Discharge of ALPS treated water from Fukushima Daiichi Nuclear Power Station

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Department of Nuclear Safety and Security

IAEA Director General Statement:

- "We will monitor the controlled discharge **before, during and after**."
- "The IAEA is here and will continue until the very last drop."

– DG Grossi

IAEA Director General

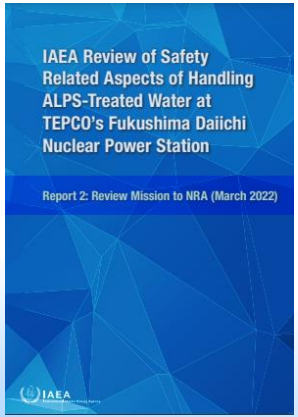
“before discharge”

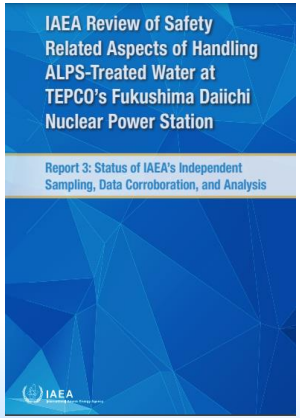
IAEA activities before discharge:

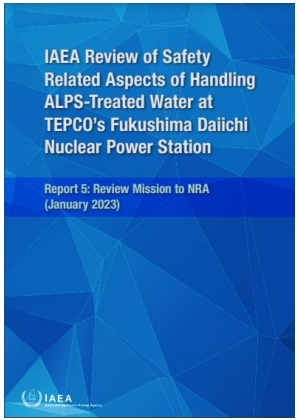
- ***Establishment of a comprehensive review process***
- ***IAEA Task force established***
- ***Conducted multiple technical reviews and missions to Japan***
- ***Independent monitoring capabilities / Establishment of the IAEA Laboratory in Fukushima***
- ***Issuing the IAEA Comprehensive Report on the Safety Review of the ALPS-Treated Water at the FDNPS***
- ***Robust outreach and communication***

Review Missions and Reports – Before Discharge

- **Report 1** –April 2022
  - Summarizes first mission to TEPCO/METI in February 2022.
- **Report 2** –June 2022
  - Summarizes first mission to NRA in March 2022.
- **Report 3** –December 2022
  - Provides the status of the IAEA's corroboration activities.
- **Report 4** –April 2023
  - Summarizes second mission to TEPCO/METI in November 2022.
- **Report 5** –May 2023
  - Summarizes second mission to NRA in January 2023.







IAEA’s review

IAEA Comprehensive Report – Before Discharge

- Assessment of Consistency with the fundamental safety principles
- Assessment of Consistency with Safety Requirements
- Monitoring, Analysis, and Corroboration
- Future Activities

Global Conclusions – Before Discharge

- “***Based on its comprehensive assessment, the approach to the discharge of ALPS treated water into the sea, and the associated activities by TEPCO, NRA, and the Government of Japan, are consistent with relevant international safety standards.”***

IAEA

Conclusion of IAEA Comprehensive Report

… the controlled, gradual discharges of the treated water to the sea, as currently planned and assessed by TEPCO, would have a negligible radiological impact on people and the environment.

Rafael Mariano Grossi
IAEA Director General

“During discharge”

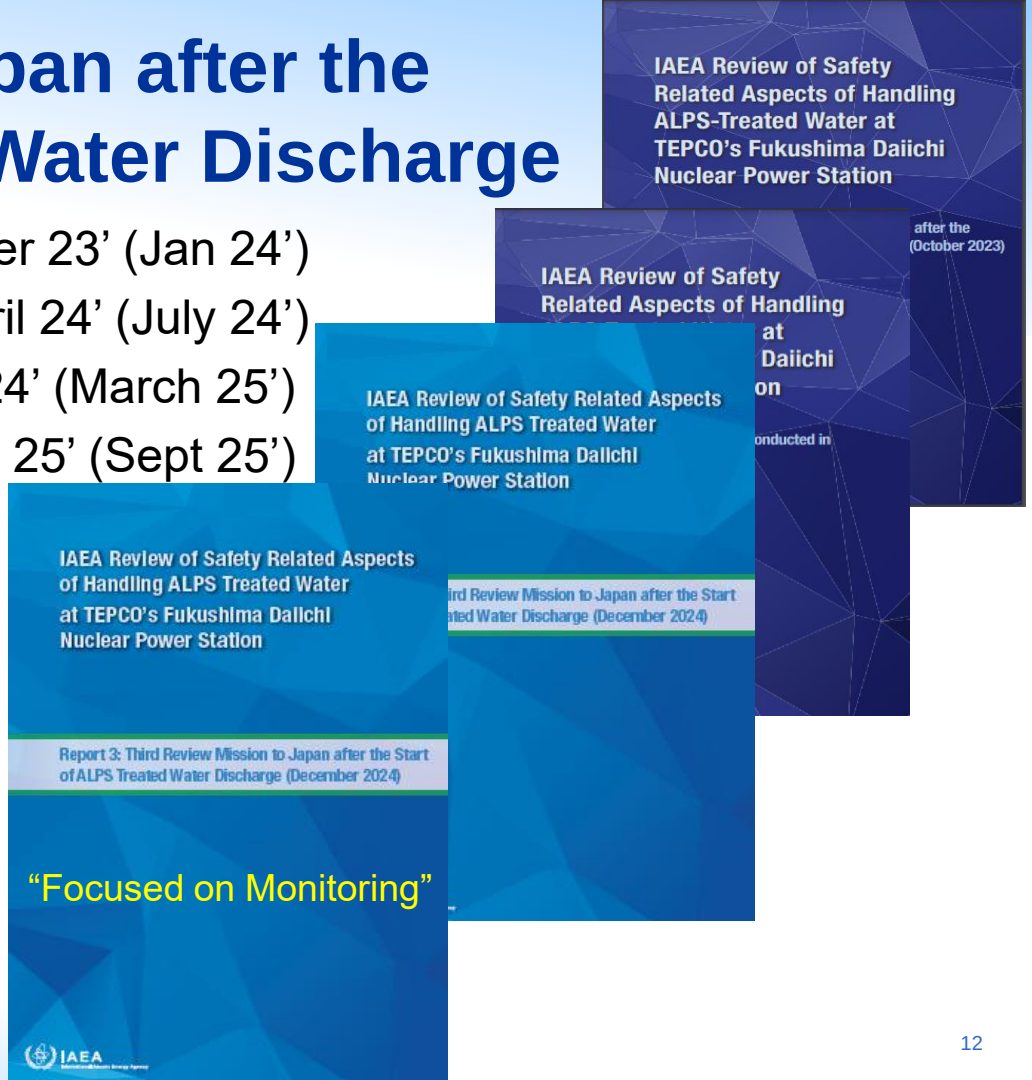
IAEA activities during discharge (at present)

- *Maintaining a permanent on-site presence*
- *Conducted multiple technical reviews in Japan*
- *Sampling, independent analysis and data corroboration*
- *Expand the technical capabilities at the IAEA Laboratory in Fukushima*
- *Share information: Communication and outreach*

Review Missions to Japan after the Start of ALPS Treated Water Discharge

- Report 1: First Review Mission October 23’ (Jan 24’)
- Report 2: Second Review Mission April 24’ (July 24’)
- Report 3: Third Review Mission Dec 24’ (March 25’)
- Report 4: Fourth Review Mission May 25’ (Sept 25’)

– ***Technical aspects***
– ***Regulatory aspects***
– ***Visits to the ALPS facilities and discharge activities***



Global Conclusions (to date):

- The Task Force did not identify anything inconsistent with the international safety standards.
- A robust regulatory infrastructure is in place for safety oversight of the discharge
- Equipment and facilities installed and operated consistent with the Implementation Plan and the international safety standards.
- IAEA's ongoing corroboration activities and the IAEA onsite independent test and analysis, in providing a comprehensive, transparent and independent safety review

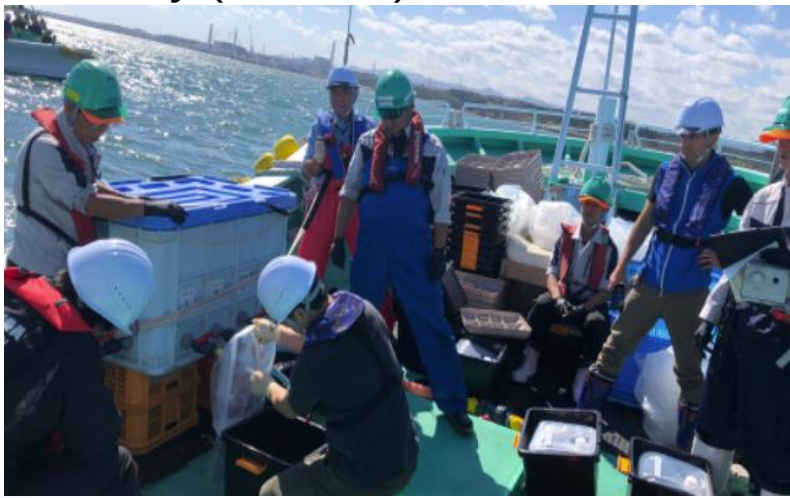
IAEA Sampling, independent analysis and data corroboration

- **Interlaboratory Comparisons (ILCs)**
- **On-site verifications**
- **Additional Measures**

- ❑ Source monitoring (Tanks)
- ❑ Diluted Water
- ❑ Environmental monitoring

Agency Independent Sampling, Measurement and Corroboration approach

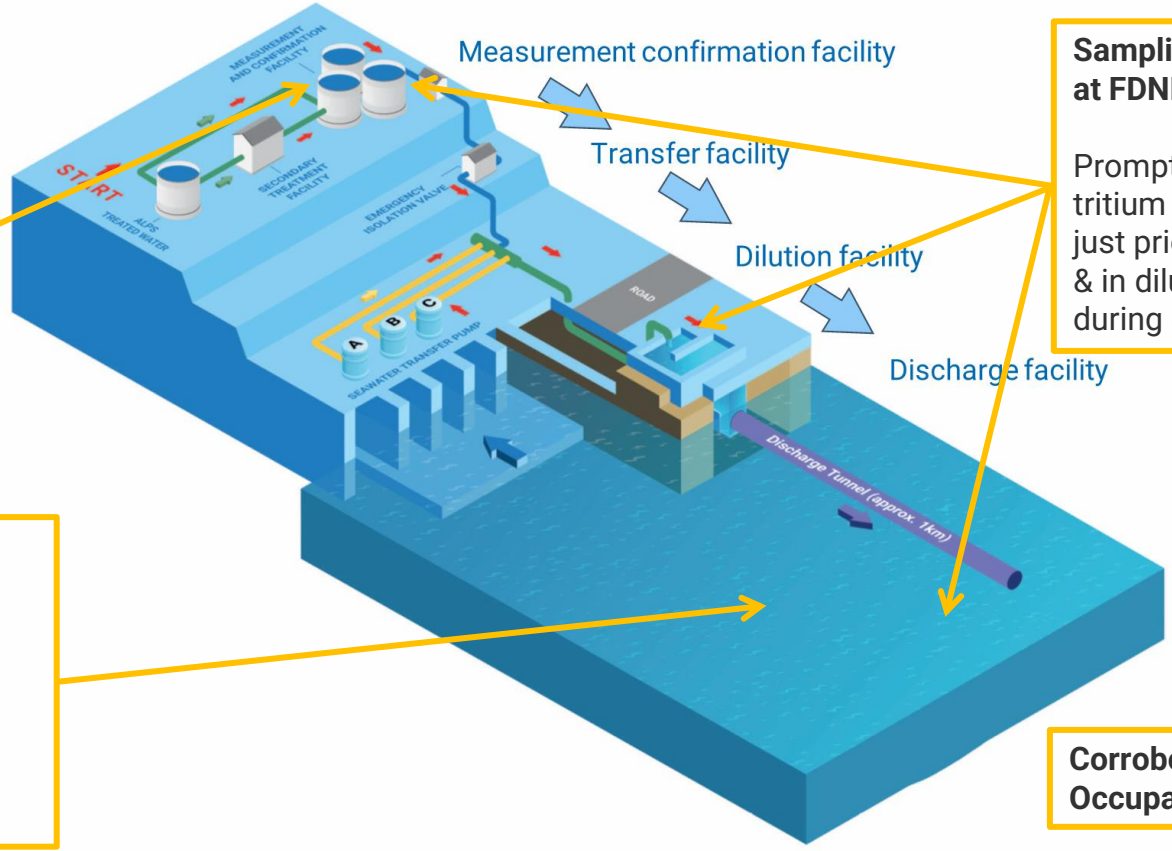
- Isotope Hydrology Laboratory (Vienna, Austria)
- IAEA Environment Laboratories, Terrestrial Environmental Laboratory (Seibersdorf, Austria)
- IAEA Environment Laboratories, Radiometric Laboratory (Monaco)
- On-site IAEA Fukushima Laboratory
- Third-party laboratories as a confidence building measure and to enhance transparency for external stakeholders.



IAEA Corroboration of Monitoring Data

Source monitoring ILCs

Samples of ALPS treated water (tank water, before discharge & dilution) analysed for 31 radionuclides



Sampling & analysis at FDNPS

Prompt check of tritium levels in tanks just prior to discharge & in diluted water during discharge

Environmental monitoring ILCs

Samples of seawater, sediment, fish & seaweed from around FDNPS

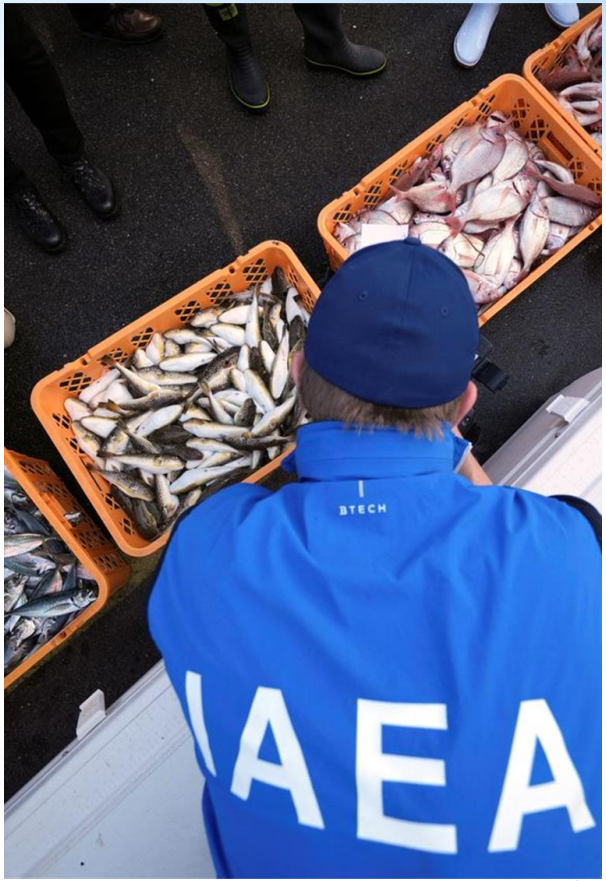
Corroboration of Occupational Radiation

Several Interlaboratory Comparison (ILC) Reports Published

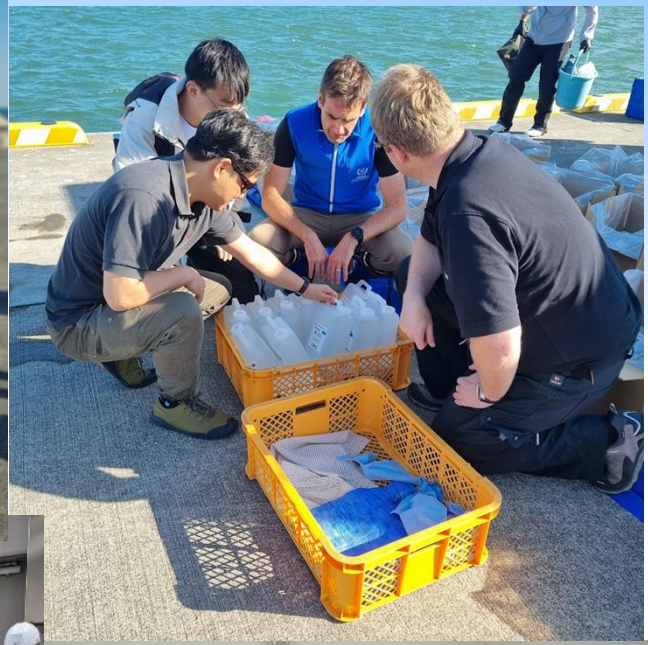
IAEA Independent Sampling, Measurement and Corroboration

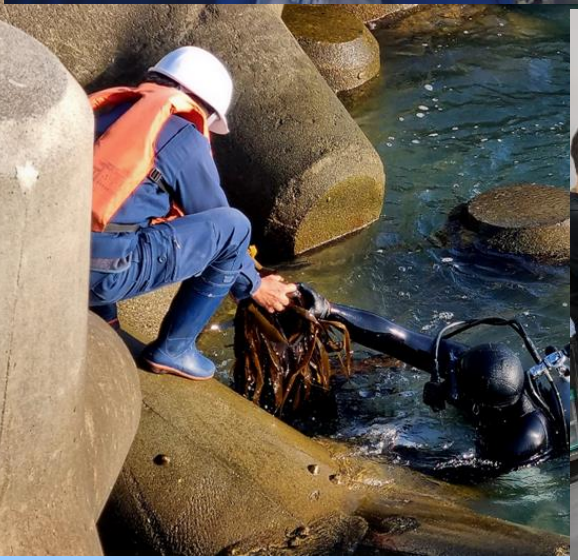
Key Findings:

- High level of accuracy in the measurements and technical competence.
- Sample collection: appropriate methodological standards.
- Appropriate analytical methods for different radionuclides
- Detection limits were less than 1% of regulatory limits



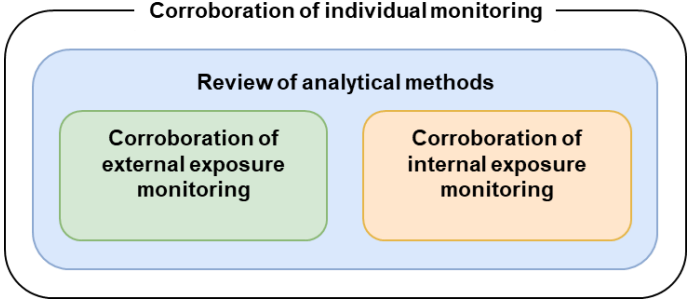

5号機取水口

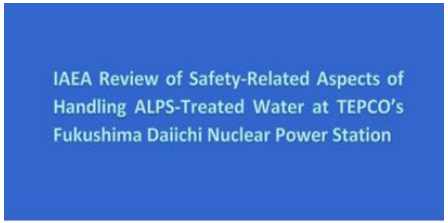




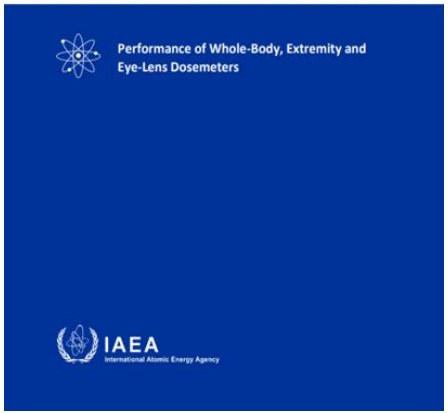
Occupational Corroboration data

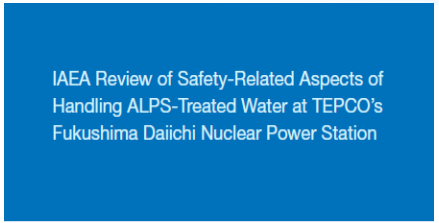
IAEA Radiation Safety Technical Services Laboratory (Vienna, Austria)





Corroboration of External Exposure Monitoring





Corroboration of Internal Exposure Monitoring

Key Findings:

- High level of accuracy of TEPCO laboratories and technical competence.
- Analytical procedures follow appropriate methodological standards.

ADDITIONAL MEASURES (AM)

Responding to interests of MS, the IAEA expanded its monitoring program to include AM.

Emphasizing:

- ❑ transparency
- ❑ global laboratory participation
- ❑ adherence to international standards

- Independent sampling and analysis:
  - Source Monitoring (after ALPS treatment, before dilution)
  - Monitoring at discharge vertical shaft/ seawater pipe header (after dilution)
  - Marine Environmental Monitoring (after discharge)

ADDITIONAL MEASURES

Programme:

October 2024: Preliminary Additional Measures Activities

2025:

- February: Source Monitoring and Marine Environmental Monitoring
- April: Monitoring at discharge vertical shaft/ seawater pipe header
- June: Source Monitoring
- September: Marine Environmental Monitoring
- Next Mission: tbc

2026:

- Continue with AM missions

Final Remarks (1):

- IAEA review independent, impartial, transparent, science-based, against the international safety standards

- The IAEA review all range of topics related to safety

- The IAEA and Third Parties Laboratories will continue corroborating the Japanese data

Final Remarks (2):

- 14 batches (approx. 109.000 tons) of ALPS treated water discharged safely (to date)

- Continuous IAEA presence ensures confidence before, during and after

- Ongoing corroboration with partner laboratories; regular reporting

Thank you

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