

Announcement of the Basic Policy on handling of the ALPS treated water at TEPCO's Fukushima Daiichi Nuclear Power Station (FDNPS)



TEPCO's Fukushima
Daiichi Nuclear
Power Station

- Based on more than six years of comprehensive study by experts, reviews by the IAEA, and engagement with parties concerned, the Government of Japan published **the Basic Policy** on handling of the ALPS (Advanced Liquid Processing System) treated water at FDNPS on 13 April 2021.
- Subject to the approval of the independent Nuclear Regulation Authority (NRA), TEPCO will conduct the discharge into the sea (envisaged to take place approximately after two years).

GOJ will engage to ensure safety of discharge, transparency, and accountability

1. Safety of the Discharge will be ensured

- (1) **The water will be purified/re-purified and diluted to meet regulatory standards** (p2)
- (2) **Potential impact on the environment has been assessed, and more will be done** (p3)
 - Radiological impacts were assessed with UN-designed methodology and diffusion simulation.
 - Additional measures based on international standards and practices will be taken. (To be published in due course.)
- (3) **Monitoring projects will be strengthened and enhanced (e.g. sea water, fish)** (p3)

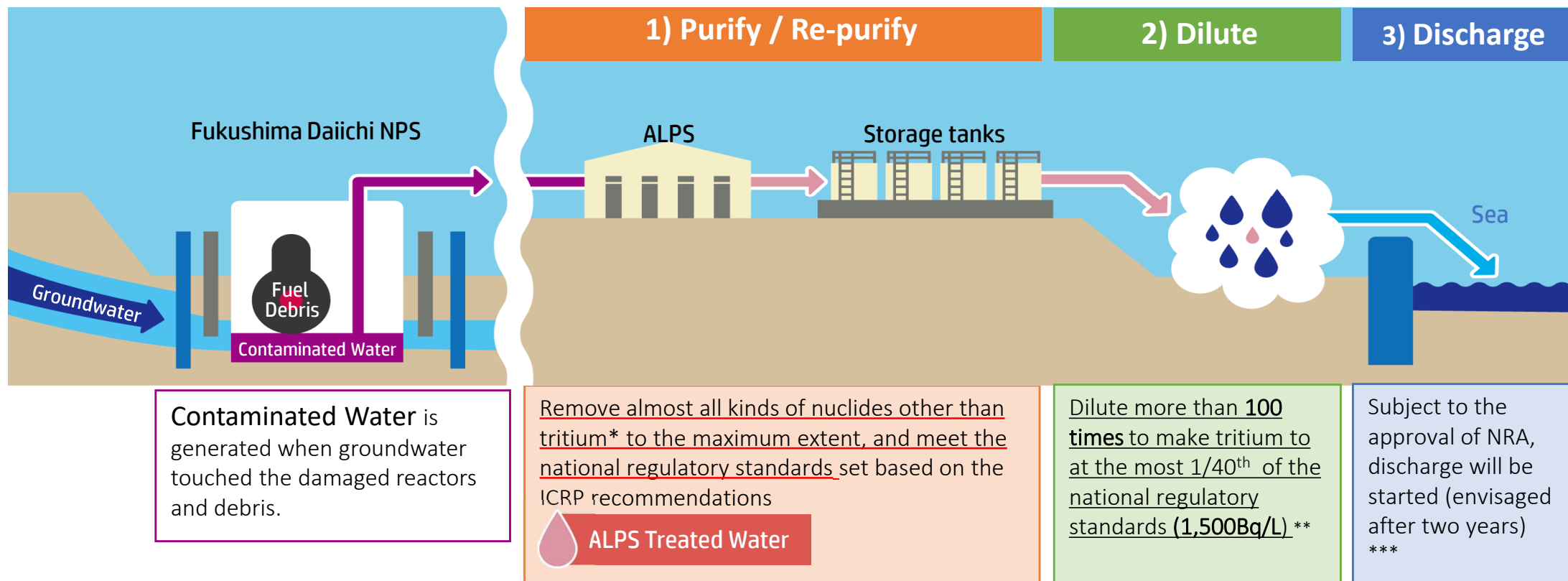
2. Transparency and Accountability will be maintained (p4)

- Information based on scientific evidence will be provided in a transparent manner
- Cooperation with the IAEA will be continued (e.g. review missions, monitoring projects)

1. Safety of discharge

(1) Three Step Approach to meet the regulatory standards for discharge

Japan's regulatory standards for discharge are set based on the recommendations of the International Commission for Radiological Protection (ICRP), keeping additional public radiation below 1mSv/year.



*Carbon-14 also cannot be removed through purification process, but Carbon-14 contained in the water stored in tanks is far below the level of national regulatory standards (at the most $1/10^{\text{th}}$ of the standard). After dilution, the level of Carbon-14 will go down to at the most $1/1000^{\text{th}}$ of the standards.

**Concentration of the nuclides other than tritium becomes negligible in purification/re-purification and dilution process.

*** Annual emission of tritium will be less than 22 trillion Bq/year.

1. Safety of discharge

(2) Assessment of the potential impact on the marine environment

A: Radiation impact assessment to the public (UNSCEAR*-methodology)

- The impact to public will be less than 1/100,000 of natural radiation exposure (2.1 mSv/year) in Japan.

Premise: This estimate is calculated, assuming that 22 trillion Bq per year of tritium and other radionuclides in the ALPS treated water will be discharged after the ALPS treatment.

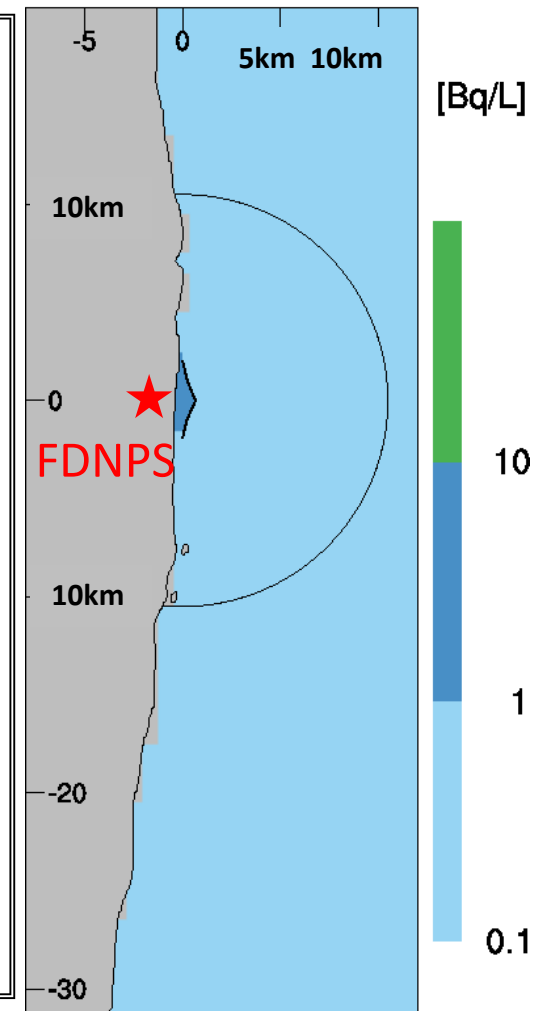
* United Nations Scientific Committee on the Effects of Atomic Radiation

B: Diffusion simulation (Picture)

- The areas in which tritium concentration exceeds the background level (1 Bq/L) will be limited to within 2km from the FDNPS.
- Even in the areas, the tritium concentration (1 to 10 Bq/L) is far lower than the WHO drinking water guideline value (10,000 Bq/L).

Premise: 22 Trillion Bq of tritium (the operational target value for discharge before the accident) is discharged per year. Planned discharge will be conducted within this target.

⇒ Additional measures based on international standards and practices for the assessment will also be taken. (To be published in due course.)



(3) Environmental monitoring

- The Government will strengthen and enhance monitoring before and after the discharge in cooperation with the international community.
- Transparency will be ensured by activities such as IAEA monitoring project.

2. Transparency and accountability

1) Providing scientific evidence and information

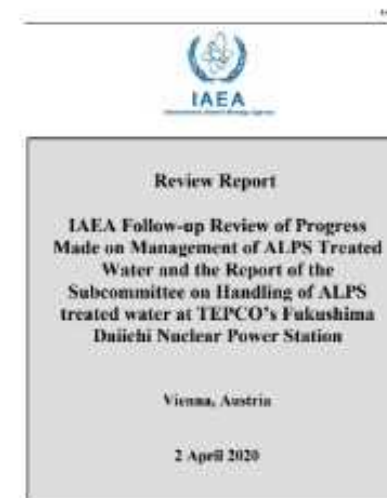
- **Briefing sessions** for media and diplomatic missions
- **Monthly Report** on the discharge record and monitoring results
- **Technical briefings** on occasions of international conferences
- **IAEA Reports** on the FDNPS decommissioning and the surrounding areas
(<https://www.iaea.org/newscenter/focus/fukushima/status-update>)
- **Relevant Information (METI website)**
(<https://www.meti.go.jp/english/earthquake/nuclear/decommissioning/index.html>)



The 105th briefing session (Feb 3, 2020)

2) IAEA experts' findings (April 2, 2020)

- The IAEA Review Team assessed **“The two options selected (discharge into the sea and vapor release) are technically feasible and would allow the timeline objective to be achieved.”**
- The IAEA Review Team also notes that the **ALPS treated water will be further purified as necessary** to meet the regulatory standards for discharge before dilution.
- The IAEA Review Team is **not aware of a solution currently available for the separation of tritium** commensurate with the concentration and the volume of ALPS treated water.



<https://www.iaea.org/sites/default/files/20/04/review-report-020420.pdf>