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

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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.
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.
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.
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.
  – 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.
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.
- (2nd 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

- (1st 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.
Questions?