Radiation Exposure of Workers in Korea

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Background

- Various fields to use radiations or radioactive materials
  Since the first use in 1960s in Korea, its use has been expanded to various fields, including nuclear energy, medical application, education, industry, etc.

- Continuing increase of radiation workers
  Number of radiation workers has increased about 5% annually during the past decade. This may resulted in increase of collective dose.

- Necessity of more active efforts to reduce occupational exposure
  Currently, occupational exposure is recorded by government central dose registries to check excess of dose limit. However, more active efforts is necessary to reduce occupational exposure.

- Analysis of occupational exposure
  As the first step to reduce occupational exposure, it is necessary to set a occupational exposure analysis system and analyze the data to know the current status of occupational exposure.

Objectives

- To introduce Korea central system to record and analyze occupational exposure
- To provide summarized occupational exposure data by the central system, KISOE

Dose Record and Analysis System

- Two national dose registries in Korea
  - Radiation workers other than diagnostic radiology
  - Radiation workers in diagnostic radiology

- Central system to record and analyze occupational exposure (workers other than those in diagnostic radiology)

Korea Information System on Occupational Exposure (KISOE)

KISOE was established at Korean Institute of Nuclear Safety (KINS) to evaluate trends in occupational radiation exposure for assessment of the effectiveness of radiation protection program.

Classification of radiation workers

- Radiation worker classification methods for exposure analysis
  - by license type for dose report
  - by job classification for dose analysis

Classification by license type (10 categories)

- Nuclear energy, medical use, general industry, non-destructive testing (NDT), manufacturing and distribution, research institute, educational institute, public institution, military activity, and others.

Classification by job categories

- 5 Main groups (Nuclear fuel cycle, Medical, Industrial, Military, Others)
- 31 sub-groups: more specific job classification

Temporal trend of number of licensees

Temporal trend of number of radiation workers

Temporal trend of annual collective dose

Occupational Exposure Data

- Radiation dose by job classification

Summary

- Currently, occupational exposure in Korea is recorded and analyzed by a central system on occupational exposure, KISOE operated by Korea Institute of Nuclear Safety (KINS).
- Annul average dose to radiation workers continuously decreased over time, resulting in 0.97 mSv/year in 2009.
- Annual collective doses have been kept at the same level during the past decade while number of radiation workers has increased about 5% annually.
- The findings can be interpreted that radiation protection for radiation workers have been continuously improved. One of the reasons can be attributed to the central system on occupational exposure, KISOE.

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