

## A Study on the Countermeasures to the Revision of Nuclear Controlled Items

Sun-do Choi, Dong-hyuk Lim

Korea Institute of Nuclear Nonproliferation and Control, Nuclear Export Control Div., Yusungdae-ro 1534,  
Yusung-gu, Daejeon, Korea, 305-348

Corresponding author: sdchoi@kinac.re.kr

### 1. Introduction

NSG(Nuclear Suppliers Group) was formed to prevent proliferation in 1977 with nuclear test in India in 1974. INFCIRC/254/Part1 (Trigger List) as guidelines for controlling the nuclear material, reactor and related equipment, reactor nuclear material, reprocessing, enrichment, conversion, molding, heavy water production plant/equipment, technical was released in 1978, and the Export Control guidelines (INFCIRC/254/Part2) about Dual-use item which can be used for nuclear development was established in 1992.

The two Export Control guidelines are agreements between NSG Participating Governments (PGs), so all PGs have an obligation about implementation of the agreement.

In addition, NSG guidelines can be the export base of control law of the member nations including our country which joined in 1995 or matched with it. Recently, NSG is in the progress of the fundamental review of NSG guidelines established in 1978 and 1992. The terms of agreement will be reflected to the domestic legislation through the fundamental review, and it will entail the changes of classification and export license standard of export items.

Thus, it was studied about export controlled items review and revise plan for establishing the clear export control guidelines by review of NSG guidelines as follows.

### 2. Fundamental Review of Controlled Items

#### 2.1. Fundamental Review's schedule

Fundamental Review will be complete in 2013 NSG plenary. PGs discussed the practical consequences of the 8 week deadline stipulated in the DMTE (Dedicated Meetings of Technical Experts) Terms of Reference (TOR) for the submission on fundamental review website of final proposal before a DMTE. Then, PGs would be invited to post comments online under the specific proposals during a period of, minimally, four weeks. Following this, the respective DMTE coordinator would have two weeks to coordinate with those PGs who had made comments and to incorporate their comments into a new draft proposal, which would be then discussed at the following DMTE. After the 2 week coordination period, PGs would have a final two weeks to consider the proposals and make up their minds on their DMTE position.

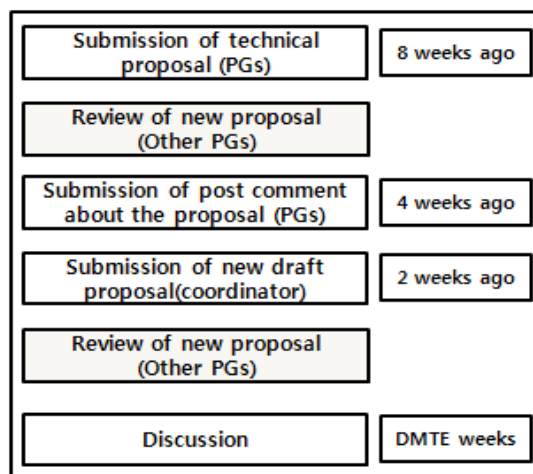


Fig. 1. DMTE's schedule

#### 2.2. Items on the Trigger List

In the Trigger List of INFCIRC/254/Part1, UAE & Jordan export mainly related item is " Nuclear reactors and especially designed or prepared equipment and components therefor ". And there are total 10 items as follows, and the brief description and Explanatory Note are expressed in each item.

- 1.1 Complete nuclear reactors
- 1.2 Nuclear reactor vessels
- 1.3 Nuclear reactor fuel charging and discharging machines
- 1.4 Nuclear reactor control rods and equipment
- 1.5 Nuclear reactor pressure tubes
- 1.6 Zirconium tubes
- 1.7 Primary coolant pumps
- 1.8 Nuclear reactor internals
- 1.9 Heat exchangers
- 1.10 Neutron detection and measuring instruments

#### 2.3. Method of Item's review

Before submission of the technical proposal, PGs carefully consider following questions:

- Are there control entries that should be added or deleted?
- Are there control entries for which technical parameters have become obsolete or outdated and need to be changed / updated?
- Have we accounted for new and emerging technologies and recent developments applicable to

both the nuclear fuel cycle and to weaponization activities as appropriate/ needed?

- Do the Dual-Use List entries continue to have the appropriate balance between "significance" (proliferation contribution and concerns) and "controllability" (legitimate commercial equities, supply outside the regime)?
- Have we achieved the appropriate balance between the especially designed or prepared (EDP) principle and the technical parameters/specificity in the Trigger List entries?

The controlled items have much effect on the export activities of items. Therefore, the review of controlled items was conducted targeted to prevent proliferation, to reduce the effects on export activities and to be clear. To achieve this goal, the opinions of industry, universities and research institutions were collected by considering following three methods.

1. Rationality of Controlled items
2. Clarity of the phrase
3. Propriety of the Control level

### **3. Results**

As opinion results, the needs of revision about three following items were examined.

- 1.2 Nuclear reactor vessels
- 1.7 Primary coolant pumps
- 1.8 Nuclear reactor internals
- 1.10 Neutron detection and measuring instruments

The Nuclear reactor vessels(1.2) which needs revision is divided with reactor body and vessel head largely. The vessel head is already included in the "major shop-fabricated part" which is expressed in the current guidelines, so there is not needs to include it in the Explanatory Note.

In the Primary coolant pumps(1.7), "elaborate sealed or multi-sealed systems to prevent leakage of primary coolant" are components of RCP, "canned-driven pumps, and pumps with inertial mass systems" are a kind of RCP. To clarify of control range, it is desirable to describe a type of pumps.

The designation of reactor internals(1.8) for using is different by each reactor type so it is desirable to describe major function and mention designation in the Explanatory Note.

The neutron detection and measuring instruments(1.10) have unclear range of controlling. So the detector and pre-amplification instruments as especially designed or prepared instruments for using reactor should be described only. In addition, it is desirable to express the control specifications about pre-amplification instruments.

### **4. Conclusion**

Four items should be agenda, so it will be desirable to offer the export control guidelines revision by assuming the NSG controlled items fundamental review DMTE(Dedicated Meeting of Technical Experts)

The comment submission of ongoing export businesses opinion convergence and NSG are very important for the efforts to maximize the profit of export businesses and to prevent proliferation.

Thus, export businesses, control agency and government needs to recognize the importance of NSG controlled items fundamental review.

As our country that became the ranks of the nuclear suppliers by importing with UAE nuclear power plants and Jordan research, passive export control specifications and NSG controlled items fundamental review is absolute a very important opportunity for aggressive export control furthermore.

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