KINGDOM OF THAILAND

The Study for Preliminary Hazards Evaluation in Radiation-Processing Enterprises in Thailand

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Background

Over the past decade, the application of radiation and radioactive materials for commercial purposes in Thailand has been continually expanded. Safety and health issues became recognizable for the community and those particularly involved in radiation use. Especially, after the occurrence of a serious radiological accident in the country in 2000. Potential hazard conditions needed to be determined in order to recommend practical preventive and control measure. This descriptive study was conducted by the National Institute for the Improvement of Working Conditions and Environment (NICE) in 2001. The outcomes from this study were intended to use as baseline data for the superintendence under the safety and health law concerning ionizing radiations.

Methods

A questionnaire was designed for data collection, comprising of 4 major topics:

1. General information;
2. Radiation possession or use;
3. Safety in health measures; and
4. Others (disposal, control measures, etc.).

The survey targeted at all enterprises registered with radiation processing. The list of such enterprises was supplied by the Office of Atomic Energy for Peace (OAEP), which is responsible for registration and control of radiation in Thailand. Total of 549 questionnaires were sent to listed clients by postal mail. Information from returned questionnaire was entered into a MS Access database for further reference and to generate descriptive summary.

Results

- Total of 270 questionnaires (49.18%) were completed and returned to this project. The majority (71.97%) was classified as industrial manufacturers.
- The remaining were service enterprises (8.33%), transportation & storage agencies (6.82%), and others (12.88%).
- Most of them were located in Bangkok and vicinity area (i.e. Samutprakan, Prathumthani, Rayong, etc.).
- Of these enterprises, a large portion (27.27%) was medium-sized (with 100 -299 employees).
- There was a variety in type of radiation source and purpose of their use. Some common radioactive materials and sources were Am-241 (32.20%), X-ray (24.24%), Cs-137 (19.70%), Kr-85 (12.5%), and Co-60 (6.44%).
- These radiations were used mainly for laboratory analysis, quality control, measurement, calibration, detection, etc.
- For safety and health administration, most enterprises hired licensed radiation safety supervisors (91.29%), and professional safety officers (81.44%).
- A large number of them (76.89%) established action plan for radioactive accident prevention and control, while only portion (34.09%) provided training and practice for their employees.
- For other control measures, it can be summarized as follow: working environment monitoring (79.55%), specific health examination (73.11%), use of personal radiation monitoring equipment (75.38%), and use of other protective devices (40.91%).

Conclusions

Radiation processing enterprises are considerably among high-risk industries in Thailand. Proper preventive and control measures need to be employed in each workplace, especially personal monitoring and recording systems. In connection to this study, recommendations have been formulated for employers, workers, and concerned authorities. These aim at minimizing the risk at workplace, establishing safe work regulation, as well as management of working conditions and environment.

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