

Safety Culture Activities of HANARO in 2007

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1. Introduction

One of the important aims of a management system for nuclear facilities is to foster a strong safety culture. The safety culture activities in HANARO have been continuously conducted to enhance its safe operation. The following activities and events on a safety culture were performed last year;

- Seminars and lectures on safety for the "Nuclear Safety Check Day" every month
- Development of safety culture indicators
- Development of operational SPIs (Safety Performance Indicators)
- Preparation of an e-Learning program for safety education

In this paper, the safety culture activities in HANARO of KAERI are described, and the efforts necessary for a safety improvement are presented.

2. Major Safety Culture Activities

2.1 Conductance of a Safety-check-day

The first Tuesday of every month is designated as a Safety-check-day. On this day, the employees of HANARO and other nuclear facilities usually gather together and have a safety culture seminar. The topics of the seminar cover various safety issues including technical matters, education on safety, experience propagation, lectures by invited specialists and information on safety activities. Table 1 shows the number of activities held over the last two years [1]. In 2007, field safety was the prime objective. That's why HANARO focused on education safety for field works and their work procedures.

Table 1; Number of activities on the Safety-check-day

Category	Number		
	2006	2007	Increase/ Decrease
1. Technical seminar	4(15%)	9(23%)	+5
2. Education on safety	4(15%)	12(31%)	+8
3. Experience propagation	4(15%)	5(13%)	+1
4. Lectures by invited specialists	3(11%)	3(8%)	0
5. Information on safety activities	12(44%)	10(25%)	-2
Total	27	39	+12

2.2 Development of safety culture indicators [2]

The purpose for the development of HANARO's safety culture indicators is to evaluate and enhance the safety culture in HANARO. The indicators have been developed based on the IAEA's documents. HANARO should consider not only a reactor operation but also the research and design fields. The following table shows the evaluation areas and the number of evaluation indicators for HANARO's safety culture.

Table 2; Evaluation areas and Safety Culture indicators

ASCOT Guideline	HANARO Safety Culture Indicators	
	Evaluation areas	No. of Indicators
Operating organization	Safety policy at the corporate level, Safety practices at corporate level, Highlighting safety, Definition of responsibility, Selection of managers, Relations between plant management and regulators, Review of safety performance, Training, Local practices, Field supervision by management, Work-load, Attitudes of managers, Attitudes of individuals,	44
Research organization	Research input to safety analyses	2
Design organization	Codes for safety aspects of design, Design review process	2

The safety culture indicators will be an effective tool to check and review the attitude of HANARO's personnel to its safety culture. Based on these indicators a new survey will be conducted this year. A survey will be helpful to understand the safety trends of the employees, and to set the safety culture activities necessary for an improvement for a safe operation of the plant.

2.3 Development of the operational SPIs (Safety Performance Indicators) [3]

A program was developed for a safety attitude monitoring that reflects its specific characteristics. HANARO made an effort to select the operational SPIs which were specific to a research reactor operation and its utilization. The main frame is nearly the same structure recommended by IAEA-TECDOC-1141 except for the attribute of a reactor utilization for a research activity and an application. Once the indicators

are selected and their definitions are agreed to, goals will be established for each indicator. Goal development was driven by a number of considerations, including an availability of data and an evaluation of previous operational performances. The final objective of this process is to review and to evaluate a safety status. The operational SPIs of HANARO include the following 4 attributes;

- A. Plant operates smoothly
- B. Plant operates with a low risk
- C. Plant operates with a positive safety attitude
- D. Plant operates with a safe utilization

The measurable elements of HANARO's operational safety performance evaluation consist of 10 overall indicators, 22 strategic indicators and 42 specific indicators. Some indicators may need to be modified due to a lack of appropriate analysis tools and application experience. HANARO has operating data covering about a ten-year period. Some indicators can provide valuable information for a performance evaluation. Using the low data, the performance trend of each indicator can be displayed on a graph. Through reviewing these specific indicators, we can obtain information of the plant's safety status, its safety parameter trends and its radiation safety. This year HANARO will continue to systematically gather the information on the operation data and to study the evaluation method. The established operational safety performance indicators will be very useful to review and evaluate the safety performance of a reactor operation and its utilization.

2.4 Preparation of an e-Learning program for safety education

A text book on HANARO's safety was prepared last year to strengthen the safety attitude for all the personnel. The main purpose is to provide the concept of a safety culture to the workers in their various work fields. The safety textbook includes the safety culture and the general safety concept. Electronic Learning (e-Learning) program based on the safety text book was developed in 2007. E-Learning is a general term used to refer to a computer-enhanced learning which is very effective for education using a networked computer server. The purpose of the e-Learning program is to provide a convenient safety training course based on a personnel computer usage. It can prepare a guide on the effective drills for a field work, a safety understanding and a safety culture. The program includes various learning items as follows:

- Safety general
- Work guides and procedures
- Administration procedures
- Radiation safety management
- Nuclear QA

- Nuclear laws, standards and codes

3. Remarks

Several activities were executed for an improvement of the safety culture in HANARO last year. The materials for the Safety-check-day and the safety textbook were very useful for the education and training on safety. They provided general knowledge and a practical sense of safety. Based on the safety culture indicators developed last year a new survey will be conducted to evaluate the level of HANARO's safety culture attitude. The result of a survey will be helpful to understand the safety trends of the employees and to set the safety culture activities necessary for an improvement for a safe operation and utilization of HANARO. The established operational SPIs which represent the plant operation status for ensuring its operational safety includes 4 safety attributes, 10 overall indicators, 22 strategic indicators and 42 specific indicators. E-Learning program for a safety education will be applied to the personnel working in a radiation area this year. An application of this program will be extended to the temporary employees and visitors in the near future. HANARO will continuously pursue a safety culture attitude and operational SPIs for its safety management.

REFERENCES

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