

The Status of Implementation on Additional Protocol at KAERI

Hyun-Jo Kim, Sung-Ho Lee, Byung-Doo Lee, Hyun-Sook Kim

Nuclear material and technology control team, Korea Atomic Energy Research Institute (KAERI)
keiki@kaeri.re.kr

1. Introduction

The Safeguards Agreement between the Republic of Korea (ROK) and the IAEA entered into force in Nov. 1975. The Additional Protocol (AP) to the Safeguards Agreement was signed in June 1999 and entered into force in February 2004.

Under the Additional Protocol, a State is required to provide the IAEA with further information on nuclear related activities, all buildings on a site, etc. through an expanded declaration and further access rights at a nuclear site and any location included in the expanded declaration.

This paper describes the implementation status on the expanded declaration and the complementary access at KAERI under the AP.

2. Expanded declaration

2.1. Status of the expanded declaration

The information to be provided through the expanded declaration is shown in Table 1.

Article	Information
2.a.(i)	Government funded nuclear fuel cycle-related research and development activities not involving nuclear material
2.a.(iii)	Description of building on site and site map
2.a.(iv)	Manufacturing activities specified in in Annex I
2.a.(v)	Capacities and locations of mines and concentration plants
2.a.(vi)	Source material
2.a.(vii)	Exempted material
2.a.(viii)	Terminated intermediate or high-level waste
2.a.(ix)	Import and export of non-nuclear equipment and material
2.a.(x)	Ten-year plans for development of the State's nuclear fuel cycle

Table 1. Information to be provided under AP

KAERI has annually submitted the expanded declaration to the IAEA since initial declaration in 2004. The implementation status of the expanded declaration at KAERI was shown in Fig. 1.

The information on temporary buildings such as containers and structures has been reported since 2006 based on IAEA requests.

The IAEA requested certain amplifications and clarifications to include the past undeclared nuclear activities and provide detailed information of two R&D projects on the initial declaration in 2004 and 2005. Thus, KAERI has provided the expanded declarations reflecting the revision of 18 buildings and 2 R&D projects in 2005 under Article 2.c. In addition, IAEA requested certain amplifications and clarifications to provide detailed information on laboratories per floor and equipment in the buildings in 2007, and KAERI provided the expanded declaration on 10 buildings in 2007 under Article 2.c.

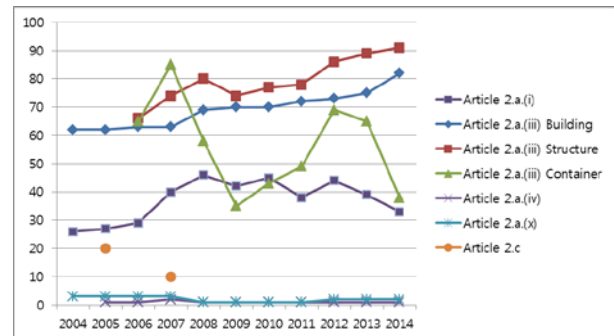


Fig. 1. Status of expanded declaration at KAERI

2.2. Implementation of the expanded declaration

The procedure for the preparation of the expanded declaration at KAERI is as follows:

- (1) The KAERI safeguards team requests the manager of all R&D projects to provide the information if the project needs to be reported under the AP, and also gets the list of R&D projects performed at KAERI from the relevant departments.
- (2) The KAERI safeguards team checks whether the R&D projects to be omitted from the expanded declaration exist or not by comparing a list of all R&D projects and information received from the managers of the R&D projects. If there is a R&D project needed to be declared after checking the titles of the projects, the KAERI safeguards team requests the manager to confirm whether its project is not really included in the AP.
- (3) Simultaneously, the KAERI safeguards team surveys the buildings, structures, and containers at the KAERI site to confirm the status.

- (4) Finally, the relationship between the R&D projects and their location and the updated location of the DIQ are reflected in the expanded declaration.

For a preparation of the expanded declaration, more than 2000 R&D projects are reviewed. During the preparation of the AP declaration, the following issues were reviewed and discussed.

First, the definition of the nuclear fuel cycle-related R&D to be declared under Article 2.a.(i) turned out to be one of the most important practical issues. The IAEA requested to report the R&D activities on steam generator; however, KAERI noted that it is not related to any report area for AP declaration. Because the aim of the relevant R&D project is to test and evaluate the heat transfer of existing steam generators pipes in power plant conditions and its activities only include theoretical or basic scientific research. The IAEA informed the ROK that the R&D projects on the maintenance of steam generators does not need to be declared under AP Article 2.a.(i); however the laboratory where R&D is being carried out needs to be declared under AP Article 2.a.(iii). This issue should be subject to further discussion.

Second, the IAEA pointed out that the project declared in Article 2.a.(i) was completed, but the mock-up system is still located in the location during CA. The IAEA requested to include reference to significant relevant equipment and features, whether in use or not, in the declaration related to Article 2.a.(iii). It will be necessary to discuss the scope of significant relevant equipment and features.

2.3. Information management system for expanded declarations

KAERI has used a protocol reporter provided from the IAEA for managing and producing information of expanded declarations since 2004. It is not sufficient for managing the detailed information of expanded declarations under the AP.

Thus KAERI developed the information management system for expanded declarations in 2011 to effectively collect and manage the expanded declarations related information from the R&D projects. The system has the main features such as collection of expanded declarations from the R&D project managers, automatic link of the R&D projects and location information, and creation and history management of the expanded declaration.

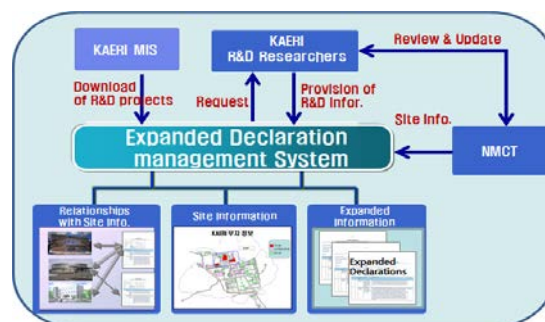


Fig 2. Schematic Diagram of Expanded Declaration

3. Complementary Access

Complementary access under the AP is an essential component in strengthened safeguards. The IAEA conducts complementary access to assure the absence of undeclared nuclear material or to resolve questions or inconsistencies in the information provided by the states regarding nuclear activities. The activities carried out during CA can include visual observation, collection of environmental samples, utilization of radiation detection and measurement devices etc.

The status of CAs at KAERI is shown in Fig. 3. The IAEA conducted four CAs (for more than 20 days) in 2004 to verify the correctness and completeness of the declarations including past undeclared nuclear activities after a submission of the initial expanded declaration. The frequency of the CAs was reduced after a resolution of the initial declaration and stabilized. Complementary accesses were carried out with 2 hours notice in conjunction with the inspection activities, and others were carried out with 24 hours notice.

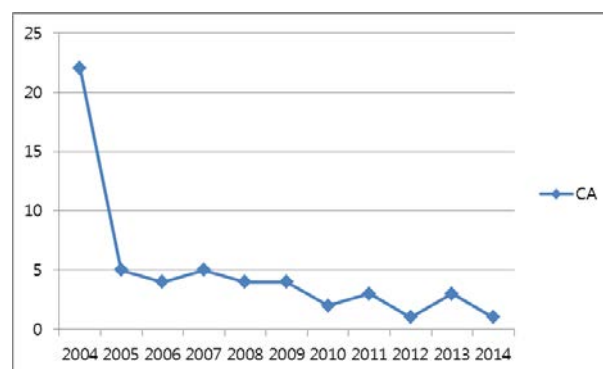


Fig. 3. Status of CAs at KAERI

4. Conclusion

This paper reviewed the implementation status of the AP at KAERI, and there are some practical issues to prepare the expanded declarations as mentioned above.

From the view point of the effective and efficient processing of the expanded declaration, it will be necessary to discuss the criterion for the definition of

the nuclear fuel cycle-related R&D to be declared under the AP with IAEA.

REFERENCES

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