

## Internal regulation on the training for the nuclear control in KAERI

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### 1. Introduction

The training for the nuclear control is implemented by KINAC(Korea Institute of Nuclear Nonproliferation and Control) according to the Notification of the Nuclear Safety & Security Commission on it[1]. The employees that are subjected to the training for the nuclear control of the nuclear facilities or the relevant organizations should take it every year.

The employees subjected to the training for the nuclear control in KAERI(Korea Atomic Energy Research Institute) have taken it every year. Also KAERI should implement the internal training on the safeguards implementation according to the internal regulation on the nuclear material accountancy of KAERI, which is approved from NSSC(Nuclear Safety & Security Commission), revised in Aug. 2016[2].

In this paper the status of the internal regulation on the training for the nuclear control in KAERI was investigated. The internal training on the safeguards implementation of KAERI was also introduced.

### 2. Training for the nuclear control in KAERI

The training for the nuclear control consists of the courses for the facility operator on the nuclear material accounting work and for the manager on the nuclear fuel cycle R&D project as follows;

#### 2.1. Course for the facility operator on the nuclear material accounting work

Table 1 shows the status of the nuclear facilities in KAERI. A facility manager is designated at each nuclear facility for the safeguards work including nuclear material accounting work. The R&D facility and LOF(Location Outside Facility) consist of the 19 nuclear fuel cycle related R&D laboratories and 11 basic R&D laboratories respectively. A project manager in each laboratory of an R&D facility and LOF conducts the safeguards work like a facility manager. Each facility manager for the KAERI nuclear facilities including the project manager in each R&D laboratory of the R&D facility and LOF should take the course for the facility operator on the nuclear material accounting work. Also, each facility manager in the KAERI nuclear facilities except the R&D facility and LOF can designate the facility operator(The facility operator means the person in charge of the nuclear material accounting work at the facility). He or she need to take

Table 1. Status of the nuclear facilities in KAERI

	KAERI nuclear facilities
1	HANARO(High-flux Advanced Neutron Application ReactOr)
2	PIEF(Post Irradiation Examination Facility)
3	PRIDE(PyRoprocess Integrated inactive DEmonstration facility)
4	ACPF(Advanced spent fuel Conditioning Process Facility)
5	DFDF(DUPIC Fuel Development Facility)
6	HFFP(HANARO Fuel Fabrication Plant)
7	IMEF(Irradiated Material Examination Facility)
8	NMSF(Nuclear Material Storage Facility)
9	URSF(Uranium Residue Storage Facility)
10	R&D facility
11	LOF(Location Outside Facility)

the course for the facility operator on the nuclear material accounting work every year. In case of R&D facility and LOF, the project manager can designate the facility supporter (The facility supporter means the person supporting the nuclear material accounting work) instead of the facility operator. If necessary, the facility supporter can be designated in the other facilities of KAERI. The facility supporter doesn't need to take the course for the facility operator on the nuclear material accounting work. But he or she need to take the internal training on the safeguards implementation of KAERI.

The safeguards team which is designated as counterpart for the international and domestic safeguards work in KAERI, is charge of the overall implementation of the safeguards matters arising at each facility. All employees including the manager of the safeguards team should take the course for the facility operator on the nuclear material accounting work.

#### 2.2. Course for the manager on the nuclear fuel cycle R&D project

Under AP(Additional Protocol), the KAERI has annually submitted a report on expanded declaration to the IAEA. The expanded declaration includes the information of nuclear fuel cycle-related research and development activities not involving nuclear material.

Nuclear fuel cycle-related research and development activities are those activities that are specifically related to any process or system development aspect of any of the following :

- Conversion of nuclear material,

- Enrichment of nuclear material,
- Nuclear fuel fabrication,
- Reactors,
- Critical facilities,
- Reprocessing of nuclear fuel,
- Processing(not including repacking or conditioning not involving the separation of elements, for storage or disposal) of intermediate or high-level waste containing plutonium, high enriched uranium or uranium-233.

But these do not include activities related to theoretical or basic scientific research or to research and development on industrial radioisotope applications, medical, hydrological and agricultural applications, health and environmental effects and improved maintenance[3].

A manager conducting the nuclear fuel cycle R&D project that is subjected to the expanded declaration at KAERI should take the course for the manager on the nuclear fuel cycle R&D project.

In addition, the manager that is subjected to the both course of the training for the nuclear control should take the course for the facility operator on the nuclear material accounting work.

### **3. Internal training on the safeguards implementation of KAERI**

KAERI should implement the internal training on the safeguards implementation according to the internal regulation on the nuclear material accountancy of KAERI revised in July 2016. Safeguards team offers the internal training on the safeguards implementation twice a year for the facility supporters and new facility operators. The facility supporters need to take it every year.

KASIS(KAeri Safeguards Information treatment System) has been operated by the KAERI safeguards team to manage the nuclear material accounting data produced at the all KAERI nuclear facilities in near-real time. The safeguards team will allow the only facility supporter and facility operator taking the internal training on the safeguards implementation to plug into the KASIS.

The contents of the internal training on the safeguards implementation of KAERI are as follows :

- How to use the KASIS
- How to prepare the document on the nuclear material accounting
- The matters that required attention and features of the KAERI safeguards implementation etc.

### **4. Summary**

In this paper the status on the training for the nuclear control in KAERI was investigated.

The KAERI employees subjected to the training for the nuclear control which is compulsory education, are as follows:

1) Course for the facility operator on the nuclear material accounting work

- Facility managers of the KAERI nuclear facilities
- Project managers in each laboratory of the R&D facility and LOF

- Facility operators of the KAERI nuclear facilities except the R&D facility and LOF

- All employees of the safeguards team

2) Course for the manager on the nuclear fuel cycle R&D project

- Managers conducting the nuclear fuel cycle R&D project subjected to the expanded declaration at KAERI

The employees subjected to the training for the nuclear control in KAERI have taken it every year.

According to the regulation on the nuclear material accountancy of KAERI revised in Aug. 2016, KAERI should implement the internal training on the safeguards implementation. KAERI safeguards team will offer it for the facility supporters and new facility operators twice a year. The facility supporters need to take it every year. The contents of the internal training on the safeguards implementation of KAERI include how to use the KASIS, how to prepare the document on the nuclear material accounting and the matters that required attention and features of the KAERI safeguards implementation etc. The safeguards team of KAERI will make efforts to improve the course of the internal training on the safeguards implementation for the facility supporter and facility operator. It helps to effectively implement the safeguards work at the facility level as well as to meet the domestic regulation on it.

### **REFERENCES**

- [1] Notification of the Nuclear Safety & Security Commission, 2014-73
- [2] Internal regulation on the nuclear material accountancy of KAERI, 2016
- [3] Model protocol additional to the agreement(s) between state(s) and the international atomic energy agency for the application of safeguards, p14