「原子力用語」に関する最近の状況

—原産 ISO/TC 85/SC 1 対策委員会*の活動を中心に

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*Recent Topics on Standardization of Nuclear Glossary
and Work of Japan Committee for ISO/TC 85/SC 1*

By Kensuke KITAO

ある工業分野で、目的をもって使われる“ことば”とその定義を標準化したものを「用語規格」という。用語規格は、その分野の標準化を体系的かつ計画的に進めるうえで基本となるものである。国内では JIS が、国際的には ISO(国際標準化機構)が、用語規格を制定している。ISO 用語の内容を理解し、また国内の JIS 用語との間でできるだけ整合をはかることは、この分野での国際的活動に役立つのみならず身近なところでは、学术论文や技術報告におけるキーワードの適切な選択にも役立つものと期待される。

1. ISO 原子力用語

最近、ISO では、原子力用語国際規格(ISO 921-1972 制定)(英・仏・露3ヶ国語で書かれている)の「追補」第1集として 329 語を制定発表した。この追補の作業については、筆者らがちょうど4年前本誌(Vol. 19, No. 4, 245~246)「談話室」欄で紹介したこともあるので、ご記憶の方もおられるかも知れないが、今後その内容や邦訳案の紹介普及をはからねばならない。(第1図に追補第1集の一部を示す)

ところで、ISO の原子力専門部会第1小委員会(TC 85/SC 1)では、この追補第1集制定に続いて、こんどは第2集の作成を目ざしており、最近その用語案をまとめ、わが国を含む加盟メンバー国機関にその賛否を求めてきている。この追補第2集案の作成は、すでに1974年から第1小委員会のワーキンググループによって始められ、1976年4月の第1次草案をへて、1980年3月にはワーキンググループ最終草案として採択、親委員会である TC 85/SC 1 に送られて今回の配布となったものである。これが国際規格として正式に制定されるためには、SC 1 メンバーによる投票、TC 85 メンバーによる最終決定、さらには ISO 理事会の承認と

いう手続が残されている。

II. ISO 用語案への対応

このような案件に対するわが国側の対応のために、日本原子力産業会議の尽力によって設けられた TC 85/SC 1 対策委員会(委員長 武田栄一元原子力委員)があり、日本原子力学会ならび関係諸学会、産業界からの意見のまとめ役を引き受けている。例えば、ISO/TC 85/SC 1 で現在作成中の核融合用語については、ワーキンググループ作業文書の段階から接触することができたため、原子力学会の「原子力工学用語」特別専門委員会で検討していただき、削除・追加等の意見を先方に取り次ぐことができた。これらの意見は今回の追補第2集案に続いて TC 85/SC 1 検討文書となった核融合用語案(158語)のなかに反映されている。しかし、核融合以外の分野での ISO 原子力用語への応接はまだまだ受身の状態から脱していない。

追補第2集案については、第1次草案当時すでに上記国内対策委員会が発足していたものの、草案の入手が遅れて意見を述べる機会を逸してしまったし、このたびの賛否投票も締切日ぎりぎりに入手したため、とりあえず ISO TC 85/SC 1 事務局宛に投票遅延通告を行なったものの、結局コメントをつけることなく承認の投票を行うことにした(投票は義務づけられている)。

III. 追補第2集案

今回入手した追補第2集案は351語から成っている。

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ISO 921-1972/Add. 1-1980 (E/F/R)

Nuclear energy glossary
ADDENDUM 1Vocabulaire de l'énergie
nucléaire
ADDITIF 1СЛОВАРЬ ПО ЯДЕРНОЙ
ЭНЕРГИИ
ДОПОЛНЕНИЕ 1

Terms in English

Termes français

РУССКИЕ ТЕРМИНЫ

598 absorption curve

A plot of an absorption-dependent radiation quantity (e.g. energy flux density) as a function of the distance traversed in an absorber.

courbe d'absorption (technologie nucléaire)

Courbe représentant l'absorption d'une grandeur de rayonnement (par exemple, le débit de fluence énergétique) en fonction de la distance parcourue dans un absorbeur.

кривая поглощения

График изменения количества излучения (например, плотности потока энергии) в зависимости от расстояния, пройденного в поглотителе.

599 accountability

Quantitative accounting for inventories and transfers of nuclear material through a system of measurements, records and reports.

gestion

Comptabilité concernant les inventaires et les mouvements des matières nucléaires, au moyen d'un système de mesures, d'enregistrements et de rapports.

учет

Количественная оценка запасов и перемещений ядерного материала посредством системы измерений, регистрации и отчетности.

第 1 図 ISO 原子力用語・追補第 1 集の内容の一部

通覧して、まず気付くことは、保障措置ないし計量管理関係の用語が集中的に採用されていることである。その数は55語に達している。特にこの分野の用語については、国際的にその内容がどのように規定されつつあるかを国内関係者に広く知らせることが肝要であると思われるので、本稿の末尾に原文のまま掲げることとした次第である。

なお、一昨(1979)年の TC 85 総会では、規格作成のスピードアップが強調されているので、本第 2 集の成立には、従来ほどの時間はかけないものと思われるが、わが国が意見を述べる機会が完全になくなったわけではない。したがって今回の追補案全体に対して、対策委員会としては本学会会員を始め多くの方々のご意見を寄せていただきたいと考えている。

(追補案の内容については、日本原子力産業会議技術課宛にお問い合わせ下さい。)

IV. JIS 原子力用語

この機会に、国内の JIS 原子力用語について、最近の消息を紹介しておきたい。わが国の工業規格、原子力用語 (JIS-Z-4001) は、1968 年に制定されたまま一度も見直しがなかったが、1977 年、工業技術院の委託を受けて原子力産業会議の場で見直しのための作業が行われ、昨年、その原案(992語)が作成提出された。近く日本工業標準調査会原子力部会のもとでその審議がなされることになっているので、新しい JIS 原子力用

語の制定も間もないことであろう。

〔原子力用語国際規格・追補第 2 集案からの抜萃〕

以下に掲げるものは ISO 原子力用語の追補第 2 集案のうち、保障措置および核燃料計量管理関係の用語案である。見出し語の前の番号は、ISO 原子力用語の通し番号、定義文中の語に付けたアンダーラインは、その語が原子力用語(または本用語案)として、採録されていることを示す。

933 accidental loss (safeguards)

The inadvertent and irrecoverable loss of nuclear material in an accident.

934 accountancy by difference (safeguards)

A procedure of drawing the material balance not by directly determining the quantity of nuclear material in a specific area, but calculating it from the difference between incoming and outgoing material.

937 adjustment

The entry into material balance reports that take into account shipper-receiver differences and material unaccounted for.

Note: Adjustments will not be necessary in cases in which, under Annex I of Regulation No. 3227/76 of the Commission of the European Communities, shipper-receiver-differences and as differences in new measurements material unaccounted for are treated as inventory changes.

939 audit (safeguards)

The mathematical examination of the material

accounts and balances on the basis of vouchers.

944 batch (safeguards)

A portion of nuclear material handled as a unit for accounting purposes at a key measurement point and for which the composition and quantity is defined by a single set of specifications or measurements.

Note: The nuclear material may be in bulk form or contained in a number of separate items.

945 batch data (safeguards)

For nuclear material contained in a batch, the total mass of the compound, the total mass of the elements of nuclear material, and the isotopic composition of the fissile isotopes, where appropriate.

946 beginning inventory

The quantity of materials on hand at the beginning of a specific time period.

951 book inventory (safeguards)

For a material balance area, the algebraic sum of the result of the last physical inventory taken in the respective material balance area and all inventory changes that have occurred since that physical inventory was taken.

952 book inventory, adjusted ending (safeguards)

The ending book inventory in which the shipper/receiver difference has been taken into account.

Note: Under Annex II of Regulation No. 3227/76 of the Commission of the European Communities and in accordance with IAEA practice, shipper/receiver differences may be reported like inventory changes with the effect that the ending book inventory is identical with the adjusted ending book inventory.

967 campaign

The period in which material of the same origin or for the same purpose is processed in a fabrication plant or reprocessing plant.

972 clean out

The transfer of nuclear material from parts of a plant that are inaccessible for measurements to parts where samples and measurements can be taken.

998 correction (safeguards)

An entry in an accounting record or a report to rectify an identified mistake or to reflect an improved measurement of a quantity previously recorded or reported. Each correction must identify the entry to which it pertains.

1000 critical facility

A facility in which a controlled self-sustaining nuclear fission chain reaction can be maintained, but

which is designed to work at very low power levels. In the safeguards field, the term may also include the respective storage facilities.

1001 critical time (safeguards)

The shortest time needed to convert a specific nuclear material into a nuclear weapon component. It is a function of the physical and chemical form, the isotope composition of the material and its location and use.

1014 design information (safeguards)

Gives those data on the physical and technical design of a nuclear facility which are necessary to carry out safeguards according to the existing contracts.

1038 effective kilogram (safeguards)

The product of the mass of nuclear material and the respective evaluation factor expressed in kilograms. The evaluation factor is

- in the case of plutonium: 1
- in the case of uranium with an enrichment of 0.01(1%) and above: the square of the enrichment
- in the case of uranium with an enrichment below 0.01 (1%) and above 0.005 (0.5%): 0.0001
- in the case of depleted uranium with an enrichment of 0.005 (0.5%) and below and for thorium: 0.00005.

The term "effective kilogram" is currently not in actual use. However, the term has been used in the past and is contained in existing legal agreements.

1039 effective mass

(see effective kilogram)

1043 ending inventory (safeguards)

The quantity of materials on hand at the end of a specific time period.

1085 improved nuclear material

Nuclear material

- in which the fraction of fissile material has been increased by enrichment,
- in which the fraction of chemically separable fissile material has been increased,
- whose chemical or physical form has been modified so as to facilitate its use for further processing.

1088 in-process inventory

The quantity of material existing in the various process vessels, apparatuses etc. at a specific point in time. (See also hold-up).

1089 input accountability tank

The tank in which a dissolved batch can be collected and its volume, density and concentration determined.

1090 inspection (safeguards)

The examination of a nuclear facility by an inspector for determining whether nuclear material has been diverted or not.

1091 inspectorate (safeguards)

National or international body which is by law responsible for safeguards inspection with respect to nuclear materials.

1099 inventory change (safeguards)

An increase in or decrease in terms of batches of nuclear material in a material balance area.

1100 inventory, hidden (safeguards)

The inventory of nuclear material in a plant or plant component which is not accessible for measurement.

1101 inventory taking (safeguards)

An action by the operator of a nuclear facility to determine the inventory present at a certain time in all material balance areas.

1114 loss, measured (safeguards)

The loss of nuclear material whose quantity can be determined by measurements.

1116 key measurement point (safeguards)

A point at which the nuclear material exists in a form that allows it to be measured for assessment of the material flow or the inventory. At the key measurement points, the inputs and outputs (including measured waste) or the amounts stored are determined.

1118 man-year of inspection (safeguards)

For inspection of nuclear material; 300 man-days of inspection, one man-day being one calendar day, during which one individual inspector has access to a facility for a maximum of eight hours.

1121 material accountancy (safeguards)

The system of procedures and records concerning the flow, inventories, form and location of nuclear material.

1122 material balance (safeguards)

Related to a specific period, the balance of the sum of opening inventory, inventory changes and shipper/receiver differences, i.e., the adjusted ending book inventory, with the physical (ending) inventory.

1123 material balance area (MBA) (safeguards)

An area in or outside of a facility such that
(a) the quantity of nuclear material in each transfer into or out of the area can be determined;
(b) the physical inventory of nuclear material in the area can be determined when necessary in

accordance with specified procedures.

so that the material balance can be established for purposes of safeguards.

1124 material balance report (safeguards)

A report indicating the balancing of the material in a material balance area.

1125 material unaccounted for (MUF) (safeguards)

The difference between the book inventory and the physical inventory.

1129 MBA (safeguards)

(See material balance area.)

1130 measured discards (safeguards)

Nuclear material of known quantity which has been intentionally removed from inventory and which has been disposed of by transfer to an authorized person or by approved disposal methods.

1143 nuclear denaturant

A material added to a fissile material in order to make it useless for atomic weapons.

1152 opening inventory (safeguards)

The quantity of material existing in a given area at the beginning of a specified period of time. (See inventory, beginning.)

1154 peaceful nuclear activity

Any nuclear activity which is not of a military nature. The term includes processes which, irrespective of the former or future use of the respective nuclear material, merely change the chemical or isotopic compositions of this material.

1156 physical inventory (safeguards)

The sum of all the amounts of nuclear material existing in batches determined by means of estimates, that exist in a material balance area at a specific time; this inventory is determined by fixed procedures. (See also physical inventory taking.)

1157 physical inventory taking (safeguards)

The assessment, by measurement or other established procedures, of all amounts of nuclear material existing in batches in a material balance area at a specific point in time, and the compilation of a list of such real inventory (See also physical inventory.)

1158 physical protection

Methods and measures for preventing unauthorized removal of nuclear material or for detection of such removal as it occurs.

1166 qualitative safeguards methods (safeguards)

Methods of nuclear materials safeguarding which comprise both physical containment and surveillance, but exclude accounting. This involves visual checks, devices to detect falsifications, access con-

trols, special packaging, inspections, monitoring of shipments in transit, etc.

1209 safeguards

Collective term including the provisions intended to prevent diversion of nuclear materials from uses authorized by law or treaties and to give, when necessary, an indication that a diversion is possible or a reasonable assurance that no diversion has occurred.

1219 seal (safeguards)

A tamperproof device so attached to a containment, an object or an assembly of objects that its integrity is indicative of the integrity of the containment with its contents, the object or the arrangement of objects including any characteristic marks. However, see unique identification. (See also unique identification.)

1221 shipper/receiver difference (SRD) (safeguards)

The difference between the quantity of nuclear material in a batch as stated by the shipping material balance area and as measured at the receiving material balance area.

1227 source data (safeguards)

Data, recorded during measurement or calibration, or used to derive empirical relations, which identify nuclear material and provide batch data. Source data may include, for example, weight of compounds, conversion factors to determine weight of element (U, Pu, Th), specific gravity, element concentration, isotopic relationship between volume and pressure readings and relationship between plutonium produced and power generated.

1233 starting inventory

(See inventory, beginning.)

1237 strategic point (safeguards)

A location selected during examination of design information where, under normal conditions and when combined with the information from all strategic points taken together, the information necessary and sufficient for the implementation of safeguards measures is obtained and verified; a strategic point may include any location where, key measurements related to material balance accountancy are made and where containment and surveillance measures are taken.

1246 surveillance

Continuous or intermittent observation of plant components to safeguard the material balance.

1249 tamper-proof (safeguards)

A device whose undetectable falsification is difficult or impossible.

1261 umpire laboratory

A registered independent laboratory whose assistance is requested for the settlement of disputes, e.g., regarding shipper/receiver differences.

1263 unique identification (safeguards)

The registration of a specific characteristic of a batch which cannot be imitated or falsified. (See also seal.)

1264 unmeasured inventory (safeguards)

An inventory which is entered into the material balance as a difference between two measured quantities without itself being measured or capable of being measured. (See material unaccounted for.)

1274 weapon accessibility (safeguards)

A quantitative statement denoting the usefulness of nuclear material for the production of weapons or explosives.

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