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A Study on the Systematization of Commodity Classification

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1. Introduction

International community is trying to prevent the spread of WMD (Weapons of Mass Destruction), especially nuclear weapons. These efforts result in the declaration of UNSC Resolution 1540 in 2004, which made export controls the international norms for all nations in the world [1]. Korea enacted Foreign Trade Act in 1989 to adhere to the export control standards worldwide.

Export control system in Korea consists of commodity classification system and export license system. The commodity classification system is used to identify strategic commodity. The Export License system is used to verify that exports have met the conditions required by the international export control system.

NSG guidelines, the NSG handbook [2] and Public Notice on Trade of Strategic Items [3] are used to classify items and technology

However, some items or technology in NSG guidelines should be especially designed or prepared (EDP). It is difficult to determine which items or technology is strategic commodity because EDP criteria are qualitative.

NSG or participant states don't provide clear criteria to classify items and technology but recommend establishing standards autonomously.

Hence the result of deliberation on the same items and technology may be different by reviewer's experience, knowledge and governmental policy. It causes confusion of reviewers and export companies

In this research, commodity classification systematization by EDP criteria's clarification was performed to increase consistency and efficiency.

2. Methods and Results

In this section, measures and results to disambiguate EDP criteria and systematize classification procedure are described as follows.

2.1 Classification system analysis

Depth interviews were performed to gather reviewer's experience and know-how continuously. Also, the classification procedure was standardized based on accumulated data.

According to the result of interviews, the procedure consists of 8 stages from document verification to completion of technical report.

Each stage can be described as below.

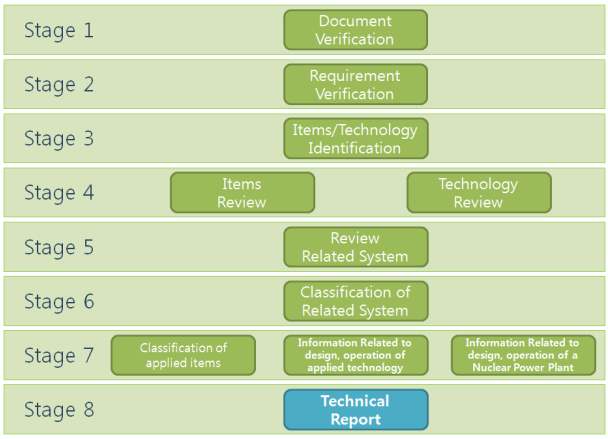

Fig. 1 Flow chart for classification

2.2 Foreign export control case study

An investigation into foreign export control cases and systems were performed to clarify EDP criteria. According to the study, Items and technology which are similar to or highly related to those in NSG guidelines are treated as strategic commodity as well as items and technology in NSG guidelines in the USA. Most of other NSG participant states were similar to the USA [4].

2.3 Domestic export control case study

About 4,000 classification cases in Korea were analyzed and interviews with reviewers were performed to investigate how EDP criteria applied to classification

Some patterns applying EDP criteria were identified in the analysis. Relationship with nuclear reaction, function of items in NSG

guidelines were standards which account for most classification cases.

Table 1 Example for applied EDP Concept

	Items	Relationship with nuclear reaction
1	Stud Bolt	None
2	Holddown Ring	None
3	O-Ring	None

2.4 Systems of nuclear power plants analysis

Systems of nuclear power plant (NPP) were investigated to build a database. Documents [5] and technical data related to NPP systems were collected and arranged. About 100 major systems were classified whether they were strategic commodity or not.

This study added a list of NPP systems to the existing control list [6] which consists of NSG Guidelines. Also, a database of relationship between systems of NPP and the control list was built.

NO	System	Related Nuclear Items
1	Reactor Coolant System (RCS)	0A001.a (Reactor) 0A001.b (Reactor vessel) : vessel, upper head 0A001.f (Zirconium tube) : zirconium tube 0A001.g (Primary coolant pumps) : sealed systems 0A001.h (Nuclear reactor internal) : support columns for the core, fuel channels, Thermal shields, baffles, core grid plates, calandria tube 0A001.i (Heat exchangers) : Heat exchangers, U tubes
2	Control Element Drive Mechanism Control System(CEDMCS)	0A001.d (Nuclear reactor control rods and equipment) : Control rods, rod guide tubes, support or suspension structures
3	In-core Nuclear Instrumentation system	0a001.j (Neutron detection and measuring instruments)
4	Excore Nuclear Instrumentation system	0a001.j (Neutron detection and measuring instruments)
5	Reactor Coolant Gas Vent System	0A001.a (Reactor) - Reactor coolant pressure control and emergency core cooling

Fig 2 Modified control list table for representative system of nuclear power plant

2.5 Integrated guidelines

All the above results were integrated systematically and classification manual was proposed. The manual may be used to apply EDP criteria to commodity classification efficiently.

3. Conclusions

The most important and difficult process in technical review is application of EDP concept. This study made qualitative EDP criteria specific and systematized commodity classification

Quantification of EDP criteria may make technical review inflexible but qualitative criteria imply the risk of a loophole. Therefore, systematization of commodity classification system and disambiguation of EDP criteria are necessary for export control. Also, the result of this research including the classification manual and the database will be used as commodity classification standards

However, Systematic analysis is insufficient for other fields except for systems of a NPP at the present stage. And EDP criteria should evolve as nuclear technology develops

Therefore, the related research should be continued by management of reviewer's know-how and experience to maintain classification standards.

REFERENCES

[1] UNSC Resolution 1540
[2] NSG Guideline (INFCIRC 254/rev10. Part 1)
[3] MKE public notice 2009-250, Public Notice on Trade of Strategic Items, 2009
[4] NSG DMTE EDP Paper (Confidential)
[5] Nuclear Power Plant Systems Manual (APR 1400)
[6] NSG Trigger List Handbook (Confidential)