Implementing Physical Protection Education for an Enhanced Nuclear Security Culture

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1. Introduction

There is growing attention given to education and training on the subject of physical protection in order to enhance the nuclear security culture. The IAEA recommends that all personnel in organizations directly involved with the nuclear industry receive regularly education in physical protection—according to the recently revised INFCIRC/225/Rev.5. The Korea Institute of Nuclear Nonproliferation and Control (KINAC) and the Nuclear Safety and Security Commission (NSSC), which are mainly responsible for the national nuclear security regime, have already recognized the importance of education and training in physical protection. The NSSC enacted its decree on physical protection education and training in 2010 [1]. KINAC was designated as the first educational institute in 2011 and implemented physical protection education as mandatory from 2012. In this paper, we are going to outline our efforts and experiences at implementing physical protection education.

2. Regulation on Physical Protection Education

The NSSC made a political decision to implement physical protection education and training as a part of the Korean national nuclear security regime in 2010. It mandated that physical protection education be carried out by designated institute instead of by nuclear operators. Accordingly, it enacted a decree called the "Regulation on Education and Training of Persons who Perform Functions Related to Physical Protection Measures." However, it still allows nuclear operators to implement physical protection training by themselves. In this paper we are not going to deal with physical protection training.

2.1 Education Targets

There are two types of education targets defined in the decree. The first target focuses on personnel who perform functions directly related to physical protection measures. There are three groups within this first target:

A. Persons who are responsible for duties associated with physical protection measures (Security Managers)
B. Persons whose duties are connected with security equipment (Technicians)
C. Security guards and persons who perform equivalent functions thereof.

The second target focuses on the remaining employees at a nuclear facility.

Each group should take their prescribed course for a predetermined time. A person who has been newly given physical protection duties should take a mandatory eight hour training course per year. From the second year, he or she needs to take a refresher course that lasts more than four hours. The remaining employees at a nuclear facility are required to take at least a two-hour course every year.

Persons Subject to Education and Training	Hours of Education and Training		Types of Course
	New	Refresher Course	
Physical Protection Workers	8 hours or more within 6 months of a designated date	4 hours or more a year	Basic Course + Practical Course
Nuclear Facility Workers	2 hours or more within a year of a designated date	2 hours or more a year	Basic Course

Table 1 Total Hours and List of Education Programs on Physical Protection by Type of Persons Subject to Education

2.2 Contents of Education

In the decree, two curriculums for the course are also prescribed. The basic course is designed as an introduction to physical protection. Its aim is to familiarize new physical protection workers and nuclear facility employees with the concept of physical protection and the legal framework. It consists of an "Introduction to Physical Protection", "Laws and Regulations regarding National Physical Protection Regime," and "Emergency Response." The basic course can be carried out by nuclear operator themselves.

Next, a practical course will be offered that provides physical protection workers with helpful knowledge. In this course, the subjects that will be dealt with include:

A. International Physical Protection Regime and Trend
B. Threat Assessment
C. Nuclear Security Culture
D. Physical Protection System Design
E. Practical Exercises with Physical Protection Equipment
F. Other Related Topics.

The physical protection workers should take these courses carried out by a designated institute. KINAC, currently, is the only designated institute that can provide this specific kind of education.

3. Implementation of Physical Protection Education

Since 2012 KINAC has provided mandatory education courses for around a thousand protection workers from six nuclear operators.

The courses that KINAC runs are divided into two parts. The first part is a self-study course. We developed the basics of physical protection. Examples of these courses include: introduction, legal framework, principles of physical protection system design, as well as an e-learning system. The e-learning system provides most of the content (except the exercise) stated in the decree. Physical protection workers and nuclear facility employees are able to familiarize themselves or to refresh their knowledge with the e-learning course. Around 6,000 facility employees out of 11,000 took e-learning courses.

The second part includes in-house learning. In this course, we offer operators a chance to learn practical knowledge or to share their own experiences with each other. We provide lessons gained from our experience of operating a test-bed for physical protection equipment. As well, we deliver lectures based on current issues and nuclear security events from each operator's own experience.

In the first year, 2012, we started the education with the topics about Seoul Nuclear Security Summit and national nuclear security policy. We delivered lectures on background and main achievements of Seoul Summit and relationship between the summit and physical protection. Along with it, nuclear security policy including carrying out IPPAS mission was dealt in the education.

As hosting the education, we realized that the nuclear operators have not had a chance to share their experiences and lessons. We came up with this year's education plan based on good physical protection practices that each operator has. We expect operators to be encouraged from one another's good practices by inviting hand-on staffs from operators as lectures.

Another fact that we recognized from hosting the education is that most of operators have a hard time to deal with nuisance alarms generated by their intrusion detection sensors. The recognition made us to prepare for the new project studying on reasons and solutions for the nuisance alarms.

Currently, we are working on developing several kinds of customized lectures that focus on a specific duty or function. Security guards (composing 83% of physical protection workers in Figure 1) might require specific knowledge related to nuclear security event response and physical protection system operations. Technicians (composing 3% of the whole physical protection work staff in Figure 1) will be helped with lectures given to them on physical protection system maintenance. Security mangers will benefit from either lecture series.

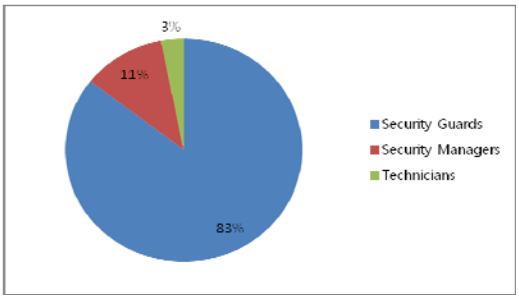

Figure 1 Education Targets

4. Conclusions

KINAC (as the only designated educational institute) places great effort in delivering an effective and a high-quality education program for physical protection. We have also provided a way for nuclear operators to share the lessons they have gained through their own experiences. We made physical protection education an important communication channel, not only among nuclear operators but also between operators and a regulatory body.

REFERENCES

[1] Regulations on Education and Training of Persons who Perform Functions Related to Physical Protection Measures
[2] Enforcement Decree of the Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters
[3] Act on Measures for the Protection of Nuclear Facilities, etc. and Prevention of Radiation Disasters