

Status of Nuclear Material Accounting Report in 2005

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1. Background

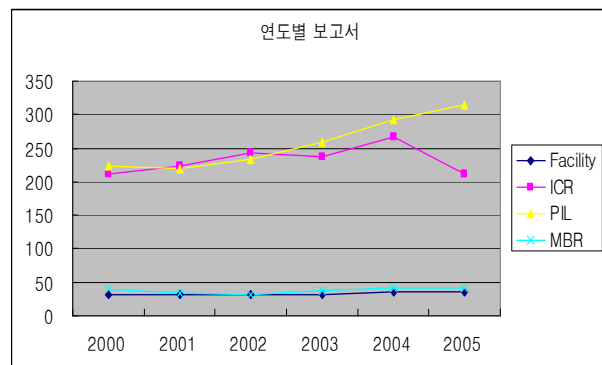
In concurrence with the entrance of the NPT in 1975, the ROK made a Safeguards Agreement (INFCIRC/153) with the IAEA. In accordance with this agreement, the KINAC, given the authority from the Government, has been reporting the nuclear material accounting reports to the IAEA concerned with nuclear material's changes occurred in the nuclear facilities in the ROK. The ROK started to report the material accounting reports using computer from 1988, and developed a new web-based system in 2003, and has been operating the system since 2004. Since the IT field is growing fast, the way the ROK has been reporting using computer based system are expected to be changed.

2. Operation of Nuclear Material Accounting Information System

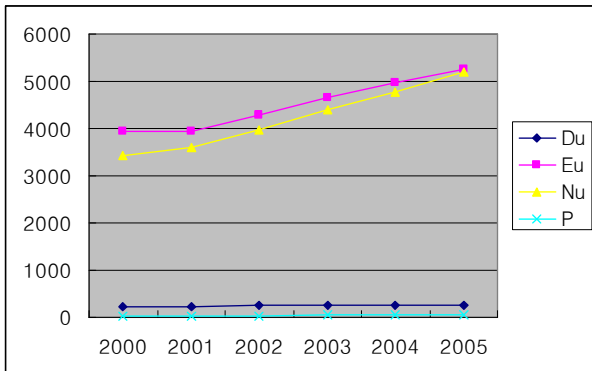
After joining the NPT, the facilities which have to be applied safeguards increase continuously. At 2005, the facilities that must submit the accounting report are 35 in which 36 MBAs are included. The facility of Nuclear Fuel Fabrication Facility has two MBAs and those are KO1R and KO2R. When a change in nuclear material inventory or PIV(Physical Inventory Verification) takes place, then the facility must submit nuclear material accounting report to the IAEA. Accounting report must be written according to the CODE 10 of Subsidiary Arrangement in Safeguards Agreement. Usually the KINAC under entrust from the MOST gather the accounting reports which are sent from each facility. The KINAC takes charge of submitting the national accounting report to IAEA. The KINAC uploads the accounting data into the accounting database for checking the errors and generates national accounting report, then submits it to the MOST by document and to the IAEA by encrypted e-mail in parallel. Nuclear material supplying countries also confirm the material transaction to the MOST, and give the accounting report to the IAEA. The KINAC also gives the confirmation to the supplying countries. The IAEA checks the accounting report from ROK and the information of nuclear material transaction which are informed from the supplying countries. If the IAEA finds errors or some problems, then request correction reports or additional information of the accounting report. The KINAC has to perform proper actions for the request.

3. Situation of Nuclear Material Accounting Report

According to the increase of nuclear facilities and materials, the numbers of accounting reports are increasing year by year. Types of accounting reports are as follows. The ICR is Inventory Change Report which a facility must submit it at occurring change of nuclear inventory. The PIL is Physical Inventory List which a facility must submit it after taking PIV (Physical Inventory Verification). The MBR is Material Balance Report which a facility must submit it after taking PIV. PIL and MBR must be submitted simultaneously. Concise Note is an additional explanation report for ICR, PIL, MBR when more detailed information are needed. Fig. 1 shows the numbers of facilities and reports from 2000 to 2005. And Fig. 2 shows nuclear materials from 2000 to 2005. When checking the reports, there are 3 types of errors in the reports, that is, syntax, logic, transit errors. Data in the accounting report are impossible to check by manually because of the huge amount of data. So, errors are checked by accounting information system. If any error in the accounting report is found, the KINAC informs the error to facility operator and request the correction report.



<Fig. 1 : Number of reports by year>



<Fig. 2 : Amount of nuclear material by year, Unit : ton>

4. Annual Report between ROK and Canada

The ROK imports many kinds of equipments, technology and nuclear material from Canada every year for CANDU. For co-operation in the development and application of atomic energy for peaceful purposes, the ROK and Canada signed administrative arrangement on 26 January, 1976. Each authority agreed to exchange annual report which is covering the twelve month period ending in December on all nuclear, equipment and information subject to the Agreement in its territory.

	'05 Opening	Received	Shipped	Derived	'05 Closing
Zr Tubes	5,012,852	897,850		802,491	5,108,211
Nu	2,296,427	427,559	0.1	-1,471	2,722,515
Eu	889,418	58,201		-1,317	946,302
U-235	12,486	2,395		-679	14,202
Du	9,126.5	0.6		-0.5	9,126.6
P(in SFP)	14,948			+775	15,723
Heavy Water	1,638,921	220		960	1,638,181

<Table 1: Annual Report between ROK-Canada, Major item, Unit: kg>

Table 1 shows the ROK annual report 2005 which was submitted to Canada.

5. Annual Report between ROK and Australia

To cooperate in the development and application of nuclear energy for peaceful purposes, the ROK signed an agreement with Australia on 2 May, 1979. The ROK imports nuclear material from Australia every year and exchanges annual report according to the agreement. Table 2 is ROK annual report 2005 which was submitted to Australia.

	'05 Beginning	Increase	Decrease	'05 Ending
Du	1,497			1,497
Eu	826,768	75,381	2,823	899,326
U-235	16,369	2,930	1,534	17,765
Nu	1,407,948		1,615	1,469,333
P	10,394	1,041		11,435

<Table 2: Annual Report between ROK-Australia, Unit: kg>

6. Conclusion

In 2005, the ROK submitted 664 nuclear material accounting reports, which are composed of 212 ICRs, 315 PILs, 42 MBRs, and 95 Concise Notes. The KINAC took the responsibility for submitting the Reports to the IAEA on time. To do so, the KINAC had to have good relations with facilities, the MOST and the IAEA. The KINAC provided advices and suggestions as requested from facilities. The KINAC is keeping on maintaining the nuclear material accounting information system. This system checks the errors in the report, generates national reports and produces statistical data.

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