IAEA Ministerial Conference on Nuclear Safety (20-24 June 2011)
WS 1: Preliminary Assessment of the Fukushima Accident and Actions for Safety Improvements

Fukushima Accident:

Its Impact and Response in Korea

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Immediate Actions after Fukushima events

- **Activated Emergency Response Team**
  - Immediately after the Earthquake/Tsunami on 3/11
- **Shortened Measurement Interval of the National Environmental Rad Monitoring (15 → 5 min)**
  - Operating a total of 70 stations
  - Detecting air borne radioactive material
- **Crisis communication with public**
  - Operation of Media Service Center & Call Center 24/7
  - Released real time information of the environmental radiation level through the major portal sites
  - Press Releases, Press Conferences, Interviews, e-mails, etc.

Results of Radiation Monitoring

Detection of I-131, Cs-134, and Cs-134

- The measured values were as extremely low as no harmful effect to the health.
- The public, however, were very sensitive to the fact that the radioactive materials were detected in Korea.

Sample	Isotopes	Date	Max. Value	Rel. Exposure Dose to 1 mSv/year
airborne	I-131	6 April	3.12 mBq/m^3	1/3323
	Cs-134	7 April	1.19 mBq/m^3	1/3195
	Cs-137	7 April	1.25 mBq/m^3	1/1548
rain	I-131	7 April	2.81 Bq/L	1/22*
	Cs-134	11 April	1.67 Bq/L	1/43*
	Cs-137	11 April	2.02 Bq/L	1/52*

* Assume that adult drinks 2 liters water everyday for one year.

Communication Activities

Information Gathering & International Cooperation

- Various actions were taken to gather accurate information on the Fukushima accident.
  - Accident evaluation based on available data, expert meetings, etc.
  - Korea-Japan-China Summit, Korea-Japan expert meetings, participation in IAEA accident coordination team and fact finding mission, dispatch of KINS staff to Sendai, Korean Embassy in Tokyo and JNES

Response to the Public Concern

- Received 8,600 calls (12 March~31 May)
- Number of hits of the KINS website
  - 3,595,860 visits (12 March~31 May) (normally 8,845 visits per year)
- 152 Interviews / 9 Press Releases
- 104 Press Releases / 200 Media Visits

Actions Taken after Fukushima Accident

Special Safety Inspection by Government

- Special safety inspection was performed to 21 operating NPPs and 1 research reactor.
- Unlikely worst case scenario was considered including
  - Extreme natural disaster (earthquake + tsunami)
  - Loss of off-site power and failure of emergency DGs (SBO)
  - Severe accident

Objective of special safety inspection

- How well the NPPs are designed and operated against natural disasters;
- How well they can prevent and mitigate the severe accident;
- How much effective the emergency response system is in place.

Inspection Results

- **50 action items were identified to maintain safety functions of the NPPs beyond the design basis.**
  - To minimize the impact of extreme natural phenomena
  - To make emergency power and ultimate heat sink available
  - To eliminate the likelihood of severe accident and avoid hydrogen explosion
- **The action items include the followings;**
  - Re-evaluation of seismic margin
  - Deployment of a mobile emergency generator and battery
  - Installation of waterproof gate and waterproof drainage pump
  - Installation of passive hydrogen control system
  - Improvement of emergency preparedness considering the effect of multiple units, etc.

Closing Remarks

- **The immediate regulatory actions in Korea after Fukushima accident**
  - played an important role in reducing the uprising public concerns, such as ERT, environmental radiation monitoring, information to the public, special safety inspection, etc.
- **Challenges for Nuclear Safety**
  - Counter measures against severe accident in nuclear facilities should be provided.
  - Regional nuclear safety network should be strengthened to minimize the impact of the severe accident from neighboring countries.
  - Risk communication with the stakeholders including response to open society should be emphasized.