



IAEA

International Atomic Energy Agency

International Symposium on Nuclear Security

30 March to 3 April 2009

Vienna, Austria

Organized by the
International Atomic Energy Agency

ANNOUNCEMENT AND CALL FOR PAPERS

1. PURPOSE AND OBJECTIVES

This Symposium is convened to consider advancements and achievements in global efforts to enhance the security of nuclear and other radioactive material since 2002 and to identify areas and efforts for further improvements. For that purpose, policy makers and experts will convene to share knowledge and information in implementing the nuclear security framework and to identify the best way forward to achieve a sustainable, enhanced global nuclear security regime, with specific proposals to be considered for the IAEA 2010-2013 Nuclear Security Plan.

The purpose and objectives of the Symposium are:

- To determine progress on efforts to improve nuclear security since 2002;
- To strengthen current international coordination mechanisms to provide for effective use of available resources, avoiding duplication by bilateral and multilateral initiatives;
- To suggest actions on how to maximize support to those States which request assistance in the field of nuclear security;
- To examine how to optimize existing cooperation amongst parties working to bring about nuclear security improvements in States;
- To generate new approaches to broadening international and national support for and participation in international nuclear security efforts;
- To suggest ways to establish a systematic approach to enhancing adherence to and implementation of the existing international instruments;
- To suggest enhanced measures to combat nuclear terrorism in a sustainable manner, including international mechanisms for sharing information and cooperation.

2.1 AUDIENCE

The International Symposium on Nuclear Security will be appropriate for senior national and international policy representatives and experts with a mission to strengthen nuclear security.

2.2 CONTEXT

Over the past decade, the threat has increased of terrorism and other malevolent acts by terrorist groups and other malicious non-State actors, involving the potential use of nuclear and other radioactive materials. This has led to an international effort to build a nuclear security framework and regime, both for prevention and consequence management. Nuclear security is now recognized as a key element of international peace and security.

Nuclear security is now recognized as a core priority in government and industrial activities involving the use of nuclear and radioactive materials. The drive towards effective security measures must continue and be strengthened. This calls for continued resolve, broadened coordination and increased trust, along with the necessary financial and other resources. Legally binding and non-binding international instruments have been established that form the international framework for an effective nuclear security regime. It constitutes an action platform for the IAEA, States and other international organizations.

Adherence to and implementation of these instruments is vital for effective nuclear security. The early entry into force of the Amendment to the Convention on the Physical Protection of Nuclear Material should be a key goal for all States. It is also important for States to adhere to the International Convention on the Suppression of Acts of Nuclear Terrorism, which entered into force on 7 July 2007, and to fully implement Security Council Resolution 1540, to ensure universal implementation and sustainability of the international nuclear security framework.

IAEA implements a comprehensive programme to assist States in strengthening their nuclear security. The first Nuclear Security Plan was established in 2002 and the second covers the period 2006–2009. Through the implementation of these plans, IAEA conducts advisory services and provides technical advice, support and training. It also addresses the longer-term effort of development of nuclear security guidance and it facilitates outreach and information exchange through databases, conferences, workshops and fellowships. The next Nuclear Security Plan covering the years 2010–2013 is currently under preparation, and will give due consideration to the conclusions of this symposium.

3. THEMES OF THE SYMPOSIUM

The Symposium will examine the following themes:

The Threat and Consequences of Nuclear Terrorism

The symposium is expected to explore the changing global context of nuclear terrorism and consider the need for new strategies for responding to the changing world environment.

This theme is to explore and share views regarding the changing global context of nuclear terrorism and the need to develop an enhanced vision for the new decade, particularly the application of new technologies in countries with limited nuclear security experience. The community of individuals capable of committing an act of nuclear terrorism continues to present a threat, the raw material and political and economic bases for such malicious acts continue to exist, and efforts to preserve the world's nuclear security must keep pace with these developments. The number of countries recognizing this situation and taking action is increasing. The international community must identify and remain on a path of continuous improvement with respect to the services provided, the activities undertaken and the building of momentum, and recognize that a more coherent and consistent

approach to nuclear security may be needed. The greatest threat remains the potential terrorist use of a nuclear weapon or an improvised nuclear explosive device, not because it is the most likely event, but because of the immediate destructive consequences for life and property, as well as the enormous economic, psychological and political repercussions. Sabotage of nuclear facilities and transports, as well as the malicious dispersal of radioactive material to cause harm, and more likely to cause disruption to people, property and the environment are also significant threats. How the response to these threats is balanced and focused is the challenge now before the international community.

Reducing the Threat by Securing Materials and Facilities: Progress and Challenges

The symposium is expected to determine the extent to which radioactive materials and their associated facilities worldwide are better protected now than in the past and how an effective level of nuclear security can be obtained and sustained in a global context.

This theme will include exchanges of views on the experience of developing and implementing effective approaches to the physical protection of nuclear and other radioactive materials (e.g. radioactive sources), transfer of vulnerable materials from uncontrolled to proper long-term, safe and secure management, education and training of operative personnel and staff in policy making positions, as well as establishing an effective and sustainable nuclear security culture. It will assess the effectiveness of binding and non-binding international instruments which constitute the nuclear security framework, in particular, progress in the implementation of the Amendment to the CPPNM. It will also review national efforts to establish the required legislation, regulations and the necessary human resource development programmes as well as efforts to establish the required technical capabilities. Consideration will be given to possible gaps in the nuclear security framework and proposals on how to address those gaps.

Safety, Security and Safeguards Interfaces (3S Concept)

The symposium is expected to determine how the 3S concept can best be implemented by the international community and as a result build confidence that nuclear energy is generated in a safe, secure and proliferation resistant manner.

Discussion will focus on how an integrated approach to safety, security, and safeguards (3S concept) can be implemented for a nuclear energy programme, in particular how the anticipated broader use of nuclear energy in national energy strategies, the often called “nuclear renaissance”, can benefit from such integration. This theme will address the possible cooperation and coordination among safety, security and safeguards and assess the ways in which a robust nuclear security framework can become a fundamental component in the field of nuclear power.

Detecting and Responding to Radioactive Materials Out of Regulatory Control: Progress and Challenges

The symposium is expected to determine whether efforts in trying to bring radioactive materials out of regulatory control into a safe and secure environment are being effective in reducing the risks of this material becoming used for malicious purposes and obtain proposals for enhanced efforts.

This theme will be devoted to examining the trends and implications of continuing reports of illicit trafficking in nuclear and other radioactive material, the discovery of abandoned radioactive sources and the attendant need to enhance detection, interdiction and response capabilities – such as, building effective border controls, capacities to search and survey for material out of regulatory control, and arrangements for responses to threats and nuclear security incidents. In addition, lessons learned from and best practices to train frontline and other law enforcement officers, development of detection instruments for illicit trafficking, will be discussed.

Information Sharing and Collaborative Approaches

The symposium is expected to provide proposals on how to build an effective nuclear security information exchange system, including information analysis to obtain added value; and how information portals and networks can be developed to share relevant data, and how sensitive information and information systems can be appropriately protected.

This theme will focus on nuclear security relevant information, the availability of information, its analysis and how to share relevant data and results, while respecting confidentiality of sensitive information. The network of Points of Contact for the Illicit Trafficking Database Programme which now comprises nearly 100 States, could stand as a model or be used for other information sharing purposes. Needs to strengthen access by the international community to critical information for nuclear forensics purposes and for effective coordination purposes, as well as the long-term need for an information clearing house will be examined. In addition, an overall information portal for sharing information among identified communities will be discussed, mindful of the need to protect these information systems from intrusion as well as misuse and at the same time respect the confidentiality of sensitive data.

International Initiatives and Efforts

The symposium is expected to determine whether synergies between these initiatives and other multilateral programmes are being effective to make optimum use of resources available in States and international organizations to carry out nuclear security activities.

Reflecting the high priority given by States and groups of States to security of nuclear and other radioactive materials, a number of international initiatives have been established. As these initiatives share similar goals and objectives, the activities being undertaken are similar to each other and therefore coordination is necessary. This theme will consider the experience of and results from the implementation of specific international activities relating to strengthening nuclear security, such as: the United Nations Global Counter-Terrorism Strategy, the EU Strategy Against the Spread of Weapons of Mass Destruction; the G-8 Global Partnership; the Global Initiative to Combat Nuclear Terrorism; and the Global Threat Reduction Initiative. This will be the basis for a discussion on how the results of these initiatives can best work together with results from the IAEA programmes.

The Role of Industry

The symposium is expected to consider ways of improving the Agency's contacts and relationship with industry and other constituencies of the private sector to support future enhancements of nuclear security.

This theme will consider how the values and goals established by the international community for security of nuclear and radioactive materials are to be embraced fully by the nuclear industry: how can the international community best facilitate the involvement of the nuclear industry and its leaders in improving security awareness, corporate culture and the sharing of good practices. Consideration will also be given to the ways in which industry and other constituencies of the private sector can participate in the research and development needed to support the current and future enhancement of nuclear security.

IAEA Nuclear Security Programme

The symposium is expected to suggest how the next IAEA Nuclear Security Plan could better address concerns identified at this symposium and, as appropriate, play a more active role in the systematic implementation of nuclear security in a sustainable manner.

The IAEA Nuclear Security Plan for 2006–2009 emphasizes measures to establish and enhance the capabilities of States to prevent, detect, interdict and respond to illegal acts involving nuclear and other radioactive material and associated facilities. A discussion on the features of the IAEA activities will be encouraged in order to help to identify possible areas that need to be strengthened and point to new directions for the next IAEA Nuclear Security Plan for 2010-2013. This theme will address the IAEA approach in developing a comprehensive set of nuclear security guidance in its Nuclear Security Series, how to elevate this guidance into broad security standards, as well as the IAEA efforts directed toward human resource development. Other aspects of the IAEA programme concerned with the security of all types of radioactive material under regulatory control and the detection and response to those outside of regulatory control will be addressed. The conclusions of this discussion will be useful in helping to shape the next IAEA Nuclear Security Plan for 2010-2013.

4. SYMPOSIUM ORGANIZATION

Sessions

Keynote speakers will open the symposium to set the tone and challenge the audience to consider innovative ways of enhancing the current approach to global security. Each of the sessions following will consider one of the suggested themes for the symposium. A combination of invited and contributed papers will set the tone for each of the sessions and a number of panel sessions are anticipated to further explore these themes and topics.

Concluding Session

At the concluding session, the session chairs or Rapporteurs will summarize the results and conclusions from their sessions and panel discussions. The President of the Symposium will convey his/her conclusions of the Symposium and highlight suggestions for the way forward to strengthen nuclear security worldwide.

5. PARTICIPATION

All persons wishing to participate in the Symposium are requested to **register in advance online** via the Symposium web page:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=166>

In addition they must send a completed Participation Form (Form A) and, if relevant, the Paper Submission Form (Form B) and the Grant Application Form (Form C) to the competent official authority (see Section 9) for subsequent transmission to the IAEA. A participant will be accepted only if the Participation Form is transmitted through the competent national authority of a Member State of the IAEA or by one of the cooperating organizations or an organization invited to participate. Participants whose official designation has been received by the IAEA will receive further information on the Symposium approximately three months prior to the Symposium. This information will also be posted on the Symposium web page:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=36576>

6. PAPERS AND POSTERS

Concise papers on issues falling within the topics outlined in the section above may be submitted as contributions to the Symposium. All papers, apart from invited papers, must present original work; they should not have been published elsewhere.

(a) Submission of synopses

Persons who wish to present a paper or poster at the Symposium must submit an **extended synopsis** (in English) of 800 words maximum (i.e. two A4 format pages of single spaced typing or the equivalent, including any tables or diagrams and a few pertinent references) together with the completed Form for Submission of a Paper (Form B), and the Participation Form (Form A). The extended synopsis and the forms must be sent to the competent official authority (see Section 9) for transmission to the IAEA in time for them to be received by the IAEA **by 31 October 2008**. In addition, the synopsis should be sent electronically to the Scientific Secretary, Mr. Bernard Weiss (B.Weiss@iaea.org). The synopsis should give enough information on the contents of the proposed paper to enable the selection committee to evaluate it. Introductory and general matters should not be included.

Authors are urged to make use of the Synopsis Template in Word on the Symposium web page (see Section 15 for web page address). The specifications and instructions for preparing the synopsis and how to use the synopsis template are given in the attached instructions on “How to prepare the synopsis and how to submit it electronically”. Also attached is a “sample extended synopsis”.

The synopsis will be considered only if the Participation Form A and Paper Submission Form B have been received by the IAEA through the official governmental channels or one of the cooperating organizations.

(b) Acceptance of papers/posters

In order to provide ample time for discussion, the number of papers that can be accepted for oral presentation is limited. If the number of relevant and high quality papers submitted for selection exceeds the acceptable number, some of them will be selected for poster presentation.

Authors will be informed by the end of **November 2008** whether their papers have been accepted by the Programme Committee on the basis of the synopsis submitted. At the same time authors will be advised if their paper has been accepted for oral presentation or for presentation as a poster. Furthermore, those authors who are asked to prepare full papers for publication in the proceedings will receive guidelines for the preparation of papers. However, all of the synopses accepted for oral or poster presentation will be reproduced in unedited form in the Book of Extended Synopses which will be distributed at registration.

(c) Submission of full papers

Full papers have to be submitted to the Symposium Secretariat, Mr. Bernard Weiss (B.Weiss@iaea.org) by **28 February 2009**.

(d) Proceedings

Proceedings of the Symposium will be published after the Symposium. The IAEA reserves the right to refuse the presentation or publication of any paper that does not meet the expectations raised by the information originally given in the extended synopsis.

7. EXPENDITURES/GRANTS

No registration fee is charged to participants. As a general rule, the IAEA does not pay for participants' travel and living expenses. However, limited funds are available to help meet the cost of attendance of selected specialists, mainly those from developing countries with low economic resources. Generally not more than one travel grant may be awarded to any one country.

If Governments wish to apply for a grant on behalf of one of their specialists, they should address specific requests to the IAEA to this effect. Governments should ensure that applications for grants be:

- (a) submitted by **31 October 2008**;
- (b) accompanied by a duly completed and signed Grant Application Form (Form C).

Applications that do not comply with the conditions mentioned under (a) and (b) cannot be considered. The grants will be lump sums usually covering **only part of the cost** of attendance.

8. CHANNELS OF COMMUNICATION

The Participation Form (Form A), the Form for Submission of a Paper (Form B), together with a copy of each synopsis, and, if applicable, the Grant Application Form (Form C), should be sent to the competent official authority (Ministry of Foreign Affairs or National Atomic Energy Authority) or to one of the cooperating organizations for transmission to the IAEA.

Subsequent correspondence on scientific matters should be sent to the Scientific Secretariat and correspondence on administrative matters to the IAEA Conference Services Section (see section 14).

9. DISTRIBUTION OF DOCUMENTS AND PROCEEDINGS

A preliminary programme of the Symposium will be sent to all officially designated participants well in advance of the Symposium and will also be available on the IAEA Symposium web page (see Section 15).

The Final Programme and the Book of Contributed Papers will be available free of charge upon registration at the Symposium.

The proceedings of the Symposium, to be published by the IAEA, will contain welcoming addresses, overview presentations, rapporteur reports, invited keynote papers, session summaries, the conclusions presented by the President of the Symposium on the last day and records of the discussions. The contributed papers will be included as a CD-ROM. The proceedings can be ordered, at a special discounted price, during the Symposium.

10. WORKING LANGUAGE

The working language of the Symposium will be English. All communications, abstracts and papers must be sent to the IAEA in English.

12. ACCOMMODATION

Detailed information on accommodation and other items will be sent directly to all officially designated participants approximately two to three months before the Symposium. This information will also be available on the IAEA Symposium web page as soon as possible.

13. VISAS

Designated participants who require a visa to enter Austria (Schengen State) should submit the necessary application to the nearest diplomatic or consular representative of Austria or any other consular authority of a Schengen partner State representing Austria as early as possible (please note that the procedure could take up to three weeks to obtain a visa).

14. CONTACT INFORMATION

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15. SYMPOSIUM WEB PAGE

Please visit the IAEA Symposium web page regularly for new information regarding this Symposium under:

<http://www-pub.iaea.org/MTCD/Meetings/Announcements.asp?ConfID=36576>

Participation Form

International Symposium on Nuclear Security

30 March – 3 April 2009, Vienna, Austria

To be sent to the competent official authority (Ministry of Foreign Affairs, national atomic energy authority) for transmission to the International Atomic Energy Agency, Vienna International Centre, Wagramer Strasse 5, P.O. Box 100, A-1400 Vienna, Austria (Telefax No. +43 1 26007)

Family name:		Given name(s):	Mr/Ms
Institution:	Full address:		
	For urgent communications please indicate: Telephone No.: Telefax No.: Email address:		
Nationality:	Designating government or organization:		
Mailing address (if different from address indicated above):			

Do you intend to present a contributed paper	Yes <input type="checkbox"/> No <input type="checkbox"/>
or	
Do you intend to present a contributed poster	Yes <input type="checkbox"/> No <input type="checkbox"/>
Title of paper/poster:.....	

Form for Submission of a Paper/Poster

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Title of the paper:		
Author(s) initial(s) and family name(s)	Scientific establishment(s) in which the work has been carried out	Town/country
1.		
2.		
3.		
4.		
Family Name of Author who will present the paper:		Mailing Address:
Mr/Ms		
Given name(s)		
For urgent communications please indicate Telephone No.:		
Telefax No.:		
Email Address:		
I hereby agree to assign to the International Atomic Energy Agency		
<input type="checkbox"/> the copyright <input type="checkbox"/> the non-exclusive, royalty-free licence (this option is only for those authors whose parent institution does not allow them to transfer the copyright for work carried out in that institution)		
to publish the above-mentioned paper, and certify that no other rights have been granted which could conflict with the right hereby given to the Agency.		
Date:	Signature of main author:	

Grant Application Form

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(To be sent to the competent official authority (Ministry of Foreign Affairs, National Atomic Energy Authority) for transmission to the International Atomic Energy Agency, Vienna International Centre, Wagramer Strasse 5, PO Box 100, 1400 Vienna, Austria (Telefax no. +43 1 26007)

To be completed only by participants from developing countries on whose behalf a grant is requested

Full Name:	Mr/Ms:
Mailing Address:	Telephone No.:
	Telefax No.:
	Email Address:
Date of Birth (year/month/day):	Nationality:

1. EDUCATION (Post-Secondary)

Name and Place of Institution	Field of Study	Diploma or Degree	Years attended	
			from	to

2. RECENT EMPLOYMENT RECORD (Starting with your present post)

Name and Place of employer/ organization	Title of your position	Type of work	Years attended	
			from	to

3. DESCRIPTION OF WORK Performed over the last three years:

4. INSTITUTE'S/MEMBER STATE'S PROGRAMME IN FIELD OF MEETING

.....
Date

.....
Signature of applicant

.....
Date

.....
Name and title (printed) and signature of responsible Government official

HOW TO PREPARE THE SYNOPSIS AND SUBMIT IT ELECTRONICALLY

Anyone wishing to present a paper at the conference is requested to submit a synopsis of not more than 800 words. The synopsis should give enough information on the contents of the proposed paper to enable the Programme Committee to evaluate it. Introductory and general matters should not be included. Authors are urged to make use of the Synopsis Template in Word 2000 and the user instructions available on the conference web site:

<http://www-pub.iaea.org/MTCDD/Meetings/Announcements.asp?ConfID=36576>

The synopsis must be sent to the competent national authority for official transmission to the IAEA together with the relevant Forms (see Announcement: Section 8). In addition, it should be submitted electronically to the IAEA Scientific Secretariat, email: B.Weiss@iaea.org. The deadline for receipt of the official forms and the electronic copy of the synopsis is

31 October 2008

HOW TO ACCESS AND USE THE SYNOPSIS TEMPLATE

- **Right-click on the template link and select “Save Target As” from the menu; save the template in the standard templates folder (the location can be found in Word under “Tools/Options/File Locations/User templates”).**
- **To create a new document using this template in MS Word, choose “File/New” and select “IAEA Synopsis” under the “General” tab.**
- **Select “Create New Document” and click on the “OK” button. (Please note that the template will not work if opened using “File/Open”).**

Synopsis properties:

When a new document is created, the initial dialog box (called “Synopsis Properties”) will appear on your screen and should be filled out as directed. In case of more than one institute, each institute should be a “New” entry. For each author, select the appropriate institute. When the “OK” button on the dialog box is clicked, the information entered is saved and inserted at the appropriate places in the paper.

The dialog box can be recalled from the “IAEA Synopsis” dropdown menu on the “Standard” toolbar under “Show Synopsis Properties” and the information in it altered. Note: All the items available in the “IAEA Synopsis” menu are also available as separate toolbar buttons.

Check fonts: Use this function to detect and replace non-compliant fonts.

Bullets and numbers: The template provides predefined bullet and numbered lists.

FOR THOSE UNABLE TO USE THE TEMPLATE, THE FOLLOWING LAYOUT SHOULD BE FOLLOWED:

Page size: A4 (21 cm × 29.7 cm) – vertical (portrait) orientation
Margins: Left/right: 2.5 cm; top: 2 cm; bottom: 2.7 cm
Line spacing: Single
Justification: Full
Font: Times New Roman only
Point size: Title: 14 point bold; authors: 12 point bold; affiliation, and main text: 12 point
Length: Maximum 2 pages (800 words)

TOPIC: ABCD

Use of ^{137}Cs calibration source in evaluation of BWR fuel burnup**G. Ekenstam^a, M. Tarvainen^b**^aSwedish Nuclear Power Inspectorate (SKI), Stockholm, Sweden^bFinnish Centre for Radiation and Nuclear Safety (STUK), Helsinki, Finland*E-mail address of main author: G.Ekenstam@ski.se*

A method for evaluating the burnup (BU) of BWR spent fuel was investigated by using a novel type of ^{137}Cs calibration source. The source is constructed to fit in the fuel handling fixtures of all the BWR type power plants in Sweden and Finland. It can be used also in the interim storage facilities for spent fuel, CLAB in Sweden and TVO-KPA-STORE in Finland.

The source is covered by a watertight steel cylinder which is fixed inside a 0.65 m long section of ASEA-ATOM type BWR fuel channel. Inside the cylinder there is a 37 GBq ^{137}Cs pellet fixed to a wagon which can be driven up and down by means of a stepping motor. By moving the source, the repeatability of the geometrical positioning is attained. The amplitude and scanning speed are controlled by a remote control unit. The apparatus is easy to handle and decontaminate. The source can be transported in a custom made box (45 cm × 45 cm × 70 cm) under category II-Yellow. In repeated measurements the precision of the new calibration source was found to be 11.7%. Use of this calibration source makes it possible to calibrate the whole measurement chain and to compare the data measured in different geometries. A typical calibration time is 15 min including source handling.

In recent measurements, a Westphal loss free counting (LFC) system was used in connection with an ND66 multichannel analyser for scanning of fuel assemblies. By use of LFC, real time correction of counting losses is performed.

For BU verification 21 assemblies with mean BUs from 14 to 31 MW·d/kg U and cooling times from 200 to 1500 d were scanned on each of the four corners. The total time needed per assembly was typically half an hour. The ^{137}Cs measurement data were corrected for radioactive decay, self-absorption and inhomogeneous Cs distribution. By use of the arithmetic mean for the four corners and the earlier defined relation between BWR fuel BU and ^{137}Cs activity [1], the BU could be calculated.

The BU calculated from the measured data is shown plotted against the declared BU in Fig. 1. Error bars reflect the precision of measurements for single assemblies. The ±5% deviation lines are also plotted. A more detailed description of the method will be published elsewhere [2].

The measurement system has been developed to be used by the Swedish and Finnish national safeguards authorities for verification of spent fuel BU.

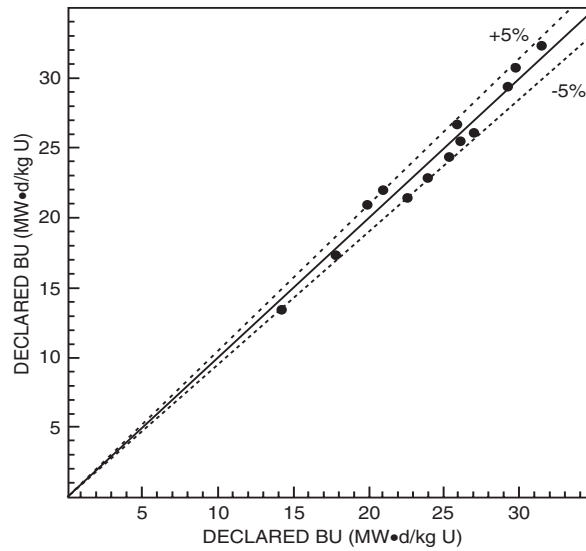


FIG. 1. Operator declared BU compared with the calculated BU values based on the ^{137}Cs activity measurements.

REFERENCES

- [1] EKENSTAM, G., Cs^{137} measurements of spent BWR fuel”, Safeguards and Nuclear Material Management (Proc. 6th ESARDA Annual Symp. Venice, 1984), CEC Joint Research Centre, Ispra (1984) 327-330.
- [2] EKENSTAM, G., TARVAINEN, M., Verification of Burnup of BWR-type Nuclear Fuel by Measurement of the Cs^{137} Activity, Rep.STUK-A52, Finnish Centre for Radiation and Nuclear Safety, Helsinki (in press).