

Instructions for Completing Nuclear Material Transaction Reports

(DOE/NRC Forms 741 and 740M)

Effective Date: April 1, 2008

Draft Report for Comment

Issued by the U.S. Nuclear Regulatory Commission Office of Nuclear Material Safety and Safeguards Washington, DC 20555-0001

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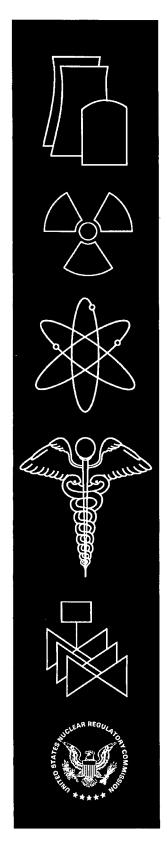
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Chief, Rules Review and Directives Branch U.S. Nuclear Regulatory Commission Mail Stop T6-D59 Washington, DC 20555-0001

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ABSTRACT NRC regulations require licensees who ship, receive, or adjust their physical inventory of source or special nuclear material to document and report such activities. The reports are submitted using the DOE/NRC Form 741. Licensees may need to provide additional information on some imports or exports of source or special nuclear material. The additional information is reported using DOE/NRC Form 740M. This NUREG contains instructions for preparing these forms. Paperwork Reduction Act Statement The information collections contained in this NUREG are covered by DOE/NRC Forms 741 and 740M, which were approved by the Office of Management and Budget, approval numbers 3150-0003 and 3150-0057. Public Protection Notification If a means 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. iii

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1		ABBREVIATIONS
2 3 4 5	ADP ANSI AL	automated data processing American National Standards Institute accidental loss
6 7 8 9 10 11 12 13	CFR CODE 10	Code of Federal Regulations Chapter 10 of the subsidiary arrangement to the U.S./IAEA Safeguards Agreement
	DOD DOE DOS	Department of Defense Department of Energy Department of State
14 15 16 17	EURATOM ekg	European Atomic Energy Commission effective kilogram
18 19	FA	Facility Attachment
20 21 22	GDP gm or g	gaseous diffusion enrichment plant gram
23 24	HEU	highly enriched uranium
25 26 27 28 29 30 31	IAEA ICR ICT ID INFCIRC INFCIRC-288 IPELTS	International Atomic Energy Agency Inventory Change Report inventory change type inventory difference IAEA Information Circular U.S./IAEA Safeguards Agreement International Programs Export License Tracking System
32 33 34 35	kg KMP	kilograms key measurement point
36 37 38	LE LEU	limit of error low-enriched uranium
39 40 41 42 43 44 45 46	MBA MBR MC&A MMDDYYYY MD MSR MT	material balance area Material Balance Report material control and accounting month, day, year measured discards Material Status Report material type
47 48 49 50		vii NUREG/BR-0006, Rev. ⁻

1		ABBREVIATIONS (continued)
2 3 4 5 6	NDA NMMSS NRC NSI	nondestructive assay Nuclear Materials Management and Safeguards Systems Nuclear Regulatory Commission Nuclear Security Information
7 8 9	OMP	other measurement point
10 11 12 13	PIL PIT Pu	Physical Inventory List physical inventory taking plutonium
13 14 15 16	RD RIS	Restricted Data reporting identification symbol
17 18 19 20	SAMS SNM SRD	Safeguards Management Software special nuclear material shipper-receiver difference
21 22 23 24 25 26 27 28 29 30 31 32 33	TFA TJ	Transitional Facility Attachment Transaction Journal
	U UK U.S. GOVT	uranium United Kingdom United States Government
	WT%	weight percent (of isotope)
34 35 36 37 38		
39 40 41		
42 43 44 45 46		
47 48 49	NUREG/BR-000	96, Rev. 7 viii

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U.S. NUCLEAR REGULATORY COMMISSION INSTRUCTIONS FOR COMPLETING **NUCLEAR MATERIAL TRANSACTION REPORTS**

DOE/NRC Form 741, "Nuclear Material Transaction Report," and DOE/NRC Form 740M, "Concise Note"

1 Introduction

The U.S. Nuclear Regulatory Commission (NRC) and the U.S. Department of Energy (DOE) iointly use a Nuclear Materials Management and Safeguards System (NMMSS). This system is the U.S. national database used by DOE and NRC for tracking certain nuclear material.

Common reporting forms and formats are used to minimize the reporting burden on licensees¹ required to provide nuclear material data to one or both agencies in accordance with current regulations or contractual obligations. In this manner, licensees can file one report to meet the reporting requirements of both the NRC and DOE. Compliance with specific reporting requirements is monitored by the agency that requires the specific data. NRC regulations require that the reports be submitted in computer-readable form. A licensee may use any blank blocks on the paper DOE/NRC forms for other business purposes.

DOE requires all NRC licensees to report to the NMMSS all receipts, transfers, and inventories of U.S. GOVT-owned, loaned, or leased material in their possession. Reports to the NMMSS for all U.S. GOVT-owned, -loaned, or -leased material are required to follow the U.S. GOVT's reporting requirements as specified in DOE Orders Series 470 (DOE Order 470.4 "Safeguards and Security Program" and DOE M 470.4-6 "Nuclear Material Control and Accountability").

1.1 Material Transaction Reports

The DOE/NRC Form 741, "Nuclear Material Transaction Report," is the means for submitting transaction data to the NMMSS. DOE/NRC Form 741 must be completed in accordance with the instructions in this NUREG and must be submitted in computer-readable format. Instructions for creating the computer-readable submittal are found in NMMSS Report D-24, "Personal Computer Data Input for NRC Licensees."

DOE/NRC Form 741 is used to report physical transfers of nuclear materials between facilities. The report is also used to convey information on transactions such as inventory corrections that otherwise increase or decrease obligation balances or nuclear material categories within a facility.

The NMMSS relies heavily on the quality of the data reported by the facilities involved in nuclear activities. The data submitted to the NMMSS are subject to evaluation according to the restrictions placed on nuclear activity by the policies of various governing agencies of the United States. The NMMSS accepts the data after being verified as acceptable within the restrictions of the system.

¹The term "licensee" here denotes an NRC or Agreement State licensee or an NRC certificate holder.

NRC licensees must provide a DOE/NRC Form 741 to the NMMSS in a computer-readable format following the instructions in this NUREG and NMMSS Report D-24. Both the shipper and the receiver are required to submit DOE/NRC Form 741. The receiver should confirm that the quantity received is consistent with the shipper's report. When statistically significant shipper-receiver differences (SRDs) as defined in 74.31, 74.43, or 74.59 are identified, they must be resolved and their root causes corrected. The regulatory intent is to require material control and accounting (MC&A) systems to promptly detect and resolve all significant SRDs. Comparisons of shippers' and receivers' reports are necessary both to confirm the acceptability of shippers' and receivers' values for establishing the book accounting amounts for received material and to detect unacceptable shippers' or receivers' values. Comparisons typically involve item verification, seal integrity, gross weights, nondestructive assay (NDA) measurements (if appropriate), and destructive measurements (if appropriate).

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1.2 Regulatory Authority

Title 10 of the U.S. Code of Federal Regulations (10 CFR) sets forth reporting requirements for specified activities as follows.

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Reporting transactions for special nuclear material (SNM):

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NRC regulations 10 CFR 72.78, 74.15, 75.34, 76.113, 76.115, 76.117, and 150.16 require, in part, that each licensee who transfers or receives SNM of any origin must complete, in computer-readable format, a DOE/NRC Form 741. This should be done in accordance with instructions in this NUREG document whenever the licensee or certificate holder transfers or receives a quantity of special nuclear material of one (1) gram or more contained U²³⁵, U²³³, or plutonium. Reporting for Pu²³⁸ is to the nearest 1/10th of a gram of the Pu²³⁸ isotope.

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Reporting transactions for source material:

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NRC regulation 10 CFR 40.64 and 10 CFR 150.16 states, in part, that except as specified within those sections, each licensee must complete and distribute a DOE/NRC Form 741 when the licensee in any manner transfers, receives, or adjusts the inventory of source material of foreign obligations by one kilogram or more or imports or exports one kilogram or more of uranium or thorium source material, or who utilizes one kilogram or more of any uranium or thorium source material in enrichment services, downblending uranium that has an initial enrichment of the U²³⁵ isotope of 10 percent or more, or in the fabrication of mixed-oxide fuels. The DOE/NRC Form 741 must be completed in computer-readable format in accordance with instructions in this NUREG and in NMMSS Report D-24. Optionally, If using XML format, reporting of source material to three decimal places may be done, however both the shipper and receiver must report to the same decimal place. If three decimal reporting is being used, then the reporting unit is to the nearest thousandth of a kilogram. For example, 1655 grams may be reported by both the shipper and receiver as 1.655 kilograms. However, for consistency, the licensee must continue to report to the same decimal place for that material type. When reporting source material to three decimal places, both the detail and obligation weight must be reported to the same decimal place.

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Reporting transactions for source material or SNM in accordance with an agreement with the International Atomic Energy Agency (IAEA):

NRC regulation 10 CFR 75.31 requires licensees to complete and distribute DOE/NRC Form 741 for all source material or SNM inventory changes, including shipments, receipts, onsite gains and losses, and any other inventory adjustments. These reports must be in computer-readable format and must be based on the records kept in accordance with 10 CFR 75.22, 75.31, 75.32, 75.33, 75.34, and 75.35.

Compliance with these reporting requirements is achieved by completing a DOE/NRC Form 741 and transmitting it in computer-readable format following the guidance in this NUREG and in NMMSS Report D-24.

In addition, the submission of DOE/NRC Form 741 is normally required as a matter of contract or lease administration for all Government-owned nuclear material transferred (see DOE Orders Series 470, DOE Order 470.4 "Safeguards and Security Program" and DOE M 470.4-6 "Nuclear Material Control and Accountability").

1.3 Reporting/Distribution Requirements

Reports are required whenever nuclear material in the types and amounts stated in the preceding section moves between locations or operations that have been assigned different reporting identification symbols (RISs) and whenever SNM and source material inventories change. The nuclear material change data (including burnup, production, measured discards, and decay) must be documented and reported to the NMMSS before or at the same time as the physical inventory taking, unless another arrangement is authorized by the NRC.

The shipper initiates a DOE/NRC Form 741. If the licensee is involved in a transfer of material with a party that is not required to prepare a DOE/NRC Form 741, the licensee must prepare and submit both the shipper's and the receiver's section of the DOE/NRC Form 741. The most common situation is when a domestic facility is involved in export/import activities. The domestic facility must obtain the information necessary to complete the DOE/NRC Form 741 for the foreign facility for all imports of SNM and source material. The licensee must submit information for the foreign recipient of an export if a significant shipper-receiver difference as defined in 74.31, 74.43, or 74.59 is identified for SNM or for source material if there is an indication of loss, theft, or diversion in quantities delineated in 10 CFR 40.64 (c)(1). Submittal for foreign facility does not indicate a responsibility for the other facility or their shipment/receipt of materials.

 Reports of physical shipments between RISs must document the actual movement of material. In addition, any reportable information associated with the material must also be reported. In particular, the obligation of material by a foreign entity must follow the physical movement of material between RISs. The transfer of obligations between RISs with no physical movement of material is reported by using action codes X and Y.

1.4 Methods for Preparing and Submitting Data to the NMMSS

The Safeguards Management Software (SAMS) is a miniature version of the NMMSS. This software allows the user to import and export data, make edit checks, generate various reports, and create material balance, inventory data, and transaction data. It has the capability to export

data into the required NMMSS predefined computer-readable format outlined in the NMMSS Report D-24. The SAMS program may be obtained from the NMMSS operator free of charge.

There are several automated methods of data submission:

(1) Telephonic Transfers

A licensee may submit the DOE/NRC Form 741 electronically by using a modem. To establish an electronic connection with the NMMSS, licensees must contact the NMMSS security officer to request establishment of a connection with the direct link. If the facility is a valid facility for the type of link requested (classified or unclassified), the security officer provides the requester with the appropriate forms to complete.

Upon receipt of the completed forms, the security officer creates a user ID and password and establishes an account for the facility. The user ID and password are then forwarded to the user facility along with a password acknowledgment form. The licensee signs the acknowledgment form and returns it to the security officer who, then activates the user ID and password.

(2) Data submittals on computer media

NMMSS Report D-24 provides instructions on packaging, data format requirements, acceptable media types, and mailing address for submittal of data on computer media.

(3) New and Modified Methods of Transferring Electronic Data

New and modified methods of transferring electronic DOE/NRC Form 741 data to the NMMSS may be authorized by the NRC. Confirmation of additional methods for the transfer of this data may be obtained by contacting the NMMSS operator.

1.5 Documentation and Distribution

The completed DOE/NRC Form 741, in computer-readable format, must be submitted to the NMMSS operator. Confirm the address and mechanism of providing data to the NMMSS by calling the NMMSS operator. Note that specific submission instructions depend upon whether the DOE/NRC Form 741 is classified or unclassified information. Additional distribution information is contained in Sections 2.3, 3.3, and 4.4 of this NUREG.

Any DOE/NRC Form 741 which is classified must be documented and handled in accordance with all pertinent security requirements. All other submissions that are not classified are considered to be proprietary MC&A information and may be requested to be withheld as defined by 10 CFR 2.390. Each person who is to receive a copy of the report must be verified as a qualified recipient prior to distribution. Please confirm the address prior to sending documents to the NMMSS or other recipients. Also, please formally provide classification guidance to the NMMSS operator after a decision to classify, declassify, or make any change in previously submitted guidance. When submitting "Safeguards Information", a Concise Note Form 740M must be submitted stating that the submission is "Safeguards Information" and should be handled in accordance with 10 CFR 73.21.

2 GENERAL INSTRUCTIONS

2.1 Instructions for Completing DOE/NRC Form 741

If the DOE/NRC Form 741 is reporting an onsite gain or loss, review the instructions for block 6, (ACTION CODE), and the special instructions for the M action code in Section 3 of this NUREG before completing the form.

The numbered instructions below correspond to the numbered blocks on the DOE/NRC Form 741. Each shipper of reportable quantities of SNM or source material (refer to blocks 26n and 26q) must send a DOE/NRC Form 741 to the NMMSS operator and a copy to the receiver's business address no later than the close of business the next working day.

In the case of spent fuel shipments, in accordance with 10 CFR 73.37, the date of shipment is "Safeguards Information" until 10 days after the shipment or the last shipment in a series of shipments is received. Therefore, the DOE/NRC Form 741 should be identified as "Safeguards Information" and a Concise Note Form 740M must be submitted stating that the submission is "Safeguards Information" along with other pertinent information such as if it is a single shipment or as part of a series, including the shipment number and total within the series, and that the information should be handled in accordance with 10 CFR 73.21.

For disposals, the burial site operator must prepare and transmit DOE/NRC Form 741 to the NMMSS to document receipt and disposal. The electronic formats for the DOE/NRC Form 741 are given in NMMSS Report D-24.

2.1.1 Reporting Shipper's Data

The DOE/NRC Form 741 should be completed in accordance with the following instructions.

- 1. <u>SHIPPER'S RIS</u>² Enter the shipper's RIS.
- 2. <u>RECEIVER'S RIS²</u> Enter the receiver's RIS.
- 3. TRANSACTION NUMBER Enter a number for the same shipper-receiver combination. Numbers in the series must be consecutive (i.e., no skipped numbers).
- 4. <u>CORRECTION NUMBER</u> This block is used to identify a transaction which is an adjustment to a previously issued DOE/NRC Form 741. Leave this block blank for an original submission of a DOE/NRC Form 741. Use numbers starting with 1, consecutively, for adjustments. Refer to the NMMSS Report D-24 for field sizes. For corrections requiring only changes to NMMSS data (and not to the other party's data), letters (A, B, etc.) should be used instead of numbers (See Section 4).

² RISs are documented in NMMSS Reports D-2, D-3, and D-15.

i	5.	ROCESSING CODE - Enter processing code A, C, D, or Z.	
2 3	٠ -	A Initial entry of data.	
4 5 6 7		C Replacement of data. With the concurrence of the other party to the transaction, used to an entire data set may be replaced at any time prior to the close of the NMMSS' processing period in which the initial submittal was made.	•
8 9 10 11		Deletion of data. An entire data set may be deleted at any time prior to the close of the NMMSS' processing period in which the initial submittal was made, with the concurrence of the other party to the transaction.	of
12 13 14 15		Z Receiver's acceptance of other party's correction. This processing code can only used with action code D. Receivers reporting per 10 CFR Part 75 may not use the code.	
16 17 18	6.	ACTION CODE - This block is used to identify the type of transaction being reported on the DOE/NRC Form 741 as specified in 6a and 6b below.	n
19 20	6a.	SHIPPER - Enter one of the following action codes:	
21 22 23		A The shipper is reporting a transaction that has taken place between the stated parties.	
24 25 26 27 28		C The shipper is adjusting the initial DOE/NRC Form 741 for the shipment or a previous adjustment to the same initial report, acknowledging an adjustment originated by the receiver, or accepting and agreeing with the receiver's adjustment to the DOE/NRC Form 741. See Section 4 of this NUREG.	nt
29 30 31 32 33 34		M The shipper is reporting a one-party transaction or an adjustment to a one-party transaction (i.e., an onsite gain or loss of material due to burnup, production, measured discards, etc.). Such inventory changes are shown on DOE/NRC Form 742, "Material Balance Report." See Section 3 of this NUREG.	
35 36 37 38 39		R The shipper is identifying a one-party transaction to delete an obligated amount of material from the facility's inventory. This code is applicable only to Former Soviet Union Weapons (WR) material after the fresh low-enriched uranium (LEU) is irradiated in a reactor core. Use of this code implies a removal of "WR" material, therefore the value should be entered as a positive number.	
40 41 42 43		X The shipper is reporting a transfer of obligation that involves no physical movemer of material. No obligation transfers of WR material are permitted. No shipper (section 26) or receiver (section 27) detail data is required to be entered.	nt
44 45	6b.	RECEIVER - Enter one of the following action codes:	
46 47 48 49 50		B The receiver is reporting that a shipment has been received and that the weights reported by the shipper on the DOE/NRC Form 741 were accepted as final receipt values.	t

1 2 3		Ε	The receiver is reporting that a shipment was received, that independent measurements were made, and that the values resulting from the independent measurements are being reported.
4 5 6 7 8 9		D	The receiver is adjusting the initial DOE/NRC Form 741 that documented the receipt of a shipment or a previous adjustment to the same initial report, or acknowledging an adjustment originated by the shipper, or accepting and agreeing with the shipper's adjustment to the DOE/NRC Form 741. See Section 4 of this NUREG.
10 11 12 13		M	The receiver is reporting a one-party transaction or an adjustment to a one-party transaction (i.e., an onsite gain or loss of material due to burnup, production, measured discards, etc.). Such inventory changes are shown DOE/NRC Form 742, "Material Balance Report." See Section 3 of this NUREG.
14 15 16 17 18 19 20		N	The receiver is reporting physical receipt of a shipment but will delay the quantity determinations for the shipment of material for more than 10 days but no more than 60 days for source, and LEU, or no more than 45 days for highly enriched uranium (HEU). At the end of this time the receiver will prepare a DOE/NRC Form 741 with a B or E action code to report the receiver's quantity determinations. Use of this code requires no detail data entry (section 27) by the receiver .
21 22 23 24		Υ	The receiver is reporting an acceptance of transfer of obligation that involves no physical movement of material. No shipper (section 26) or receiver (section 27) detail data is required to be entered.
25 26 27	7.		OCUMENTATION - This block is for paper copy submissions only. Enter the number pages if the submission is CLASSIFIED.
28 29 30	8	<u>S</u>	HIPPER - Leave blank.
31 32	9.	RE	ECEIVER - Leave blank.
33 34 35 36 37	10.	(R sh	JMBER OF DATA LINES - After completing block 26 (SHIPPER'S DATA), or block 27 ECEIVER'S DATA), enter the total number of detail lines in block 26 or 27. The ipper and receiver must report the same number of entries and the material types ust agree line for line.
38 39 40 41	11.	Ch Go	ATURE OF TRANSACTION - Enter an "X" to indicate change of material ownership. nange of material ownership is when the responsibility of the material changes from overnment-Owned (G owner code) to Not Government-Owned (J owner code) or the see versa. Otherwise, Leave blank.
42 43 44	12.	SH	HIPPED FOR ACCOUNT OF - Leave blank.
45 46	13.	SH	HIPPED TO ACCOUNT OF - Leave blank.
47 48	14.	TF	RANSFER AUTHORITY - Leave blank.
49 50	15.		(PORT OR IMPORT TRANSFERS - For all export or import transfers, enter the NRC port or import license number under which SNM or source material is being

transferred. Where transfers are authorized by a NRC general license, enter "GEN-LIC." In some cases the transfer may be exempt from licensing, such as exports of IAEA safeguards samples, then enter "LIC-EXEMPT." If several batches authorized by separate licenses are combined into one shipment, a separate DOE/NRC Form 741 must be completed for the portion associated with each import/export license.

16. MATERIAL TYPE AND DESCRIPTION - Leave blank.

17. <u>LINE NUMBER</u> - Enter a sequential line number beginning with the number 1. Refer to the NMMSS Report D-24 for field sizes.

18. <u>COUNTRY OF OBLIGATION</u> - Enter the two-character country or entity designation from Table 1 in Appendix F for the line numbers entered in block 17. See Appendix F of this NUREG for further instructions.

19. MATERIAL TYPE - Enter the material type to which the obligation is attached. Refer to Table 2 in Appendix F. The only material types to be reported are 10, 20, 50, 70, 81, and 88.

20. OBLIGATED ELEMENT WEIGHT - Enter the weight of the obligated amount of the element. Refer to NMMSS Report D-24 for field sizes. See Appendix F for further instructions. Positive or negative values should be entered to appropriately account for material addition or removal, respectively. Reports with an action code of 'A', 'B', 'E', 'R', 'X', or 'Y' must be reported with a positive weight. All others can be reported with a positive or negative weight. The sum of obligated material for a material type cannot exceed the sum of the weight value listed in the detail lines.

 21. OBLIGATED ISOTOPE WEIGHT - For Enriched Uranium Only - Enter the weight of the obligated amount of the isotope. Refer to the NMMSS Report D-24 for field sizes. For in-place activity, positive or negative values should be entered to appropriately account for material addition or removal, respectively. Reports with an action code of 'A', 'B', 'E', 'R', 'X', or 'Y' must be reported with a positive weight. All others can be reported with a positive or negative weight. The sum of obligated material for a material type cannot exceed the sum of the weight value listed in the detail lines.

22. ACTION DATE - * Follow the instructions below for blocks 22a through 22e.

22a. <u>SHIPMENT</u> (entry required by shipper) - Enter the date the nuclear material is shipped.

22b. <u>SHIPPER'S CORRECTION</u> (entry required by shipper) - If the document is an acknowledgment of or a correction to a previously issued transaction report, enter the date the correction is recorded or the acknowledgment made, as appropriate. However, dates on acknowledgments must not be dated before the action date listed on the receiver's correction. Additionally, be aware if a date prior to the current unreconciled period is used, the affect of the correction will be reflected in the current period, not the prior period(s) covered by post dated documents.

22c. RECEIPT (entry required by receiver) - Enter the date the nuclear material is received.

1 2 3 4	22d.	RECEIVER'S MEASUREMENT (entry required by receiver) - This entry is required only if receiver's action code is E. Enter the date the nuclear material is measured by the receiver.
5 6 7 8 9 10 11	22e.	<u>RECEIVER'S CORRECTION</u> (entry required by receiver) - If the document is an acknowledgment or a correction to a previously issued transaction report, enter the date the correction is recorded or the acknowledgment made, as appropriate. However, dates on acknowledgments must not be dated before the action date listed on the receiver's correction. Additionally, be aware if a date prior to the current unreconciled period is used, the affect of the correction will be reflected in the current period, not the prior period(s) covered by post dated documents.
13 14 15		Note: In the case of all imports (and for some exports, see section 1.3), licensees must complete a separate DOE/NRC Form 741 to document the foreign party action, including action dates in blocks 22a and 22c, as applicable.
16 17 18	23a.	MISCELLANEOUS - Leave blank.
19 20 21	23b.	CONCISE NOTE ATTACHED - Enter an 'X' if a Concise Note is attached. Otherwise leave blank.
22 23 24 25	23c.	<u>UK REPORTABLE</u> - Facilities reporting material transfers involving facilities in the United Kingdom (UK) must indicate in this block whether the shipment is reportable or non-reportable to the IAEA. Check YES for reportable or NO for non-reportable.
26 27		Note: Typically all licensee's shipments to/from the UK are reportable.
28	24.	TOTAL GROSS WEIGHT - Enter the total gross weight of the shipment rounded to the

24. TOTAL GROSS WEIGHT - Enter the total gross weight of the shipment rounded to the nearest kilogram. An approximate or estimated gross weight rounded to the nearest kilogram is acceptable. Make no entry for M action code transactions, receipts, obligation transfers, and correction documents.

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25. TOTAL VOLUME (Waste Transfers Only) - For transfers of nuclear material to nuclear waste sites (i.e., receiver RIS begins with the letter V), enter the volume of the material to be buried, stated in cubic feet rounded to the nearest cubic foot. An entry in block 25 is not required for transfers to nuclear laundry services.

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26. SHIPPER'S DATA - Shipper's data is entered in block 26. Receiver's data is entered in block 27. Receivers should review the additional instructions for block 27 before completing the form.

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Shipper and receiver measurement data are entered on DOE/NRC Form 741 for each batch of material. For licensees reporting pursuant to 10 CFR Part 75 requirements or if the transfer is an import or an export, a batch is a portion of nuclear material that is handled as a unit for accounting purposes at a key measurement point (KMP) and whose composition and quantity are defined by a single set of specifications or measurements. The batch may be in bulk form or contained in a number of separate items. If the shipment is an export or is being reported pursuant to 10 CFR Part 75, fuel assemblies or loose rods or fuel pins must be listed separately with the identifying label serving as a unique batch name. Fuel assemblies can be reported as "average"

enrichment as long as the appropriate accounts (material types 10, 20, 81, etc.) are properly adjusted. Material being transferred may be listed on one line of DOE/NRC Form 741 if the material is all of the same material type, composition, ownership, and weight percent isotope (except as noted in the next paragraph). Material differing in any of these data elements must be listed on separate lines.

Two or more lines may be necessary to describe a single batch (e.g., spent fuel assemblies, mixed oxide fuel). If a batch consists of several types of nuclear material, several consecutive lines should be used to describe the batch. The batch name should be repeated on all lines used to describe a single batch. In block 26e the number of items is also repeated on all lines with the same batch name.

The above general rules for grouping or batching material for reporting purposes are also applicable to licensees reporting imports or exports pursuant to 10 CFR Part 40, 74, or 75. Batch names are optional for other transactions reported pursuant to 10 CFR Part 40 or 74.

26a. <u>BACK REFERENCE NUMBER</u> - Enter the appropriate back reference number adjustments to previously completed DOE/NRC Form 741 documents.

Licensees must enter the back reference numbers for action codes C and D and for action code M when reporting adjustments. Both the back reference change digit and the back reference line number must be reported.

The back reference change digit represents the change digit of the document being corrected for a nullifying entry and the change digit of the document now being completed for a correcting entry. For example, if the DOE/NRC Form 741 being corrected is the original, or if the line being entered represents an addition only, enter 0 (zero).

The back reference line number represents the line number of the line being corrected for a nullifying entry and the line number of the corresponding nullifying line for a correction entry. If the line being entered represents an addition only or represents a net change, enter zeros.

- 26b. <u>LINE NUMBER</u> In providing detailed measurement data, enter a line number beginning with 1 for the first line of detailed shipper's data and increase the line number by one for each additional line of detailed shipper's data entered on the form. When two or more lines of measurement data refer to a single batch, repeat the unique batch name for each line of the batch data. For example, repeat the batch name when different material types of multi-enrichment fuel rods are entered on separate lines or when UF₆ product material and UF₆ heel material in a cylinder are reported on separate lines.
- 26c. <u>TYPE OF INVENTORY CHANGE</u> All changes to inventory that meet the reporting criteria must be reported on DOE/NRC Form 741.

Appendix B explains the ICT codes and indicates whether they are to be entered in block 26c. Enrichment facilities may use the 2 digit numerical value for indicating a change type or as directed by the NRC. When shipping to a "V" RIS, ICT code 74 must be used.

A measured discard can be documented as an onsite transfer, discard to a pond/lagoon, or transferred to a holding area. Discharges to lagoon and movement to holding areas are documented with a suffix attached to the RIS:

- L when material is discarded into a pond or lagoon
- H when material is transferred to a holding area (refer to holding account in the glossary) at the facility pending possible shipment offsite for disposal.

NOTE: Use of a holding or lagoon account requires establishment of account and prior approval by the NRC.

The shipper should enter its RIS in the SHIPPER'S RIS block (block 1) and the same RIS in the RECEIVER'S RIS block (block 2), but append an L or H to the receiver's RIS as appropriate. For example, if a facility with RIS XYZ discards material to a lagoon, the transaction on the DOE/NRC Form 741 would be from XYZ to XYZL.

26d. <u>IDENTIFICATION (ITEM/BATCH NAME)</u> - Enter a name or number, or a combination of both, that identifies the batch of material being shipped. If the licensee is reporting pursuant to 10 CFR Part 75, or if the transfer is an import or export, the shipper or receiver enters a name which identifies a unique portion of nuclear material handled as a unit for accounting purposes. For fuel pins and rods, the batch name should be the identification numbers of the fuel pin or rod.

In the case of an import, the receiver must use the same batch name as the shipper provided the shipper's batch name conforms to the above specifications. If it does not, submit a Concise Note per the instructions (Section 5) explaining the difference. When two or more lines of measurement data refer to a single batch, repeat the unique batch name for each line of the batch data. For example, repeat the batch name when different material types of multi-enrichment fuel rods are entered on separate lines or when UF $_6$ product material and UF $_6$ heel material in a cylinder are reported on separate lines.

- 26e. NUMBER OF ITEMS Enter the number of similar items of which the line entry consists (e.g., cylinders, packs, drums, bird cages, bottles, tank vessels). When reporting fuel pins, rods, or plates, report the number of separate fuel pins, rods, or plates involved. When reporting fuel assemblies, report the number of complete assemblies represented on the line entry. In the case of transfer of bulk material, enter a 1. Leave blank if an M action code is used.
- 26f. PROJECT NUMBER Leave blank.

1 2 3	26g.	MATERIAL TYPE - Enter the appropriate SNM or source material type code from the list below.				
4 5 6			U.S. Code (Domestic Transfers)	IAEA Code (Imports/Exports)	<u>Description</u>	
7			10	D	Depleted uranium	
8			20	EG	Enriched uranium	
9			50	Р	Plutonium	
10			70	EK	U ²³³	
11			81	N	Normal uranium	
12			83³	Pu	Pu ²³⁸	
13			88	Т	Thorium	
14		•	89	To be obtained from IAEA	Uranium in cascade	
15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31	26h.	COMPOSITION/FACILITY CODE - Enter the appropriate code describing the physical form (unencapsulated, encapsulated, etc.) and the chemical form of the material. See Appendix A. If your installation has been notified by letter from the NRC, as provided in 10 CFR 75.11, that it has been identified under the U.S./IAEA Safeguards Agreement, enter the appropriate code from the list developed during the formulation and negotiation of your Facility Attachment (FA) or Transitional Facility Attachment (TFA) provided to you pursuant to 10 CFR 75.8. NOTE: In accordance with 10 CFR 75.11, any change in facility operations or processes that would result in any changes in, additions to, or deletions from the list should be communicated to the NRC in writing, to the extent provided in your license conditions, at least 70 days in advance of the changes so that new composition codes can be assigned. OWNER CODE - This code identifies the ownership of the material at the time it was in				aterial. See 10 CFR ent, enter the ation of your to you s or on the list our license sition codes
32 33 34	26i.	the shi	pper's possession. E	nter the appropriate co		ime it was in
35 36 37		G J	U.S. Government-ow Not U.S. Governmen			
38		Note: F	Refer to the glossary,	Appendix D, for further	description of U.S. Gov	ernment-

 $^{^{3}}$ Report as Pu 238 if the contained Pu 238 is greater than 10% of total Pu by weight; otherwise, report as plutonium.

owned.

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1 2 3 4 5 6 7 8 9 10 11 12 13	26j.	reporting leave to in a for KMPs	IEASUREMENT POINT (KMP) - This data element only applies to licensees ng pursuant to the requirements of 10 CFR Part 75. All other licensees must his block blank. This block is for reporting on a facility where nuclear material is rm that may be measured to determine material flow or inventory. Codes for are identified in the FAs or TFAs developed for those facilities described in the tions for block 26h.					
	26k.	MEASUREMENT IDENTIFICATION (see 26j) - This block applies only to licensees reporting pursuant to the requirements of 10 CFR Part 75 and to those facilities identified in the instructions for 26h. All other licensees must leave this block blank. This block indicates where and when the material was measured. It consists of three parts.						
	26k1.	BASIS	- Enter the pertinent code from the following:					
15 16 17		N	if the batch data are based on measurements made in an IAEA material balance area (MBA) other than the reporting MBA					
18 19 20 21 22 23		L	if the batch data are based on measurements made in another IAEA MBA and have been previously reported by the reporting MBA in a DOE/NRC Form 741, "Nuclear Materials Transaction Report," or a DOE/NRC Form 742C, "Physical Inventory Listing"					
24 25		M	if the batch data are based on measurements made in the reporting IAEA MBA and the data were not previously reported					
26 27 28 29 30 31 32 33		Т	if the batch data are based on measurements in the reporting IAEA MBA and have been previously reported for that MBA on a DOE/NRC Form 741 or a DOE/NRC Form 742C					
	26k2.	26k1,	R MEASUREMENT POINT (OMP) - For batch data designated code M in block enter the code of the KMP where measurements were made if it is different from MP indicated in 26j above. If the same, leave blank.					
34 35 36 37 38	26k3.	same	SUREMENT METHOD - If two or more measurement methods employed at the KMP have a different measurement uncertainty, enter the code for the urement method used, as identified in your FA.					
39 40	261.		SS WEIGHT - Enter the gross weight of the line entry in kilograms of material ed plus tare weight (packaging and shipping container).					
41 42 43 44 45 46 47 48	26m.		VEIGHT - Enter the weight of the material shipped, excluding tare weight, in for SNM and kilograms for source material.					
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26n. <u>ELEMENT WEIGHT</u> - Enter the weight of the contained SNM or source material rounded to the quantities reported below.

<u>Material</u>	Reporting Units
Plutonium or uranium enriched in U ²³⁵ or U ²³³	nearest whole gram
Pu ²³⁸	nearest 1/10 gram
Source material	nearest kilogram⁴

If the quantity to be entered is equal to or greater than 0.5 of the reporting unit, the quantity should be rounded up to the next whole reporting unit. If the quantity to be entered is less than 0.5 of the reporting unit, the quantity should be rounded down to the next whole reporting unit.

260. <u>ELEMENT LIMIT OF ERROR</u> - Limits of error need only be reported by licensees who: are authorized to possess at any time and location SNM in a quantity exceeding one effective kilogram and authorized to use SNM for activities other than those involved in the operation of a nuclear reactor licensed pursuant to 10 CFR Part 50; are involved in a waste disposal operation; or are authorized to possess sealed sources.

Complete when the total shipment contains more than 50 grams of U²³⁵, U²³³, or plutonium, or any combination of these. Enter the limit of error for each element entry using the same weight units as in block 26n, except where the line entry represents: (1) a sealed plutonium-beryllium source; (2) samples each of which has been determined by other means to contain less than 10 grams U²³⁵, U²³³, or plutonium; and (3) reactor-irradiated fuels involved in research, development, and evaluation programs in facilities other than irradiated-fuel reprocessing plants.

Limits of error are to be at the 95% confidence level, propagated by the uncertainties of the weight measurement, the chemical analysis, and the sampling method. Limits of error are not applicable to source material. Licensees making onsite transfers between two different RISs or within the same RIS are exempt from supplying limits of error data for the transfers. Transfers between a license-exempt operation and a licensed operation at the same location are not considered onsite transfers, and limits of error are required.

26p. WEIGHT % ISOTOPE - Enter the weight percent of the isotope U²³⁵ if the uranium is enriched or depleted in U²³⁵. If plutonium, enter the weight percent of the isotope Pu²⁴⁰. If Pu²³⁸, enter the weight percent of the isotope Pu²³⁸. Report weight percent to at least two, but not more than four, decimal places, depending upon the accuracy of the measurement method employed (for example, XX.XXXX%). For U²³³, enter the parts

⁴ Optionally, if using XML format, reporting of source material to three (3) decimal places may be done. When (3) decimal reporting is used to report source material, then the reporting unit is to the nearest thousandth of a kilogram (i.e. 1655 grams will be reported as 1.655 kilograms).

per million of U²³². This block does not apply to natural uranium and thorium. Use separate lines to report material of different enrichments. The Pu and U²³⁵ content of irradiated fuel must be determined and reported upon removal of the spent fuel from the reactor core. Reactor operators may report the total nonfissile isotope instead of Pu²⁴⁰ in this block for spent fuel if the computer codes the operator uses have this limitation.

26q. <u>ISOTOPE WEIGHT</u> - Enter the isotope weight. If enriched uranium or U²³³, enter weight to the nearest gram of U²³⁵ or U²³³ as appropriate. If plutonium, enter the sum of Pu²³⁹ and Pu²⁴¹ to the nearest gram. If Pu²³⁸, enter the weight of the isotope Pu²³⁸ to the nearest 1/10 of a gram. For depleted uranium, enter the isotope weight to the nearest kilogram. Make no entry for other source material.

If the quantity to be entered is equal to or greater than 0.5 of the reporting unit, the quantity should be rounded up to the next whole reporting unit. If the quantity to be entered is less than 0.5 of the reporting unit, the quantity should be rounded down to the next whole reporting unit.

26r. <u>ISOTOPE LIMIT OF ERROR</u> - Limits of error need only be reported by licensees who: are authorized to possess at any one time and location SNM in a quantity exceeding 1 effective kilogram and authorized to use such SNM for activities other than those involved in the operation of a nuclear reactor licensed pursuant to 10 CFR Part 50; who are involved in a waste disposal operation; or who are authorized to possess sealed sources.

Complete when the total shipment contains more than 50 grams of U²³⁵, U²³³, or plutonium, or any combination of these. Enter the limit of error for each element entry using the same weight units as in block 26n, except where the line entry represents: (1) a sealed plutonium-beryllium source; (2) samples each of which has been determined by other means to contain less than 10 grams U²³⁵, U²³³, or plutonium; and (3) reactorirradiated fuels involved in research, development, and evaluation programs in facilities other than irradiated-fuel reprocessing plants.

Limits of error are to be at the 95% confidence level, propagated by the uncertainties of the weight measurement, the chemical analysis, and the sampling method. Limits of error are not applicable to source material. Licensees making onsite transfers between two different RISs or within the same RIS are exempt from supplying limits of error data for the transfers. Transfers between a license-exempt operation and a licensed operation at the same location are not considered onsite transfers, and limits of error are required.

26s. <u>SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED</u> - If submitted on paper, the report must be signed by an authorized representative of the licensee. Otherwise, enter the date submitted. Each licensee must establish internal procedures to ensure that the information provided in the report is accurate and that the report has been prepared and issued only by the authorized licensee personnel.

Proprietary information must be included when necessary to provide an adequate response. An application to withhold such information from public disclosure may be made and will be dispositioned in accordance with the provisions of 10 CFR 2.390. If any of this information is of particular sensitivity, a request may be made that such

information not be transmitted to the IAEA. Such a request must refer to, and must conform with 10 CFR 75.12.

2.1.2 Reporting Receiver's Data

Each receiver of reportable quantities of special nuclear material or source material must acknowledge receipt of shipments in accordance with the following instructions:

- If the receiver plans to accept the shipper's measurement data without making independent measurements (B action code), the receiver must, within 10 days of receipt of the material, submit a DOE/NRC Form 741. There are two options for filling out the form:
 - (1) complete blocks 1 through 25 and put a zero (0) in block 10, or
 - (2) complete blocks 1 through 25, enter the shipper's values in block 26, and repeat the shipper's values in block 27.

Facilities reporting pursuant to 10 CFR Part 75 must use the second option. Dispatch the form in accordance with the instructions in Section 2.3.2.

- If the receiver makes independent measurements (E action code), the receiver must, within 10 days of receipt of the material:
 - (1) complete blocks 1 through 25, enter the shipper's values in block 26, and complete blocks 27a through 27s of the DOE/NRC Form 741.
 - (2) dispatch the form in accordance with the instructions in Section 2.3.2.
- If the receiver intends to make independent measurements within 60 days for source material or LEU, or 45 days for HEU (N action code), unless an exemption is authorized by NRC, the receiver shall, within 10 days of receipt of the material:
 - (1) complete blocks 1 through 23.
 - (2) dispatch the form in accordance with the instructions in Section 2.3.2; and
 - (3) after independent measurements are made, follow the instructions for reporting a B or E action code. If measurements are delayed, they must be completed and reported on DOE/NRC Form 741 within 60 days for source material and LEU and within 45 days for HEU after the receipt of each shipment, except in the case of receipts of scrap and irradiated material.

In the case of a scrap processor receiving several shipments of scrap which are accumulated and processed together, the recovered quantity of material must be prorated to the specific transmittal documents and line entries to maintain the one-to-one correspondence between shipper's and receiver's data.

27. RECEIVER'S DATA - Fill in the receiver's data blocks as follows.

Shipper and receiver measurement data are entered on DOE/NRC Form 741 for each batch of material. For licensees reporting pursuant to 10 CFR Part 75 requirements or if the transfer is an import or an export, a batch is a portion of nuclear material that is handled as a unit for accounting purposes at a key measurement point (KMP) and whose composition and quantity are defined by a single set of specifications or measurements. The batch may be in bulk form or contained in a number of separate items. If the shipment is an export or is being reported pursuant to 10 CFR Part 75, fuel assemblies or loose rods or fuel pins must be listed separately with the identifying label serving as a unique batch name. Fuel assemblies can be reported as "average" enrichment as long as the appropriate accounts (material types 10, 20, 81, etc.) are properly adjusted. Material being transferred may be listed on one line of DOE/NRC Form 741 if the material is all of the same material type, composition, ownership, and weight percent isotope (except as noted in the next paragraph). Material differing in any of these data elements must be listed on separate lines.

Two or more lines may be necessary to describe a single batch (e.g., spent fuel assemblies, mixed oxide fuel). If a batch consists of several types of nuclear material, several consecutive lines should be used to describe the batch. The batch name should be repeated on all lines used to describe a single batch. In block 27e the number of items is also repeated on all lines with the same batch name.

The above general rules for grouping or batching material for reporting purposes are also applicable to licensees reporting imports or exports pursuant to 10 CFR Part 40 or 74. Batch names are optional for other transactions reported pursuant to 10 CFR Part 40 or 74.

- 27a. BACK REFERENCE NUMBER Must match the shipper's value. See26a.
- 27b. <u>LINE NUMBER</u> Must match the shipper's value. See 26b.
- 32
 27c. <u>TYPE OF INVENTORY CHANGE</u> Must match the shipper's value. See 26c.
- 35 27d. <u>IDENTIFICATION (ITEM/BATCH NAME)</u> See 26d.
- 37 27e. <u>NO. OF ITEMS</u> See 26e.

- 39 27f. <u>PROJECT NUMBER</u> See 26f.
- 41 27g. MATERIAL TYPE Must match the shipper's value. See 26g.
- 43 27h. <u>COMPOSITION/FACILITY CODE</u> - See 26h.
- 27i. OWNER CODE This code describes the material ownership at the time it comes into the receiver's possession. See 26i.
- 48 27j. <u>KEY MEASUREMENT POINT</u> See 26j.
- 50 27k. <u>MEASUREMENT IDENTIFICATION</u> See 26k.

1	27I.	GROSS WEIGHT - See 26l.		
2 3	27m.	NET WEIGHT - See 26m.		
4 5	27n.	ELEMENT WEIGHT - See 26n.		
6 7	270.	ELEMENT LIMIT OF ERROR - See 26o.		
8 9	27p.	WEIGHT % ISOTOPE - See 26p.		
10 11	27q.	ISOTOPE WEIGHT - See 26q.		
12 13	27r.	ISOTOPE LIMIT OF ERROR - See 26r.		
14 15	27s.	SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED - See 26s.		
16 17	2.2	Preparation of DOE/NRC Form 741 in Computer-Readable Format		
18 19 20		SS Report D-24 provides instructions for preparing DOE/NRC Form 741 in computer- ble format as required for submittals.		
21		·		
22	2.3	Distribution of DOE/NRC Form 741		
23 24 25	2.3.1	Shipper		
26	Each s	shipper of reportable quantities of SNM or source material must dispatch a DOE/NRC		
27		741, as described below, no later than the close of business the next working day after		
28 29		the shipment. In the case of spent fuel shipments, in accordance with 10 CFR 73.37, the date of shipment is "Safeguards Information" until 10 days after the shipment or the last shipment in		
30		a series of shipments is received. Therefore, the DOE/NRC Form 741 should be identified		
31		guards Information" and handled according to 10 CFR 73.21.		
32				
33	When submitting "Safeguards Information", a Concise Note Form 740M must be submitted			
34 35		that the submission is "Safeguards Information" and should be handled in accordance 0 CFR 73.21.		
36	VVILIT	0 OFN 73.21.		
37	Burial	s are reported when shipped. A DOE/NRC Form 741 must be prepared and transmitted		
38		MSS by the burial site operator to document receipt and disposal.		
39				

Provide a copy, in a mutually agreeable format, to the other party in the transaction.

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Submit one copy in computer-readable format to NMMSS. See Section 1.5 for documentation and distribution of classified and unclassified reports.

Distribute the completed DOE/NRC Form 741 as follows:

46 47 48

• Retain one copy for your file.

1	2.3.2	Receiver	
2 3	Distribute the completed DOE/NRC Form 741 as follows:		
4 5 6		bmit one copy in computer-readable format to NMMSS. See Section 1.5 for cumentation and distribution of classified and unclassified reports.	
7 8	• Re	eturn one copy, in a mutually agreeable format, to the shipper.	
9 10	• Re	etain one copy for your file.	
11	3	INSTRUCTIONS FOR ONSITE GAINS AND LOSSES (M ACTION CODE)	
13 14	3.1	Instructions for Completing DOE/NRC Form 741	
15 16 17	When action code M is used, the DOE/NRC Form 741 should be completed in accordance with the following instructions.		
18 19	1.	SHIPPER'S RIS - Enteryour RIS.	
20 21	2.	RECEIVER'S RIS - Same as in block 1.	
22 23 24	3.	TRANSACTION NUMBER - See the instructions for block 3 in Section 2.1.1 or contact the NMMSS operator for other options.	
25 26	4.	CORRECTION NUMBER - See the instructions for block 4 in Section 2.1.1.	
27 28	5.	PROCESSING CODE - See the instructions for block 5 in Section 2.1.1.	
29 30	6.	ACTION CODE - Enter M in 6a or 6b or both.	
31 32 33	7.	<u>DOCUMENTATION</u> - Enter the number of pages if the submission is CLASSIFIED. This block is for paper copy submissions only.	
34 35	8.	NAME AND ADDRESS OF SHIPPER - Leave blank.	
36 37	9.	NAME AND ADDRESS OF RECEIVER - Leave blank.	
38 39	10.	NUMBER OF DATA LINES - Enter the total number of detail line entries on the form.	
40 41	11.	NATURE OF TRANSACTION - Leave blank.	
42 43	12.	SHIPPED FOR ACCOUNT OF - Leave blank.	
44 45	13.	SHIPPED TO ACCOUNT OF - Leave blank.	
46 47	14.	TRANSFER AUTHORITY - Leave blank.	
48 49 50	15.	EXPORT OR IMPORT TRANSFERS - Leave blank.	

- 1 16. MATERIAL TYPE AND DESCRIPTION - Leave blank. 2 3 LINE NUMBER - See the instructions in Section 2.1.1 for block 17. 17. 4 5 18. COUNTRY OF OBLIGATION - See the instructions in Section 2.1.1 for block 18. 6 7 19. MATERIAL TYPE - See the instructions in Section 2.1.1 for block 19. 8 9 20. OBLIGATED ELEMENT WEIGHT - See the instructions in Section 2.1.1 for block 20. 10 21. OBLIGATED ISOTOPE WEIGHT - For Enriched Uranium Only - See the instructions in 11 Section 2.1.1 for block 21. 12 13 14 22. ACTION DATE - Enter the date of the activity in at least one of blocks 22a through 22e. If more than one block is completed, all dates must be the same. 15 16 17 23. MISCELLANEOUS - Leave blank. 18 19 24. TOTAL GROSS WEIGHT - Leave blank. 20 21 25. TOTAL VOLUME - Leave blank. 22 23 26. SHIPPER'S DATA 24 25 26a. BACK REFERENCE NUMBER - See the instructions in Section 2.1.1for this block. 26 27 LINE NO. - See the instructions in Section 2.1.1 for this block. 26b. 28 29 26c. TYPE OF INVENTORY CHANGE - See Section 2.1.1. 30 31 26d. IDENTIFICATION (ITEM/BATCH NAME) -See Section 2.1.1. 32 33 26e. NO. OF ITEMS - See Section 2.1.1. 34 35 26f. PROJECT NUMBER - Leave blank. 36
- 37 MATERIAL TYPE - See Section 2.1.1. 26g.
- 38 39 26h. COMPOSITION/FACILITY CODE - See Section 2.1.1.
- 41 26i. OWNER CODE - See Section 2.1.1.

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- 42 43 26j. KEY MEASUREMENT POINT - See Section 2.1.1.
- 45 26k. MEASUREMENT IDENTIFICATION - See Section 2.1.1.
- 47 26l. GROSS WEIGHT - See Section 2.1.1.
- 48 49 26m. NET WEIGHT - See Section 2.1.1.

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5 6 7 8 9	26p.	WEIGHT % ISOTOPE - Leave blank for ICT codes MF and EQ unless the material is enriched uranium. For ICT codes LN and TN, report the same weight % isotope as for the beginning of the inventory period. See the instructions in Section 2.1.1 for this block.
10 11	26q.	ISOTOPE WEIGHT - See Section 2.1.1.
12 13	26r.	ISOTOPE LIMIT OF ERROR - Leave blank.
14 15	26s.	SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED - See Section 2.1.1.
16 17	27.	RECEIVER'S DATA - See the instructions in Section 2.1.2 for block 27.
18 19	3.2	Preparation of DOE/NRC Form 741 in Computer-Readable Format
20 21		SS Report D-24 provides instructions for preparing DOE/NRC Form 741 in computer- ole format as required for submittals.

3.3 Distribution of DOE/NRC Form 741

Distribute the completed DOE/NRC Form 741 as follows:

ELEMENT WEIGHT - See Section 2.1.1.

ELEMENT LIMIT OF ERROR - See Section 2.1.1.

- Submit one copy in computer-readable format to NMMSS. (See Section 1.5 for documentation and distribution of classified and unclassified reports.)
- Retain one copy for your file.

4 INSTRUCTIONS FOR CORRECTING A DOE/NRC FORM 741 (C, D, AND M ACTION CODES or Z PROCESS CODE)

Adjustments are independent actions. Either the shipper or the receiver may initiate an adjustment to a DOE/NRC Form 741 reporting the original shipment or receipt of material or an adjustment to any previous adjustment to the original. The other party is required to acknowledge that an adjustment was made, but not required to make the same adjustment to its records.

4.1 Originator

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The originator of the "corrected copy" must:

- Complete blocks 1 through 25, as appropriate, referring to the copy of DOE/NRC Form 741 being corrected.
- Insert in block 26a or 27a of the "did-read" (Was) line, as appropriate, a back reference
 code. If the line of data has not been previously corrected, a zero (0) should be used. If
 previously corrected, the first digit is the correction number (block 4) from the DOE/NRC

Form 741 being corrected. If the line of data has been corrected several times, the most recent correction number should be used. The next two digits are the line number (block 26b or 27b) on the DOE/NRC Form 741 being corrected. The "did-read" line can only reference a line on the original document or a "should-read" line. No two or more "did-read" lines can back reference the same line.

- Complete the did-read line, blocks 26b through j and n through r or 27b through j and n through r, as appropriate, by duplicating the entire line being corrected from the DOE/NRC Form 741 being corrected and indicating the opposite sign (positive or negative) from the original one used in reporting the number of items (block e), element weight (block n), element limit of error (block o), isotope weight (block q), and isotope limit of error (block r).
- Insert in block 26a or 27a of the "should-read" (Should-Be) line, as appropriate, a back reference code that references the corresponding did-read line. The first digit is the correction number of the document being completed. The next two digits are the line number of the corresponding did-read line. The "should-read" line can only reference a did-read line. No two or more "should-read" lines can back reference the same line.

Repeat this procedure until all lines requiring adjustment have been "backed out" and the correct information has been entered.

The did-read and should-read for each line being adjusted should be paired (i.e., consecutive).

One or more changes can be made to each line. Only incorrect lines should be included in a correction report.

If adding a line to the original document, the back reference should be (000) (block 26a or 27a) and pairing is not done.

If a line previously reported is split into two or more lines, one of the should-be lines should back-reference the did-read line and all others should be considered new additions (000).

If a line is to be voided, only a did-read line should be used (no pairing). Examples of an initial report and subsequent correction reports are provided in Appendix C.

4.2 Receiver

Within 10 days, the facility receiving the corrected DOE/NRC Form 741 must either:

- submit a DOE/NRC Form 741 acknowledging the adjustment (which will close a transaction but will not affect the acknowledging party's values), or
- submit a DOE/NRC Form 741 accepting the adjustment or reporting their own adjustment. This closes a transaction and applies the accepted or reported adjustment to the acknowledging party's values.

There is no requirement for both parties to make the same quantity adjustments. However, if both parties choose to adjust on the same corrected DOE/NRC Form 741, they must both report the same number of entries and the material types must agree line for line.

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4.3 Use of the Z Process Code

If the receiving party agrees to all changes for an action code C document, the receiving party may utilize process code Z and action code D. Submit a DOE/NRC Form 741 to report data in blocks 1, 2, 3, 4, and 22. The Z code should be entered in block 5b and action code D in block 6b, and block 22 should be completed. The Z process code may not be used by a licensee reporting per 10 CFR Part 75.

Distribution of Corrections to DOE/NRC Form 741 4.4

The originator should:

- Submit one copy, in a mutually agreeable format, to the other party in the transaction.
- Submit one copy in computer-readable format to NMMSS. (See Section 1.5 for documentation and distribution of classified and unclassified reports.)
- Retain one copy for your file.

Upon receipt of a correction, distribute a completed DOE/NRC Form 741 reporting an acknowledgment, acceptance, or correction as follows:

- Submit one copy to NMMSS. (See Section 1.5 for documentation and distribution of classified and unclassified reports.)
- Return one copy to the originator.
- Retain one copy for your file.

5 INSTRUCTIONS FOR COMPLETING DOE/NRC FORM 740M."CONCISE NOTE"

These instructions apply to all licensees who have been notified by letter from the NRC, as provided in 10 CFR 75.11, that their installations have been identified under the U.S./IAEA Safeguards Agreement. FAs or TFAs for such installations may specify circumstances under which Concise Notes must be submitted to the IAEA as attachments to other reports. These facilities should use DOE/NRC Form 740M to explain to the foreign state where the IAEArequired data items appear.

Licensees who's reporting is determined to be safeguards information, must submit a concise note as discussed in section 1.5, Documentation and Distribution.

These instructions also apply to importers who for any reason cannot use the same batch name as the shipper. If the shipper fails to supply a batch name, the importer should supply a batch name and attach a Concise Note to that effect.

In some cases, it may be desirable to provide additional explanatory information with reports.

DOE/NRC Form 740M, "Concise Note," is used to submit this information. A DOE/NRC Form 740M may be attached to a DOE/NRC Form 741, "Nuclear Material Transaction Report"; to a DOE/NRC Form 742, "Material Balance Report"; to a DOE/NRC Form 742C, "Physical Inventory Listing"; or to a stand-alone Concise Note for facilities reporting under 10 CFR Part 75.

The numbered blocks of the DOE/NRC Form 740M should be completed as follows:

1. NAME AND ADDRESS - Leave blank.

2. <u>ATTACHMENT TO</u> - Place an 'X' in the appropriate box to indicate this explanatory information will be attached to a DOE/NRC Form 741

When attaching the Concise Note to a DOE/NRC Form 742 or 742C, enter the number one (1) for the first Concise Note attached to the particular DOE/NRC 742 or 742C. When issuing an additional Concise Note for a particular DOE/NRC 742 or 742C, enter the next sequential number (2-9) of the Concise Note.

3. <u>RIS</u> - Enter the reporting identification symbol (RIS) to which the explanatory information in this report applies.

 4. <u>REPORTING PERIOD</u> - Complete this block only when the Concise Note is attached to a DOE/NRC Form 742, "Material Balance Report," or a DOE/NRC Form 742C, "Physical Inventory Listing." Enter the beginning and ending dates of the reporting period as shown on the Form 742.

 5. TRANSACTION DATA - Complete this block only when the Concise Note is attached to a DOE/NRC Form 741, "Nuclear Material Transaction Report," or if a stand-alone Concise Note is submitted. Copy the requested data from the DOE/NRC Form 741. All entries in this block must be identical to those on the DOE/NRC Form 741. Fill in the blocks as follows.

5A. <u>SHIPPER'S RIS</u> - Enter the RIS of the shipper.

5B. RECEIVER'S RIS - Enter the RIS of the receiver.

38 5C. <u>TRANSACTION NUMBER</u> - Enter the unique transaction number. 39

5D. <u>CORRECTION NUMBER</u> - If the DOE/NRC Form 741 is a correction to a previous report, enter the correction number.

5E. PROCESSING CODE - Insert the same code used in DOE/NRC Form 741.

5F. <u>ACTION CODE</u> - If a Form 740M is used with a DOE/NRC Form 741, enter the same action code as on the DOE/NRC Form 741, block 7; otherwise enter action code M.

48 6. REPORTING DATE - Complete this block if the Concise Note is attached to a
49 DOE/NRC Form 741 or 742C. Copy the date shown on the DOE/NRC Form 741 or
50 742C.

 7C. <u>TEXT OF CONCISE NOTE</u> - Enter any 43 letters, numbers, or special characters per line. Up to 99 lines of text may be used for any one explanation.

Form 741 or 742C, copy the batch name exactly as it appears on the Form 741 or 742C.

If the explanation applies to a specific material balance category on a Form 742, enter

the two-digit number of the material balance category. Additionally, if the explanation

relevant line of the Form 742. If the explanation applies to categories 22 or 71, enter

the two-character ICT as shown on the relevant of the Form 742. If the Form 740M

applies to material balance categories 11, 30, 42, 43, or 51, enter the RIS shown on the

- 8. <u>SIGNATURE</u> The DOE/NRC Form 740M must be signed by an authorized representative of the licensee. See the instructions in Section 2.1 for block 26s.
- 9. <u>TITLE</u> Enter the title of the person signing the form.
- 10. <u>DATE</u> Enter the date the form was signed.

action code is M, enter "General."

DOE/NRC Form 740M should be put into computer-readable format following the additional guidance in NMMSS Report D-24.

Copies of the Form 740M must be attached to, and distributed with, the DOE/NRC Form 741, 742, or 742C to which the Form 740M applies.

6 DOE REPORTING REQUIREMENTS FOR PROPRIETARY INTERESTS OF THE GOVERNMENT

NRC licensees are responsible for routinely reporting to NMMSS, all DOE-owned, -loaned, or -leased material in their possession as prescribed in DOE Orders Series 470.4"Safeguards and Security Program," and DOE M 470.4-6 "Nuclear Material Control and Accounting for U.S. GOVT-owned material holdings."

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APPENDIX A

COMPOSITION CODES

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COMPOSITION CODES

The codes listed below are for use in completing blocks 26h or 27h on DOE/NRC Form 741. If your installation has been notified by letter from the NRC, as provided in 10 CFR 75.11, that it has been identified under the U.S./IAEA Safeguards Agreement, enter the appropriate code from the list developed during the formulation and negotiation of your Facility Attachment or Transitional Facility Attachment (after the document has been provided to you under 10 CFR 75.8).

Note: In accordance with 10 CFR 75.11, any change in facility operations or processes that would result in any changes to, additions to or deletions from the list should be communicated to the NRC in writing, to the extent provided in your license conditions, at least 70 days in advance of the changes so that new composition codes can be assigned. For additional composition codes see NMMSS Report D-25 and American National Standard Institute (ANSI) Codes Report D-50A-109.

UNENCAPSULATED (except scrap)

 <u>Code</u>

U₃O₈ (Oxide product)

UO₃ (Trioxide product)

Carbides

Other oxides product (For all oxides not otherwise identified)

Tetrafluorides (Tetrafluoride product)

UF₆ (Hexafluoride product)

Enriching process

Hexafluorides—in Enriching Process

Uranium in cascades—Holdup

 Hexafluoride Product

UF₆ Feed

UF, heels

In Reactor product

Nitrate Solutions product

Acetate Solutions product

1 2	701	Unalloyed Metal product
3	702	Alloyed Metal product
4 5	771	Samples and Standards
6 7	637	Sintered Products
8 9		UNENCAPSULATED SCRAP (for recovery)* +
10 11	375	Irradiated Recyclable Fuel
12 13		WASTE (for disposal)
14 15	Waste	e material should be described by an appropriate scrap category.*
16 17		ENCAPSULATED
18 19	291	Fabricated Fuel Elements (pins, rods, plates)
20 21	309	Fuel assemblies (Assembled items product)
22 23	481	Sealed sources (Fabricated Sources Product)
24 25		OTHER
26		
27 28	776	Other Products
29 30	E04	Miscellaneous Noncombustibles (Uranium)
31	N I 1 -	
32 33		U/Th and Pu/U mixed oxide fuels should be reported either as fuel elements (code 291) fuel assemblies (code 309) as applicable.
34 35	Repo	rt the different material types in the mixed oxide fuels on separate lines.
36 37		
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42	* ^	vion National Ctandard Institute and or for all tanking agent parts by used in the cattle and
43 44	^Ame codes	rican National Standard Institute codes for plutonium scrap may be used in lieu of these
44 45		ere a number of dissimilar items of scrap are put into the same container, use the
46		osition code for the predominant scrap category.
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13	ADDENDIV D
14	APPENDIX B
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16	INVENTORY CHANGE TYPE CODES FOR COMPLETING BLOCKS 26c AND
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18	27c OF DOE/NRC FORM 741
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INVENTORY CHANGE TYPE CODES

All inventory change type (ICT) codes on transaction reports consist of two alphabetic or numeric characters. The accounting entry type codes used on Material Balance Reports (MBRs) consist of two digits. In the following pages the number(s) in parentheses following the alphabetic code represent the MBR line for which the transaction entries correspond. The standard inventory changes and other entry type are listed below. In transaction reports, all transactions and operations are understood to be related to individual batches. In MBRs. corresponding the same codes denote consolidated entries; i.e., the sums of all individual operations with the same code over the material balance period. In addition, MBRs include entries related to inventory data and adjustments not reported on transaction reports.

Gains or losses of material which occur based on the total inventory or in which individual effects to inventories by country of obligation code cannot be determined, should be reported as a loss to all country obligation balances by applying a one to one ratio by percent of the country of obligation to the amount of inventory affected to the amount of inventory change. For example, if decay is reported for plutonium within a reactor and the plutonium balance represents several different country of obligation balances the following calculations would determine the amount of decay to apply to each country of obligation code balance.

	<u>Element</u>	<u>Isotope</u>
Amount of inventory for which decay applies	1,202, 239	950,947
Calculated decay for the period	998	998

Balance by Country Obligation Code

OBLIGATION CODE	ELEMENT	<u>ISOTOPE</u>	% Ratio to Total Inventory
33	200,000	158,196	200,000/1,202,239 = .166 x 100 = 17%
34	509,321	402,863	509,321/1,202,239 = .424 x 100 = 42%
32	492,918	<u>389,888</u>	492,918/1,202,239 = .410 x 100 = <u>41%</u> 100%
Total Pu Balance	1,202, 239	950,947	

Amount of decay to apply to each country of obligation code balance

33	998 x 17% = 169.66 rounded to the nearest gram = 170
34	998 X 42% = 419.16 rounded to the nearest gram = 419
32	998 x 41% = 409.18 rounded to the nearest gram = 409 998

The following should also be followed used for the isotope balances.

TRANS. MBR CODE LINE		QUIREMENT FOR OCKS 26c AND 27c
EQ (76)	Exemption of nuclear material from safeguards pursuant to Article 37 of the Agreement (Licensees subject to 10 CFR Part 75 only)	Entry required only notification by NRC
TU (76)	Termination of safeguards on nuclear material pursuant to Articles 13 and 35 of the Agreement (Licensees subject to 10 CFR Part 75 only)	Entry required only notification by NRC
LA (75)	Irretrievable and inadvertent loss of a known quantity of nuclear material as the result of an operational accident	Entry required by licensee
GA (75)	Nuclear material unexpectedly found to be present in the MBA, except when detected in the course of a physical inventory taking. Gains should be reported as a negative value.	Entry required by licensee
DI (N/A)	The difference between the batch quantity reported as received (always on shipper's data) and the quantity of the same batch as measured by the operator of the receiving MBA (Licenses subject to 10 CFR Part 75 only)	Make no entry
RM (N/A)	The quantity by which the batch mentioned in the entry is diminished in cases of rebatching (Licensees subject to 10 CFR Part 75 only)	Licensee entry required if applicable
RP (N/A)	The quantity of material added from another batch to the batch mentioned in the entry (Licensees subject to 10 CFR Part 75 only)	Licensee entry required if applicable

RANS. MBR CODE LINE		REQUIREMENT FOR BLOCKS 26c AND 27c
EN ED NE ND DE DN EE (22, 71)	Category Change - The quantity of uranium which has changed category as a result of blending, enrichment, depletion, or burnup. The first letter denotes the original, the second letter the resulting category (E=enriched, N=natural (or "normal"), D=depleted uranium, EE=change of enrichment). The material type codes show be those for both the original and the resulting material. The weight data should provided both for the originating and for the resulting category.	licensee
	These entries should be consolidated into t material balances for both categories. For any of these changes line pairing is require one line denotes the original material and the other denoting the resulting material.	d,
(22, 71)	Enrichment facility may use the 22-71 combination to report changes in material type associated with enrichment activities for material types 10, 20, 81, and 89 or as directed by the NRC.	or
MF (77)	Inventory difference: this should be calcular as the difference between the book inventor and the ending physical inventory. Must not be used by Reactors	ry licensee
PB (N/A)	Beginning physical inventory: it should be equal to the ending physical inventory of the previous MBR relating to the same material	
BA (83)	The algebraic sum of the beginning physical inventory and of the inventory changes over the period, adjusted to take account of the shipper-receiver differences	, , ,
PE (N/A)	The sum of all measured and derived batch quantities of nuclear material on hand on the date of the physical inventory taking. These entries should be consolidated	1 - 7 - 1 7

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12	APPENDIX C
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14	EXAMPLE DOCUMENTATION OF SHIPPER AND RECEIVER DATA
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16	(BLOCKS 26 AND 27)
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1 2 3			SHIPPER AND R LOCKS 26 AND 2	
4	EXA	MPLE 1 - INITIAL REPORT		
5 6 7	On M	lay 16, 2002, shipper XXX transferr	ed to receiver XXY	fabricated fuel elements containing:
8	Line	2	Element	<u>Isotope</u>
9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 42 42 42 42 42 42 42 42 42 42 42 42	1 2 3 4 On M weight These EXA On EXA On EXA On EXA On EXA On EXA On SEXA On SEXA On M These EXA On M	natural uranium 1.7080% enriched uranium 2.0110% enriched uranium 2.2180% enriched uranium May 23, 2002, receiver XXY acknow hts without further measurement. se transactions were reported on XX MPLE 2 - CORRECTION 1 July 30, 2002, the shipper corrected sted element weights of 3 and 9220 correction was reported on XXX/XX MPLE 3 - CORRECTION 3	2 kg 5,429 g 8,220 g 5,469 g fledged receipt of the first of the flement weight of the flement weight of the flement and flement flement and flement flement and flement flement and flement	93.00 g 65.00 g 21.00 g see shipment and accepted the shipper's sts for lines 1 and 3 to reflect the state of the weight percent isotope on line roduction.
43 44 45 46 47		ed. MPLE 6 - INITIAL REPORT May 30, 2002, shipper XXX transfer	red material to rece	eiver RYYY.
48 49				

1	EXAN	IPLE 7 - CORRECTION 1		
2 3 4 5	Corre	ay 30, 2002, the shipper realized ction one was issued to negate 26a is 001.	•	er was incorrect (block 15). e back reference number listed in
6 7 8	EXAM	IPLE 8 - CORRECTION 2		
9 10 j		ction 2 was issued showing the vere listed on the initial report. T		5. Block 26 values are restated as er listed in block 26a is 101.
11 12 13	Match	ning correction documents would	d be required for the recei	ving facility.
14 15	EXAN	MPLE 9 - INITIAL REPORT (with	a single foreign obligatio	n)
16 17	On Ja	anuary 1, 2002, shipper XXX tra	nsferred natural uranium t	to receiver YYY:
18 19	<u>Line</u>		<u>Element</u>	<u>Isotope</u>
20 21	1	natural uranium	12,008 kg	
22 23		anuary 1, 2002, receiver YYY ac er's weights without further mea		e shipment and accepted the
24 25	These	e transactions were reported on	XXX/YYY/1.	
26 27	EXAN	MPLE 10 - WR MATERIAL (no f	oreign obligation)	
28 29 30	On Ja	anuary 1, 2002, shipper RYYY ti	ransferred enriched uraniu	um to receiver YYY:
31 32	<u>Line</u>		Element	Isotope
33 34	1	UF ⁶ cylinder	1,500,000 kg	74,250
35 36 37		anuary 7, 2002, receiver RYYY a er's weights without further mea		he shipment and accepted the
38 39	Thes	e transactions were reported on	RYYY/YYY/1.	
40 41	EXA	MPLE 11 - INITIAL REPORT (m	ultiple foreign obligations)	
42 43	On Ja	anuary 1, 2002, shipper RYYY t	ransferred enriched uranic	um to receiver YYY:
44	Line		<u>Element</u>	<u>Isotope</u>
45	1	UF ⁶ cylinder	1,400,000 kg	61,600
46	2	UF ⁶ cylinder	1,450,000 kg	62,350

1,500,000 kg

66,000

UF⁶ cylinder

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1 2 3		0, 2002, receiver YYY acknowledged receipt of the shipment and accepted the phts without further measurement.
4 5 6 7	These transac	ctions were reported on RYYY/YYY/2.
7 8 9	List of Examp	l <u>es</u> :
10 11	Example 1:	DOE/NRC Form 741 - Initial report
12 13 14	Example 2:	DOE/NRC Form 741 - Correction 1 (shipper adjusting lines 01 and 03 of the initial transaction)
15 16	Example 3:	DOE/NRC Form 741 - Correction 3 (receiver adjusting line 02 of the initial report)
17 18	Example 4:	DOE/NRC Form 741 - Initial report (action code M)
19 20	Example 5:	DOE/NRC Form 741 - Correction 1 (action code M)
21 22	Example 6:	DOE/NRC Form 741 - Initial report
23 24	Example 7:	DOE/NRC Form 741 - Correction 1
25 26	Example 8:	DOE/NRC Form 741 - Correction 2
27 28	Example 9:	DOE/NRC Form 741 - Initial report (single foreign obligation)
29 30	Example 10:	DOE/NRC Form 741 - Receipt of WR material (no foreign obligation)
31 32 33 34 35	Example 11:	DOE/NRC Form 741 - Receipt of source material (with foreign obligation)

DOE/NRC FORM 741

(4-2005) Previous editions are obsolete MANDATORY DATA COLLECTION

U.S. DEPARTMENT OF ENERGY

AND U.S. NUCLEAR REGULATORY COMMISSION Estimated burden per response to comply with this mandatory collection request: 1 hour and 15 minutes. This information is required for IAEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records and FOIA Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0003), Office of Management and Budget. control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information

APPROVED BY OMB: NO. 3150-0003

AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150. Public Laws 83-703, 93-438, 95-91 **NUCLEAR MATERIAL TRANSACTION REPORT** Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB I. SHIPPER'S RIS 2. RECEIVER'S RIS 3 TRANSACTION NO 4 CORRECTION NO 5 PROCESSING CODE B ACTION CODE 7 DOCUMENTATION (Only if document is classified SECRES) XXX XXY A SHIPPER B RECEIVER A . SHIPPER Α b RECEIVER В PAGE PAGES COPY COPIES SERIES NAME AND ADDRESS b. LICENSE 9.8 NAME AND ADDRESS OF RECEIVER LICENSE NO. 10 NO OF DATA LINES 8 11 NATURE OF TRANSACTION DISTRIBUTION OF COPIE 12 A. SHIPPED FOR ACCOUNT OF LIA SHIPPED TO ACCOUNT OF h RIS RIS ATTENTION & ATTENTION d LEFENONE 14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER 15. EXPORT OR IMPORT TRANSFERS: LICENSE NO 16. MATERIAL TYPE AND DESCRIPTION 19 OBLIGATED ISOTOPE WEIGH! For Enriched Uranium Onl LINE COUNTRY OF MATERIAL TYPE OBLIGATED ELEMENT WEIGHT 22 ACTION DATE SHIPMENT 05 76 2002 23a. MISCELLANEOUS h CONCISE NOTE ATTACHED SHIPPER'S CORRECTION YES NO RECEIPT 105 23 200) c. UK REPORTABLE? RECEIVER'S MEASUREMEN RECEIVER'S CORRECTION 25 TOTAL VOLUME (Waste Transfers Only) IDENTIFICATION BACK REFERENCE NUMBER GROSS WEIGH NET WEIGH FACILITY CODE ELEMEN' ELEMENT LIMIT OF ERROR MEIGHT ISOTOPE LIMIT OF LERRON CODE KEY MEAS. DATA 01 Fab Fuel Ele - 1 81 291 2 SHIPPER'S 02 Fab Fuel Ele - 1 20 291 4480 2770 5429 3 1.7080 93 03 Fab Fuel Ele - 2 20 291 7380 4350 8220 4 2.0110 65 04 Fab Fuel Ele - 3 1 20 291 6237 3272 5469 3 2.2180 21 26. 26s. SHIPPER'S DATA SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED 27s. RECEIVER'S DATA 0918102 05 DATA Fab Fuel Ele - 1 81 291 IJ 01 2 S 02 Fab Fuel Ele - 1 1 20 291 4480 2770 5429 3 1.7080 93 **EIVER**' 03 Fab Fuel Ele - 2 20 291 7380 4350 8220 4 2.0110 65 04 Fab Fuel Ele - 3 20 291 6237 3272 5469 3 2.2180 21 REC

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

EXPIRES: 04/30/2008

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U.S. DEPARTMENT OF ENERGY APPROVED BY OMB: NO. 3150-0003 EXPIRES: 04/30/2008 DOE/NRC FORM 741 (4-2005) Previous editions are obsolete MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, Estimated burden per response to comply with this mandatory collection request: 1 hour and 15 minutes. This AND information is required for IAEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records and FOIA Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocullects@nrc.gov, and to the Desk U.S. NUCLEAR REGULATORY COMMISSION Public Laws 83-703, 93-438, 95-91 Officer, Office of Information and Regulatory Affairs, NEOB 10202, (3150-0003), Office of Management and Budget Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB **NUCLEAR MATERIAL TRANSACTION REPORT** control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information 1 SHIPPER'S RIS 2 RECEIVER'S RIS 3 TRANSACTION NO. 4 CORRECTION NO 5 PROCESSING CODE 8 ACTION CODE 7 DOCUMENTATION (Only if document is classified SECRET) XXX & RECEIVER COPIES | SURIES XXX 2 A SHIPPER Α D RECEIVER a SHIPPER M PAGE PAGES COPY 9 a NAME AND ADDRESS OF RECEIVER # NAME AND ADDRESS P LICENSE LICENSE 10 NO OF DATALINES II NATURE OF FRANSACTION 5 N 12.4. SHIPPED FOR ACCOUNT OF (3 & SHIPPED TA ACCOUNT OF h RIS ti Bis c. ATTENTION S ATTENTION TELEPHONE d TELEPHONE 14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER 15 EXPORT OR IMPORT TRANSFERS LICENSE NO 16 MATERIAL TYPE AND DESCRIPTION OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only MATERIAL TYPE OBLIGATED LINE COUNTRY OF DAY YEAR (OD) (YYYY 22 ACTION DATE 09 30 2002 23a MISCELLANEOUS SHIPPER'S CORRECTION H CONCISE NOTE ATTACHED RECEIPT YES NO I RECEIVER'S MLASUREMENT RECEIVER'S CORRECTION ISOTOPI LIMIT OF LIRROR IDENTIFICATION (ITEMBATCH NAME) PROJECT BACK REFERENCE NUMBER LINE NO OF COMP/ FACILITY CODE CODE KEY MEAS DAT 01 TN 50 309 170 28.25 170 Decay 28.25 419 TN 50 309 419 02 Decay SHIPPER'S 50 309 409 28.25 409 03 TN Decav 26. NUREG/BR-0006, SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED 26s. SHIPPER'S DATA 27s. RECEIVER'S DATA 09/30/02 RECEIVER'S DATA 22000 50 36000 28.25 309 04 Production 70000 28.25 63000 50 309 05 Production Rev. 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

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EXAMPLE 5: CORRECTION (Action Code M)

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

APPROVED BY OMB: NO. 3150-0003

EXPIRES: 04/30/2008

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NUREG/BR-0006, Rev.

DOE/NRC FORM 741

(4-2005) 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: 04/30/2008

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EXAMPLE 7: CORRECTION 1 DOE/NRC FORM 741 APPROVED BY OMB: NO. 3150-0003 U.S. DEPARTMENT OF ENERGY NUREG/BR-0006 Estimated burden per response to comply with this mandatory collection request: 1 hour and 15 minutes. This information is required for IAEA accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records and FOIA Privacy Services Branch (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0003), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB AND MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, U.S. NUCLEAR REGULATORY COMMISSION Public Laws 83-703, 93-438, 95-91 **NUCLEAR MATERIAL TRANSACTION REPORT** control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection 1 SHIPPER'S HIS 2 RECEIVER'S RIS 3 TRANSACTION NO 4 CORRECTION NO 5 PROCESSING CODE 6 ACTION CODE 7. DOCUMENTATION (Only if document is classified SECRE!) XXX RYYY 200 . b RECEIVER * SHIPPER C H RECEIVER PAGE PAGES NAME AND ADDRESS OF SHIPPER h. LICENSE 9 4 NAME AND ADDRESS OF RECEIVER h LICENSE ID NO OF DATA LINES 11 NATURE OF TRANSACTION Rev 13 A SHIPPED TO ACCOUNT OF AFTENTION c. ATTENTION TELEPHON 14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER 15 EXPORT OR IMPORT TRANSFERS: LICENSE NO XSNB-BB1 16. MATERIAL TYPE AND DESCRIPTION 20 OBLIGATED ISOTOPE WEIGHT For Enriched Granium Or COUNTRY OF OBLIGATION OBLIGATED ELEMENT WEIGH SHIPMEN 23a. MISCELLANEOUS b. CONCISE NOTE ATTACHED YES NO FRECEIVER'S MEASUREMENT 24. TOTAL GROSS WEIGH 10 IDENTIFICATION NO OF BACK HEFERENCE NUMBER PROJECT DATA Misc MTL EG : 291 001 01 -5 -5000 1.7080 SHIPPER'S SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED SHIPPER'S DATA SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED 27s. RECEIVER'S DATA /30 /OL DATA S EIVER'

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EXPIRES: 04/30/2008

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DOE/NRC FORM 741

(4-2005) 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: 04/30/2008

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

APPROVED BY OMB: NO. 3150-0003

EXPIRES: 04/30/2008

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NUREG/BR-0006, Rev

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RGY APPROVED BY OMB: NO. 3150-0003

EXPIRES: 04/30/2008

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NUCLEAR MATERIAL TRANSACTION REPORT

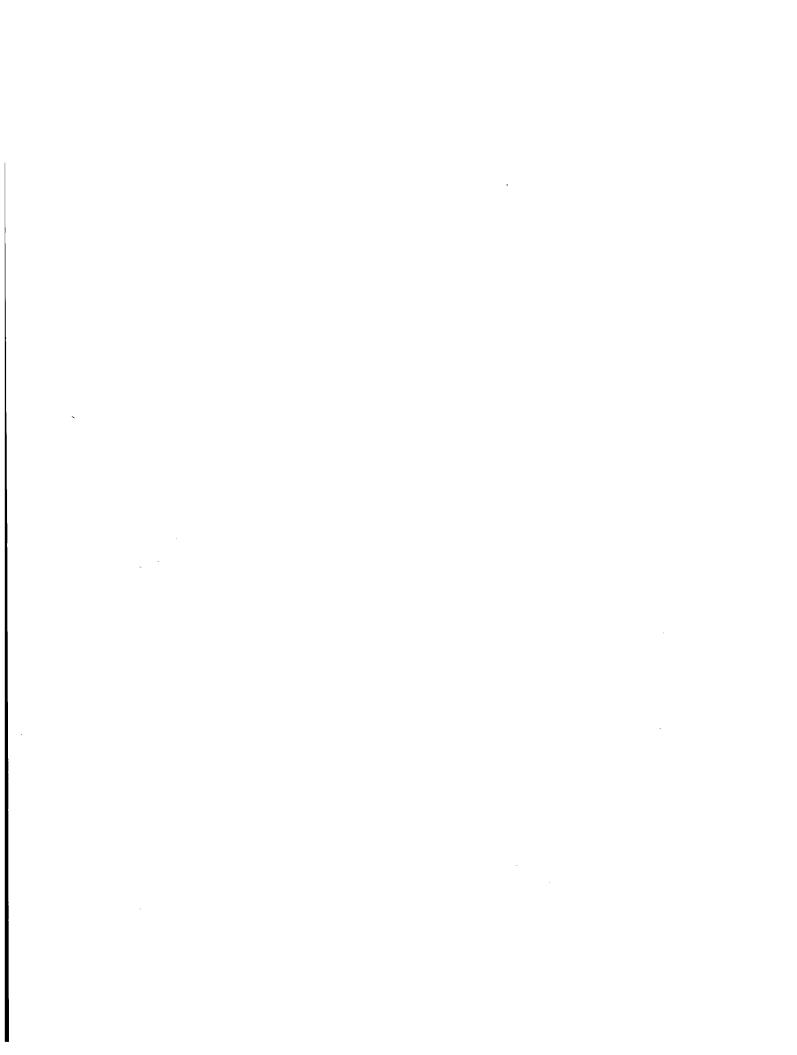
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APPENDIX D

GLOSSARY



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Accountability—The determination of, and current record maintenance of, special nuclear material (SNM) and source material quantities associated with transfers, measured discards, inventories, and inventory differences that might result from theft, diversion, or other unidentified loss mechanisms.

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51 52 53 Agreement State—Any State of the U.S. with which NRC, or its predecessor, the Atomic Energy Commission, has entered into an agreement under Section 274b of the Atomic Energy Act of 1954, as amended.

Book Inventory—The algebraic sum of the most recent physical inventory of the material balance area and of all inventory changes that have occurred since the physical inventory was taken.

Concise Note—Additional nuclear material transaction, material balance, or inventory data supplied, in free text format, by facilities engaged in the import and/or export of nuclear materials, by facilities selected under the provisions of the Agreement between the United States of America and the IAEA for the application of safeguards in the U.S./IAEA Safeguards Agreement, or by an facility that would like to transmit any additional explanatory nuclear material information. EURATOM—As of May 2004, an organization consisting of the following member countries: Austria, Belgium, Cyprus, Czech, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, the Netherlands, Poland, Portugal, Slovak Republic, Slovenia, Spain, Sweden, and the United Kingdom.

Foreign obligated nuclear material—Source material or special nuclear material which is subject to the terms and conditions of an Agreement that the U.S. Government has entered into with another government or group of governments.

Highly enriched uranium (HEU)—Uranium enriched to 20 percent or greater in the isotope uranium-235.

Holding Account—Holding accounts are typically identified by four character reporting identification symbols (RIS) ending in the letter "H" assigned by NRC. Also some enrichment facilities have holding accounts identified by three character RISs beginning with the letter "V". Regardless of the RIS, these accounts usually acquired inventory from the shipment of licensed material from the primary RIS in use at the licensee. Typically these accounts have been used by a small number of licensees for nuclear materials not expected to be immediately processed, reprocessed, or disposed of. However the licensed nuclear materials in holding accounts are still in the licensee's possession and must be included in inventories reported to NMMSS.

Inventory difference (ID)—The arithmetic difference between a book inventory and the corresponding physical inventory that closes the material balance period. It is calculated by subtracting the ending inventory (EI) and removals from inventory (R) from the beginning inventory (BI) and additions to inventory (A) during the period between physical inventories. Mathematically ID can be expressed as:

$$ID = (BI + A - R) - EI$$

where (BI + A - R) is the book inventory.

Inventory reconciliation—The adjustment of the book record quantity of both elements and fissile isotopes to reflect the results of a physical inventory. In a broad sense, inventory reconciliation involves the activities of calculating (1) the ID for the material balance period in question, (2) the

uncertainty value associated with the ID, (3) the active inventory for the period, and (4) any bias adjustment and/or prior period adjustment associated with the ID value.

Low-enriched uranium (LEU)—Uranium enriched below 20 percent in the isotope uranium-235.

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Material balance period—The time span to which a material or physical inventory pertains.

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Nuclear Materials Management and Safeguards System (NMMSS)—The national database and information system for select nuclear materials controlled by the U.S. Government. This system was created to support national safeguards and management objectives in domestic and international programs. The system stores data on nuclear material transactions and inventories, and produces a wide range of printed reports for use by DOE and NRC and those the licensees they regulate. The system is used to satisfy the nuclear materials information requirements of agreements between the U.S. and foreign entities. In addition, the system provides the reporting interface between facilities selected under the provisions of the U.S./IAEA Safeguards Agreement.

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Physical inventory—A physical determination of the quantity of nuclear material on hand at a given time. The methods of physical inventory and the associated measurements vary, depending on the material to be inventoried and the process involved. A book inventory between physical inventory takings can be determined based on the physical inventory quantity from the prior period together with all subsequent inventory changes associated with the determination of that book inventory. The primary purpose of a physical inventory is to confirm the absence of (or to detect) a loss, theft, or diversion of SNM.

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Report Period--The report period is inclusive of defined dates (i.e., Oct. 01, 2005 through Sept. 30, 2006.) Reports for a reporting period, such as inventory, material balance, and related transactions reports must assure that there are not any undocumented dates between the previous and current submittals.

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Reporting identification symbol (RIS)—A unique combination of three or four letters which is assigned to each reporting organization by the Department of Energy or the NRC for the purpose of identification in the NMMSS database.

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Shipper-receiver difference (SRD)—The difference between what a shipper claims was contained in a shipment of SNM and what the receiver claims was received, where both the shipper's and receiver's values are based on measurement.

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Source material—Uranium or thorium, or any combination thereof, in any physical or chemical form; or ores that contain by weight one-twentieth of 1 percent (0.05%) or more of uranium, thorium, or any combination thereof. Source material includes depleted uranium and natural uranium, but not special nuclear material.

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Special nuclear material (SNM)—Plutonium, uranium-233, and uranium enriched in the isotope 233 or 235; any other material that the NRC, pursuant to the provisions of Section 51 of the Atomic Energy Act of 1954 (as amended) determines to be SNM; and any material artificially enriched with any of the foregoing materials, but not source material.

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U.S. Government owned—Government owned nuclear material is material that, while used by a licensee as part of their activities, is actually an asset owned by a federal government agency such as DOE. These materials may be bulk materials, discrete radiation sources, or finished products. Such materials may represent a lease or loan arrangement with a government agency. Government owned materials are typically represented by a "G" owner code on shipping

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information (ie. DOE/NRC Form 741) and inventory documentation (DOE/NRC 742 and 742C).

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One way a licensee can make a determination that nuclear material in their possession is government owned, is to review the licensee's DOE/NRC Form 741 form documentation listing the

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U.S. DEPARTMENT OF ENERGY AND
U.S. NUCLEAR REGULATORY COMMISSION APPROVED BY OMB: NO. 3150-0057

EXPIRES: 04/30/2008

Estimated burden per response to comply with this mandatory collection request: 45 minutes. This information is required to satisfy the provisions of the US/IAEA Safeguards Agreement. Send comments regarding burden estimate to the Records and FOIA Privacy Services Branch (T-5 F53), U.S. Nuclear

Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and the Desk Officer, Office of Information and Regulatory Affairs, NEOB-100-0057), Office Management and Budget, Washington, DC 20503. If a means used to impose an information collection do not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is a required to respond to, the information collection.													
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NUREG/BR-0006, Rev.

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

APPROVED BY OMB: NO. 3150-0003

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APPENDIX F

SUPPLEMENTAL INSTRUCTIONS FOR COMPLETING BLOCKS 17, 18, 19, 20, AND 21 ON DOE/NRC FORM 741

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SUPPLEMENTAL INSTRUCTIONS FOR COMPLETING BLOCKS 17, 18, 19, 20, AND 21 ON DOE/NRC FORM 741

1. INTRODUCTION

Special procedures must be used to implement some of the reporting requirements of the U.S. Bilateral Agreements for Peaceful Nuclear Cooperation. These Agreements for Cooperation are one means to satisfy Section 123 of the Atomic Energy Act of 1954 and allow the U.S. nuclear industry to trade with foreign countries/entities. The Agreements require that the U.S. track and report foreign-obligated nuclear materials and nuclear material produced from obligated material from these countries/entities. A foreign obligation is a commitment by one government to another to treat nuclear materials, nonnuclear materials, and equipment and components in a manner consistent with the Agreement signed between the two governments.

In addition to these Agreements for Cooperation, the U.S. is also required (pursuant to the U.S./Russian Agreement concerning the disposition of HEU extracted from nuclear weapons), to track and report to Russia the imports, exports, and use of Former Soviet Union down-blended highly enriched uranium. Although not a U.S. Bilateral Agreement for Peaceful Nuclear Cooperation, this Agreement contains similar reporting requirements and will be tracked as such. Facilities that are importers and/or exporters of nuclear material should also comply with the Agreement.

NOTE: The exchange of obligations can only occur between like materials (i.e. MT-10, 50, 70, 81, E-1, E-2, E-3, or E-4) within the following constraints:

- No exchange of material from one material type to another is allowed unless the U.S. Government provides written prior approval. For example, downblending of E-3 enriched uranium that results in a lower category, i.e. E-3 of obligated material to become E-1 material, requires written prior approval of the U.S. Government
- The obligated material must be exchanged for similar material unless the U.S. Government provides written prior approval. For example, non-irradiated material may not be swapped for irradiated nuclear material unless the U.S. Government provides written prior approval.
- Obligation exchanges involving a NRC licensee and a DOE entity requires the NRC's written prior approval.
- Obligation exchanges between two parties must be for the same material quantities. Additionally, the obligations exchanged must match (i.e. the obligation "shipped or removed" by one participant is "received or added" by the second party to the transaction).

2. IMPORTS

For U.S. facilities importing nuclear material with foreign obligations, the relevant obligation information will be supplied by the appropriate Government agency. The notification will provide the information necessary to complete blocks 17 through 21, if applicable.

a. For imports, the foreign obligation information can be (1) the country/entity from which the nuclear material was shipped and/or (2) the country/entity attaching "third-party obligations." In most cases, for imports from a country that has made the entire shipment subject to the Agreement, the total import quantity will be obligated. If only a portion of the shipment is subject to an Agreement (third-party obligation), that amount will be clearly specified on the documentation.

1 2 3 4	of blocks 17- 21: (1) the cour the amount obligated. See T	will supply the following information for the completion ntry/entity of obligation, (2) the material type, and (3) able 1 below for country/entity codes. See Table 2 d material types and quantities.
§ 7 8		Table 1
9	Obligation Code	Country/Entity
10	31	Australia
11	32	Canada
12	33	EURATOM
13	34	Japan
14	35	People's Republic of China
15	37	Switzerland
16	38	Argentina
17	39	Brazil
18	40	Chile
19	81	Australia/Japan
20	82	Canada/Japan
21	83	Euratom/Japan
22	84	Australia/Euratom/Japan
23	85	Canada/Euratom/Japan
24	86	China/Japan
25	87	Australia/Canada
26	88	Australia/Euratom/Canada
27	91	Australia and EURATOM
28	92	Canada and EURATOM
29	WR	Former Soviet Union Weapons
30	••••	Tomor Covict Official Weapone
31	NOTE: For any other obligation cod	les, contact the NMMSS for further instructions.
33		
34		Table 2
35 36	Donostoblo	Material Types (MTs) and Course and
30 37	Reportable i	Material Types (MTs) and Source and Special Nuclear Material
38		Special Material
39	<u>Type</u>	Domestic Code
40	Normal uranium	MT 81
41	Depleted uranium	MT 10
42	Thorium	MT 88
43	Plutonium	MT 50
44	enriched uranium	MT 20
45	Uranium ²³³	MT 70
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c. Completion of Obligation Information

Block 17: <u>LINE NUMBER</u> - The shipper will enter a sequential number beginning with the number 1 for each obligated country or material. If there is more than one separate obligation or more than one obligated material type, enter the appropriate numbers in the subsequent lines.

Block 18: <u>COUNTRY OF OBLIGATION</u> - For each line enter the code in Table 1 that represents the country/entity of obligation.

Block 19: MATERIAL TYPE - For each line enter the domestic code in Table 2 that represents the material obligated.

Block 20: <u>OBLIGATED ELEMENT WEIGHT</u> - For each line enter the weight obligated in the reportable quantity specified in Table 2. Positive or negative values should be entered to appropriately account for material addition or removal, respectively.

Block 21: <u>OBLIGATED ISOTOPE WEIGHT (For Enriched Uranium Only)</u> - For each line of enriched uranium, enter the obligated isotope weight in grams. (Obligated U²³⁵ is restricted to uranium enriched to 5 percent or less, unless higher enrichment is authorized or approved by the U.S. GOVT.) Positive or negative values should be entered to appropriately account for material addition or removal, respectively.

3. DOMESTIC TRANSFERS, INTERNAL TRANSACTIONS, AND EXPORTS

For U.S. facilities shipping or exporting material with foreign obligations, or for the reporting of onsite gains and losses, the obligations on the material must be stated as such in blocks 17-21.

- a. For domestic transfers, blocks 17 through 21are filled out as for imports (Section 2 above). However, the obligation information will not be supplied by a government notification. The U.S. shipper will assign the appropriate obligations on the material, if any, and complete the line number, country/entity of obligation, material type, and obligated weight, if applicable. The U.S. receiver will complete the matching obligation information as assigned by the shipper.
- b. For internal transactions (i.e., burnup, decay, production, measured discards, accidental losses or gains, category changes, fission and transmutation, inventory differences, etc.), enter the line number, country/entity of obligation, material type, and obligated weights, if applicable, for the material.
- c. For exports, the U.S. shipper will complete both the shipper's and receiver's DOE/NRC Form 741. If the U.S. shipper is exporting foreign obligated material, the U.S. shipper will complete blocks 17 through 21 for each obligated country/entity or material exported.

NRC FORM 335 U.S. NUCLEAR REGULATORY COMMISSION (9-2004) NRCMD 3.7	REPORT NUMBER (Assigned by NRC, A and Addendum Numl	dd Vol., Supp., Rev.,
BIBLIOGRAPHIC DATA SHEET		
(See instructions on the reverse)	NUREG/BR	-0006 Rev 7
2. TITLE AND SUBTITLE	3. DATE REPC	PRT PUBLISHED
Instuctions for Completing Nuclear Material Transaction Reports	MONTH	YEAR
Draft Report for Comment	March	2007
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5. AUTHOR(S)	6. TYPE OF REPORT	
Brian G. Horn, NMSS		
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	7. PERIOD COVEREI) (Inclusive Dates)
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Division of Fuel Cycle Safety and Safeguards		
Office of Nuclear Material Safety and Safeguards		
U.S. Nuclear Regulatory Commission		
Washington, DC 20555-0001		
 SPONSORING ORGANIZATION - NAME AND ADDRESS (If NRC, type "Same as above"; if contractor, provide NRC Division, Office of and mailing address.) 	or Region, U.S. Nuclear Heg	ulatory Commission,
Same as above		
10. SUPPLEMENTARY NOTES		
11. ABSTRACT (200 words or less)		
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