

The Development of Korea Additional Protocol System

Hye-Won Shim, Jin-Kyun Yeo

Korea Institute of nuclear non-proliferation and control (KINAC), 573 Expo-ro Yuseong-gu, Daejeon, 305-348 Korea.

1. Introduction

The Agreement between the Republic of Korea (ROK) and the IAEA for the Application of Safeguards in Connection with the Treaty on the Non-Proliferation of Nuclear Weapons (the Safeguards Agreement) entered into force on 14 November 1975.

The Additional Protocol to the Safeguards Agreement (the Additional Protocol) was signed on 21 June 1999 and entered into force on 19 February 2004. ROK has been submitting annual updated reports of initial declaration on every May 15th since August 2004.

Additional protocol reports were submitted through Protocol Reporter provided by IAEA. Annual declarations were simply uploaded and stored in the Accounting Information Treatment System of KINAC, which did not provide data analysis and management function. There have been demands for improvement to handle ever-increasing information.

KAPS (Korea Additional Protocol System) has been developed to assist and administrate the additional protocol related works effectively. The new system enables integrated management including composition of additional protocol report and version control, periodical update of related information, results of IAEA complementary access to each facility.

2. Environment of Development

The KAPS is a Web-based application developed using the Java, JSP programming environment. The Database management system (DBMS) and Web Application Server (WAS) are Oracle 10g and Oracle AS, respectively. Enterprise Architecture was employed as a modeling tool. Throughout development, version control was done by the Current Versions System (CVS). We used our own framework, iCube, and other tools such as TurstForm and Ubi-Report for the system development. The following summarize environments of the software development.

Contents	S/W
Language	Java / JSP
DBMS (Database management system)	Oracle 10g (Oracle 10.1.0.5)

WAS(Web Application Server)	Oracle Application Server
Modeling Tool	Enterprise Architecture
Configuration management	CVS (Current Versions System)
Framework	iCube
Interface	TrustForm
Reporting Tool	Ubi-Report

- (i) System Environment
 - Utilize the current hardware platforms for application and DB servers.
- (ii) Main Transactions
 - Batch processing of the reports from facilities (DB establishment)
 - Information access and remote services (WEB environment development)
- (iii) Development tools
 - Database: Oracle 10g (Release 10.1.0.5.0)
 - Programming: Java, JSP User
 - Interface: X-Internet tool (TrustForm)
 - DB driven reporting: Ubi Report

3. System Architecture

KAPS, implemented for effective fulfillment of the additional protocol with IAEA, has the following subsystems. Their main features are as follows.

- (i) Additional protocol report management
 - Uploading of reports from facilities
 - Automatic attachment of the national number to the accepted report
 - Report search
 - by declaration No.
 - by protocol article
 - by submission
 - by keyword
 - by reference
- (ii) Research project management
 - Information of Nuclear fuel cycle-related and development activities
 - Progress management

- (iii) Organization management
 - Integrated information management for organizations
 - Access to relevant reports
- (iv) Exempted material management
 - Detailed records management for exempted nuclear material
 - Status of exemption/Re-application of Safeguards
 - Exemption status for companies
- (v) Complementary access management
 - Schedule management for complementary access
 - Schedule status for complementary access
 - Report management for complementary access
 - Statistics for complementary access
- (vi) System management
 - User management
 - Program management
 - User permission management
 - Access management to each system

Since this system is based on the IAEA Protocol Reporter, it should be revised upon the release of IAEA Protocol Reporter 2.0. In addition, the fact that the system is based on the Protocol Reporter limits its capability for information search and transformation, which are imperative for integrated management. Consequently, it is required in the future to develop on our own a new tool that collects necessary information, manages the information effectively, and automatically generates AP reports that meet the IAEA protocol reporter requirements. It should be deployed to facilities and help implement national management system.

4. Conclusion

The development of KAPS is expected to help fulfill responsibilities based on the international agreements and enhance transparent use of nuclear materials. In addition, the improvement in the management system will enhance the efficiency of the related work. The new system can be used to verify and manage the reports from facilities.

REFERENCES

- [1] Model protocol additional to the agreement between state and the international atomic energy agency for the application of safeguards.
- [2] Guidelines and format for Preparation and Submission of Declarations Pursuant to Article 2 and 3 of the Model Protocol Additional to Safeguards Agreements.