



Accountability  
Performance  
Accuracy

The Nuclear Materials Management Safeguards System

# NMMSS

# 2016

Annual Users Training Meeting

May 9-12, 2016 | New Orleans, LA

## Notification Process for Obligations Tracking and Exchanges

Mirabelle Shoemaker, NRC



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# Summary

- What are foreign obligations?
- How are facilities notified?
- What is the significance?





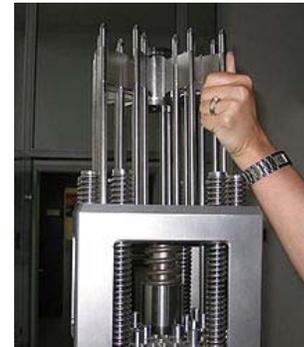
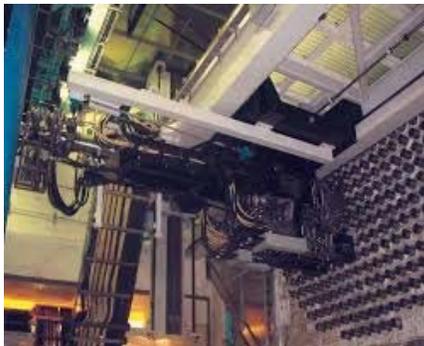
# What are foreign obligations?

- Requirements set by Agreements for Peaceful Nuclear Cooperation.
- U.S. agreements with 20 countries the IAEA and Taiwan.
- The agreements are reciprocal in nature.
- The U.S. may be asked to track nuclear materials imported, produced, and/or exported as well as report inventories.
- The agreements allow for obligations to be placed on major nuclear equipment.



# Examples of major nuclear equipment

- Reactor pressure vessel heads.
- Online reactor fuel charging and discharging machines.
- Complete reactor control rod systems.
- Reactor primary coolant pumps.



# Agreements for Peaceful Nuclear Cooperation

- Argentina
  - Australia
  - Brazil
  - Canada
  - China
  - Egypt
  - India
  - Indonesia
  - Japan
  - Kazakhstan
  - Korea, Rep. of
  - Morocco
  - Russian Federation
  - South Africa
  - Switzerland
  - Turkey
  - Ukraine
  - United Arab Emirates
  - Vietnam
- 
- EURATOM
  - IAEA
  - Taiwan

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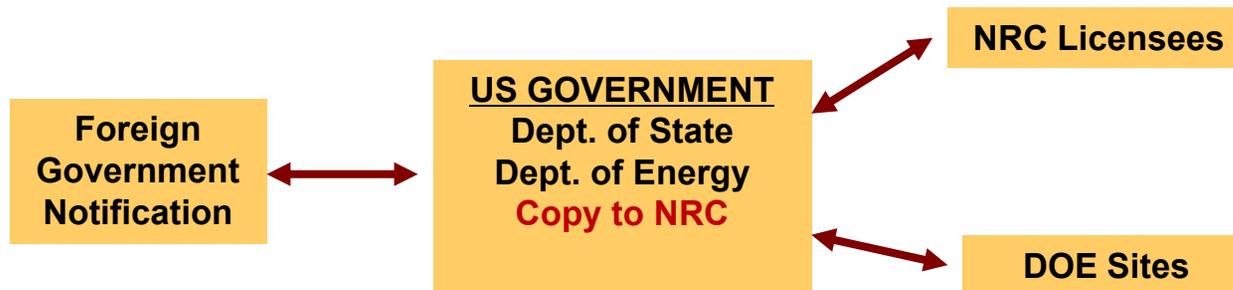


- Austria
- Belgium
- Bulgaria
- Croatia
- Cyprus
- Czech Rep.
- Denmark
- Estonia
- Finland
- France
- Germany
- Greece
- Hungary
- Ireland
- Italy
- Latvia
- Lithuania
- Luxembourg
- Malta
- The Netherlands
- Poland
- Portugal
- Romania
- Slovakia
- Slovenia
- Spain
- Sweden
- United Kingdom



# How are facilities notified?

- Government to Government notification
- U.S. Government to facility notification
- There are minor differences in communications depending of the origin country.



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# Which are the leading Agencies

<b>Foreign Country</b>		<b>Implementing US Government Agency</b>
<b>EURATOM</b>	<b>Agreement for Peaceful Nuclear Cooperation</b>	<b>Dept. of State/Dept. of Energy</b>
<b>AUSTRALIA</b>		<b>Dept. of Energy</b>
<b>JAPAN</b>		<b>Dept. of State</b>
<b>CANADA</b>		<b>Dept. of Energy</b>





# EURATOM Obligations Notification Process

- **Annex I - Annual Forecast:** EURATOM seeks annual assurances from the U.S. Government that nuclear material to be shipped during the year will be subject to the terms of conditions of the agreement of peaceful nuclear cooperation
- **Annex I – Part A & B:** EURATOM forwards to the U.S. Government specific information about quantities and obligations of nuclear material per shipment.
- **Annex II –** EURATOM sends confirmation of shipment to the U.S. Government. Now a PWD protected excel table



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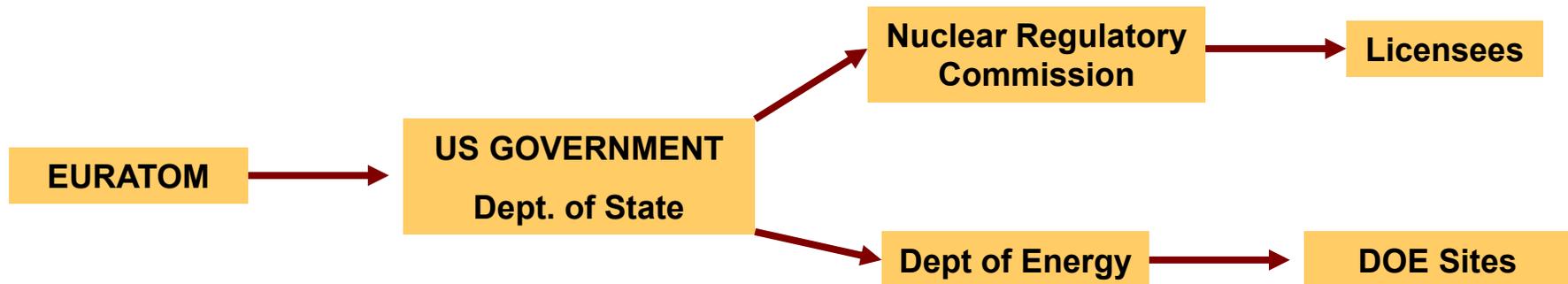


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# EURATOM Obligations Notification Process



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# Example of Annex I - Annual Assurances

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DIRECTORATE-GENERAL FOR ENERGY  
DIRECTORATE E Euratom safeguards  
E 5-Nuclear accountability and international obligations

Luxembourg,  
E 5/TC  
Page: 1/1

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### AGREEMENT BETWEEN THE UNITED STATES OF AMERICA AND THE EUROPEAN ATOMIC ENERGY COMMUNITY (EURATOM) FOR COOPERATION IN THE PEACEFUL USES OF NUCLEAR ENERGY

<b>From:</b> Head of Unit E 5 Euratom, Luxembourg	<b>Email:</b> Safeguards-Eur-US@ec.europa.eu Safeguards-courmer@ec.europa.eu <b>Fax:</b> +(352)430133545
<b>To:</b> US Department of State PM/NE, Room 7828 WASHINGTON, DC 20520 Attention: Mr Robin DeLaBarre	<b>Email:</b> DeLaBarreR@state.gov
<b>Copy:</b> US Department of Energy NN-42, Room GA045 WASHINGTON, DC 20585-0440	<b>Email:</b> Jessica.Nories@nnsa.doe.gov Erin.Border@nnsa.doe.gov
<b>Copy:</b> US Nuclear Regulatory Commission	<b>Email:</b> foreign.obligations@nrc.gov

Annex I-A Forecast	Notification of an Operator forecast deliveries to the US Authorities	EUR. Ref: U-ET/11/S16/GCAS-
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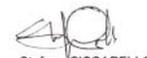
The Commission advises DOS/DOE of the following intended transfer for year 2016:

1. Shipper:
2. Receiver:
3. Mass: LEU: [redacted]

Detailed information will be provided on or about the dates of shipments.

The Commission would appreciate confirmation from DOS/DOE that:

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



**Stefano CICCARELLO**  
Head of Unit E5

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# Example of Annex I - Parts A & B

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E.5-Nuclear accountability and international obligations

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From: Head of Unit E 5  
Euratom, Luxembourg

To: US Department of State  
PMINE, Room 7828  
WASHINGTON, DC 20520  
Attention: Mr Robin DeLaBarre

Copy: US Department of Energy  
NN-42, Room GA045  
WASHINGTON, DC 20585-0440

Copy: US Nuclear Regulatory Commission

Email: Safeguards-Eur-US@ec.europa.eu  
Safeguards-courier@ec.europa.eu  
+1352430133545

Fax: +1352430133545

Email: DeLaBarreR@state.gov

Email: Jessica.Norles@nnsa.doe.gov  
Erin.Border@nnsa.doe.gov

Email: foreign.obligations@nrc.gov

Annex I-A Part A    Prior notification pursuant to the Euratom/US Nuclear Cooperation Agreement of an intended transfer of nuclear material from The Community to the USA    EUR. Ref: U-EUUST16

The Commission advises D.O.S. of the following intended transfer:

- US reference number:
- ESA contractual reference number:
- Shipper's name and address:
- Receiver's name and address:
- Facility of receipt:
- Expected date of shipment: **see part B**
- Material category, Mass: **see part B**
- Physical form: **Uranium hexafluoride (UF6)**
- Chemical form: **UF6**
- Owner's name:
- End user name:
- Intended use:
- Third Party obligations: **see part B**
- Total nuclear material expected to be returned **see part B** (A.A.§5.1.4):

*Stefano Ciccarello*  
Stefano CICCARELLO  
Head of Unit E5

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Email: Safeguards-Eur-US@ec.europa.eu  
Safeguards-courier@ec.europa.eu  
+1352430133545

Fax: +1352430133545

Email: DeLaBarreR@state.gov

Email: Jessica.Norles@nnsa.doe.gov  
Erin.Border@nnsa.doe.gov

Email: foreign.obligations@nrc.gov

Annex I-A Part B    Prior notification pursuant to the Euratom/US Nuclear Cooperation Agreement of an intended transfer of nuclear material from The Community to the USA    EUR. Ref: U-EUUST16/B

The Commission advises D.O.S. of the following intended transfer:

- Expected date of shipment: **22/01/2016**
- Material category, Mass:
 

Element	ElWeight	Isotope	Type
LEU			
- Batch (number of items): **Not yet known ;**
- Chemical form: **UF6**
- Third Party obligations: **Not Applicable**
- Total nuclear material expected to be returned **Not Applicable** (A.A.§5.1.4):

The Commission would appreciate (a) confirmation from D.O.S. that the:

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

*Stefano Ciccarello*  
Stefano CICCARELLO  
Head of Unit E5

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# Return of EURATOM seals to the European Commission

- NRC licensees receive a UF<sub>6</sub> cylinder secured with two EURATOM seals.
- NRC licensees submit the EURATOM seals to the NRC every two months.
- NRC confirms the seal codes and then forwards the seals to the European Commission.



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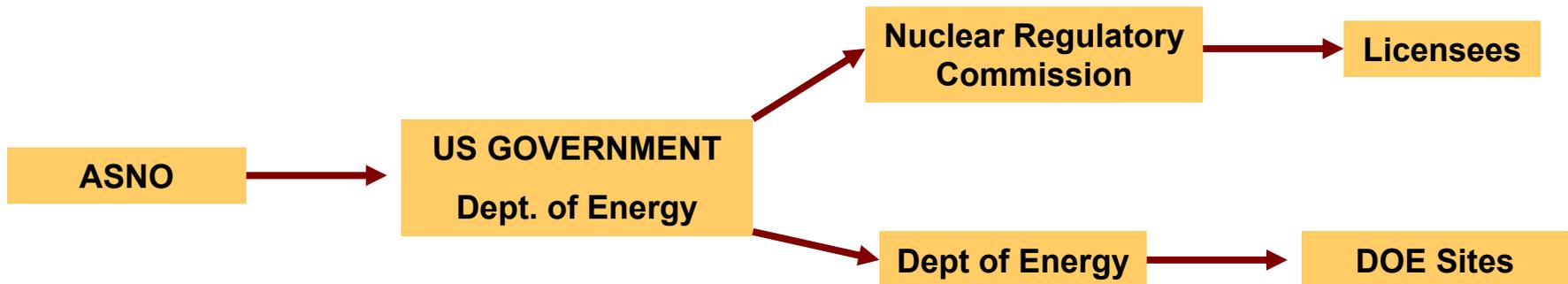
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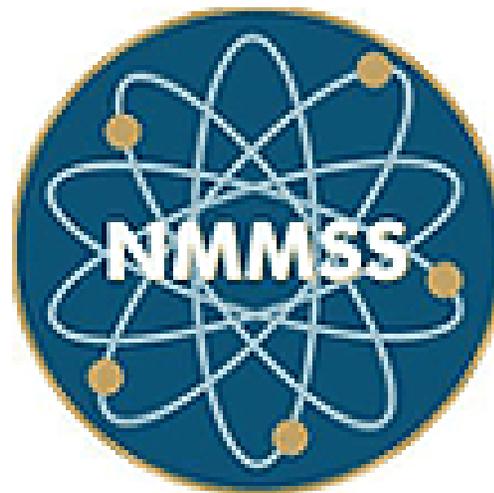


# Australian Obligations Notification Process



# Importance of notification process

- Inventories of Obligated Nuclear Material
- Reports required under several Bilateral Agreements and to the IAEA
- The U.S. Government depends on NMMSS to fulfill international obligations
- NMMSS depends on you!



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# Sample of Annual Report



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	<b>Natural U (KG)</b>	<b>LEU Element (G)</b>	<b>LEU Isotope (G)</b>	<b>HEU Isotope (G)</b>	<b>PU (G)</b>	<b>Depleted U (KG)</b>	<b>Thorium (KG)</b>	<b>Heavy Water (KG)</b>
<b>Beginning Inventory</b>								
<b>Direct imports</b>								
<b>Indirect imports</b>								
<b>Nuclear Production</b>								
<b>Increase subtotal</b>								
<b>Direct Exports</b>								
<b>Retransfers</b>								
<b>Nuclear Loss</b>								
<b>Decrease subtotal</b>								
<b>Ending Inventory</b>								





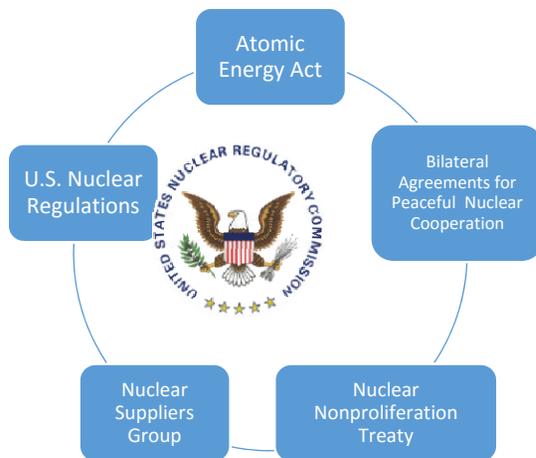
# Foreign Obligation Exchange aka "Flag Swapping"

- Exchange of obligations can occur only between like materials.
- Exchange of obligations must be for same material quantities.
- Government approval is needed for the following types of exchanges:
  - Exchange of material from one MT to another (ex: downblending)
  - Exchange of irradiated on nonirradiated material.
  - Obligation exchanges involving a licensee of the U.S. Nuclear Regulatory Commission



# Foreign Obligations Recap

## Non Proliferation Regime



## International Agreement Requirements



## Foreign Obligations apply to U.S. facilities

- Nuclear Reactors
- Fuel Fabrication Facilities
- Enrichment Facilities
- Conversion Facilities
- Uranium Recovery

## Foreign obligations may Apply to

- Special Nuclear Material
- Source Material
- Nuclear Equipment
- Nuclear Components
- Nuclear Technology

## U.S. FACTS (as of January 2015)



NPP: Nuclear Power Plants  
SNM: Special Nuclear Material  
RCVH: Reactor Closure Vessel Head

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# Contact Information

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- Nuclear Regulatory Commission

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- Department of Energy

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USMB

# Questions?

