



Accountability
Performance
Accuracy

The Nuclear Materials Management Safeguards System

NMMSS

2016

Annual Users Training Meeting

May 9-12, 2016 | New Orleans, LA

Process for Obligation Exchanges/Swapping

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- Background: Obligations
- Obligations accounting notification process
- Obligation exchange concepts
- NMMSS reporting of obligation exchanges
- Best practices for obligation exchanges
- Obligation exchange tracking considerations
- NMMSS verification of obligation exchanges
- Potential obligation exchange enhancements

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Background: Obligations

- Section 123 of the Atomic Energy Act, as amended, authorizes Agreements for Cooperation in the Peaceful Uses of Nuclear Energy
- Allow for cooperation in areas such as technical exchanges, scientific research, and Safeguards discussions
- Includes nonproliferation conditions
 - Safeguards
 - Ban on use of explosives
 - Physical protection
 - Consent rights
- Material under agreement
 - Nuclear material
 - Major components
 - Equipment
- Material subject to the terms and conditions of an Agreement for Cooperation is called “obligated”



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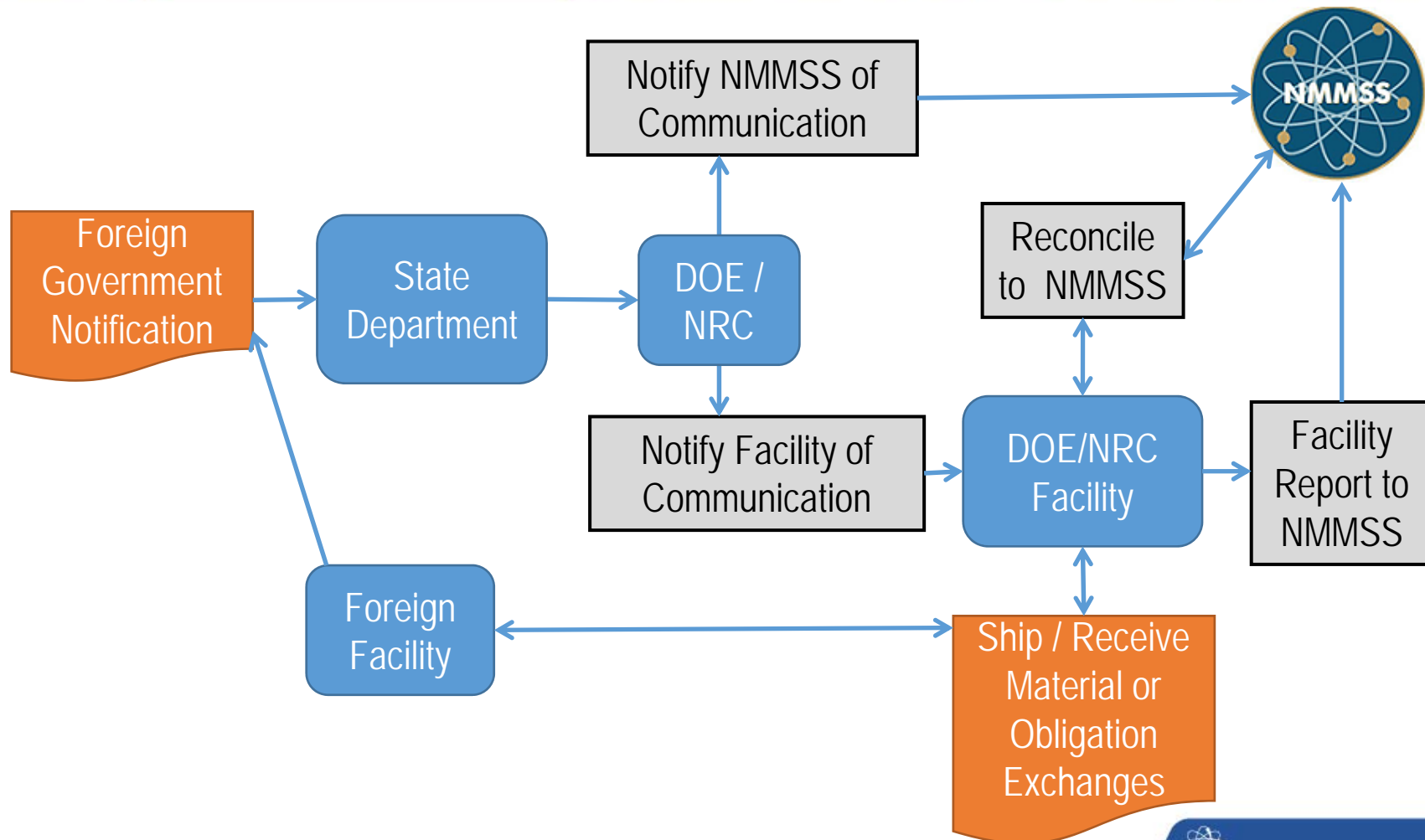
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Obligations accounting notification process



Obligation exchange concepts

The obligation exchange is a mechanism allowing for the non-physical movement of obligated material.

- U.S. facilities may exchange foreign obligations between domestic or foreign facilities
- A foreign facility cannot be involved in an exchange without NRC or DOE approval
- A facility initiates an obligation exchange by submitting DOE/NRC Form 741 using an "X" action code
- The other facility involved in the exchange responds to the "X" action code with a "Y" action code accepting the obligations

Obligation exchange concepts *(continued)*

- Equivalent amount and material categories can be exchanged as long as original conditions are maintained and inventory not reduced
- Principles of equivalence and proportionality apply
- Must be same quantity, isotopic composition, and chemical form
- Must be able to link obligations to physical batches of material
- Useful for obviating unnecessary physical transfers and associated risks

Obligation exchange NMMSS reporting

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NMMSS DOE/NRC Form 741 (Shipper Side Exchange)

[illegible]

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Obligation exchange NMMSS reporting (continued)

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NMMSS DOE/NRC Form 741 (Receiver Side Exchange)

DOE/NRC FORM 741
(8-2008) Previous editions are obsolete
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150,
Public Laws 83-703, 93-438, 95-91

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

APPROVED BY OMB: NO. 3150-0003

EXPIRES: 05/31/2011

Action Code: Y

Response to comply with this mandatory collection request: 1 hour and 15 minutes. This form is for IAEA accounting reports that show changes in inventory of nuclear materials. Send den estimate to the Records and FOIA Privacy Services Branch (T-5 F53), U.S. Nuclear Washington, DC 20555-0001, or by internet e-mail to infocollections@nrc.gov, and to the Desk and Regulatory Affairs, NEOS-10202, (3150-0003), Office of Management and Budget, if a means used to impose an information collection does not display a currently valid OMB number. A person may not conduct or sponsor, and a person is not required to respond to, the information collection if it lacks a valid OMB control number.

NUCLEAR MATERIAL TRANSACTION REPORT

1. SHIPPER'S RIS: F08
2. RECEIVER'S RIS: F10
3. TRANSACTION NO.: 99
4. CORRECTION NO.:
5. PROCESSING CODE:
6. ACTION CODE:
7. DOCUMENTATION (Only if document is classified SECRET):

8. NAME AND ADDRESS OF SHIPPER:
9. LICENSE NO.:
10. NO OF DATA LINES:
11. NATURE OF TRANSACTION:
12. SHIPPED FOR ACCOUNT OF:
13. SHIPPED TO ACCOUNT OF:
14. TRANSFER:
15. EXPORT OR IMPORT TRANSFERS: LICENSE NO.:
16. MATERIAL TYPE:
17. LINE NUMBER:
18. COUNTRY OF OBLIGATION:
19. MATERIAL TYPE:
20. OBLIGATED ELEMENT WEIGHT:
21. OBLIGATED ISOTOPE WEIGHT:
22. ACTION DATE:
23. SHIPPER'S CORRECTION:
24. RECEIPT:
25. RECEIVER'S MEASUREMENT:
26. RECEIVER'S CORRECTION:

Note: The receiver must have sufficient inventory of non-obligated material (same material type) in order to assume the incoming obligations.

Increase in F10's obligations for country 31 (Australia) by 500,000 g element; 20,000 g isotope

Increase in F10's obligations for country 32 (Canada) by 75,000 g element; 3,000 g isotope

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.



Obligation exchange best practices

- Ensure that the shipping facility has adequate quantities of foreign obligated material to exchange with the other facility
- Ensure that the receiving facility has adequate unobligated inventory to cover the receipt of obligation exchange
- Notify NNSA/DOE and NRC when exchanging obligated material between NNSA/DOE and NRC facilities
- For exchanges involving foreign facilities, permission must be sought from and granted by all parties involved in the exchange, usually through:
 - 123 Agreement communications
 - Approval of NNSA/DOE and NRC
- Generally, an obligation exchange is approved if the physical transfer would be allowed.

Obligation exchange tracking considerations

- The timeliness of NMMSS reporting of shipments and receipts may affect interim NMMSS book obligation balances
 - 10 days to report facility receipts to NMMSS
 - 1 day to report facility shipments to NMMSS
- Timeliness of NMMSS reporting of process-based category changes may affect interim NMMSS book obligation balances
 - Enrichment
 - Blending
 - Production and other on-site gains
 - Burnup and other on-site losses

NMMSS verification of obligation exchanges

- As part of U.S. facility reconciliation with NMMSS, obligations reported to NMMSS on DOE/NRC Form 741 are validated with facility cumulative obligation balances (including obligation exchanges)
- NMMSS generates an edit check error on obligation exchanges to verify that NRC or DOE approval is obtained.
 - All obligation exchanges involving a foreign facility generate an edit check error in NMMSS
 - NMMSS staff notify NRC or DOE of foreign obligation exchanges
 - Upon approval by NRC or DOE, the edit check error is excluded in NMMSS

Potential obligation exchange enhancements

- Obligation exchange report to summarize exchange activities over a period of time.
- Edit check to flag obligation exchanges if an NRC facility submits an exchange of LEU at or greater than 5% enrichment
- Edit check to flag obligation exchanges if NMMSS book values show an obligation or inventory shortfall for the obligations being exchanged. The purpose of the edit check is to verify that:
 - Adequate obligation and inventory balances are available for the exchange. An error is produced if there is a shortfall.
 - NMMSS staff verify with the shipping facility that adequate obligations and inventory are available
 - NMMSS staff verify with the receiving facility that adequate unobligated inventory is available

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QUESTIONS?

