

# **IRID International Expert Group**

September 2013 IEG Meeting Summary

## IEG Mission

The mission of the International Expert Group (the “IEG”) is to contribute to the safe and efficient implementation of the decommissioning of the Fukushima Daiichi Nuclear Power Station (the “Decommissioning”) and R&D activity for the Decommissioning, by providing advice to The International Research Institute for Nuclear Decommissioning (the “IRID”).

The IEG shall provide such advice to IRID from an objective perspective based on the collective view of the IEG reflecting the differing international expertise and experience of each member of the IEG.

**The IEG will provide IRID with recommendations on the specific issues faced at the Fukushima Daiichi NPS and the specific issues of Research & Development for decommissioning**

# Summary Comments

- A good visit and good meeting
- Organization changes (formation of IRID, METI increased involvement) provide a potential foundation for improved effectiveness
- Key challenges remain to be:
  - Stakeholder engagement and education
  - Prioritization of activities
  - Definition of Interim and End States (to guide activities)
  - Organizational alignment and effectiveness

**There are technical challenges to execute the Fukushima decommissioning - right now the organizational and stakeholder challenges are more significant and more important**

# Summary Comments

- Developing and maintaining public confidence is vital
  - Commitments must be met
    - Commitments must be within the capability of delivering organization
    - Top down goals must be validated by bottom up planning
    - The amount of work must be reasonable (this will require some hard choices to prioritise)
  - TEPCO, IRID and METI must be partners supporting each other
- There is a hierarchy to defining priorities and work:  
policy -> supporting strategies -> implementation plans
- Policy and regulation needs to respond to realities of the situation
- 1F is no longer a nuclear power plant site, it is a nuclear decommissioning site

# Formation of IRID

- Observations:
  - Goals and vision for IRID are good
  - There is a need for clarity in organizational roles, responsibility, and accountability between TEPCO, IRID, and METI
    - They need to be understood by everyone
  - Achieving the new way of working will require significant investment of time and focus
- IEG recommendations will include suggestions on how to develop and ensure clear division of responsibility between TEPCO, IRID, and METI
  - For example: regular assessments to determine if adjustments are needed

# Fuel Debris Removal R&D Solicitation

- Observations:
  - Objectives to engage international organizations, and to engage with them early are good
  - Plan to consider options other than flooded PCV is good
  - Planned approach could create risk that the number of responses will be low and not from organizations with the right experience and capabilities
    - Concerns about ownership of Intellectual Property
    - Concerns about whether this process will create a real opportunity for market
    - Concerns about Japan's history as a closed market
    - Concerns about time scale for process
- IEG recommendations will focus on communication with potential responders to ensure they understand long term plan and will engage with IRID
  - For example, engagement with selected companies in advance to discuss their concerns and reinforce the reasons they should participate

# Contaminated Water

- Observations:
  - IEG does not see immediate threat to people or environment
    - Emergency actions are not required
    - Situation highlights need for improved communications
  - Three objectives:
    - Reduce risk of contamination to ocean
    - Lower water levels in Reactor and Turbine Buildings
    - Reduce amount of water to be treated and stored
- Priorities/Recommendations:
  - Trench remediation
  - Subdrain functionality
  - Groundwater bypass
  - Options for reduction of cooling water flow

# Additional Comments

- Ice Dam

- We understand the objectives of the ice dam
- It is important to evaluate in detail the feasibility and impact
  - Need to understand impact on groundwater flow, building stability, and soil conditions
  - Physical trials and testing are essential
- Implementation schedule should be decided based on site conditions after restoring subdrains and implementing groundwater plus results of physical trials and testing

- Shield Wall

- We understand the objectives of the shield wall
- It is important to evaluate further:
  - Potential for unintended consequences on ground water flow
  - Potential for concentrating contamination in one location
  - How to handle and manage a large volume of contaminated soil and water



# Tank Farm

- Observations:
  - Existing situation is not ideal
    - Leaks likely
    - Low margins
  - Objective is to remove risk of contamination from tanks
- Priorities/Recommendations:
  - Ensure adequate storage capacity
  - Accelerate additional ALPS capacity
  - Mitigate risks of leaks – pursue spare tanks
  - Replace bolted tanks
  - Replace horizontal tanks
- Note:
  - Replacing tanks does not reduce risk of piping leaks
  - Discharge of treated water creates immediate capacity
    - IEG sees no safety or environmental reasons preventing discharge

# Roadmap

- Observations:
  - Building public confidence is critical
    - The Roadmap should be relative stable, defining key policy items and the important Interim and End States
    - Roadmap dates should be realistic and achievable
  - The Roadmap plays a role in establishing public confidence and guiding the program
- IEG Recommendations will focus on actions to increase stakeholder confidence in the Roadmap and improve it's use as a guidance document
  - For example, top down date goals should be validated from a bottom-up approach

# Spent Fuel Removal

- Observations:
  - Good progress preparing Unit 4 for spent fuel removal
  - Overall plan appears optimistic
    - Seems to assume “normal” operation type experience
    - Issues with damaged fuel and racks will occur more than anticipated
  - Removal of fuel from Unit 4 and moving fuel from Common Pool to casks must be coordinated to ensure sufficient space in the Common Pool
- IEG Recommendations will focus on increasing the robustness and confidence of the overall plan for spent fuel removal
  - For example, this is a high risk activity - IEG would like to engage with TEPCO to review the plans in detail, including failure analyses

# Site Visit

- Observations:
  - Progress can be seen, for example:
    - Unit 4 spent fuel removal structures and equipment
    - Removal of rubble from Unit 3 reactor Building
    - Site access
  - Radiation protection practices seem overly conservative
    - Increase worker risks (increased risk of industrial incidents)
    - Decrease worker productivity
    - Sends unintended messages to broad community
  - Efforts still needed to get out of emergency mode
- IEG recommendations will focus on practices to improve worker efficiency as well as reduce overall worker risk (radiological and industrial) and worker burden

# Priority Work Programmes

## **Operator**

1. Trenches
2. Sub Drains
3. Groundwater Bypass
4. Tank Farm management
5. ALPS capacity
6. Cooling water reduction and installation of local water treatment
7. Unit 4 Spent Fuel removal
8. Unit 3 Spent Fuel removal

## **Strategy and Policy**

1. National waste policy
2. Regulatory environment suitable for realities of decommissioning
3. Stakeholder engagement and building public confidence

# IEG Operations

- Observations:
  - IEG is coming together as a team – complementary skills and experience are beneficial
  - IRID and TEPCO support is helpful
  - Embassy engagement is helpful
- IEG recommendations will focus on improving the effectiveness of IEG meetings

# Key IEG Recommendations (to IRID, METI & TEPCO)

- Review the priorities for Contaminated Water countermeasures and adjust work plan
  - Align actions with goals and priorities
  - Reduce risk of unexpected consequences
- Improve expectation management
  - Improve engagement with stakeholders to improve understanding of risks
  - Ensure internal work schedules have margin compared to external schedules
- Improve clarity of organizational roles and responsibilities among TEPCO, METI, IRID and other key organizations
  - Ensure Division of Responsibilities of all parties is communicated and understood
  - Ensure priorities are shared, understood, and communicated
- Progress on defining Interim and End States is critical
  - Provide direction for ongoing activities
  - Requires addressing national policy questions
- Perform readiness review of plans and bases for performing Unit 4 spent fuel removal
  - Include outside participation for independence (including IEG)

## Looking Ahead – Next IEG Meeting

- At next meeting, IEG desires to engage on:
  - Roadmap, in particular Interim and End States to be included in next revision
  - Development of IRID
  - Design processes
  - Fault scenarios for fuel removal
  - Fuel debris removal