United States Imports and Exports

Presented by:
Mitch Hembree & Len Myers
NMMSS
Goals

- What materials are imported/exported
- What are the uses of imported/exported material
- Statistics for imported/exported materials
- What is required from a facility to import/export
- NMMSS requirements for import/export
- NMMSS reporting problems commonly experienced
Import and Export

Entity A

- Direct Import
- Direct Export

US Entity A Obligations Increase*
US Entity A Obligations Decrease

United States

US Entity B Obligations Increase*
US Entity B Obligations decrease

Entity B

* - Import/export may or may not have associated obligations
U.S. Imports
Imports & Exports

Materials Typically Imported

- Normal Uranium
- Depleted Uranium
- Low-Enriched Uranium
- Highly Enriched Uranium
- Plutonium
- Thorium
- Others
Primary Uses for Imported Material

- Natural uranium to conversion and enrichment plants
- Enriched uranium to fuel fabrication plants
- Return of spent fuel from foreign research reactors
### Total Imports 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>8,800</td>
<td>300</td>
<td>MT</td>
</tr>
<tr>
<td>Plutonium</td>
<td>8</td>
<td>-</td>
<td>Kg</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>28,900</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Depleted Uranium</td>
<td>1</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Neptunium-237</td>
<td>83</td>
<td>-</td>
<td>g</td>
</tr>
<tr>
<td>Thorium</td>
<td>6</td>
<td>-</td>
<td>MT</td>
</tr>
</tbody>
</table>
Primary Shippers 2010-2012

- Canada
- Australia
- Euratom
- Russian Federation
- Kazakhstan
- Namibia
# Canadian Imports 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>2,600</td>
<td>60</td>
<td>Kg</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>11,100</td>
<td>-</td>
<td>MT</td>
</tr>
</tbody>
</table>
### Australian Imports 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>2</td>
<td>1</td>
<td>Kg</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>9,800</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Thorium</td>
<td>18</td>
<td>-</td>
<td>Kg</td>
</tr>
</tbody>
</table>
Euratom* Imports

*Euratom consists of the following countries: 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.
## Euratom Imports

**2010-2012**

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>3,500</td>
<td>140</td>
<td>MT</td>
</tr>
<tr>
<td>Plutonium</td>
<td>6</td>
<td>-</td>
<td>Kg</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>7</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Depleted Uranium</td>
<td>1</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Thorium</td>
<td>1</td>
<td>-</td>
<td>MT</td>
</tr>
</tbody>
</table>
Major Euratom Importers
2010-2012

- France
- Germany
- Netherlands
- United Kingdom
**Russian Federation Imports**

**2010-2012**

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>2,900</td>
<td>130</td>
<td>MT</td>
</tr>
</tbody>
</table>
Imports & Exports

U.S. Exports
Imports & Exports

Material Involved in U.S. Exports

- Normal Uranium
- Depleted Uranium
- Enriched Uranium
Imports & Exports

Uses for Exported Material

- Natural uranium to conversion and enrichment plants
- Enriched uranium to fuel fabrication plants/reactors
## Total Exports 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>2,400</td>
<td>98</td>
<td>MT</td>
</tr>
<tr>
<td>Plutonium</td>
<td>200</td>
<td>-</td>
<td>g</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>19,000</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Depleted Uranium</td>
<td>8</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Thorium</td>
<td>2</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Lithium-6</td>
<td>67</td>
<td>66</td>
<td>Kg</td>
</tr>
</tbody>
</table>
Imports & Exports

Entities Receiving U.S. Exports  
2010-2012

- Euratom
- Russian Federation
- Canada
- Japan
- Taiwan
### Exports to Euratom
#### 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>290</td>
<td>12</td>
<td>MT</td>
</tr>
<tr>
<td>Plutonium</td>
<td>200</td>
<td>-</td>
<td>g</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>9,200</td>
<td>-</td>
<td>MT</td>
</tr>
<tr>
<td>Depleted Uranium</td>
<td>8</td>
<td>-</td>
<td>MT</td>
</tr>
</tbody>
</table>
## Exports to Russian Federation
### 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Normal Uranium</td>
<td>7,500</td>
<td>0</td>
<td>MT</td>
</tr>
</tbody>
</table>
### Exports to Canada 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>400</td>
<td>80</td>
<td>Kg</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>1,800</td>
<td>0</td>
<td>MT</td>
</tr>
</tbody>
</table>
## Exports to Japan 2010-2012

<table>
<thead>
<tr>
<th>Material</th>
<th>Element Weight</th>
<th>Isotope Weight</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enriched Uranium</td>
<td>1,248</td>
<td>53</td>
<td>MT</td>
</tr>
<tr>
<td>Normal Uranium</td>
<td>1</td>
<td>0</td>
<td>MT</td>
</tr>
<tr>
<td>Thorium</td>
<td>1</td>
<td>0</td>
<td>MT</td>
</tr>
</tbody>
</table>
Requirements to Import/Export
Import/Export Requirements

- Valid license to import/export
- Satisfy appropriate Agreements for Cooperation guidelines
- Send/receive appropriate notifications for associated Agreement for Cooperation
- Report import/export to the NMMSS
License to Import /Export

- A valid license is in place to Import or Export material
- NMMSS monitors imports/exports with license
  - Is the license active
  - Are the consignee(s) authorized by the license
  - Is the quantity of material less than or equal to the license quantity limits
  - If material is foreign obligated, does the license authorize import/export
- NRC provides copies of all licenses to NMMSS
NRC Export License Types

- **XSOU**: Source Material
- **XB**: Byproduct Material
- **XSNM**: Special Nuclear Material
- **XW**: Waste

Facilities may ship the quantity of specified material up to the authorized quantity.
Agreements For Cooperation

- Foreign obligations = Assurances that material or equipment is transferred pursuant to an Agreement for Peaceful Nuclear Cooperation
- Agreements for Cooperation are necessary, per Section 123 of the Atomic Energy Act of 1954, as amended
- Simplify the U.S. trade of nuclear material and equipment with foreign countries
- Safeguard and peaceful use guarantees
NMMSS Reporting of Import/Export (741)

- Specify export license number for imports/exports
- Arrangements are handled by an agent who is required to obtain a NRC license to import/export
- The U.S. facility will report both the shipper and receiver 741 documents for imports and exports
NMMSS Reporting Issues with Imports/Exports

- License for import/export has expired
- License for import/export is invalid for country of origin or receipt
- Improper association of import/export with license conditions (material type, facility)
- Export quantity exceeds license quantity
- Foreign obligations improperly reported
CASE Studies

- Import of material from Euratom to the United States
- Import of material from Australia to the United States
- Export of material from the United States to Euratom
- Export of material from the United States to Canada
Questions?