

The Review of Quality System on IAEA Safeguards to Improve the Quality of National Safeguards Inspection

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1. Introduction

Korea is the 6th largest producer of nuclear power in the world and also has many extensive nuclear research programs. As a result, Korea is also the 3rd most frequent inspected country by the IAEA. Nuclear nonproliferation has been a supreme concern in Korea; and the government has fully understood the importance of nuclear safeguards inspection.

KOREA established a state system of accounting for and control of nuclear material (SSAC), immediately after the safeguards agreement with the IAEA on 14 November 1975. The Nuclear Control Team from MEST (government) has the primary responsibility to oversee safeguards and KINAC has been entrusted to perform this duty under the delegated authority by the Atomic Energy Act. Safeguards Activities from KINAC have been conducted over the last 20 years. Yet Quality System concerning national safeguards inspection has not been taken into consideration. In order to have an effective and efficient national safeguards inspection program, it is time to seriously consider Quality System.

In this paper, the quality assurance with regulatory bodies which was recommended by IAEA, the quality management system in IAEA safeguards department, and other countries cases were reviewed and analyzed. From this initial step, an attempt was made to design a more efficiently and effectively quality system for conducting national safeguards inspection.

2. The Approaching Method to Acquire the Quality System

2.1 Quality Assurance within regulatory bodies – IAEA TECDOC 1090

The integration of quality assurance to the conduct of regulatory activities has been an IAEA agenda item since an Advisory Group meeting (AGM) took place in 1990. And then IAEA published a guide book about “the quality assurance within regulatory bodies (TECDOC 1090)” in 1999. [1] The objective of this publication was to give information needed to improve the practices in developing and applying quality assurance in regulatory activities.

To accomplish this objective, the regulatory body should identify the management and performance processes that supports and controls the specific work. And the regulatory body should define and develop a

system that would integrate the following quality assurance principles.

Table 1: Quality Assurance Requirements

Management	Performance
Leadership	Work planning and control
Organizational factors	Non-conformance control and corrective actions
Policies	Improvement
Strategic Planning	Regulations and guides
Procedures	Research and development
Document Control	Review and assessment
Records	License issue and reissue
Service standards and monitoring	Inspection
Financial and human resource planning	Technical support
Human resource development	Enforcement
Training	Emergency response
Internal/External communications	Public relations
Interfaces with licensees/applicants	
Experience feedback	

2.2 The Quality Management System in IAEA Safeguards Department

In order to improve the working methods and procedures involved in safeguards, IAEA was reported towards implementing a comprehensive quality management system (QMS) based on the ISO9001:2000 standard.

As a result of the recommendations from the SAGSI and the Major Programme 4 Review, the Safeguards Department has committed itself to introducing a QMS that will comply with the applicable requirements of the ISO 9001:2000 standard. The ISO 9001:2000 standard was selected because it is an international system that is widely accepted and used. The fundamental reason for introducing the QMS was to enhance the efficiency and effectiveness of the Department’s verification and evaluation activities through continual improvement. The system conforms to the applicable requirements of the ISO 9001:2000 standard. Compliance was confirmed initially by a process of internal quality audits. More importantly, it is sufficiently flexible to allow the Department to introduce a system appropriate to its own needs.

The ISO 9000 family of standards was based on eight quality management principles. These principles can be used by management improve performance, irrespective of the type of organization. These principles include: customer focus; leadership; involvement of people, process approach, a system approach to management, continual improvement, a factual approach to decision making and mutually-beneficial supplier relationships. [2]

By adopting the ISO standard and using it as the framework for the Department's QMS, many benefits could be derived. The needs of a customer will be clearly defined and mechanisms put in place to ensure that they are widely understood. The processes necessary to meet those needs will be designed, implemented and operated correctly. This includes the measurements to ensure that the processes are performing as intended and to identify areas where improvements can be realized. If the processes are well understood, weaknesses or shortcomings will be known and measures can be taken to address those gaps. [2]

Consequently, as the QMS is applied to safeguards works, the Safeguards Department can manage its work as a system and as a set of inter-related processes. Introducing the QMS will force the Department to look carefully at how it does its work and how decisions are made. This will change the Departments focus away from conclusions and concentrate on how those conclusions were drawn.

2.3 South Africa

In South Africa's Case, to insure that there are continuous improvements with respect to the application of safeguards, a quality management system (QMS) has been developed where the requirements of safeguards and principles of the ISO 9001:2000 are integrated into a QMS applied on a State and facility level.

2.4 Canada

The CNSC (Canadian Nuclear Safety Commission) undertook activities to insure that appropriate programs and procedures were in place to fulfill safeguards license conditions. The CNSC also participate in many of the verification activities undertaken by the IAEA at Canada's nuclear facilities. However, the CNSC has not implemented a national safeguards inspection program and has not considered using the QMS.

3. Preliminary Step for Adopting Quality System in National Safeguards Inspection

In IAEA safeguards department, the various benefits were acquired from adopting the QMS. If the Quality Systems are also introduced in national safeguards, the implementation system for national safeguards will be improved. Currently in national safeguards, there is no

standard procedure for inspection planning before performing the national safeguards. And it has not been carried out standard procedure system when the safeguards team performed the tasks. So, the overall standard procedures (from the plans before inspection to activities after performing the inspection) are needed. Through the adopting the quality system, this standard procedure will be established.

And if quality system is managed properly well in national safeguards, the reliance and satisfaction can be achieved from customers (government, the person concerned about nuclear facility, and the general public). Also, as the national safeguards are implemented by the procedures of quality system, the weak point can be found out. And continual improvement can be accomplished in the process of safeguards task.

4. Conclusions

Quality assurance can be improved by enhancing the effectiveness and efficiency of the national safeguards inspection activities. By systematizing this activity, the efficiency of the national safeguards organization will be increased. And through continual improvements in these activities, it is possible to have all the benefits a quality system.

In the foreseeable future, by making up for the weak points in national safeguards system through quality system methods, it is expected that the national safeguards system can be changed for the better.

REFERENCES

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