

# Implementation of Radiation Safety Culture in KOMAC

\*Ye-eun Lee, Yi-Sub Min

Korea Multi-purpose Accelerator Complex (KOMAC), Korea Atomic Energy Research Institute

\*Corresponding author: yelee@kaeri.re.kr

\***Keywords** : Radiation safety, radiation safety culture, radiation safety in-house training

## 1. Introduction

KOMAC is protecting radiation workers by radiation safety systems physically. However, only operating the systems has limitations in minimizing exposure from unexpected tasks. To overcome these limitations, it is necessary to promote a culture of radiation safety among workers. A culture of radiation safety includes understanding and voluntarily following radiation safety regulations and procedures and changing awareness about the importance of radiation safety.

KOMAC Radiation Safety Team has established and implemented phased plans to spread culture of radiation safety.

## 2. Methods and Results

To promote a culture of radiation safety at KOMAC, the Radiation Safety Team has implemented the following three methods this year.

### 2.1 In-house training

According to the Nuclear Safety Act, in-house training shall be autonomously implemented by each nuclear energy-related business operator. KOMAC conducted its first in-house training in 2023, and it included understanding regulations and procedures, as well as practical aspects of radiation measurement. This year's in-house training focused on amendments of the various radiation safety-related procedures. Also it covered specifically addressed the management of radioactive waste and emergency radiation work procedures. The reasons for this are the increasing importance of radioactive waste management due to nuclear regulatory issues and the 24-hour operation of KOMAC's proton accelerator.

Fig. 1. The table of training contents

The in-house training was held three times: on February 27, March 5, and March 6. The training targeted 45 radiation workers and 10 persons with frequent access, and it achieved a 100% completion rate.



Fig. 2. Appearance of attending and attendance sheet

### 2.2 Production and Distribution of Radiation Safety Leaflets

As a follow-up to the in-house training, our team produced and distributed the radiation safety leaflets throughout KOMAC. The leaflet's content covers basic radiation safety information, precautionary measures, initial response methods for abnormal situations. The reason for selecting these topics is that, although they were already covered in the in-house training, they need to be constantly reminded. Additionally, Answers to the

key questions that issued during the in-house training were included in the FAQ section.



Fig. 3. Radiation safety leaflets

The leaflets were placed in the main building of KOMAC, as well as in the major radiation work facilities. Workers can easily access the leaflets and refer to important radiation safety information at any time. Workers can resolve their questions about radiation safety and it served as an opportunity for them to become more interested in radiation safety through the leaflets.

### 2.3 Survey about the Radiation Safety

After distributing the leaflets, workers are more interested in radiation safety and they asked questions about the status of radiation safety. Along with distributing the leaflets, the Radiation Safety Team conducted a survey to understand workers' awareness of radiation safety. The survey contents include an objective assessment of their understanding and compliance with regulations, and the topics they would like to see covered in next year's training. Furthermore, the survey requests the actions that workers have personally taken for radiation safety.

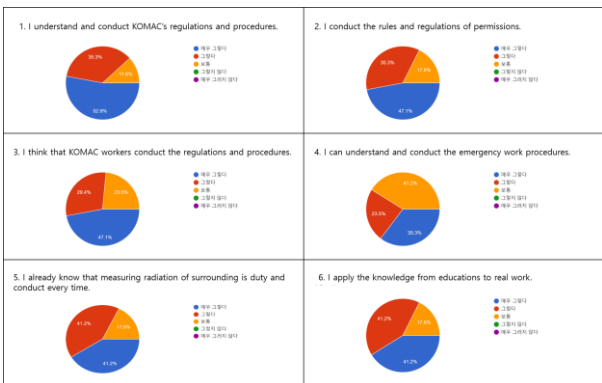


Fig.4. Results of survey I

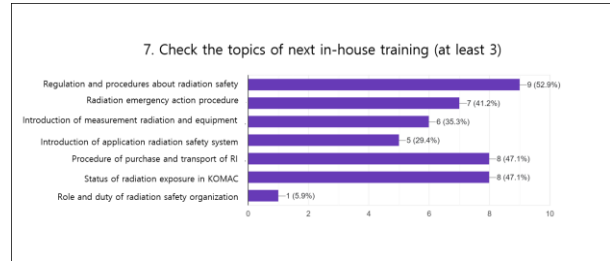


Fig.5. Result of survey II

The survey results showed that most responses were positive; however, it was noted that the understanding with emergency procedures were relatively low. According these results, the next training will include an in-depth coverage of emergency work procedures. And radiation safety team considered about radioisotope purchase and transport procedure and worker exposure status.

### 3. Conclusions

In-house radiation safety training for workers was conducted last year as well; however, this year, it was different in that leaflet and survey was distributed and carried out. By this, it provided an opportunity to easily access main information related to radiation safety and to resolve questions related to radiation safety. Additionally, it makes individuals to recognize that the actions they have taken to ensure radiation safety and it contribute to spread of safety culture. I expect these actions will establish a culture of radiation safety among the workers.

### REFERENCES

- [1] ICRP, The 2007 Recommendations of the International Commission on Radiological Protection, ICRP Publication 103.
- [2] ICRP, The Optimisation of Radiological Protection : Broadening the Process, ICRP Publication 101 Part2, 2011
- [3] Ye-Eun Lee, Yi-Sub Min, Status of radiation safety management for workers in KOMAC, RAP2023, 2023.
- [4] Ye-eun Lee, Yi-Sub Min, Jeong-Min Park, Optimization of protection for KOMAC, Transactions of the Korean Nuclear Society Autumn Meeting 2023, 2023.
- [5] Radiation Safety Management in KOMAC, KAERI/RR-4992/2023, 2024.