Identification of Important Solutions by Surveying the Reports related to the Fukushima Daiichi Nuclear Power Plant Accident

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Introduction

- Fukushima Daiichi NPP accident reports
- WHO-1: Preliminary dose estimation (May 2012)
- WHO-2: Health risk assessment(Feb. 2013)
- UNSCEAR: Levels and effects of radiation exposure (Apr. 2014)

Introduction

- ICRP(TG84) : Radiological protection issues(Jun. 2013)
- JHPS: Issues and Recommendations (Nov. 2014)
- AESJ: Final report from the investigation Committee (Mar. 2014)(in Japanese)
- NAS: Lessons Learned (Jul. 2014)

JHPS report

- Issues Associated with Radiation Protection after Fukushima Daiichi Nuclear Power Plant Disaster - Responses of and Recommendations from Japan Health Physics Society –
- Domestic major investigative reports on the accident from the Government, the National Diet of Japan, Nongovernmental team, and TEPCO.
- Viewpoint of an expert in the field of radiological protection were added

Summary of contents/Purpose

	Dose estimation	Risk estimation	Issues on RP	Analysis of the accident
WHO-1	**			
WHO-2		**	*	
UNSCEAR	**	**	*	
ICRP			**	
JHPS			**	
AESJ			*	**
NAS			*	**

By surveying those reports, important solutions and radiation protection issues were identified

Main issues (Dose/Risk Estimation)

- Uncertainty (Parameters, Models)
- Parameters
  - -Conservative values/Best estimate
  - -Reference values
  - -Source term
- Models
  - -Scenarios
  - -Conservative model
  - -Expert Judgement

Parameters/Requirements/Solutions

- Effect of being indoor
- Effect of precipitation, chemical form of iodine
- Source term (atmosphere, sea)

Substitute plan for uncertainty reduction

Solutions

Implementation of personal monitoring

- Effect of seaweed intake against thyroid cancer
- Dose coefficients, Food activity concentration
- Baseline cancer rate

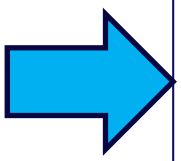
Adequate data setting

Acquisition of basic data

Models/Requirements/Solutions

- Assumption of food ingestion
- Risk models
- Dose-dose rate effectiveness factor

Expert judgement based on verified foundation



Solutions

Progress in low-dose radiation risk researches

Main issues(Radiation Protection)

- Standardization and developments of dose measurement

  -Emergency radioactivity concentration monitoring method (land, marine area, on/off-site), Emergency WBC measurement

- Development of countermeasures and guidelines for emergency, existing exposure situations, and returning

  - Prediction of exposure dose, Development of exposure scenario and restriction levels, Clarification of tolerable contamination and graded standards considering long period, Stakeholder involvement

- Supporting public and radiation workers

Issues/Requirements/Solutions

- Emergency radioactivity concentration monitoring method, Emergency WBC measurement
- Prediction of exposure dose
- Marshalling the concept of graded standards
- Development of exposure scenario and restriction levels
- Clarification of tolerable contamination and graded standards considering long period
- Stakeholder involvement

Soundness, ensuring means of conveying information → **Implementation of personal monitoring**

→ **Acquisition of basic data**

Application of risk estimation techniques → **Progress in low-dose radiation risk researches**

Providing scientific data → **Progress in low-dose radiation risk researches**

Conclusions

- By surveying the reports from International/ National organizations, Important Solutions:
  - Implementation of personal monitoring
  - Acquisition of basic data
  - Progress in low-dose radiation risk researches
  were identified.
- Important lessons learned should be reflected in politics. RP should be developed with consideration for the rehabilitation of the affected territories, helping member of the public and workers continuously.

Thank you for your attention!