A study on the development of national guide for implementing nuclear security culture in ROK

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1. Introduction

Developed in the aftermath of the September 11, 2001 terrorist acts in the USA, this new concept of nuclear security is noteworthy because it goes beyond physical protection, accounting, and control measures. This crosscutting concept explicitly and implicitly covers a multitiered architecture which includes, for example: human inspection (insider, trustworthiness, personnel reliability screening), customs and border security, export control and cooperation to identify and interdict shipments, illicit trafficking interception, and training. Among the extended concepts, a remarkable thing is that nuclear security began to be focused on the human factor as well as technical factors (hardware and software system) because most security lapses at nuclear power facilities result from human failings such as low motivation, miscalculation, or malice.

Nuclear Security Culture (NSC) is designed to improve the performance of the human factor and to make its interface with security technology and regulations more effective and smooth. There is a need to develop a variety of more efficient tools for achieving sustainable nuclear security culture. We studied for the implementing guide to establish and enhance the nuclear security culture.

2. State of the Art Nuclear Security Culture

2.1 Domestic status

In Korea, a safety culture was started in early 1990s. The government has been implementing assessments of the safety culture. However, the nuclear security culture is in an initial stage of development having only recently receiving notice in the nuclear security field. The security culture is one of several distinct subsets of organizational culture rooted in an organization's national culture. So, the industrial security culture basically has been established and implemented into nuclear security field. Unfortunately, it cannot fully cover the whole nuclear security culture. So, the NSSC has been striving to keep pace with international efforts in nuclear security culture.

2.2 International status

Nuclear security culture is designed to improve the performance of the human factor and to make its interface with security technology and regulations more effective and smooth. There is a need to develop a variety of more efficient tools for achieving sustainable nuclear security culture.

In July of 2005 an amendment to the CPPNM was made which included twelve "fundamental principles" of nuclear security. Fundamental Principle F describes a security culture: "All organizations involved in implementing physical protection should give due priority to the security culture, to its development and maintenance necessary to ensure its effective implementation in the entire organization" [1]

The 2010 Washington Summit elevated the significance of the human factor to the top of the nuclear security agenda. In a communiqué released during the summit, emphasis was given to the importance of culture as a critical contributing factor to nuclear security: "We will work with the industry to ensure the necessary priority of physical protection, material accountancy and security culture."

In addition to other related conventions and agreements, the top tier of these numerous IAEA documents on nuclear security included: fundamentals, recommendations, implementing guides, and technical guidance. The centerpiece was Guide No.7 in the IAEA Nuclear Security Series, released in September 2008-- under the title "Nuclear Security Culture Implementing Guide".

It provides a detailed, albeit generic, overview of the attributes of the nuclear security culture and the role that policymakers, regulators, managers, individual employees and other stakeholders can play in raising security standards. This document was followed by several others that reaffirmed the importance of culture for specific components of nuclear security.

3. Development of NSC Implementing Guide

2.1 Definition of NSC

According to the NSS No.7 (Nuclear Security Culture), nuclear security culture is defined as:
"The assembly of characteristics, attitudes and behaviour of individuals, organizations and institutions which serves as a means to support and enhance nuclear security" [2]

As of IAEA's definition, we defined nuclear security culture considering our regime and implementation as below:

"Mindset & behavior of individuals and organizations that recognize nuclear security as the principal value in peaceful use of nuclear power"

2.2. NSC Framework

This framework was made to systemize the nuclear security culture. At the top of the pyramid, the national policy of the nuclear security culture and its meaning are shown. This part contains the fundamental concepts and elements, as well as the individual, state's policy.

The second is that all related organizations develop the policy and action plans to setup and implement the nuclear security culture. In order to sustain and develop the culture, education and training as well as assessment programs should continue to grow. All of these elements should be harmonized and fed back into the nuclear security system under this pyramid.


2.3. NSC Implementing Guide

The Implementing Guideline on Nuclear Security Culture is based on the CPPNM, Nuclear Security Series No. 13 Recommendations on Physical Protection of Nuclear Material [3] and Facilities and Nuclear Security Series No. 7 Implementing guide on Nuclear Security Culture. The Implementing Guideline defines the concept, elements, roles and responsibilities of nuclear security culture appropriate for the Korean physical protection regime and thus aims to help the nation, the government, nuclear organizations and personnel to achieve a strong nuclear culture.

The Implementing Guideline states attitudes and behavior of the nation, organization, manager and individual for achieving nuclear security culture. In Dec. 2013, the government (NSSC) officially announced the Implementing Guideline on Nuclear Security Culture to establish the NSC through whole nuclear security field [4]. All organization levels have set up policy statements and implemented detailed action strategies for their own organization to carry out the Implementing Guideline. Also the baseline analysis for nuclear security culture has been conducting on organizational

implementation status and the level of organizational awareness to continuously analyze and maintain nuclear security culture.
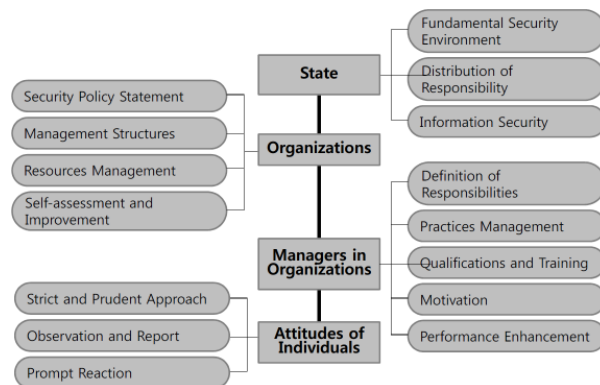
2.4. NSC Self-Assessment Methodology

Nuclear Security Culture Assessment Program is based on self-assessment index (Self- Assessment of Nuclear Security Culture in Facilities and Activities that Use Nuclear and/of Radioactive Material) which IAEA is currently under development, possible to make an objective evaluation, composed of attainable indexes that can be applicable to domestic circumstances. We figured out the indexes and evaluation factors. These indexes will be rearranged into short-term, mid- or long-term assessment program after focused group interview held by nuclear facility professionals.

3. Conclusions

We have developed the Nuclear Security Culture Implementing Guidelines for licensees in order to enhance nuclear security culture. Licensees have separately established a separate code of conduct on nuclear security culture for their daily business based on such Implementing Guidelines. The Nuclear Security Culture Implementing Guidelines were developed with sufficient consideration of both the IAEA Security Series on nuclear security culture and the Korean circumstances. In all, the Korean government and licensees have timely established and applied the Implementing Guidelines and code of conduct and consequently paved the way for further improvements of the Korean nuclear security regime.

The nuclear security culture will facilitate and optimize the human aspects in our nuclear security programs. This can result in a significant increase in the effectiveness of the security of radioactive material, associated facilities and transport. The KINAC will consistently strive for the best to sustain the nuclear security culture through the development of baseline survey and self-assessment, etc.

REFERENCES

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