



Case Studies

Topic

3



Case Study 1

Domestic Transactions

Case Study

1A

DOE facility (ACD) made its thirteenth shipment to DOE facility (FDD) on **September 30, 2020**. The shipment has DOE-owned material. Consider the following shipper's information:

**Domestic
Transactions**

DOE/NRC Form 741 field	Value	Unit	DOE/NRC Form 741 field	Value	Unit
Shipping Gross weight	1,749	Kg	Composition Code	309	
Shipping Element Weight	1,250	Kg	Number of Items	1	
Shipping Isotope Weight	3	Kg	Shipping (ACD) Project	DEMOACD10A	
Shipping Weight % Isotope	0.2000		Obligation Country Code	Canada (32)	
Material Type	Depleted Uranium		Obligation Element Weight	1,000	Kg

All material is DOE-owned. Prepare the **shipper's** transaction report, DOE/NRC Form 741, for ACD.


Case Study

1A

Enter Transaction Header Information.

Domestic
Transactions

DOE/NRC FORM 741
(05-2021) 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
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 FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0003), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

EXPIRES: 04/30/2024

1. SHIPPER'S RIS
ACD

2. RECEIVER'S RIS
FDD

3. TRANSACTION NO.
13

4. CORRECTION NO.

5. PROCESSING CODE
a. SHIPPER A
b. RECEIVER

6. ACTION CODE
a. SHIPPER A
b. RECEIVER

7. DOCUMENTATION (Only if document is classified SECRET)
PAGE OF PAGES COPY OF COPIES SERIES

8 a. NAME AND ADDRESS OF SHIPPER
b. LICENSE NO.

9 a. NAME AND ADDRESS OF RECEIVER
b. LICENSE NO.

10. NO OF DATA LINES
1

11. NATURE OF TRANSACTION
12 a. SHIPPED FOR ACCOUNT OF
b. RIS
13 a. SHIPPED TO ACCOUNT OF
b. RIS

14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER

15. EXPORT OR IMPORT TRANSFERS: LICENSE NO.

16. MATERIAL TYPE AND DESCRIPTION

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

22. ACTION DATE
a. SHIPMENT
b. SHIPPER'S CORRECTION
c. RECEIPT
d. RECEIVER'S MEASUREMENT
e. RECEIVER'S CORRECTION

23a. MISCELLANEOUS
b. CONCISE NOTE ATTACHED
c. UK REPORTABLE?

24. TOTAL GROSS WEIGHT
1749

25. TOTAL VOLUME (Waste Transfers Only)

NO. DISTRIBUTION OF COPIES
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MONTH (MM)
DAY (DD)
YEAR (YYYY)
9 30 2020

Shipper RIS



Transfer Number



Action Code



Total Gross Weight



Receiver RIS



Process Code



Number of Lines



Action Date




Case Study

1A

Enter Transaction Detail Information.

Domestic Transactions

26. SHIPPER'S DATA	BACK REFERENCE NUMBER	LINE NO.	TYPE OF INV. CHANGE	IDENTIFICATION (ITEM/BATCH NAME)	NO. OF ITEMS	PROJECT NUMBER	MATE-RIAL TYPE	COMP/FACILITY CODE	OWNER CODE	KEY MEAS. POINT	MEAS. IDENT. k.			GROSS WEIGHT	NET WEIGHT	ELEMENT WEIGHT	ELEMENT LIMIT OF ERROR	WEIGHT % ISOTOPE	ISOTOPE WEIGHT	ISOTOPE LIMIT OF ERROR
	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	1 BASIS	2 OMP	3 METHOD	l.	m.	n.	o.	p.	q.	r.
			1		1	DEMOACD10A	10	309	G							1250		0.2000	3	


Line Number 

Project Number 

Comp Code 


Element Weight 

Isotope Weight 

Number of Items 

Material Type 

Owner Code 

Weight % Isotope 


Case Study

1A

Enter Transaction Obligations.

Domestic
Transactions

DOE/NRC FORM 741
(05-2021) Previous editions are obsolete
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70,
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U. S. DEPARTMENT OF ENERGY
AND
U. S. NUCLEAR REGULATORY COMMISSION

NUCLEAR MATERIAL TRANSACTION REPORT

APPROVED BY OMB: NO. 3150-0003
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 FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to infocollections.Resource@nrc.gov and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0003), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oir_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.

EXPIRES: 04/30/2024

1. SHIPPER'S RIS		2. RECEIVER'S RIS		3. TRANSACTION NO.		4. CORRECTION NO.		5. PROCESSING CODE		6. ACTION CODE		7. DOCUMENTATION (Only if document is classified SECRET)													
								a. SHIPPER		b. RECEIVER		PAGE		OF		PAGES		COPY		OF		COPIES		SERIES	
8.a. NAME AND ADDRESS OF SHIPPER		b. LICENSE NO.		9.a. NAME AND ADDRESS OF RECEIVER		b. LICENSE NO.		10. NO OF DATA LINES		11. NATURE OF TRANSACTION		12.a. SHIPPED FOR ACCOUNT OF		b. RIS		13.a. SHIPPED TO ACCOUNT OF		b. RIS		NO.		DISTRIBUTION OF COPIES			
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																				5					
c. ATTENTION:				d. TELEPHONE:																6					
14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER																				7					
16. MATERIAL TYPE AND DESCRIPTION																				8					
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Case Study

1B

For this thirteenth shipment, FDD completes its independent measurement on **10/15/2020**. The shipment has DOE-owned material. Consider the following receiver's information:

Domestic Transactions

DOE/NRC Form 741 field	Value	Unit	DOE/NRC Form 741 field	Value	Unit
Receiving Gross weight	1,749	Kg	Composition Code	309	
Receiving Element Weight	1,250	Kg	Number of Items	1	
Receiving Isotope Weight	2	Kg	Receiving (FDD) Project	DEMOACD10A	
Receiving Weight % Isotope	0.2000		Obligation Country Code	Canada (32)	
Material Type	Depleted Uranium		Obligation Element Weight	1,000	Kg

All material is DOE-owned. Prepare the **receiver's** transaction report, DOE/NRC Form 741, for FDD.

Domestic Transactions

Domestic Transactions

Developed by: **LINK**
Technologies


Case Study

1B

Enter Transaction Obligations.

Domestic
Transactions

DOE/NRC FORM 741
(05-2021) Previous editions are obsolete
MANDATORY DATA COLLECTION
AUTHORIZED BY 10 CFR 30, 40, 50, 70,
72, 74, 75, 150
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U. S. DEPARTMENT OF ENERGY
AND
U. S. NUCLEAR REGULATORY COMMISSION

NUCLEAR MATERIAL TRANSACTION REPORT

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EXPIRES: 04/30/2024

1. SHIPPER'S RIS		2. RECEIVER'S RIS		3. TRANSACTION NO.		4. CORRECTION NO.		5. PROCESSING CODE		6. ACTION CODE		7. DOCUMENTATION (Only if document is classified SECRET)													
								a. SHIPPER		b. RECEIVER		PAGE		OF		PAGES		COPY		OF		COPIES		SERIES	
8.a. NAME AND ADDRESS OF SHIPPER		b. LICENSE NO.		9.a. NAME AND ADDRESS OF RECEIVER		b. LICENSE NO.		10. NO. OF DATA LINES		11. NATURE OF TRANSACTION												NO.		DISTRIBUTION OF COPIES	
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c. ATTENTION:				d. TELEPHONE:																		6			
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Developed by: 

NMMSS - Transaction Reports | 10



Case Study 2

Import/Export Transactions

Case Study

2A

Mr. W. W. Tson, chairman of Basic Research Project, discovered many new areas of research for his organization, Advanced Biophysics Foundry (ABF). One of these areas evolved into successful negotiations between representatives of ABF and Resources of Energy Enterprise (RUNZ), a very prosperous company within the United Kingdom. ABF shipped some DOE-owned enriched uranium to RUNZ on March 20, 2020. The material will remain DOE-owned at RUNZ and eventually will be returned to ABF. This is the first transfer from ABF to RUNZ. Consider the following shipper’s information:

Import/Export
Transactions

DOE/NRC Form 741 field	Value	Unit	DOE/NRC Form 741 field	Value	Unit
Shipping Gross weight	3,750	Kg	Composition Code	103	
Shipping Element Weight	590,651	g	Number of Items	1	
Shipping Isotope Weight	13,674	g	Shipping (ABF) Project	DEMO30000D	
Shipping Weight % Isotope	2.3151		Element LOE	1090	g
Material Type	Enriched Uranium		Isotope LOE	90	g
License	XMAS2525		Contract Number	ABCD1234-XYZ1234	

All material is DOE-owned. Prepare the **shipper’s** transaction report, DOE/NRC Form 741, for ABF.

Case Study

2A

Supplementary Instructions

Import/Export Transactions

- SEP for isotopic separation facility RISs
- DoD for Department of Defense (DoD) RISs

Within the tables, specific numbers are shown in parentheses to highlight some of the following notes.

1. For those transaction types where there is a difference between shipper's (S) and receiver's (R) reporting requirements, an S and an R should exist in this column to reflect the differences. Only those data items that have different requirements should be separated into the S row and R row. All other common data items should exist on the row between the S and R.

2. When to licensee, shipper RIS may be ANY, receiver RIS must be LIC. When from licensee, receiver RIS may be ANY, shipper RIS must be LIC.

3. For and to accounts both contain contractor RIS when owner is G, there is no change in ownership, and shipper and /or receiver have licensee or foreign RIS. RISs identify the DOE/NNSA contractors having programmatic responsibility for the material before and after shipment.

4. DoD or mutu
5. Must contain destination fo
6. Required onl
7. Should be lie

NMMSS Users Guide 2.1

C-1

Table C-1. Instructions for Preparation of Transaction Data Items

Transaction Type	S/R (1)	TI Code	S RIS	R RIS	For Account	To Account	Owner Code Required
2. Transfer of non-DOE/NNNSA owned		Blank	ANY	ANY	Blank	Blank	J
3. DOE-owned project material transfers to/from licensees (non-lease or loan)		Blank	(2)	(2)	(3)	(3)	G

- | | | | | | | | |
|--|---|-----|-----|-------|----------|----------|---|
| 5. Transfer of leased/loaned material; change in financial responsibility | B | ANY | ANY | (7,9) | (8,9) | C | |
| 6. Transfer of leased/loaned material; no change in financial responsibility | S | C | ANY | ANY | (7,10) | (7,10) | C |
| 7. Leased/loaned material returned to DOE/NNNSA for credit | R | D | ANY | ANY | (8,10) | (8,10) | C |
| 8. Sale for account of DOE/NNNSA | S | E | ANY | ANY | (12) | LIC, FOR | C |
| 9. Enriching service procurement (feed receipt) | R | F | ANY | SEP | LIC, FOR | Blank | C |
| 10. Enriching service sale (product shipment) | R | F | ANY | SEP | LIC, FOR | Blank | C |
| 11. Procurement of privately owned material by DOE/NNNSA | S | G | ANY | ANY | Blank | LIC, FOR | C |
| 12. Donated material to others by DOE/NNNSA | R | G | ANY | ANY | LIC, FOR | (11) | C |
| 13. Donated material to DOE/NNNSA by others | S | | | | | | |
| 14. In-place transactions | | | | | | | |
- In-place transaction should change ownership. Use data requirements of applicable transaction type as a guide. Shipper and receiver must be the same RIS.

- | | |
|--|---|
| 16. Exports; shipments to foreign countries (R RISs) | Transactions are prepared in the same manner as transfers to/from licensees except reporting entity must report both sides. |
|--|---|

- | | | | | | | |
|--|--|------|------|-------|------|------|
| 19. Inventory changes—receipt | Blank | ANY | ANY | Blank | (14) | G, J |
| 20. Transfers involving waste facilities (V RIs) | Blank | (13) | (13) | Blank | (14) | G, J |
| 21. Shipper or receiver adjustment | Must have an entry in correction field (Block 4). Used to correct prior entries; therefore, prepare the adjusting entry with the same amount as the original entry for data records numbers 2 and 5, back out the original line entry in error and add the correct entry. Any of the permissible owner codes for the applicable transaction type should be accepted independently without the presence of a record owner code. | | | | | |

Case Study

2A

Import/Export Transactions

Enter Transaction Header Information.

[illegible]

Shipper RIS

Process Code



Total Gross Weight



License Number



For/To Acct



Receiver RIS

Action Code



Action Date



UK Reportable?



Transfer Number

Number of Lines










Contract Number



TI Code



Import/Export Transactions

Line Number  Project Number  Owner Code  Weight % Isotope 
 Batch Name  Material Type  Element Weight  Isotope Weight 
 Number of Items  Comp Code  Element Limit of Error  Isotope Limit of Error 

Case Study

2B

A Canadian facility (RDAY) made its shipment #1001 to a DOE facility (FSS) on September 15, 2020. The shipment has non-DOE-owned material being transferred on a sale to DOE. All material in this shipment has Canadian foreign obligations. Consider the following information:

Import/Export
Transactions

DOE/NRC Form 741 field	Value	Unit	DOE/NRC Form 741 field	Value	Unit
Shipping Gross weight	300	Kg	License	GEN-LIC	
Shipping Element Weight	50	g	Batch Name	SN225	
Shipping Isotope Weight	20	g	Composition Code	309	
Shipping Weight % Isotope	40.0000		Number of Items	1	
Material Type	Enriched Uranium		Receiving (FSS) Project	DEMO01010A	

Prepare the **shipper's** transaction report, DOE/NRC Form 741, for RDAY.

Case Study

2B

Supplementary Instructions

Import/Export Transactions

- SEP for isotopic separation facility RISs
- DoD for Department of Defense (DoD) RISs

Within the tables, specific numbers are shown in parentheses to highlight some of the following notes.

- For those transaction types where there is a difference between shipper's (S) and receiver's (R) reporting requirements, an S and an R should exist in this column to reflect the differences. Only those data items that have different requirements should be separated into the S row and R row. All other common data items should exist on the row between the S and R.
- When to licensee, shipper RIS may be ANY, receiver RIS must be LIC. When from licensee, receiver RIS may be ANY, shipper RIS must be LIC.
- For and to accounts both contain contractor RIS when owner is G, there is no change in ownership, and shipper and/or receiver have licensee or foreign RIS. RISs identify the DOE/NNSA contractors having programmatic responsibility for the material before and after shipment.

- DoD or mutual
- Must contain destination for
- Required only
- Should be licensee or foreign RIS.

C-1

NMMSS Users Guide 2.1

- Should be licensee or foreign RIS.
- For/to accounts cannot be equal.
- For/to accounts should be equal.
- Required only when receiver has a licensee or foreign RIS; then it should be contractor RIS.
- Appropriate contractor RIS in the account if shipper's owner code is G and shipper has a licensee or foreign RIS; the field is blank otherwise.
- Shipper or receiver RIS must be in the V series.
- Appropriate contractor RIS in the account if receiver's owner code is G and receiver has a licensee or foreign RIS; the field is blank otherwise.
- QZA, QZB, and QZD are restricted to material types 20, 40, 50, 70, and 83.
- If the DOD's RIS is QZE the Type of Inventory Change code should be either 14 or 44; if the RIS is QZC the Type of Inventory Change code should be either 15 or 45; if the RIS is QZA, QZB, or QZD the Type of Inventory Change code should be either 16 or 46.

Table C-1. Instructions for Preparation of Transaction Data Items


Transaction Type	S/R (1)	TI Code	S RIS	R RIS	For Account	To Account	Owner Code Required
1. DOE-owned material; transfer between DOE/NNSA owners		Blank	CON	CON	Blank	Blank	G
2. Transfer of non-DOE/NNSA owned		Blank	ANY	ANY	Blank	Blank	J
3. DOE-owned project material transfers to/from licensees (non-lease or loan)		Blank	(2)	(2)	(3)	(3)	G
4. Transfer of DOE-owned material to/from licensees (lease or loan)	S	A	ANY	ANY	(6)	LIC, FOR	G
5. Transfer of leased/loaned material; change in financial responsibility		B	ANY	ANY	(7,9)	(8,9)	G, J
6. Transfer of leased/loaned material; no change in financial responsibility	S	C	ANY	ANY	(7,10)	(7,10)	G, J
7. Leased/loaned material returned to DOE/NNSA for credit	R	D	ANY	ANY	LIC, FOR	(11)	G, J
8. Sale for account of DOE/NNSA	S	E	ANY	ANY	(12)	LIC, FOR	G, J
9. Enriching service procurement (feed receipt)	R	F	ANY	SEP	LIC, FOR	Blank	J
10. In-place transactions	S	G	ANY	ANY	LIC, FOR	(11)	J
11. Procurement of privately owned material by DOE/NNSA	R	G	ANY	ANY	LIC, FOR		G, J
12. Exported materials to other than DOE/NNSA owners		Blank	ANY	ANY	Blank	Blank	G
13. Imports; receipts from foreign countries (R RISs)		Blank	ANY	ANY	Blank	Blank	G, J
14. In-place project transfers		Blank	ANY	ANY	(12)	Blank	G, J
15. Exports; shipments to foreign countries (R RISs)		Blank	ANY	ANY	(14)	Blank	G, J
16. Transfers involving waste facilities (V RISs)		Blank	(13)	(13)	Blank	Blank	G, J
17. In-place project transfers		Blank	ANY	ANY	(12)	Blank	G, J
18. Exports; shipments to foreign countries (R RISs)		Blank	ANY	ANY	(14)	Blank	G, J
19. Imports; receipts from foreign countries (R RISs)		Blank	ANY	ANY	(14)	Blank	G, J
20. Transfers involving waste facilities (V RISs)		Blank	(13)	(13)	Blank	Blank	G, J

Case Study

2B

Enter Transaction Header Information.

Import/Export Transactions

DOE/NRC FORM 741 (05-2021) 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 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 FOIA, Library, and Information Collections Branch (T-6 A10M), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to Infocollects.Resource@nrc.gov, and the OMB reviewer at: OMB Office of Information and Regulatory Affairs, (3150-0003), Attn: Desk Officer for the Nuclear Regulatory Commission, 725 17th Street NW, Washington, DC 20503; e-mail: oira_submission@omb.eop.gov. The NRC may not conduct or sponsor, and a person is not required to respond to, a collection of information unless the document requesting or requiring the collection displays a currently valid OMB control number.		EXPIRES: 04/30/2024											
1. SHIPPER'S RIS RDAY		2. RECEIVER'S RIS FSS		3. TRANSACTION NO. 1001		4. CORRECTION NO.		5. PROCESSING CODE a. SHIPPER A b. RECEIVER		6. ACTION CODE a. SHIPPER A b. RECEIVER		7. DOCUMENTATION (Only if document is classified SECRET) PAGE OF PAGES COPY OF COPIES SERIES							
8.a. NAME AND ADDRESS OF SHIPPER		b. LICENSE NO.		9.a. NAME AND ADDRESS OF RECEIVER		b. LICENSE NO.		10. NO OF DATA LINES 1		11. NATURE OF TRANSACTION G		NO. DISTRIBUTION OF COPIES							
12.a. SHIPPED FOR ACCOUNT OF		b. RIS RDAY		13.a. SHIPPED TO ACCOUNT OF		b. RIS						1							
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14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER								15. EXPORT OR IMPORT TRANSFERS: LICENSE NO. GEN-LIC											
16. MATERIAL TYPE AND DESCRIPTION								17. LINE NUMBER		18. COUNTRY OF OBLIGATION		19. MATERIAL TYPE		20. OBLIGATED ELEMENT WEIGHT		21. OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only			
23a. MISCELLANEOUS b. CONCISE NOTE ATTACHED <input type="checkbox"/> c. UK REPORTABLE? <input type="checkbox"/> YES <input type="checkbox"/> NO																			
								24. TOTAL GROSS WEIGHT 300						25. TOTAL VOLUME (Waste Transfers Only)					
														22. ACTION DATE MONTH (MM) DAY (DD) YEAR (YYYY) a. SHIPMENT 9 15 2020 b. SHIPPER'S CORRECTION c. RECEIPT d. RECEIVER'S MEASUREMENT e. RECEIVER'S CORRECTION					

Shipper RIS

Process Code



Total Gross Weight



TI Code



Receiver RIS

Action Code



Action Date



For/To Acct












Transfer Number

Number of Lines

License Number



Import/Export Transactions

Line Number		Material Type		Element Weight	
Batch Name		Comp Code		Weight % Isotope	
Number of Items		Owner Code		Isotope Weight	

Case Study

2B

Enter Transaction Transaction Obligations.

Import/Export Transactions

[illegible]

Case Study

2C

The material reported to NMMSS in Demonstration 2B is received by DOE facility FSS on September 30, 2020. Consider the following information:

Import/Export
Transactions

DOE/NRC Form 741 field	Value	Unit	DOE/NRC Form 741 field	Value	Unit
Shipping Gross weight	300	Kg	License	GEN-LIC	
Shipping Element Weight	50	g	Batch Name	SN225	
Shipping Isotope Weight	20	g	Composition Code	309	
Shipping Weight % Isotope	40.0000		Number of Items	1	
Material Type	Enriched Uranium		Receiving (FSS) Project	DEMO01010A	

Prepare the **receiver's** transaction report, DOE/NRC Form 741, for FSS accepting shipper's values.


Case Study

2C

Enter Transaction Header Information.

Import/Export
Transactions

DOE/NRC FORM 741
(05-2021) 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
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EXPIRES: 04/30/2024

NUCLEAR MATERIAL TRANSACTION REPORT

1. SHIPPER'S RIS RDAY		2. RECEIVER'S RIS FSS		3. TRANSACTION NO. 1001		4. CORRECTION NO.		5. PROCESSING CODE a. SHIPPER b. RECEIVER A		6. ACTION CODE a. SHIPPER b. RECEIVER B		7. DOCUMENTATION (Only if document is classified SECRET) PAGE OF PAGES COPY OF COPIES SERIES							
8 a. NAME AND ADDRESS OF SHIPPER		b. LICENSE NO.		9 a. NAME AND ADDRESS OF RECEIVER		b. LICENSE NO.		10. NO OF DATA LINES 1		11. NATURE OF TRANSACTION G		NO.		DISTRIBUTION OF COPIES					
c. ATTENTION: d. TELEPHONE:				c. ATTENTION: d. TELEPHONE:				12 a. SHIPPED FOR ACCOUNT OF		b. RIS RDAY		13 a. SHIPPED TO ACCOUNT OF		b. RIS					
14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER										15. EXPORT OR IMPORT TRANSFERS: LICENSE NO. GEN-LIC									
16. MATERIAL TYPE AND DESCRIPTION										17. LINE NUMBER		18. COUNTRY OF OBLIGATION		19. MATERIAL TYPE		20. OBLIGATED ELEMENT WEIGHT		21. OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only	
23a. MISCELLANEOUS b. CONCISE NOTE ATTACHED <input type="checkbox"/> c. UK REPORTABLE? <input type="checkbox"/> YES <input type="checkbox"/> NO																			
										24. TOTAL GROSS WEIGHT		25. TOTAL VOLUME (Waste Transfers Only)							

22. ACTION DATE
a. SHIPMENT
b. SHIPPER'S CORRECTION
c. RECEIPT
d. RECEIVER'S MEASUREMENT
e. RECEIVER'S CORRECTION

MONTH (MM)
DAY (DD)
YEAR (YYYY)
9 15 2020

Shipper RIS



Process Code



Total Gross Weight



TI Code



Receiver RIS



Action Code



Action Date



For/To Acct



Transfer Number



Number of Lines



License Number



Import/Export Transactions

Import/Export Transactions

Developed by: **LINK**
Technologies



Case Study 3

One-Party Transactions

Case Study

3A

Demonstrate a one-party transaction for NRC facility YSS for the date 11/30/2020 using transaction number 20201130. All composition codes will be 309. All material will be non-DOE-owned. Consider the following information:

**One-Party
Transactions**

Gain/Loss	Type of Inventory Change	Element Weight	Isotope Weight	Unit	Weight % Isotope
Degradation of EU (MT 20) to DU (MT 10)	ED	14,709	330	g	2.2435
Production of Plutonium (MT 50)	NP	170,923	108,499	g	8.5400
Fission & Transmutation (MT 20)	LN	536,060	26,535	g	4.9500
Decay of Plutonium (MT 50)	TN	7,914	7,172	g	6.0900
Rounding (MT 20)	65	-1		g	
Rounding (MT 50)	65		2		

Prepare the **one-party** transaction report, DOE/NRC Form 741, for YSS.

Case Study

3A

Reminder

**One-Party
Transactions**

Depleted uranium is reported in kilograms and enriched is in grams.

The reportable quantity is 0.5 or more for the reportable unit (both enriched and depleted).

For 65 nature of transaction codes, a negative adds material while a positive removes it.

One-Party Transactions

Case Study

3A

Enter Transaction Detail Information.

One-Party
Transactions

26. SHIPPER'S DATA	BACK REFERENCE NUMBER	LINE NO.	TYPE OF INV. CHANGE	IDENTIFICATION (ITEM/BATCH NAME)	NO. OF ITEMS	PROJECT NUMBER	MATE- RIAL TYPE	COMP/ FACILITY CODE	OWNER CODE	KEY MEAS. POINT	MEAS. IDENT. k.			GROSS WEIGHT	NET WEIGHT	ELEMENT WEIGHT	ELEMENT LIMIT OF ERROR	WEIGHT % ISOTOPE	ISOTOPE WEIGHT	ISOTOPE LIMIT OF ERROR
	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.	1 BASIS	2 OMP	3 METHOD	l.	m.	n.	o.	p.	q.	r.
		1	ED				20	309	J							14709		2.2435	330	
		2	ED				10	309	J							15		0.2000		
		3	NP				50	309	J							170923		8.5400	108499	
		4	LN				20	309	J							536060		4.9500	26535	
		5	TN				50	309	J							7914		6.0900	7172	
		6	65				20		J							-1				
		7	65				50		J										2	

Line Number

Type of Inventory Change

Material Type

Comp Code

Owner Code

Element Weight

Weight % Isotope

Isotope Weight

Case Study

3B

Demonstrate a one-party transaction for DOE facility ABC for the date 9/30/2020 using transaction number 1120. All composition codes will be 102. All material will be DOE-owned under project number DEMOABC001. Consider the following information for reporting of the enrichment of natural uranium:

One-Party
Transactions

Gain/Loss	Type of Inventory Change	Element Weight	Isotope Weight	Unit	Weight % Isotope
Feed Material (MT 81)	71	11,192,214	79,577	g	0.7110
Enriched Product (MT 20)	22	1,000,000	49,000	g	4.9000
Tails (MT 10)	22	10,192,214	30,577	g	0.3000

Prepare the **one-party** transaction report, DOE/NRC Form 741, for YSS.

Case Study

3B

Reminder

One-Party
Transactions

Depleted uranium is reported in kilograms and enriched is in grams.

One-Party Transactions

Shipper RIS

Receiver RIS

Transfer Number

Process Code	
Action Code	
Number of Lines	

Action Date

Case Study

3B

Enter Transaction Detail Information.

One-Party Transactions

[illegible]

Line Number



Type of Inventory Change

Project Number



Material Type

Comp Code

Owner Code

Element Weight

Weight % Isotope

Isotope Weight



Case Study 4

Transaction Adjustments

Case Study

4A

On May 16, 2020, shipper XXX transferred material to receiver XXY. This was the first shipment to XXY and was non-DOE-owned. Total gross weight was 50 kg. The reported transaction is shown below.

Transaction Adjustments

[illegible]

Case Study

4A

Enter Transaction Header Information.

Transaction Adjustments

[illegible]

Shipper RIS

Correction Number



Number of Lines

Receiver RIS

Process Code

~~Total Gross Weight~~

Transfer Number

Action Code



Action Date



Transaction Adjustments


Back Reference		Material Type		Element Weight	
Line Number		Comp Code		Weight % Isotope	
Number of Items		Owner Code		Isotope Weight	

Case Study

4B

Transaction
Adjustments

DOE/NRC FORM 741
(05-2021) 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
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EXPIRES: 04/30/2024

1. SHIPPER'S RIS
XXX

2. RECEIVER'S RIS
XXY

3. TRANSACTION NO.
1

4. CORRECTION NO.

5. PROCESSING CODE

6. ACTION CODE
a. SHIPPER
b. RECEIVER A

7. DOCUMENTATION (Only if document is classified SECRET)
PAGE OF PAGES COPY OF COPIES SERIES

8.a. NAME AND ADDRESS OF SHIPPER

b. LICENSE NO.

9.a. NAME AND ADDRESS OF RECEIVER

b. LICENSE NO.

10. NO OF DATA LINES
4

11. NATURE OF TRANSACTION
13.a. SHIPPED TO ACCOUNT OF
b. RIS

12.a. SHIPPED FOR ACCOUNT OF
b. RIS

14. TRANSFER AUTHORITY CONTRACT, NM BRANCH, OR ORDER NUMBER

15. EXPORT OR IMPORT REFERENCE NUMBER

16. MATERIAL
17. COUNTRY OF ORIGIN
18. COUNTRY OF DESTINATION
19. MATERIAL TYPE

20. OBLIGATED ELEMENT WEIGHT

21. OBLIGATED ISOTOPE WEIGHT For Enriched Uranium Only

22. ACTION DATE
a. SHIPMENT
b. SHIPPER'S CORRECTION
c. RECEIPT
d. RECEIVER'S MEASUREMENT
e. RECEIVER'S CORRECTION

23a. MISCELLANEOUS
b. SOURCE NOTE ATTACHED

24. TOTAL GROSS WEIGHT

25. TOTAL VOLUME (Waste Transfers Only)

26. SHIPPER'S DATA

27s. RECEIVER'S DATA

26s. SHIPPER'S DATA

SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED

27s. RECEIVER'S DATA

SIGNATURE OF AUTHORIZED OFFICIAL AND DATE SIGNED

SHIPPER'S DATA

RECEIVER'S DATA

BACK REFERENCE NUMBER	LINE NO.	TYPE OF INV. CHANGE	IDENTIFICATION (ITEM/BATCH NAME)	NO. OF ITEMS	PROJECT NUMBER	MATERIAL TYPE	COMP/FACILITY CODE	OWNER CODE	KEY MEAS. POINT	MEAS. IDENT.			GROSS WEIGHT	NET WEIGHT	ELEMENT WEIGHT	ELEMENT LIMIT OF ERROR	ISOTOPE WEIGHT	ISOTOPE LIMIT OF ERROR
										1 BASIS	2 OMP	3 METHOD						
	1			1		81	291	J										
	2			1		20	291	J										
	3			1		20	291	J										
	4			1		20	291	J										

1.7080

1.7080

93

2.0110

165

2.218

121

On July 31, 2020, the receiver reported an adjustment to the weight % isotope on line 2 of the receiver's initial 741. The receiver changed the weight % isotope on line 2 to 1.7180. Note that the originally reported transaction is closed in NMMSS. Prepare the **receiver's adjustment** transaction report, DOE/NRC Form 741, for XXX. This adjustment would be correction number 2.


Case Study

4B

Enter Transaction Header Information.

Transaction
Adjustments

DOE/NRC FORM 741
(05-2021) 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



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U. S. NUCLEAR REGULATORY COMMISSION

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EXPIRES: 04/30/2024

1. SHIPPER'S RIS
XXX

2. RECEIVER'S RIS
XXY

3. TRANSACTION NO.
1

4. CORRECTION NO.
2

5. PROCESSING CODE
a. SHIPPER
b. RECEIVER A

6. ACTION CODE
a. SHIPPER
b. RECEIVER D

7. DOCUMENTATION (Only if document is classified SECRET)
PAGE OF PAGES COPY OF COPIES SERIES

8 a. NAME AND ADDRESS OF SHIPPER

c. ATTENTION:
d. TELEPHONE:

9 a. NAME AND ADDRESS OF RECEIVER

c. ATTENTION:
d. TELEPHONE:

10. NO OF DATA LINES
2

11. NATURE OF TRANSACTION
12 a. SHIPPED FOR ACCOUNT OF
b. RIS

13 a. SHIPPED TO ACCOUNT OF
b. RIS

14. TRANSFER AUTHORITY - CONTRACT, NM DRAFT, OR ORDER NUMBER

15. EXPORT OR IMPORT TRANSFERS: LICENSE NO.

16. MATERIAL TYPE AND DESCRIPTION

17. LINE NUMBER

18. COUNTRY OF OBLIGATION

19. MATERIAL TYPE

20. OBLIGATED ELEMENT WEIGHT

21. OBLIGATED ISOTOPE WEIGHT
For Enriched Uranium Only

22. ACTION DATE
a. SHIPMENT
b. SHIPPER'S CORRECTION
c. RECEIPT
d. RECEIVER'S MEASUREMENT
e. RECEIVER'S CORRECTION

MONTH (MM)
DAY (DD)
YEAR (YYYY)
7 31 2020

23a. MISCELLANEOUS

b. CONCISE NOTE ATTACHED ☐
c. UK REPORTABLE? ☐ YES ☐ NO

24. TOTAL GROSS WEIGHT

25. TOTAL VOLUME (Waste Transfers Only)

Shipper RIS

Receiver RIS

Transfer Number

Correction Number

Process Code










Action Code

Number of Lines

Total Gross Weight

Action Date

Transaction Adjustments

Back Reference		Material Type		Element Weight	
Line Number		Comp Code		Weight % Isotope	
Number of Items		Owner Code		Isotope Weight	

Case Study

4C

Based on an initial one-party transaction reported on January 31, 2020, changes needed to be reported to NMMSS. On March 31, 2020, facility XXX corrected the element and isotope weights of line 3 to 424 and line 4 was corrected to 29,000 element and 18,000 isotope. An additional line was added for production to show 7,000 element and 4,000 isotope with weight % isotope of 42.8571. Consider the following information:

Transaction
Adjustments

Line	TN	Material Type	Comp Code	Element Weight	Weight % Isotope	Isotope Weight
1	TN	Plutonium (g)	291	277	50.0000	138
2	TN	Plutonium (g)	291	644	90.0000	582
3	NP	Plutonium (g)	291	409	98.0000	409
4	NP	Plutonium (g)	291	36,000	61.0000	22,000

Prepare the **on-party** adjustment transaction report, DOE/NRC Form 741, for XXX. The correction number will be 1.

Transaction Adjustments



Case Study

4C

Enter Transaction Detail Information.

Transaction Adjustments

	BACK REFERENCE NUMBER	LINE NO.	TYPE OF INV. CHANGE	IDENTIFICATION (ITEM/BATCH NAME)	NO. OF ITEMS	PROJECT NUMBER	MATERIAL TYPE	COMP/FACILITY CODE	OWNER CODE	KEY MEAS. POINT	MEAS IDENT. K.			GROSS WEIGHT	NET WEIGHT	ELEMENT WEIGHT	ELEMENT LIMIT OF ERROR	WEIGHT % ISOTOPE	ISOTOPE WEIGHT	ISOTOPE LIMIT OF ERROR
											1 BASIS	2 OMP	3 METHOD							
	a.	b.	c.	d.	e.	f.	g.	h.	i.	j.				l.	m.	n.	o.	p.	q.	r.
26. SHIPPER'S DATA	003	1	NP				50	291	J							-409		98.0000	-409	
	101	2	NP				50	291	J							424		98.0000	424	
	004	3	NP				50	291	J							-36000		61.0000	-22000	
	103	4	NP				50	291	J							29000		61.0000	18000	
	000	5	NP				50	291	J							7000		42.8571	4000	

Reference to Line 1 from Original 741 (Was)
Reference to Backout Line 1 on Adjustment 741 (Should Be)
Reference to Line 3 from Original 741 (Was)

(New Line)

Back Reference

Line Number

Number of Items

Material Type

Comp Code

Owner Code

Element Weight

Weight % Isotope

Isotope Weight

Summary

1 Introduction to Transaction Reports

- Describe the purpose of a transaction report.
- Describe the regulatory requirements that determine when a transaction needs to be reported.
- Introduce the DOE/NRC Form 741: Nuclear Material Transaction Report.

2 Process and Validation for Transaction Reports

- Describe the different types of codes used on a transaction report.
- Explain the process for preparing and submitting transaction report.
 - Domestic
 - One-party
 - Import/export
 - Adjustment
- Explain the process for validating **transaction** data that has been submitted.
- Explain the process for preparing and submitting a transaction report.

3 Demonstration of Transaction Reports

Demonstrate examples of preparing nuclear material transaction reports.

Questions

