can be further reduced by increasing the sampling amount, extending the sample testing time and other methods, so as to make a clear judgment on whether the concentration is sufficiently low.

【Question 8】

The Japanese side should provide the basis for the measurement methods of all nuclides contained in the nuclear contaminated water and the quality assurance procedures for the measurement to ensure the credibility of the monitoring results.

【Question 9】

The Japanese side should further explain the quality assurance procedures supporting the monitoring plan and the plan to conduct supervisory monitoring. The Japanese side should invite stakeholders including neighboring countries to sample and monitor the nuclear contaminated water as well as the sea areas where it is discharged.

【Question 10】

Japan's reply only stated that the IAEA was invited to conduct monitoring, but did not answer directly whether it intended to invite stakeholders including neighbouring countries to make evaluations, whole-process supervision and independent monitoring. The Japanese side should make a direct and clear response to this.

【Question 12】

Please specify where the "radiation monitors" are installed and provide details of their performance, in particular the detection limits of radiation.

"Online monitoring device" refers to the device used for the real-time dynamic monitoring.

【Question 13】

The Japanese side did not fully answer this question. For example, there was no adequate response to the questions on the supervision department of the implementation of the monitoring programme, and verification of the implementation of the monitoring programme by stakeholders and neighbouring countries. At the same time, the types of nuclides monitored by Japan for seawater, sediments and aquatic organisms are insufficient, which do not fully cover the nuclides of concern in the nuclear contaminated water.

【Question 14】

As for whether the key samples will be retained and adopted for remeasuring by international agencies, stakeholders and neighboring countries, Japan did not answer the question directly and should make clear explanation on that. If yes, please specify the plan and its implementation; If not, please provide the reasons.

【Question 15】

In consideration of the safety of waste storage and management, please specify the methods, options and plans of the final waste disposal. How to prevent leakage so as to refrain from any impact on the Pacific Ocean and neighbouring countries?

【Question 16】

The Japanese side only briefly introduces the thaw of the frozen soil wall, but does not explain how to ensure that its impervious function can be maintained, which is key to prevent the frozen soil wall from thawing again so as to prevent the outflow of nuclear contaminated water. The Japanese side should provide further details of the test methods and quality assurance measures for the impervious performance of the frozen soil wall. In addition, the Japanese side should take timely and effective measures to control the generation of nuclear contaminated water and disclose relevant information.

II. Questions about Radiological Impact Assessment Report Regarding the Discharge of ALPS Treated Water Into the Sea

【Question 2】

The social, economic, ecological and other impacts caused by the discharge of nuclear contaminated water are by no means only limited within Japan itself. It has aroused widespread attentions and serious concern of the international community. If Japan discharges nuclear contaminated water into the sea, the contaminants will inevitably spread to other countries' waters. The Japanese side should take full account of the opinions of neighboring countries and other stakeholders and enable them to participate in the relevant decision-making process.

【Question 5】

The concentration distribution of nuclear contaminated water in the Pacific Ocean varies greatly due to the influence of ocean currents. The Japanese side should carry out simulation calculations on the transport diffusion of nuclides in the North Pacific Ocean, or even all global waters.

【Question 6】

The Japanese side assumed that tritium in the assessed mesh was spread out with uniformity immediately, but the actual process of dilution and dispersion require time and space. The tritium concentration near the discharge outlet, where tritium is not fully mixed, will be underestimated significantly. This will lead to underestimated radiological impact in the area.

In addition, when using annual average amount of tritium radioactivity and concentration at the discharge outlet to assess the radiological impact, the Japanese side has to ensure the homogeneity of daily discharge amount of radioactive substances throughout the year. How will the Japanese side control the daily discharge amount?

【Question 7】

Accident analysis and emergency preparedness are crucial for nuclear facilities. The Japanese side should conduct accident analysis and emergency preparedness on dilution and discharge facilities of the nuclear contaminated water, and formulate and release a detailed emergency plan. Meanwhile, the Japanese side should invite the stakeholders, including neighboring countries, to jointly participate in this process.

【Question 8】

The Japanese side mentioned that 22 TBq/a is the limit of annual discharge amount of tritium, which is a different concept from the 60,000 Bq/L concentration limit. If the

concentration limit can be met by dilution, then what is the point for setting the limit of annual discharge amount?

In the meantime, it should be noted that nuclear contaminated water generated by nuclear accident is not comparable to liquid effluents discharged from normally operating nuclear power plants.

【Question 9, 10 & 11】

The Japanese side did not answer these questions directly. The Japanese side did not conduct risk assessment on the combined exposure toxicity of radionuclides and other contaminants, and on the long-term health effects caused by Auger electrons of tritium and carbon-14. The Japanese side did not explain the methodology and results of the assessment on the enrichment of radionuclides in certain foods and their long-term health effects caused by biological chain transfer following the discharge of nuclear contaminated water.

Japan's answer claimed that ALPS is equipped with various filters to remove the 62 radionuclides identified to levels below regulatory standard, but the Japanese side did not explain the effect of radiation exposure and chemical toxicity on the nuclear power plant staff operating the front-end ALPS device (such as changing filters). Please provide additional information.

【Question 12】

The Japanese side didn't answer the question clearly. The Japanese side did not take full consideration into relevant factors when formulating and adopting the policies. The Japanese side should make necessary adjustments or changes to relevant policies through various methods, including hearings and public consultations.

【Question 13】

The Japanese side should further explain the range and basis for identifying abnormal values or levels of concentration exceeding the regulatory standards for discharge after dilution, and whether the current monitoring method is able to identify abnormal values.

【Question 15】

Please provide relevant scientific basis, including results of relevant verification experiments, etc.

【Question 16】

The Japanese side should provide information on the radiological impact on people, food sources, and offshore operations in larger sea area, including the North Pacific.

【Question 17】

The reference plants and animals set by the ICRP is mainly used for ecological impact assessment. The Japanese side should consider more about species near the discharge outlet and in surrounding sea areas.

【Question 18】

The Japanese side should take the specific population group who prefer marine product into consideration during evaluation and calculation, and the considered amount of marine product intake should include possible maximum intake.

【Question 19】

Compared with the relatively lengthy time range of 30 years of discharging the nuclear contaminated water into the ocean and much longer time of its subsequent impacts, the ocean current data on which the Japanese report based is too short in terms of time periods to reflect the fluctuation of ocean current. The fluctuation of ocean current in a larger time period should be considered.

【Question 20】

The Japanese side did not answer clearly why an independent third party was not invited to carry out the relevant assessment, and the independence issue between the assessment bodies and the owner remains. The various issues raised by the IAEA Task Force have verified that there are still omissions in the relevant work of the Japanese side. Meanwhile, TEPCO has a history of repeated data falsification. The Japanese side should take more adequate measures such as inviting independent third party to carry out the environmental impact assessment seriously .

It should be highlighted that China and Russia, as stakeholders, should participate in the third party assessment. The IAEA Task Force includes experts from China and Russia, but this is not equal to the involvement of China and Russia in the third party assessment.