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# IAEA's Review of Safety Related Aspects of ALPS Treated Water discharge at the Fukushima Daiichi Nuclear Power Station

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# Background

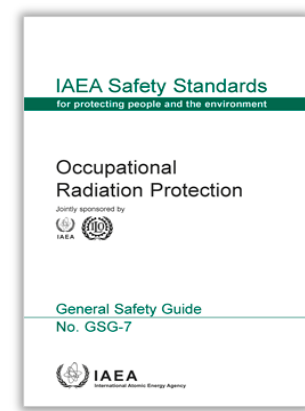
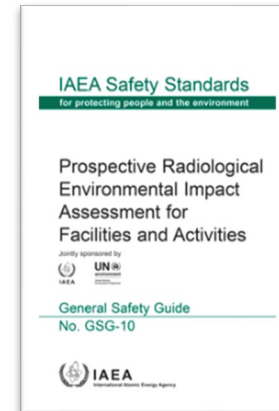
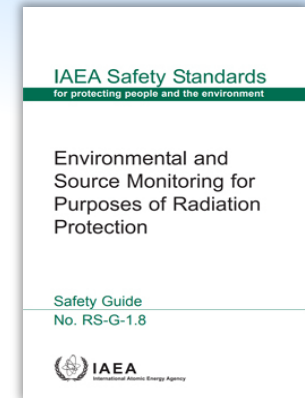
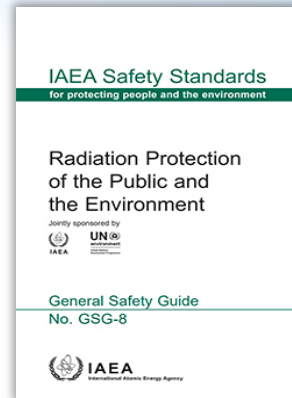
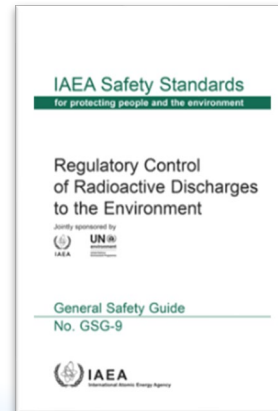
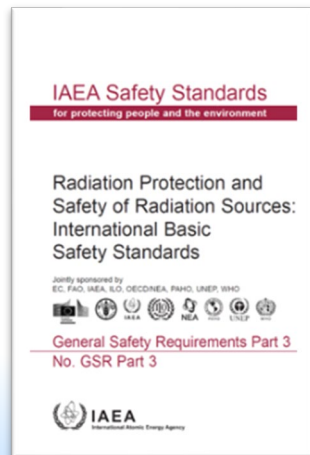
- In April 2021, the Government of Japan (GOJ) announced their Basic Policy for handling ALPS treated water stored at the Fukushima Daiichi Nuclear Power Station (FDNPS).
  - Includes approach for controlled discharges into the sea after receiving necessary domestic regulatory approvals.
- GOJ requested the IAEA to review their implementation plan and activities related to the discharge of ALPS treated water stored at the FDNPS against international safety standards.
  - Consistent with IAEA statutory functions “...to provide the application of the international safety standards, at the request of the parties.”
- IAEA review and associated activities will be provided **before, during, and after** the planned water discharge.
- IAEA will ensure safety and transparency are key concepts of this review.

# Focus and Scope

- The IAEA's near-term review will focus on answering two key questions:
  - Are the plans and actions of the applicant, in preparing the discharge application, compliant with the international safety standards.
  - Are the plans and actions of the regulatory body, in assessing/inspecting the application and issuing an authorization, compliant with the international safety standards?
- The focus of the IAEA's review will change between the near-term (prior to regulatory authorization), mid-term (between regulatory authorization and water discharge), and long-term (after the start of water discharge).
- The IAEA's review will use IAEA safety standards as the benchmark to draw conclusions and answer the questions highlighted above.

# IAEA Safety Standards

- IAEA mandated to “*establish or adopt...standards of safety for protection of health and minimization of danger to life and property...*”
- IAEA has identified relevant standards for radioactive discharges to apply to this project.



# Task Force

- IAEA Director General directed the establishment of a Task Force as the primary tool to implement the IAEA's review.
- The Task Force includes eleven internationally recognized experts from Member States, appointed by the DG, and a number of staff of the Secretariat in fields related to the water discharge plan and monitoring.
  - IAEA serves as the Chair of the Task Force
- The Task Force brings together diverse backgrounds and experience to adopt a collective approach to the IAEA's review.

# Task Force

- The Secretariat will serve as the leading component of the Task Force, responsible for:
  - Planning, coordinating, and implementing the IAEA's review and missions needed
  - Providing technical expertise and consistency throughout the project
  - Compiling, drafting, and editing major technical outputs
  - Liaising with senior officials in the GOJ, IAEA Member States, and other relevant stakeholders
- The International Experts will serve in an advisory role for the Secretariat, performing functions such as:
  - Reviewing relevant information and providing advice to the Task Force chair
  - Highlighting relevant best practices and international experience
  - Attend and participate in Missions, upon request, and provide written feedback and assessments to the Task Force on the outcomes
  - Attend and participate in meetings and other activities necessary to support the IAEA's review

# Components of IAEA Review

## Safety Assessment

- Review the implementation plan and supporting documents prepared by TEPCO.
- Focus on technical considerations such as the radiological characterization of the water, safety related aspects of the approach, occupational radiation exposure, and the radiological environmental impact assessment.

## Regulatory Activities and Process

- Review NRA actions and processes relevant to the project.
- Focus on safety objectives, regulatory requirements, regulatory assessment, and regulatory inspections/oversight programme.

## Independent Sampling and Analysis

- Independent sampling and analysis to corroborate data from Japan.
- Perform complete analysis of source term and environmental samples.



# Outputs of IAEA Review



- The IAEA review will have multiple components, which will extend over several years. Progress will be reported in multiple ways depending on the project status and the stakeholders involved.
  - Website, reports, briefings, presentations, etc.
- Reports will be issued periodically to update the public on progress for all components of the review.
  - Reports will be drafted by the Task Force and published by the IAEA.
- Prior to the beginning of water discharge (estimated to occur in 2023), the IAEA will issue the Task Force's collected findings and conclusions for the review.
  - Sampling and analysis, monitoring, and periodic reviews will continue for years to come.
- IAEA Secretariat will provide technical briefings and updates periodically to IAEA Member States.

# Recent Progress

- The Government of Japan and TEPCO have been providing information and data to support the Task Force's ongoing review.
  - November 2021: Submitted the Radiological and Environmental Impact Assessment.
  - January 2022: Submitted the English language version of the Implementation Plan.
  - February 2022: Submitted the self assessment conducted by TEPCO and relevant Ministries.
- The Task Force has conducted 4 meetings since September 2021 to review submitted information and plan for on site missions.
  - Meetings are envisaged to occur approximately monthly throughout 2022.
- In February 2022, a series of on-site activities took place to plan, and implement, the IAEA's review:
  - 8-11 February, onsite planning meeting for sampling and analysis activities
  - 13-19 February, Review Mission to TEPCO and METI
  - 21-22 February, preparatory meeting for upcoming Mission to NRA

# Review Mission to TEPCO and METI

- Conducted over 7 working days involving an IAEA review team comprised of around 15 members, including:
  - Gustavo Caruso, Chairman, Task Force
  - Abel Gonzalez, Argentina
  - Senlin Liu, China
  - Jean-Luc Lachaume, France
  - Hong Suk Kim, ROK
  - Sergey Shinkarev, Russia
  - Jo Nettleton, UK
  - Mike Boyd, USA
  - Nguyen Hao Quang, Viet Nam
  - Multiple IAEA experts
- Activities spread between Tokyo and Fukushima Daiichi Nuclear Power Station, including interviews with a wide range of technical experts and senior officials.



# Review Mission to TEPCO and METI

- The IAEA Review Team looked at 8 different technical areas, considering over 200 different requirements contained in IAEA safety standards.
  - Overarching requirements
  - Characterization of the source term
  - Safety related aspects of systems and processes
  - Radiological Environmental Impact Assessment
  - Regulatory Control and Authorization
  - Dose Limits and Constraints
  - Source and Environmental Monitoring Programmes
  - Involvement of Interested Parties
  - Occupational Radiation Protection
- Early results showed good cooperation from the Government of Japan, and the Task Force has identified some topics for continued dialogue and review moving forward.
- A mission report will be released in the April/May timeframe.



# Looking Ahead

**2022**

- (20-25 March) Review Mission to NRA
- (Estimated for April/May) IAEA will finalize and release reports focusing on outcomes from the Review Mission to TEPCO/METI and the Review Mission to NRA.
- (2<sup>nd</sup> Half 2022) Follow up missions to TEPCO/METI and NRA are envisaged to focus on further developments prior to water discharge.
- IAEA will begin implementing independent sampling and analysis activities.

**2023**

- (1<sup>st</sup> Half 2023) IAEA will issue the Task Force's collected findings and conclusions.
- (Estimated to occur in 2023) After receiving necessary domestic regulatory approvals, TEPCO will commence with controlled discharges of ALPS treated water.
- IAEA will continue implementing proposed independent sampling and analysis activities.

**2024**

- Long-term monitoring and review options are currently under consideration and will be discussed with relevant stakeholders.



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*Questions?*

