

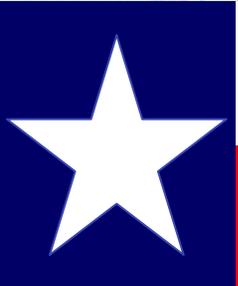
# Foreign Obligations at DOE Facilities

Karen W. McCulloch

NMC&A Nuclear Materials Coordinator

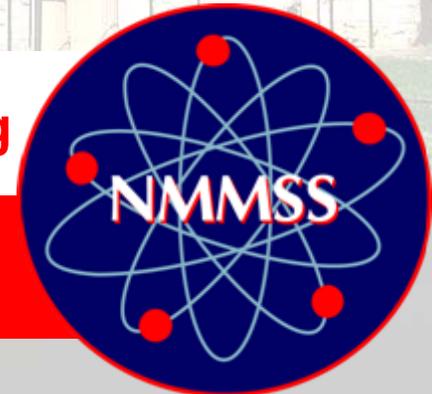
B & W Technical Services

May 21, 2008



**NMMSS Users Annual Training Meeting**

**San Antonio, Texas—May 20-22, 2008**



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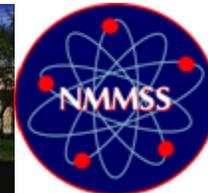
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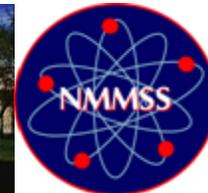
# Overview

- Background
- Notification Process
- Receipts (Physical/Substitution)
- Shipments (Physical)
- Accounting Challenge (Equivalence)
- Checks and Balances



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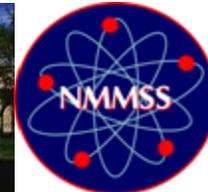
# What is foreign obligation?

- Foreign obligation means the commitments entered into by the U.S. Government under Atomic Energy Act (AEA) section 123 agreements for cooperation in the peaceful uses of atomic energy. Imports and exports of material or equipment pursuant to such agreements are subject to these commitments, which in some cases involve an exchange of information on imports, exports, retransfers with foreign governments, peaceful end-use assurances, and other conditions placed on the transfer of the material or equipment. The U.S. Government informs the industry of obligations attached to material.



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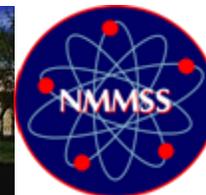


# Foreign Obligation Baseline

- Conversion from Country Control Numbers to Foreign Obligations
  - 2003 Baselines Established
  - Physical Receipts
  - Substitutions under IAEA (Y-12)
- Implementation
  - Substitutions and Application
  - Global Threat Reduction Initiative (GTRI)
  - Subsequent Accounting Issues

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# U.S. Atomic Energy Act of 1954

## States that have Agreements for Cooperation with the United States:

Argentina

Egypt

Australia

Indonesia

Bangladesh

Japan

Brazil

Kazakhstan

Canada

Republic of Korea

China

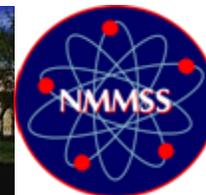
Morocco

Colombia

Norway

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# U.S. Atomic Energy Act of 1954

## States that have Agreements for Cooperation with the United States:

South Africa

Switzerland

Taiwan \*

Thailand

European Atomic Energy Community (EURATOM)

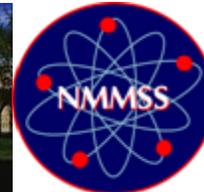
International Atomic Energy Agency (IAEA)

\* Pursuant to Section 6 of the Taiwan Relations Act, P.L. 96-8, 93 Stat. 14, and Executive Order 12143, 44 F.R. 37191, all agreements concluded with the Taiwan authorities prior to January 1, 1979 are administered on a nongovernment basis by the American Institute in Taiwan, a non-profit District of Columbia corporation, and constitute neither recognition of Taiwan authorities nor the continuation of any official relationship with Taiwan.



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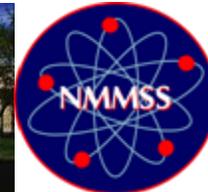
# European Atomic Energy Community (Euratom)

Euratom comprises the following 27 Member States:  
Austria, Belgium, Bulgaria, Cyprus, Czech Republic,  
Denmark, Estonia, Finland, France, Germany,  
Greece, Hungary, Ireland, Italy, Latvia, Lithuania,  
Luxembourg, Malta, the Netherlands, Poland,  
Portugal, Romania, Slovak Republic, Slovenia,  
Spain, Sweden and the United Kingdom.



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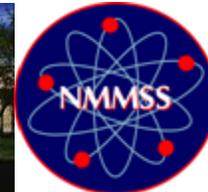
# References

- DOE M 470.4-6 Section B – Basic Requirements For Nuclear Materials Management and Safeguards System (NMMSS) Reporting and Data Submission
- Agreements for Cooperation
- NMMSS website ([www.nmmss.com](http://www.nmmss.com))
- NUREG/BR-0006 & BR-0007 (licensees)



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# NMMSS Website

U.S. DEPARTMENT OF ENERGY/ U.S. NUCLEAR REGULATORY COMMISSION  
**NUCLEAR MATERIALS MANAGEMENT & SAFEGUARDS SYSTEM**

Google™ Custom Search Search

Home Newsletters & Forms SAMS Training & Info. Calendar Events

UPDATED: March 27, 2008 11:53

### 2008 NMMSS USERS ANNUAL TRAINING MEETING

The 2008 NMMSS Users Annual Training Meeting will be held May 20-22, 2008 at the Omni San Antonio Hotel in San Antonio, Texas. Several topics including

- NMMSS Upgrade
- Impact on Data Submitters of New Rules and System
- Update on the National Source Tracking System
- NRC Rulemaking Changes
- DOE NMMSS Policy Update

Obligations IAEA Annual Users Mtg NMMSS Reports Insee Tractor References NMMSS Tables Atlanta, GA NMMSS II Training Course for Aiken, SC

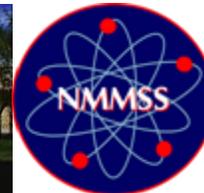
Nature of Transactions Action Codes Obligation Codes Type Of Inv Change

NG CALE Training Mee Registration info click here! Insee NMM n Antonio, T S-1 Upgrade

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## NMMSS Users Annual Training Meeting San Antonio, Texas—May 20-22, 2008

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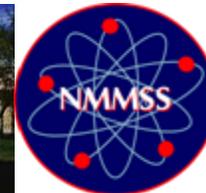


# Obligation Codes

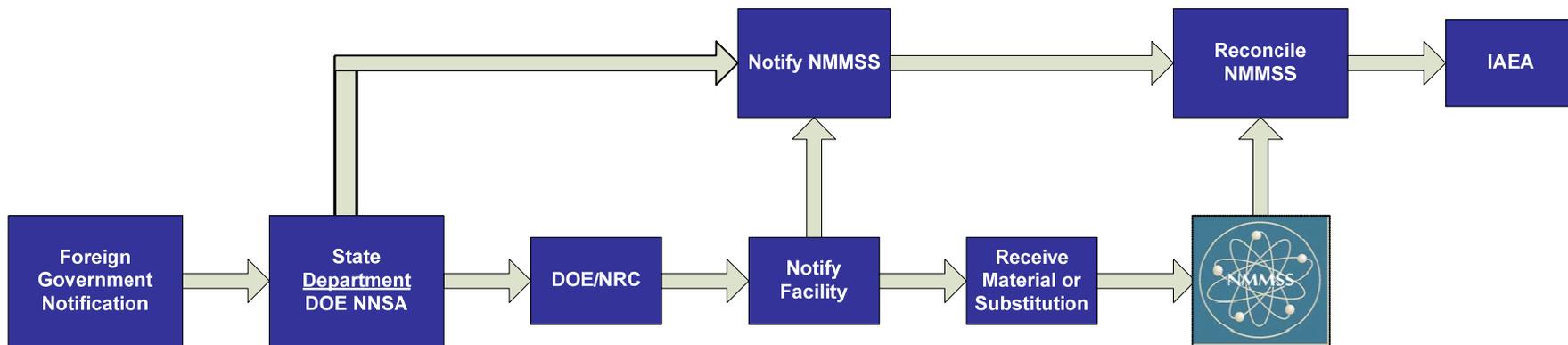
| CODE | COUNTRY OF OBLIGATION                |
|------|--------------------------------------|
| 31   | AUSTRALIA                            |
| 32   | CANADA                               |
| 33   | EURATOM *                            |
| 34   | JAPAN                                |
| 35   | PEOPLE'S REPUBLIC OF CHINA           |
| 37   | SWITZERLAND                          |
| 38   | ARGENTINA                            |
| 39   | BRAZIL                               |
| 40   | CHILE                                |
| 81   | AUSTRALIA/JAPAN                      |
| 82   | CANADA/JAPAN                         |
| 83   | EURATOM/JAPAN                        |
| 84   | AUSTRALIA/EURATOM/JAPAN              |
| 85   | CANADA/EURATOM/JAPAN                 |
| 86   | CHINA/JAPAN                          |
| 87   | AUSTRALIA/CANADA                     |
| 88   | AUSTRALIA/CANADA/EURATOM             |
| 91   | AUSTRALIA/EURATOM                    |
| 92   | CANADA/EURATOM                       |
| WR   | FORMER SOVIET UNION WEAPONS MATERIAL |

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# Foreign Obligation Notification Process



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# Two Ways To Obtain Obligations

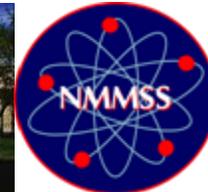
- Physical Receipt (Import)
- Foreign Obligation Substitution

Note: There are other conditions for gain.



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# EURATOM Annex I-A

03/10/2006 13:22 FAX 202 586 1348  
18/03/2006 11:45 +352 4301 30069

0001  
NO.586 0901



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT  
DIRECTORATE H - Nuclear Energy  
Nuclear Material Accountancy

**Eura Restricted**

H.3.2/UB/eb/(06)D/15539

18 MARS 2006

Annex I-A

## AGREEMENT FOR CO-OPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY BETWEEN EURATOM AND THE UNITED STATES OF AMERICA

|  |                            |
|--|----------------------------|
| To: US Department of State<br>PM/NE, Room 7828<br>Washington, DC 20520<br>Attention: Mr Robin DeLaBarre                  | Fax No:<br>+1 202 6470775  |
| From: S. TSALAS, Head of Unit H.3<br>Nuclear Material Accountancy, Luxembourg<br>Safeguards-EUR-US@cec.eu.int (J. BINCK) | Fax No:<br>+352 4301 33545 |

PRIOR NOTIFICATION OF INTENDED TRANSFER OF NUCLEAR MATERIAL FROM THE COMMUNITY TO THE USA PURSUANT TO THE EURATOM/US NUCLEAR CO-OPERATION AGREEMENT

Serial No: EUR 15/2006

The Commission advises DOS/DOE of the following intended transfer:

- US reference (if known): -
- ESA contractual reference number (if known): AGR/5527
- Shipper: CERCA, BP 1114, F-26104 Romans, France (FCK2)
- Receiver: US DoE, NSA, Oak Ridge, USA
- Facility of receipt: -
- Expected date of shipment: about April 24, 2006
- Material category: HEU
- Mass: 15 196 g U (13 659 g U235)
- Physical form: U alloy plates 10. Chemical form: UAlx
- Owner's name (if known): US DoE 12. End user name (if known): US DoE
- Intended use: HEU recovery
- Third country obligation (provisions): not applicable

Total nuclear material expected to be returned (A.A.55.1.4): 15 196 g U (13 659 g U235)

The Commission would appreciate confirmation from DOS/DOE that:

- the intended receiver is natural or legal person duly authorized to receive nuclear material pursuant to the Agreement;
- the nuclear material will become subject to the Agreement upon receipt.

S. TSALAS

Copy: - US DOE (M. S. Oehlbert), Fax: +1 202 586 1348  
- Supply Agency (Mrs Hoffmann)

European Commission, L-2920 Luxembourg, Telephone: +352 43 01-1  
Office: EU/PO2-4363, Telephone: direct line +352 43 01-34798, Fax: +352 43 01-33545

MAR-10-2006 12:51

202 586 1348

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03/27/2006 10:48 FAX 202 586 1348

24/03/2006 15:30 +352 4301 30069

0001  
NO.637 0901



EUROPEAN COMMISSION  
DIRECTORATE-GENERAL FOR ENERGY AND TRANSPORT  
DIRECTORATE H - Nuclear Energy  
Nuclear Material Accountancy

**Eura Restricted**

H.3.2/UB/eb/(06)D/15723

24 MARS 2006

Annex I-A

## AGREEMENT FOR CO-OPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY BETWEEN EURATOM AND THE UNITED STATES OF AMERICA

|  |                            |
|--|----------------------------|
| To: US Department of State<br>PM/NE, Room 7828<br>Washington, DC 20520<br>Attention: Mr Robin DeLaBarre                  | Fax No:<br>+1 202 6470775  |
| From: S. TSALAS, Head of Unit H.3<br>Nuclear Material Accountancy, Luxembourg<br>Safeguards-EUR-US@cec.eu.int (J. BINCK) | Fax No:<br>+352 4301 33545 |

PRIOR NOTIFICATION OF INTENDED TRANSFER OF NUCLEAR MATERIAL FROM THE COMMUNITY TO THE USA PURSUANT TO THE EURATOM/US NUCLEAR CO-OPERATION AGREEMENT

Serial No: EUR 15/2006 Revision 1

The Commission advises DOS/DOE of the following intended transfer:

- US reference (if known): -
- ESA contractual reference number (if known): AGR/5527
- Shipper: CERCA, BP 1114, F-26104 Romans, France (FCK2)
- Receiver: US DoE, NSA, Oak Ridge, USA
- Facility of receipt: -
- Expected date of shipment: about May 15, 2006
- Material category: HEU
- Mass: 15 196 g U (13 659 g U235)
- Physical form: U alloy plates 10. Chemical form: UAlx
- Owner's name (if known): US DoE 12. End user name (if known): US DoE
- Intended use: HEU recovery
- Third country obligation (provisions): not applicable

Total nuclear material expected to be returned (A.A.55.1.4): 15 196 g U (13 659 g U235)

The Commission would appreciate confirmation from DOS/DOE that:

- the intended receiver is natural or legal person duly authorized to receive nuclear material pursuant to the Agreement;
- the nuclear material will become subject to the Agreement upon receipt.

S. TSALAS

Copy: - US DOE (M. S. Oehlbert), Fax: +1 202 586 1348  
- Supply Agency (Mrs Hoffmann)

European Commission, L-2920 Luxembourg, Telephone: +352 43 01-1  
Office: EU/PO2-4363, Telephone: direct line +352 43 01-34798, Fax: +352 43 01-33545

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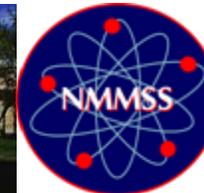
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San Antonio, Texas—May 20-22, 2008

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# Notification to Industry (Receipt)

- **NOTICE TO SEND TO INDUSTRY**

- **Confirmation of Shipment of Nuclear Material from Japan to the United States Pursuant to the U.S.-Japan Agreement for Cooperation**

- The United States Government advises DOE ABC Site (ABC) that the following shipment of nuclear material is subject to the U.S.-Japan Agreement for Cooperation and must be tracked in accordance with U.S. rules and regulations.

- 1. U.S. Reference: *Not available*
- 2. Contractual Reference Number – *Not available*
- Shipper's/supplier's name and address: Japanese Research Reactor
- 3. Receiver's name and address: U.S. DOE ABC
- 4. End user: To be decided by U.S. DOE ABC
- 5. Stated end use: To be decided by U.S. DOE ABC
- 6. Expected Date of Shipment/s: March 2009
- 7. Batch Number: *Unknown*
- 8. Material Category: low-enriched uranium and plutonium
- 9. Mass (mass of isotope if applicable): 1,038.99 g U (167.56 g U-235); 14.10 g PU
- 10. Physical Form: Spent fuel
- 11. Chemical Form: Uranium-Aluminum Alloy/Uranium-Silicon dispersed in Aluminum
- 12. Third Country Obligation: None

- Please note that the plutonium must be placed under IAEA safeguards.

- Please confirm your receipt of this notice, acknowledging your facility's responsibility to account for the information provided above, by faxing or emailing a signed copy of this form to the appropriate persons listed below:

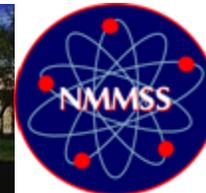
|                       |                   |                     |                            |
|-----------------------|-------------------|---------------------|----------------------------|
| • For NRC Facilities: | Brian Horn        | For DOE Facilities: | Pete Dessaulles            |
| •                     | 301-415-8128 (ph) |                     | 301-903-4525 (ph)          |
|                       | BGH1@nrc.gov      |                     | Pete.Dessaulles@hq.doe.gov |

|              |       |       |
|--------------|-------|-------|
| • Signature: | _____ | _____ |
| • Name:      | _____ | _____ |
| • Date:      | _____ | _____ |

- Comments:

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# Notification to Industry (Substitution)

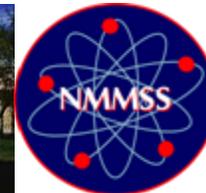
- **NOTICE TO SEND TO INDUSTRY**

- **Confirmation of Shipment of Nuclear Material from Japan to the United States Pursuant to the U.S.-Japan Agreement for Cooperation**

- The United States Government advises DOE Y-12 that the following shipment of nuclear material is subject to the U.S.-Japan Agreement for Cooperation and must be tracked in accordance with U.S. rules and regulations. Please note that with respect to the application of safeguards by the IAEA for this material, high enriched uranium of the same quantity and equivalent or higher isotopic content in the fissionable isotopes, which is currently stored at the DOE Y-12 storage facility selected by the IAEA for safeguards, must be substituted for the high enriched uranium content of this material and the substituted material held under IAEA safeguards.
- This material will be physically shipped to the DOE ABC Site (ABC) spent fuel storage facility in March 2009. Tracking of this material must be transferred from ABC to the DOE Y-12 storage facility to apply this substitution at a facility be selected by the IAEA for safeguards.
- 1. U.S. Reference: *Not available*
- 2. Contractual Reference Number – *Not available*
- Shipper's/supplier's name and address: Japanese Research Reactor
- 3. Receiver's name and address: U.S. DOE Y-12
- 4. End user: To be decided by U.S. DOE Y-12
- 5. Stated end use: To be decided by U.S. DOE Y-12
- 6. Expected Date of Shipment/s: Shipment to ABC expected March 2009
- 7. Batch Number: *Unknown*
- 8. Material Category: high-enriched uranium
- 9. Mass (mass of isotope if applicable): 8,756.66 g U (7,859.16 g U-235)
- 10. Physical Form: Spent fuel
- 11. Chemical Form: Uranium-Aluminum Alloy
- 12. Third Country Obligation: None
- Please note that the HEU must be placed under IAEA safeguards.
- Please confirm your receipt of this notice, acknowledging your facility's responsibility to account for the information provided above, by faxing or emailing a signed copy of this form to the appropriate persons listed below:
- For NRC Facilities: Brian Horn  
301-415-8128 (ph)  
BGH1@nrc.gov
- For DOE Facilities: Pete Dessaules  
301-903-4525 (ph)  
Pete.Dessaules@hq.doe.gov
- Signature: \_\_\_\_\_
- Name: \_\_\_\_\_
- Date: \_\_\_\_\_
- Comments:

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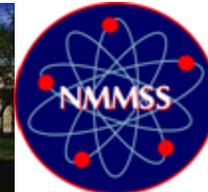
# Accounting Terms

- Fungibility denotes that the inventories of nuclear material and non-nuclear material, and the annual reports thereon, need not physically identify the particular nuclear material or non-nuclear material originally subject to the Agreement, but shall, at all times, identify an equivalent quantity of the same type.



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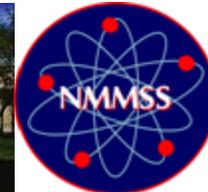
# Accounting Terms (continued)

- Equivalence, with respect to the principle of fungibility, cannot be used to reduce the quality of a quantity of obligated nuclear material.
- When nuclear materials with different obligations are processed together, proportionality will be based on the relative quantities of the element or isotope of significance.



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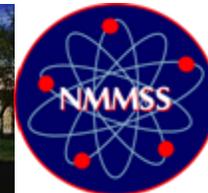


# Pertinent Import Information

- Serial No: EUR 15/2006 Revision 1 or  
ESA contractual reference number AGR/5527
- Shipper CERCA / Receiver Y-12
- Expected Date of Shipment May 15,2006
- Material category HEU
- Mass 15,196 g (13,659 g U235)
- Physical form U alloy plates
- Chemical form UALx

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# Notification Verses Actual

- Notice To Send To Industry
  - Physical receipt values may differ from notification
  - Notification reports total receipt as HEU that could contain LEU when separated based on knowledge pertaining to physical receipt

Mass calculations reveal weight percent -

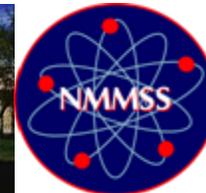
$$29,959/24702 = 82.45$$

$$66,578/15,102 = 22.68$$

$$7,980/4857 = 60.86$$

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# HEU?

- Notification Values:

|        | U      | U-235  |              |
|--------|--------|--------|--------------|
| Brazil | 66,578 | 15,102 | (HEU) 22.68% |

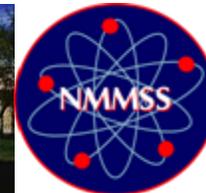
- Physical Receipt Values:

|        |        |       |              |
|--------|--------|-------|--------------|
| Brazil | 16,463 | 3,597 | (HEU) 21.85% |
| Brazil | 26,780 | 5,236 | (LEU) 19.55% |
| Brazil | 3,253  | 2,903 | (HEU) 89.24% |
| Brazil | 20,082 | 3,366 | (LEU) 16.76% |



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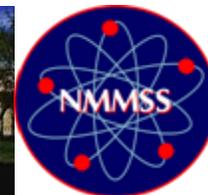


# Significance of Numbers

- Notification places foreign obligations under IAEA
  - Low assays substituted for higher assays
  - Substitution reported base on foreign obligation code, U and  $^{235}\text{U}$  (weight percent not reported)
  - Actual receipt reveals more variance in assays
  - Application of foreign obligations to shipment introduces another assay value
  - Residual Balance (LEU?)

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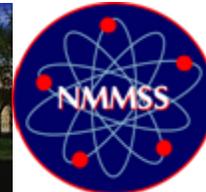
# Significance of Numbers

- Variance in material substitution quality
- HEU notification to Industry may contain LEU pieces
- Substitution based on equivalence
- Accounting guidance left to industry practices



**NMMSS Users Annual Training Meeting**  
**San Antonio, Texas—May 20-22, 2008**

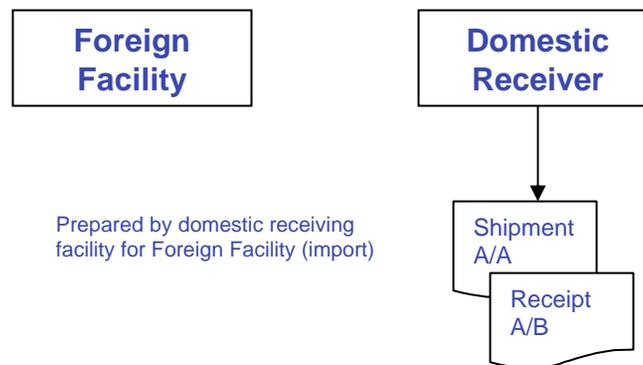
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the U.S. Nuclear Regulatory Commission*



# Foreign Imports (Receipts)

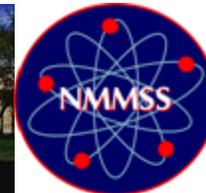
- On behalf of Foreign Entity, the Domestic Receiver prepares the shipper's DOE/NRC F 741 with the following items:

- SHIP-RIS: Foreign RIS ( 4-characters beginning with R)
- PROCESS-CODE: A ACTION-CODE: A
- TRANSFER AUTHORITY
- LIC-NO:



**NMMSS Users Annual Training Meeting**  
San Antonio, Texas—May 20-22, 2008

*Sponsored by the U.S. Department of Energy &  
the U.S. Nuclear Regulatory Commission*



# DOE/NRC F 741

**NUCLEAR MATERIAL TRANSACTION REPORT**

U.S. DEPARTMENT OF ENERGY  
AND  
U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB: NO. 3155-0003      EXPIRES: 04/30/2008  
Estimated burden per response to comply with this mandatory collection request: 1 hour and 15 minutes. This information is required for NRC's accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records and Privacy Services Branch (T-5 F33), U.S. Nuclear Regulatory Commission, Washington, DC 20545-0001, or by internet email to: info@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, REG-10202, (1500-0102), Office of Management and Budget, Washington, DC 20503. If a measure used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

|                                |  |                                 |  |  |  |                                   |  |                           |  |                        |  |   |  |
|--------------------------------|--|---------------------------------|--|--|--|-----------------------------------|--|---------------------------|--|------------------------|--|---|--|
| 1. SHIPPER NO.                 |  | 2. RECEIVER NO.                 |  | 3. TRANSACTION NO.   |  | 4. CONTRACT NO.                   |  | 5. RECEIVED CODE          |  | 6. ACTION CODE         |  | 7. DOCUMENTATION OF THIS TRANSACTION (SEE INSTRUCTIONS) |  |
| 8. NAME AND ADDRESS OF SHIPPER |  | 9. NAME AND ADDRESS OF RECEIVER |  | 10. DATE   |  | 11. NO. OF SHEETS                 |  | 12. NATURE OF TRANSACTION |  | 13. NATURE OF RECEIPT  |  | 14. NO. OF COPIES                                       |  |
| 15. ATTENTION:                 |  | 16. ATTENTION:                  |  | 17. NO. OF SHEETS  |  | 18. NO. OF SHEETS                 |  | 19. NO. OF SHEETS         |  | 20. NO. OF SHEETS      |  | 21. NO. OF SHEETS                                       |  |
| 18. TELEPHONE:                 |  | 19. TELEPHONE:                  |  | 22. TRANSFER AUTHORITY - CONTRACT, AM DRAFT, OR ORDER NUMBER |  | 23. MATERIAL TYPE AND DESCRIPTION |  | 24. MATERIAL WEIGHT       |  | 25. MATERIAL VOLUME    |  | 26. MATERIAL ACTIVITY                                   |  |
| 27. MATERIAL WEIGHT            |  | 28. MATERIAL VOLUME             |  | 29. MATERIAL ACTIVITY  |  | 30. MATERIAL ACTIVITY             |  | 31. MATERIAL ACTIVITY     |  | 32. MATERIAL ACTIVITY  |  | 33. MATERIAL ACTIVITY                                   |  |
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WARNING: FALSE STATEMENTS IN THIS CERTIFICATE MAY BE SUBJECT TO CIVIL AND/OR CRIMINAL PENALTIES. NRC REGULATIONS REQUIRE THAT SUBMISSIONS TO THE NRC BE COMPLETE AND ACCURATE IN ALL MATERIAL RESPECTS. 18 U.S.C. SECTION 1001 MAKES IT A CRIMINAL OFFENSE TO MAKE A WILLFULLY FALSE STATEMENT OR REPRESENTATION TO ANY DEPARTMENT OR AGENCY OF THE UNITED STATES AS TO ANY MATTER WITHIN ITS JURISDICTION.

DOENRC FORM 741 (4-2005) PRINTED ON RECYCLED PAPER

Obligations Accounting



NMMSS Users Annual Training Meeting  
San Antonio, Texas—May 20-22, 2008

Sponsored by the U.S. Department of Energy &  
the U.S. Nuclear Regulatory Commission



# Obligation Accounting

| 17.<br>LINE<br>NUMBER | 18.<br>COUNTRY OF<br>OBLIGATION | 19.<br>MATERIAL<br>TYPE | 20.<br>OBLIGATED<br>ELEMENT WEIGHT | 21.<br>OBLIGATED ISOTOPE<br>WEIGHT<br>For Enriched Uranium Only |
|-----------------------|---------------------------------|-------------------------|------------------------------------|---|
|                       |                                 |                         |                                    |   |
|                       |                                 |                         |                                    |   |
|                       |                                 |                         |                                    |   |
|                       |                                 |                         |                                    |   |
|                       |                                 |                         |                                    |   |
|                       |                                 |                         |                                    |   |

17. Enter sequential number

18. Country of Obligation (Codes)

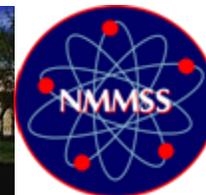
19. Material Type (10, 20, 50, 70, 81 and 88)

20. Amount of obligated element weight

21. For Enriched Uranium (in U-235 and/or U-233) only. Isotope weight of the obligated amount in nearest gram.

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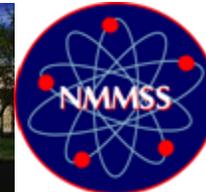
# Foreign Imports: Substitution (one-sided transaction)

- Shipper & Receiver RIS: ABC
- Processing Code (shipper): A
- Action Code (shipper): M
- Obligation Accounting blocks populated:
  - 17 – 21
- Action Date: Shipment
- Shipper's Data: Signature



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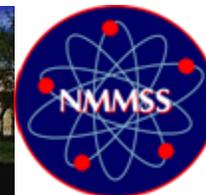
# Obligation Exchange: Shipper's Side

- Shipper & Receiver RIS: ABC
- Processing Code (shipper): A
- Action Code (shipper): X
- Obligation Accounting blocks populated:
  - 17 – 21
- Action Date: Shipment
- Shipper's Data: Signature



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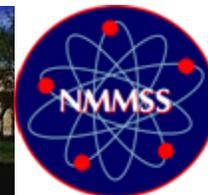
# Obligation Exchange: Receiver's Side

- Shipper & Receiver RIS: CBA
- Processing Code (receiver): A
- Action Code (receiver): Y
- Obligation Accounting blocks populated:
  - 17 – 21
- Action Date: Receipt
- Receiver's Data: Signature



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# Two Ways To Remove Obligations

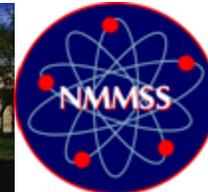
- Physical Shipment (Export)
- Foreign Obligation Substitution

Note: There are other conditions for removal.



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# Export License

| EXPORT LICENSE  |  |
|---|--|
| NRC FORM 250<br>(6-95)  | NRC LICENSE NO.<br><br><b>XSNM3504</b><br>Page 1 of 2  |
| <b>THIS LICENSE EXPIRES</b> <u>February 28, 2008</u><br><b>United States of America</b><br><b>Nuclear Regulatory Commission</b>   |  |
| <small>Pursuant to the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974 and the regulations of the Nuclear Regulatory Commission issued pursuant thereto, and in reliance on statements and representations heretofore made by the licensee, a license is hereby issued to the licensee authorizing the export of the materials and/or production or utilization facilities listed below, subject to the terms and conditions herein.</small>   |  |
| LICENSEE  | ULTIMATE CONSIGNEE IN FOREIGN COUNTRY  |
| <b>U.S. Department of Energy (DOE)</b><br><b>National Nuclear Security Administration (NNSA)</b><br><b>Y-12 National Security Complex</b><br><b>P. O. Box 2050</b><br><b>Bear Creek Road</b><br><b>Oak Ridge, TN 37831</b><br><br><b>Attn: Becky G. Eddy</b>  | <b>Atomic Energy of Canada Limited (AECL)</b><br><b>Chalk River Laboratories</b><br><b>Chalk River</b><br><b>Ontario K0J 1J0</b><br><b>Canada</b><br><br><b>(Fabrication of targets for production of medical isotopes at the National Research Universal [NRU] Reactor.)</b>  |
| INTERMEDIATE CONSIGNEE IN FOREIGN COUNTRY   | OTHER PARTIES TO EXPORT  |
| NONE  | NONE   |
| APPLICANT'S REF. NO. <b>AECL HEU-NOV07</b>  | COUNTRY OF ULTIMATE DESTINATION <b>Canada</b>  |
| QUANTITY  | DESCRIPTION OF MATERIALS OR FACILITIES   |
| 14.470 Kilograms  | <b>Uranium-235 Contained In 15.5 kilograms uranium enriched to 93.35 w/o maximum, as uranium broken into metal pieces.</b><br><br><b>Conditions 6, 8 and 9 on Page 2 of this license apply to this export.</b><br><b>///////END//////////</b>  |
| <small>Neither this license or any right under this license shall be assigned or otherwise transferred in violation of the provisions of the Atomic Energy Act of 1954, as amended, and the Energy Reorganization Act of 1974.</small><br><br><small>This license is subject to the right of recapture or control by Section 109 of the Atomic Energy Act of 1954, as amended, and to all of the other provisions of said Acts, now or hereafter in effect and to all valid rules and regulations of the Nuclear Regulatory Commission.</small> | <small>THIS LICENSE IS INVALID UNLESS SIGNED BELOW BY AUTHORIZED NRC REPRESENTATIVE</small><br><br><b>Scott W. Moore, Deputy Director</b><br><b>Office of International Programs</b><br><small>DATE OF ISSUANCE</small> <b>October 19, 2007</b> |

NRC FORM 250A  
(6-95)

U.S. NUCLEAR REGULATORY COMMISSION

U.S. NUCLEAR REGULATORY COMMISSION  
EXPORT LICENSE

License Number **XSNM3504**

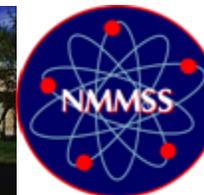
### CONDITIONS

Page 2 of 2

- Condition 1** – Licensee shall file with the Customs Officer or the Postmaster two copies, in addition to those otherwise required, of the Shipper's Export Declaration covering each export and mark one of such copies for transmittal to the U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-001. The following declaration should accompany or be placed on the Shipper's Export Declarations for such exports:
- "This shipment is being made pursuant to specific license number (specific license number) filed at (location of customs office where license is filed), on (date license was filed). This license expires on (expiration date of license), and the unshipped balance remaining on this license is sufficient to cover the shipment described on this declaration."
- Condition 2** – Exports authorized in any country or destination, except Country Groups Q, S, W, X, Y, and Z in Part 370, Supplement No. 1, of the Comprehensive Export Schedule of the U.S. Department of Commerce.
- Condition 3** – This license covers only the nuclear content of the material.
- Condition 4** – The material to be exported under this license shall be shipped in accordance with the physical protection requirements for special nuclear material in 10 CFR 73.
- Condition 5** – Special nuclear material authorized for export under this license shall not be transported outside the United States in passenger-carrying aircraft in shipments exceeding (1) 20 grams or 20 curies, whichever is less, of plutonium or uranium 233, or (2) 350 grams of uranium 235.
- Condition 6** – This license authorizes export only and does not authorize the receipt, physical possession, or use of the nuclear material.
- Condition 7** – The licensee shall complete and submit an NRC Form 741 for each shipment of source material exported under this license.
- Condition 8** – This licensee shall advise the NRC in the event there is any change in the designation of the company who will package the nuclear material to be exported under this license, or any change in the location of the packaging operation, at least three weeks prior to the scheduled date of export.
- Condition 9** – If, while within U.S. jurisdiction, the material to be exported under this license is not protected in transit utilizing the services and equipment of the Department of Energy (DOE)/National Nuclear Security Administration (NNSA) Office of Secure Transportation in accordance with the DOE requirements and directives for the transport of such material, then the licensee must comply with applicable 10 CFR Part 73 regulations on physical security measures including any NRC-required enhancements thereto and must obtain NRC's approval of the physical security plan for transportation prior to the shipment campaign.

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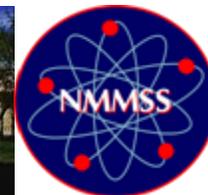


# Pertinent Export Information

- NRC LICENSE NO. **XSNM3504**
- ULTIMATE CONSIGNEE IN FOREIGN COUNTRY (**AECL**)
- COUNTRY OF ULTIMATE DESTINATION (**CANADA**)
- QUANTITY **14.470 Kilograms**
- DESCRIPTION OF MATERIALS OR FACILITIES

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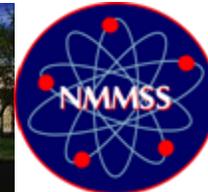
# NMMSS Edit Check

- When reporting foreign obligations, NMMSS checks to ensure that the total foreign obligations of the element and isotope weight does not exceed the total of the shipment. In other words, you can not apply more obligations than is being shipped.



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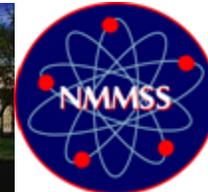
# Other NMMSS Checks

- Reporting Identification Symbol (RIS) associated with license
- Transfer Authority (block 14: Transfer Authority – Contract, NM Draft, or Order Number)
- Export License (block 15: Export or Import Transfers: License No.)



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# Obligation Assignment

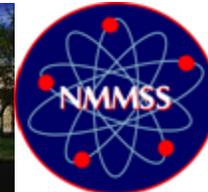
|             |         |        |
|-------------|---------|--------|
| Obligation  | 104,517 | 44,661 |
| Shipment    | 84,903  | 79,093 |
| Application | 46,496  | 11,736 |

Element and isotope weights for foreign obligation can not exceed total element and isotope weights of shipment.



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# LEU Remainder

- Remaining Balance:

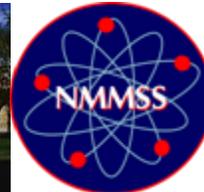
|        | U      | U-235 |       |
|--------|--------|-------|-------|
| Brazil | 20,082 | 3,365 | (LEU) |

Accounting for LEU under IAEA safeguards?



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# IAEA Report

- IA-OBL-05: Obligation Material Balance Report

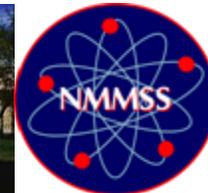
## *Description:*

Contains a summary of obligation activities reported in a material balance format. The report uses reported or generated data for a beginning balance and calculate the ending balance for each country, material type, and RIS.



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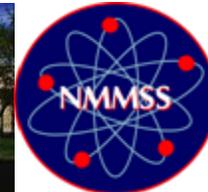
# Checks and Balances

- Domestic Reporting (to NMMSS)
- NMMSS and visual verification based on foreign and Export license information
- Transit Matching
- Domestic and International reconciliation and resolution



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# Questions?

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