

D-24

Personal Computer Data Input for
Nuclear Regulatory Commission
Licensees

Effective Date
August 1, 2016

A booklet of guidance for data submissions to
NMMSS using electronic formats

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D-24

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Washington, DC 20585-1290**

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1. INTRODUCTION

1.1. Reporting Guidelines

Refer to the current version of the **NRC Instructions for Completing Nuclear Materials Transaction Reports; NUREG/BR-0006** and **Instructions for Completing Material Balance Report and Physical Inventory Listing NUREG/BR-0007** for specific Nuclear Regulatory Commission (NRC) requirements in reporting data to the NMMSS. These documents specify that data submissions must be made in acceptable electronic forms to the Nuclear Materials Management Safeguards System (NMMSS) and provide the information necessary for completing the source documents (forms) referenced in this directory.

NRC licensees required to report government owned material to NMMSS should refer to the **D-23, Personal Computer Data Input for Department of Energy Contractors** for guidance in the electronic reporting of this material.

1.2. Purpose

This directory provides formatting requirements for the reporting of nuclear material information in electronic file formats to the NMMSS in accordance with the NRC guidelines. A reporting licensee has the option to prepare reported data in an electronic file using the formats presented here using a variety of text editors, XML editors or programmatically in Material Control and Accountability Systems. This data is then saved as a text file and sent to NMMSS via diskette, CD, Zip disk, SIMEX, Direct Link, or electronic mail.

1.3. Acceptable Electronic Formats

The preferred format accepted by NMMSS for electronic data transfer is extensible Markup Language (XML). New technologies are constantly being developed to improve data management. As these methods are tested and analyzed by NMMSS staff, revisions will be made to data input procedures and guidelines. Visit the NMMSS website, www.hss.energy.gov/nmmss, for the latest information and guidelines.

Another alternative for submitting electronic data to NMMSS is the use of the Safeguards Management Software (SAMS) for transcribing reported data into a machine readable format. This software is currently available at no charge from NMMSS.

1.3.1. Extensible Markup Language (XML) File Format

The XML format may also be referred to as tagged data as it is based upon the use of tags (words bracketed by '<' and '>') and attributes (of the form name="value"). The NMMSS XML data submission format uses specific tags to establish the

limits of units of data. An advantage of using XML is that data is represented by tags which identify the values being reported; however, these tags must be entered exactly as specified or they will not be recognizable to the import programs.

The rules for XML files are strict. The following conditions will cause a failure in an XML data import:

- ❑ **A tag entered incorrectly (For example; using the wrong tag name, inserting spaces, or using improper capitalization).**
- ❑ **A missing tag.**
- ❑ **A missing end tag indicator (designated by the /) for every opening tag.**
- ❑ **A data attribute without surrounding quotes.**

Field sizes of reported data may be adjusted to fit the value, instead of requiring additional spaces to meet the allocated size as seen in the 80 Column file formats. The reported data is entered into double quotes to the right of the attribute tag. Then, the file is saved as a text file using a file extension of **.xml** and submitted to NMMSS.

The use of the following characters inside the double quotes surrounding the value may be forced to be accepted by substituting the following code shown in the table below in place of the character. For example; to report a text comment such as `Insert batch id 'Batch6a' in block 24D.` the tag value would need to be expressed as `"Insert batch id 'Batch6a' in block 24D."`

| Character | Code |
|-----------|--------|
| ' | ' |
| " | " |
| & | & |
| < | < |
| > | > |

Each type of reported data; Inventory, Transaction, and Material Balance, has specific tags as shown in more detail under each section of this document. Data codes, which are necessary to identify the data in the 80 Column file format, are inferred by the XML tag structure and therefore are not required. Refer to the individual data sections for additional details. Additional resources are available about XML online from the following websites:

- ❑ www.w3schools.com
- ❑ www.ucc.ie/xml/

1.4. Understanding the Format Presentation

Within each format table presented in this directory the form identifier is listed along with the block identification number or number character combination found on the

form. XML tables will display the tag identifier (XML attribute) to be used for this block.

The **Type** column defines the form and length of the accepted data. For example, 'Char(1)' indicates that the data will consist of a single character (letter or number) and 'Char(20)' indicates that the data will consist of a combination of 20 characters, letters, and numbers. 'Date' indicates that the data is a calendar date and will be accepted in a specified format. 'Num(11,2)' indicates the data is restricted to numbers and has an overall length of 11 numbers of which two are to the right of the decimal. In the XML format, a numeric value must contain a decimal. For example, if the type is specified as Num(12,3) and the number value to be submitted is the whole number 15; enter 15 as 15.00 (translates to 15.000).

The **Essential** column indicates the minimum data submission requirements for successful file import when a '✓' is present in the column. This column does not indicate the necessity of data required by the NRC to be reported; only the requirement for a successful file import into NMMSS.

The **Note** column lists any remarks that will indicate special instructions, such as the format to be used or a value that remains constant. Note that all dates are to be entered in the format MM/DD/YYYY in XML formatted file. This means that dates will be reported with their two-digit month indication followed by the two digit day indication and then the four digit year. Note that negative numbers are generally permitted and indicated by the placement of a minus sign (-) to the left of the number.

1.5. File Creation

A file extension should be assigned which indicates the type of file format used. For example, an XML file should always end in .xml.

1.6. Data Submission Methods

Contact the NMMSS staff, (301)-903-6251, for additional directions regarding the use of SIMEX, Direct Link, or electronic mail. Electronic data may be mailed through the U.S. Postal Service on electronic media to the following address.

**Peter Dessaules
Program Manager
Office of Nuclear Materials Integration
NMMSS Program, NA-532,
Germantown Building, Room A-378
U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585-1290**

(For classified documents)

**Refer to SIMS for a Classified Address or contact NMMSS at
301-903-6251 or email "NMMSS@hq.doe.gov".**

When mailing electronic media to NMMSS label the media with the following information:

- Licensee's RIS (Reporting Identification Symbol of the data source)
- Name and telephone number of the person to contact if there are problems or questions
- Name of the data file
- Any special instructions, comments or explanations

Note: A printed listing of the electronic data may be included with the electronic media and may expedite data processing in the event a damaged disk is received. It is not necessary to include the DOE/NRC forms when submitting data electronically to the NMMSS.

2. TRANSACTION DATA

2.1. Requirements for DOE/NRC Form 741 and Concise Notes

2.1.1. XML File Formatting

An example of transaction submission in XML format is shown below. Additional examples are shown in Appendix B along with the corresponding DOE/NRC forms. This is an example of raw XML produced by SAMS.

```
<TRANSACTIONS VERSION="2">
  <SHIPMENT SHIPPERRIS="ABC" RECEIVERRIS="ABC" TRANSFERNUMBER="00000001"
CORRECTION="1" PROCESSCODE="C" ACTIONCODE="M" NUMBEROFLINES="1"
NATUREOFTRANSACTION="" SHIPPEDFORRIS="" SHIPPEDTORIS="ABC"
TRANSFERAUTHORITY="TR" UKFLAG="" ACTIONDATE="4/25/2011" LICENSENUMBER=""
TOTALGROSSWEIGHT="0" TOTALVOLUME="0" SEALEDSOURCE="" TOTRANSFERAUTHORITY=""
RIS="ABC">
  <CONCISENOTE LINENUMBER="1" ENTRYREFERENCE="ENTRY"
TEXTOFCONCISENOTE="MESSAGE OF CONCISE NOTE" />
  <OBLIGATION>
    <MATERIAL LINENUMBER="1" COUNTRYCODE="CA">
      <ELEMENT ELEMENTWEIGHT="99.0000000" UNIT="">
        <ISOTOPE MATERIALTYPE="20" ISOTOPEWEIGHT="9.0000000" UNIT="" />
      </ELEMENT>
    </MATERIAL>
  </OBLIGATION>
  <MATERIAL PROJECT="A400403709" COEILINENUMBER="309" IAEACOMPCODE=""
TYPEINVENTORYCHANGE="34" OWNER="G" KEYMEASUREPOINT="" MEASUREBASIS=""
OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT="100.0000000"
NETWEIGHT="10.0000000" TOPROJECT="A401001000" TOCOEILINENUMBER=""
BACKREFLINENUMBER="112" LINENUMBER="1" BATCH="BATCH" NUMBEROFITEMS="2">
    <ELEMENT ELEMENTWEIGHT="99.0000000" ELEMENTLOE="10" UNIT="">
      <ISOTOPE MATERIALTYPE="20" WEIGHTPERCENT="10.0000000" ISOTOPEWEIGHT="9.0000000"
ISOTOPELOE="10" UNIT="" />
    </ELEMENT>
  </MATERIAL>
</SHIPMENT>
</TRANSACTIONS>
```

An important part of the XML format is the nesting of the records that make up a 741. In XML there are identifiers called Nodes which correspond to rows in the XML data. The Nodes have identifiers called Attributes which correspond to the data fields. For example, the SHIPMENT Node corresponds to the 741 Header record and the SHIPPERRIS Attribute is the Shipper RIS field of the Header record. Another important element of XML Nodes is that they can contain other nodes as known as nested nodes. The

Shipment Node(parent) can have MATERIAL, CONCISENOTE and OBLIGATION nodes (children). The following shows the nesting of the nodes for a 741.

```
SHIPMENT (header information, Shipper RIS, Receiver RIS etc..)
  CONCISENOTE
    • lines that make up the concise note
  OBLIGATION
    • lines required to report the obligations
    ELEMENT
      Contains element information for OBLIGATION
      ISOTOPE
        Contains isotope information for ELEMENT
  MATERIAL
    • lines required to report the detail lines
    ELEMENT
      Contains element information for MATERIAL
      ISOTOPE
        Contains isotope information for ELEMENT
```

The next sample is the same XML file as above, but has been indented using tabs to make it for readable to the human eye. It will process the same as the raw data. It also emphasizes the nesting of the data rows in the XML.

```
<TRANSACTIONS VERSION="2">
  <SHIPMENT
    SHIPPERRIS="ABC" RECEIVERRIS="ABC" TRANSFERNUMBER="00000001"
    CORRECTION="1" PROCESSCODE="C" ACTIONCODE="M" NUMBEROFLINES="1"
    NATUREOFTRANSACTION="" SHIPPEDFORRIS="" SHIPPEDTORIS="ABC"
    TRANSFERAUTHORITY="TR" UKFLAG="" ACTIONDATE="4/25/2011"
    LICENSENUMBER="" TOTALGROSSWEIGHT="0" TOTALVOLUME="0"
  SEALEDSOURCE="" TOTRANSFERAUTHORITY=""
  RIS="ABC">
  <CONCISENOTE
    LINENUMBER="1" ENTRYREFERENCE="ENTRY"
    TEXTOFCONCISENOTE="MESSAGE OF CONCISE NOTE" />
  <CONCISENOTE
    LINENUMBER="2" ENTRYREFERENCE="ENTRY L2"
    TEXTOFCONCISENOTE="LINE 2" />
  <OBLIGATION>
  <MATERIAL
    LINENUMBER="1" COUNTRYCODE="CA">
  <ELEMENT
    ELEMENTWEIGHT="99.0000000" UNIT="">
  <ISOTOPE
    MATERIALTYPE="20"
    ISOTOPEWEIGHT="9.0000000" UNIT="" />
  </ELEMENT>
```

```
</MATERIAL>
</OBLIGATION>
<OBLIGATION>
  <MATERIAL
    LINENUMBER="2" COUNTRYCODE="AU">
    <ELEMENT
      ELEMENTWEIGHT="9.0000000" UNIT="">
      <ISOTOPE
        MATERIALTYPE="20"
        ISOTOPEWEIGHT="1.0000000" UNIT="" />
      </ELEMENT>
    </MATERIAL>
  </OBLIGATION>
  <MATERIAL
    LINENUMBER="1" PROJECT="ABCD3709" COEILINENUMBER="309"
    IAEACOMPCODE="" TYPEINVENTORYCHANGE="34" OWNER="G"
    KEYMEASUREPOINT="" MEASUREBASIS="" OTHERMEASUREPOINT=""
    MEASUREMETHOD="" GROSSWEIGHT="100.0" NETWEIGHT="10.0"
    TOPROJECT="" TOCOEILINENUMBER="" BACKREFLINENUMBER="112"
    BATCH="BATCH" NUMBEROFITEMS="2">
    <ELEMENT
      ELEMENTWEIGHT="99.00" ELEMENTLOE="10" UNIT="">
      <ISOTOPE
        MATERIALTYPE="20" WEIGHTPERCENT="10.00"
        ISOTOPEWEIGHT="9.000" ISOTOPELOE="10" UNIT="" />
      </ELEMENT>
    </MATERIAL>
  <MATERIAL
    LINENUMBER="0" PROJECT="" COEILINENUMBER="309" IAEACOMPCODE=""
    TYPEINVENTORYCHANGE="34" OWNER="J" KEYMEASUREPOINT=""
    MEASUREBASIS="" OTHERMEASUREPOINT="" MEASUREMETHOD=""
    GROSSWEIGHT="0.0000000" NETWEIGHT="0.0000000" TOPROJECT=""
    TOCOEILINENUMBER="" BACKREFLINENUMBER="" BATCH=""
    NUMBEROFITEMS="3">
    <ELEMENT
      ELEMENTWEIGHT="0.0000000" ELEMENTLOE="0" UNIT="">
      <ISOTOPE
        MATERIALTYPE="" WEIGHTPERCENT="0.000000"
        ISOTOPEWEIGHT="0.0000000" ISOTOPELOE="0" UNIT="" />
      </ELEMENT>
    </MATERIAL>
  </SHIPMENT>
</TRANSACTIONS>
```

This last listing shows the nodes and attributes in their properly nested configuration with information detailing the data requirements.

<TRANSACTIONS Is the main node for 741 transactions
VERSION="2" This indicates the current version of XML format.

>

<SHIPMENT Is a node and a child of TRANSACTIONS

It contains the information from the Header record, data code type 1

SHIPPERRIS="ABC"

Attribute in Shipment node
4 Alphanumeric Characters
Validated by RIS Authority Reference Table

RECEIVERRIS="ABC"

Attribute in Shipment node
4 Alphanumeric Characters
Validated by RIS Authority Reference Table

TRANSFERNUMBER="0000001"

Attribute in Shipment node
8 Alphanumeric Characters
If the datatype is integer then the number will be left padded with zeros during the import process

CORRECTION="1"

Attribute in Shipment node
1 Alphanumeric Character

PROCESSCODE="C"

Attribute in Shipment node
1 Alpha Character
Accepted values A,C or D

ACTIONCODE="M"

Attribute in Shipment node
1 Alpha Character
Validated byActionCode section of StaticData Authority Reference Table

NUMBEROFLINES="1"

Attribute in Shipment node
Integer, non-negative

NATUREOFTRANSACTION=""

Attribute in Shipment node
1 Alpha Character
Validated by TICode section of StaticData Authority Reference Table if required
Also called TI Code

SHIPPEDFORRIS=""

Attribute in Shipment node
4 Alphanumeric Characters
Validated by RIS Authority Reference Table if required
Also called ForAccount

SHIPPEDTORIS="ABC"

Attribute in Shipment node
4 Alphanumeric Characters
Validated by RIS Authority Reference Table if required
Also called ToAccount

TRANSFERAUTHORITY=""

Attribute in Shipment node

17 Alphanumeric Characters

No validation performed.

UKFLAG=""

Attribute in Shipment node

1 Alpha Character

Validated by SpecialIAEACode section of StaticData Authority

Reference Table, acceptable values are blank, N or R

Also called SpecialIAEACode

The IAEA UK reportable indication is only required for transactions involving United Kingdom facilities. Reporting 'R' indicates that the UK data is reportable to the IAEA. Reporting 'N' indicates that the UK data is not reportable to the IAEA. Leave this field blank for data that does not involve the United Kingdom facilities.

ACTIONDATE="4/25/2011"

Attribute in Shipment node

Date in mm/dd/yyyy format

Also called Activity Date

LICENSENUMBER=""

Attribute in Shipment node

10 Alphanumeric Characters

Validated by INMTS Authority Reference Table if required

PORTOFENTRY=""

Attribute in Shipment node

4 Alphanumeric Characters

Discontinued 10/2003

TOTALGROSSWEIGHT="0"

Attribute in Shipment node

Integer, non-negative

Also know as GrossWeight

TOTALVOLUME="0"

Attribute in Shipment node

Integer, non-negative

SEALEDSOURCE=""

Attribute in Shipment node

10 Alphanumeric Characters

No validation occurs at this time.

TOTRANSFERAUTHORITY=""

Attribute in Shipment node

17 Alphanumeric Characters

No longer validated, was used for Contract Transfers.

>

<**CONCISENOTE** a node and a child of Shipment

There may be as many lines as required to send the concise note information

LINENUMBER="1"
Attribute in ConciseNote node
Integer, non-negative

ENTRYREFERENCE="ENTRY"
Attribute in ConciseNote node
20 Alphanumeric Characters

TEXTOFCONCISENOTE="MESSAGE OF CONCISE NOTE"
Attribute in ConciseNote node
60 Alphanumeric Characters

/>

<**OBLIGATION** a node and a child of Shipment
>

<**MATERIAL** a node and a child of Obligation
There may be as many lines as required to report the obligation
information

LINENUMBER="1"
Attribute in Material node
Integer, non-negative

COUNTRYCODE="CA"
Attribute in Material node
2 Alpha Character
Validated by CountryCode section of StaticData Authority Reference
Table

>

<**ELEMENT** a node and a child of Material
ELEMENTWEIGHT="99.0000000"
Attribute in Element node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
decimal point is not implied

>

<**ISOTOPE** a node and a child of Element
MATERIALTYPE="20"
Attribute in Isotope node
2 Alphanumeric Characters
Validated by MaterialType Authority Reference
Table

ISOTOPEWEIGHT="9.0000000"
Attribute in Isotope node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied

```
    />  
  </ELEMENT>  
</MATERIAL>  
</OBLIGATION>
```

<MATERIAL is a node and a child of Shipment
It contains the information from the Detail records, data code
types 2 and 5

LINENUMBER="1"

Attribute in Material node
Integer, non-negative

TYPEINVENTORYCHANGE="34"

Attribute in Material node
2 Alphanumeric Characters
Validated by list of Codes when required

BATCH="BATCH"

Attribute in Material node
16 Alphanumeric Characters

NUMBEROFITEMS="2"

Attribute in Material node
Integer

OWNER="G"

Attribute in Material node
1 Alpha Character
Validated by OwnerCode section of StaticData Authority Reference Table
Also called Owner Code

PROJECT="ABCDE03709"

Attribute in Material node
10 Alphanumeric Characters
Validated by ProjectNumber Authority Reference Table if required
Also called Project Number

COEILINENUMBER="309"

Attribute in Material node
4 Alphanumeric Characters
Validated by CompCode Authority Reference Table
Also called Comp Code
*IAEA reporting facilities should put their IAEA Comp Code or IAEA
Facility code in this field, NMMSS will translate during the import
process*

GROSSWEIGHT="100.000000"

Attribute in Material node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied

NETWEIGHT="10.000000"

Attribute in Material node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied

KEYMEASUREPOINT=""

Attribute in Material node
2 Alphanumeric Characters
Validated by IAEA Facility Attachment Authority Reference Table

MEASUREBASIS=""

Attribute in Material node
1 Alphanumeric Characters
Validated by IAEA Facility Attachment Authority Reference Table

OTHERMEASUREPOINT=""

Attribute in Material node
2 Alphanumeric Characters
Validated by IAEA Facility Attachment Authority Reference Table

MEASUREMETHOD=""

Attribute in Material node
1 Alphanumeric Characters
Validated by IAEA Facility Attachment Authority Reference Table

TOPROJECT="ABCDEF1000"

Attribute in Material node
10 Alphanumeric Characters
Validated by Project Number Authority Reference Table if required
Only reportable with P Action Code Project Transfer
Also called To Project Number

TOCOEILINENUMBER=""

Attribute in Material node
4 Alphanumeric Characters
Validated by Comp Code Authority Reference Table
Only reportable with P Action Code Project Transfer
Also called To Comp Code

BACKREFLINENUMBER="112"

Attribute in Material node
3 Alphanumeric Characters
1st Character is the BackReferenceChangeDigit
2nd and 3rd Characters are BackReferenceLinenumbers

>

<ELEMENT is a node and a child of Material

There must always be one and only one Element per node

for each Material node
ELEMENTWEIGHT="99.0000000"
Attribute in Element node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
ELEMENTLOE="10"
Attribute in Element node
Integer
>
<ISOTOPE
MATERIALTYPE="20"
Attribute in Isotope node
2 Alphanumeric Characters
Validated by MaterialType Authority Reference
Table
WEIGHTPERCENT="10.000000"
Attribute in Isotope node
Numeric (16,6)
16 digits of precision and up to 6 decimal places
Decimal point is not implied
ISOTOPEWEIGHT="9.0000000"
Attribute in Isotope node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
ISOTOPELOE="10"
Attribute in Isotope node
Integer
/>
</ELEMENT>
</MATERIAL>
</SHIPMENT>
</TRANSACTIONS>

Root Tag <TRANSACTIONS>

Header Information <SHIPMENT>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|-----------------------------|------------|-------------|------------------|-------------------------------------|
| Shipper RIS | 1 | Char(4) | ✓ | |
| Receiver RIS | 2 | Char(4) | ✓ | |
| Transaction/Transfer Number | 3 | Char(8) | ✓ | Right justified Zero fill blanks |
| Correction Number | 4 | Char(1) | | |
| Process Code | 5 | Char(1) | ✓ | See Appendix A. |

| | | | |
|---------------------------------|-----|----------|---------------|
| Action Code | 6 | Char(1) | ✓ |
| Number of Data Lines | 10 | Num(5) | ✓ |
| TI Code/Nature of Transaction | 11 | Char(1) | |
| RIS For Account | 12b | Char(4) | |
| RIS To Account | 13b | Char(4) | |
| Transfer Authority | 14 | Char(17) | |
| IAEA UK Reportable ¹ | 23c | Char(1) | |
| Action Date | 22 | Date | MM/DD/YYYY |
| License Number | 15 | Char(10) | |
| Total Gross Weight | 24 | Num(10) | Whole numbers |
| Total Volume ² | 25 | Num(10) | Whole numbers |
| Sealed Source | | Char(10) | List tag only |
| Receiving Transfer Authority | | Char(17) | List tag only |

Concise Note Information <CONCISENOTE>

Note: if concise note information is not reported, there is no need to include a Concise Note section.

| <u>Field Description</u> | <u>740M</u> | <u>Type</u> | <u>Essential Note</u> |
|--------------------------|-------------|-------------|-----------------------|
| Line Number | 7a | | |
| Entry Reference | 7b | Char(20) | |
| Concise Note Text | 7c | Char(60) | |

Material Description Information <MATERIALDESCRIPTION>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential Note</u> |
|--------------------------|------------|-------------|-----------------------|
| Description | | Char(1000) | |

Miscellaneous Information <MISCELLANEOUS>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential Note</u> |
|--------------------------|------------|-------------|-----------------------|
| Text | | Char(1000) | |

Obligation Information <OBLIGATION>

Note: if obligated data is not reported, there is no need to include an Obligation section.

Obligation Information <MATERIAL>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential Note</u> |
|--------------------------|------------|-------------|-----------------------|
| Line Number | 17 | Num(5) | ✓ |
| Country ³ | 18 | Char(2) | |

Obligation Information <ELEMENT>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential Note</u> |
|--------------------------|------------|-------------|-----------------------|
|--------------------------|------------|-------------|-----------------------|

¹ The IAEA UK reportable indication is only required for transactions involving United Kingdom facilities. Reporting 'R' indicates that the UK data is reportable to the IAEA. Reporting 'N' indicates that the UK data is not reportable to the IAEA. Leave this field blank for data that does not involve the United Kingdom facilities.

² Report total volume in cubic feet for material transferred to or from a nuclear waste management facility.

³ Call the NMMSS or go to NMMSS.com for the latest list of obligation country.

| | | | | |
|---------------------------------------|----|-----------|---|--|
| Obligated Element Weight ⁴ | 20 | Num(19,7) | ✓ | |
| | | | | <i>Value must include a decimal point.</i> |
| Unit of Measure | | Char(4) | | List tag only |

Obligation Information <ISOTOPE>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|---|------------|-------------|------------------|--|
| Material Type | 19 | Char(2) | | |
| Obligated Isotope Weight ^{5,6} | 21 | Num(19,7) | ✓ | <i>Value must include a decimal point.</i> |
| Unit of Measure | | Char(4) | | List tag only |

Detail Information <MATERIAL>

Note: If both the element weight and isotope weight are zero, there is no need to include a Material section.

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|-------------------------------------|------------|-------------|------------------|------------------|
| Project Number ⁷ | 26/27 f | Char(10) | | |
| Composition Facility Code | 26/27 h | Char(4) | | |
| Type of Inventory Change | 26/27 c | Char(2) | | |
| Owner Code | 26/27 i | Char(1) | | |
| Key Measurement Point | 26/27 j | Char(2) | | |
| Measurement Basis | 26/27 k1 | Char(1) | | |
| Other Measurement Point | 26/27 k2 | Char(2) | | |
| Measurement Method | 26/27 k3 | Char(1) | | |
| Gross Weight | 26/27 l | Num(10) | | |
| Net Weight | 26/27 m | Num(10) | | |
| Receiving Project Number | | Char(10) | | List tag only |
| Receiving Composition Facility Code | | Char(4) | | List tag only |
| Back Reference Number ⁸ | 26/27 a | Char(3) | | Zero fill blanks |
| Line Number | 26/27 b | Num(5) | ✓ | |
| Batch Name/Identification | 26/27 d | Char(16) | | ALL Caps |
| Number of Items | 26/27 e | Num(2) | | |

Detail Information <ELEMENT>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|-----------------------------|------------|-------------|------------------|-------------|
| Element Weight ⁵ | 26/27 n | Num(19,7) | ✓ ⁹ | |

⁴ The RIS must attain authorization from NRC to report to the 3rd decimal. Three decimal reporting is only allowed when reporting Source Material.

⁵ The RIS must attain authorization from NRC to report to the 3rd decimal. Three decimal reporting is only allowed when reporting Source Material.

⁶ Obligated Isotope Weight is required for Enriched Uranium only.

⁷ Project numbers are reported only for government owned material.

⁸ Back Reference Number; the first character is the correction identifier. The second and third characters are the line number referenced. When reported, insert zeros for blank values.

| | | | |
|------------------------|---------|---------|---|
| Element Limit of Error | 26/27 o | Num(5) | <i>Value must include a decimal point.</i> Whole numbers |
| Unit of Measure | | Char(4) | List tag only |

⁹ Element or Isotope weight may be essential to successful file import depending on the specified material type.

Detail Information <ISOTOPE>

| <u>Field Description</u> | <u>741</u> | <u>Type</u> | <u>Essential Note</u> |
|--|-------------------|------------------------|---|
| Material Type | 26/27 g | Char(2) | |
| Weight Percent Isotope/Parts Per Million | 26/27 p | Num(6,4) ¹⁰ | <i>Value must include a decimal point.</i> |
| Isotope Weight ¹¹ | 26/27 q | Num(19,7) | ✓ ¹² <i>Value must include a decimal point.</i> |
| Isotope Limit of Error | 26/27 r | Num(5) | Whole numbers |
| Unit of Measure | | Char(4) | List tag only |

¹⁰ Weight Percent Isotope/Parts Per Million is reported as a percentage except when the material type is 70 (total uranium enriched in U-233), which is reported using 6 numeric digits and converted to decimal form by NMMSS.

¹¹ The RIS must attain authorization from NRC to report to the 3rd decimal. Three decimal reporting is only allowed when reporting Source Material.

¹² Element or Isotope weight may be essential to successful file import depending on the specified material type.

3. INVENTORY DATA

3.1. Requirements for DOE/NRC Form 742C

3.1.1. XML File Formatting

An example of an inventory submission in XML format is shown below. Additional examples are shown in Appendix B along with the corresponding DOE/NRC form. This is an example of raw XML produced by SAMS.

```
<PHYSICALINVENTORY VERSION="2">
  <INVENTORY RIS="ABC" DATE="1/1/2011">
    <MATERIAL PROCESSCODE="" SEQUENCENUMBER="1" PROJECT="" COEILINENUMBER=""
OWNER="" KEYMEASUREPOINT="" MEASUREBASIS="" OTHERMEASUREPOINT=""
MEASUREMETHOD="" SCRAPPROGRAM="" ENTRYSTATUS="" NUMBEROFITEMS="0" BATCH=""
LOCATION="" SITEMBA="">
      <CONCISENOTE PROCESSCODE="" LINENUMBER="1" ENTRYREFERENCE="ENTRY REF"
TEXTOFCONCISENOTE="TEXT" />
      <ELEMENT ELEMENTWEIGHT="0.000000" UNIT="">
        <ISOTOPE MATERIALTYPE="R" WEIGHTPERCENT="0.000000" ISOTOPEWEIGHT="0.000000"
UNIT="" />
      </ELEMENT>
    </MATERIAL>
  </INVENTORY>
</PHYSICALINVENTORY>
```

An important part of the XML format is the nesting of the records that make up a 742C. In XML there are identifiers called Nodes which correspond to rows in the XML data. The Nodes have identifiers called Attributes which correspond to the data fields. For example, the Inventory Node corresponds to the 742C Header record and the RIS Attribute is the RIS field of the Header record. Another important element of XML Nodes is that they can contain other nodes as known as nested nodes. The Inventory Node (parent) can have MATERIAL and CONCISENOTE nodes (children). The following shows the nesting of the nodes for a 742C.

```
INVENTORY (RIS and date.)
  MATERIAL
    0 to many lines required to report the inventory data
    ELEMENT
      Contains element information for MATERIAL
      ISOTOPE
        Contains isotope information for ELEMENT
  CONCISENOTE
    0 to many lines that make up the concise note
```

The next sample is the same XML file as above, but has been indented using tabs to make it for readable to the human eye. It will process the same as the raw data. It also emphasizes the nesting of the data rows in the XML.

```
<PHYSICALINVENTORY VERSION="2">
  <INVENTORY
    RIS="ABC" DATE="1/1/2011">
    <MATERIAL
      PROCESSCODE="" SEQUENCENUMBER="1" PROJECT="" COEILINENUMBER=""
OWNER=""
      KEYMEASUREPOINT="" MEASUREBASIS="" OTHERMEASUREPOINT=""
MEASUREMETHOD=""
      SCRAPPROGRAM="" ENTRYSTATUS="" NUMBEROFITEMS="0" BATCH=""
LOCATION="" SITEMBA="">
      <CONCISENOTE
        PROCESSCODE="" LINENUMBER="1" ENTRYREFERENCE="ENTRY REF"
TEXTOFCONCISENOTE="TEXT" />
      <ELEMENT
        ELEMENTWEIGHT="0.0000000" UNIT="">
        <ISOTOPE
          MATERIALTYPE="20" WEIGHTPERCENT="0.000000"
ISOTOPEWEIGHT="0.0000000" UNIT="" />
        </ELEMENT>
      </MATERIAL>
    </INVENTORY>
  </PHYSICALINVENTORY>
```

This last listing shows the nodes and attributes in their properly nested configuration with information detailing the data requirements.

```
<PHYSICALINVENTORY VERSION="2">
  <INVENTORY
    RIS="ABC"
      Attribute in Inventory node
      4 Alphanumeric Characters
      Validated by RIS Authority Reference Table
    DATE="1/1/2011"
      Attribute in Inventory node
      Date in mm/dd/yyyy format
      Also called Inventory Report Date
  >
  <MATERIAL
    PROCESSCODE="C"
      Attribute in Material node
      1 Alpha Character
      Accepted values A,C or D
```

SEQUENCENUMBER="1"

Attribute in Material node
Integer, non-negative

BATCH="BATCH"

Attribute in Material node
16 Alphanumeric Characters

NUMBEROFITEMS="2"

Attribute in Material node
Integer

OWNER="G"

Attribute in Material node
1 Alpha Character
Validated by OwnerCode section of StaticData Authority

Reference Table

Also called Owner Code

PROJECT="ABCDE03709"

Attribute in Material node
10 Alphanumeric Characters
Validated by ProjectNumber Authority Reference Table if required
Also called Project Number

COEILINENUMBER="309"

Attribute in Material node
4 Alphanumeric Characters
Validated by CompCode Authority Reference Table
Also called Comp Code

*IAEA reporting facilities should put their IAEACompCode or
IAEAFacilityCode in this field
NMMSS will translate during the import process*

KEYMEASUREPOINT=""
Attribute in Material node
2 Alphanumeric Characters
Validated by IAEAFacilityAttachment Authority Reference Table

MEASUREBASIS=""
Attribute in Material node
1 Alphanumeric Characters
Validated by IAEAFacilityAttachment Authority Reference Table

OTHERMEASUREPOINT=""
Attribute in Material node
2 Alphanumeric Characters
Validated by IAEAFacilityAttachment Authority Reference Table

MEASUREMETHOD=""
Attribute in Material node
1 Alphanumeric Characters
Validated by IAEAFacilityAttachment Authority Reference Table

LOCATION=""
Attribute in Material node
20 Alphanumeric Characters
No validation occurs at this time

SITEMBA=""
Attribute in Material node
20 Alphanumeric Characters
No validation occurs at this time

>

<CONCISENOTE
PROCESSCODE="C"
Attribute in ConciseNote node
1 Alpha Character
Accepted values A,C or D
LINENUMBER="1"
Attribute in ConciseNote node
Integer, non-negative
ENTRYREFERENCE="ENTRY"
Attribute in ConciseNote node
20 Alphanumeric Characters
TEXTOFCONCISENOTE="MESSAGE OF CONCISE NOTE"
Attribute in ConciseNote node
60 Alphanumeric Characters

/>

<ELEMENT
ELEMENTWEIGHT="99.0000000"
Attribute in Element node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied

>

<ISOTOPE
MATERIALTYPE="20"

Attribute in Isotope node
 2 Alphanumeric Characters
 Validated by MaterialType Authority Reference Table
WEIGHTPERCENT="10.000000"
 Attribute in Isotope node
 Numeric (16,6)
 16 digits of precision and up to 6 decimal places
 Decimal point is not implied
ISOTOPEWEIGHT="9.0000000"
 Attribute in Isotope node
 Numeric (19,7)
 19 digits of precision and up to 7 decimal places
 Decimal point is not implied

/>
 </ELEMENT>
 </MATERIAL>
 </INVENTORY>
 </PHYSICALINVENTORY>

Root Tag <PHYSICALINVENTORY>

Header Information <INVENTORY>

| <u>Field Description</u> | <u>742C</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|-------------|-------------|------------------|-------------|
| RIS | 2 | Char(4) | ✓ | |
| Inventory Report Date | 3 | Date | ✓ | MM/DD/YYYY |

Concise Note Information Attached to Header <CONCISENOTE>

Note: if concise note information is not reported, there is no need to include a Concise Note section.

| <u>Field Description</u> | <u>740M</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|-------------|-------------|------------------|-----------------|
| Process Code | 5e | Char(1) | ✓ | See Appendix A. |
| Line Number | 7a | Num(2) | | |
| Entry Reference | 7b | Char(20) | | |
| Concise Note Text | 7c | Char(60) | | |

Detail Information <MATERIAL>

Note: If both the element weight and isotope weight are zero, there is no need to include a Material section.

| <u>Field Description</u> | <u>742C</u> | <u>Type</u> | <u>Essential</u> | |
|-------------------------------|-------------|-------------|------------------|-----------------|
| Process Code | 5q | Char(1) | ✓ | See Appendix A. |
| Sequence Number ¹³ | 5i | Num(6) | ✓ | |
| Project Number ¹⁴ | 5e | Char(10) | | |

¹³ Sequence number should begin at one for the entire inventory or each material type group (Generic MT 20 includes MT 21 – 39 and E1 – E4) and should be consecutively numbered including the total line (composition code 899).

¹⁴ Project numbers are reported only for government owned material.

| | | | |
|---|----|----------|----------|
| Composition-Facility Code ¹⁵ | 5b | Char(4) | |
| Owner Code | 5h | Char(1) | |
| Key Measurement Point | 5l | Char(2) | |
| Measurement Basis | 5m | Char(1) | |
| Other Measurement Point | 5m | Char(2) | |
| Measurement Method | 5m | Char(1) | |
| Scrap Program | 5f | Char(1) | |
| Entry Status | 5n | Char(1) | |
| Number of Items | 5k | Num(5) | |
| Batch Name/Identification | 5j | Char(16) | All Caps |
| Location of Item | 5o | Char(30) | |
| Site MBA Code | 5p | Char(30) | |

Concise Note Information Attached to Material (Item) <CONCISENOTE>

Note: if concise note information is not reported, there is no need to include a Concise Note section.

| <u>Field Description</u> | <u>740M</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|-------------|-------------|------------------|-----------------|
| Process Code | 5e | Char(1) | ✓ | See Appendix A. |
| Line Number | 7a | Num(2) | | |
| Entry Reference | 7b | Char(20) | | |
| Concise Note Text | 7c | Char(60) | | |

Detail Information <ELEMENT>

| <u>Field Description</u> | <u>742C</u> | <u>Type</u> | <u>Essential</u> |
|------------------------------|-------------|-------------|--|
| Element Weight ¹⁶ | 5c | Num(19,7) | ✓ ¹⁷ |
| | | | <i>Value must include a decimal point.</i> |
| Unit of Measure | | Char(4) | List tag only |

Detail Information <ISOTOPE>

| <u>Field Description</u> | <u>742C</u> | <u>Type</u> | <u>Essential</u> |
|--|-------------|------------------------|--|
| Material Type | 5a | Char(2) | |
| Weight Percent Isotope/Parts Per Million | 5g | Num(6,4) ¹⁸ | |
| | | | <i>Value must include a decimal point.</i> |
| Isotope Weight ²⁴ | 5d | Num(19,7) | ✓ ²⁵ |
| | | | <i>Value must include a decimal point.</i> |
| Unit of Measure | | Char(4) | List tag only |

4. MATERIAL BALANCE DATA

¹⁵ For total lines, this field will always contain "899".

¹⁶ The RIS must attain authorization from NRC to report to the 3rd decimal. Three decimal reporting is only allowed when reporting Source Material.

¹⁷ Element or Isotope weight may be essential to successful file import depending on the specified material type.

¹⁸ Weight Percent Isotope/Parts Per Million is reported as a percentage except when the material type is 70 (total uranium enriched in U-233), which is reported using 6 numeric digits and converted to decimal form by NMMSS.

4.1. Requirements for DOE/NRC Form 742

4.1.1. XML File Formatting

An example of material balance submission in XML format is shown below. Additional examples are shown in Appendix B along with the corresponding DOE/NRC form. This is an example of raw XML produced by SAMS.

```
<MATERIALBALANCEREPORT VERSION="2">  
  <MATERIALBALANCE RIS="YLM" STARTDATE="4/27/2010" ENDDATE="4/26/2011">  
    <MATERIAL PROCESSCODE="" SEQUENCENUMBER="2" DATACODE=""  
MATERIALBALANCECATEGORY="80">  
      <CONCISENOTE PROCESSCODE="" LINENUMBER="1" ENTRYREFERENCE="ENTRY"  
TEXTOFCONCISENOTE="TEXT" />  
      <ELEMENT ELEMENTWEIGHT="0.000000" TYPEINVENTORYCHANGE="MF" OTHERRIS="ACD"  
ENTRYSTATUS="" UNIT="">  
        <ISOTOPE MATERIALTYPE="" ISOTOPEWEIGHT="0.000000" UNIT="" />  
      </ELEMENT>  
    </MATERIAL>  
  </MATERIALBALANCE>  
</MATERIALBALANCEREPORT>
```

An important part of the XML format is the nesting of the records that make up a 742. In XML there are identifiers called Nodes which correspond to rows in the XML data. The Nodes have identifiers called Attributes which correspond to the data fields. For example, the Material Balance Node corresponds to the 742 Header record and the RIS Attribute is the RIS field of the Header record. Another important element of XML Nodes is that they can contain other nodes as known as nested nodes. The Material Balance Node (parent) can have MATERIAL nodes (children). The following shows the nesting of the nodes for a 742.

```
MATERIALBALANCE (RIS and dates.)  
  MATERIAL  
    0 to many lines required to report the Material Balance data  
  ELEMENT  
    Contains element information for MATERIAL  
  ISOTOPE  
    Contains isotope information for ELEMENT  
  CONCISENOTE  
    0 to many lines that make up the concise note
```

The next sample is the same XML file as above, but has been indented using tabs to make it for readable to the human eye. It will process the same as the raw data. It also emphasizes the nesting of the data rows in the XML.

```
<MATERIALBALANCEREPORT VERSION="2">  
  <MATERIALBALANCE  
    RIS="YLM" STARTDATE="4/27/2010" ENDDATE="4/26/2011">
```

```
<MATERIAL
  PROCESSCODE="" SEQUENCENUMBER="2" DATACODE=""
  MATERIALBALANCECATEGORY="80">
  <ELEMENT
    ELEMENTWEIGHT="0.0000000" TYPEINVENTORYCHANGE="MF"
    OTHERRIS="ACD" ENTRYSTATUS="" UNIT="">
    <ISOTOPE
      MATERIALTYPE="" ISOTOPEWEIGHT="0.0000000" UNIT="" />
    </ELEMENT>
  <CONCISENOTE
    PROCESSCODE="" LINENUMBER="1" ENTRYREFERENCE="ENTRY"
    TEXTOFCONCISENOTE="TEXT" />
  </MATERIAL>
</MATERIALBALANCE>
</MATERIALBALANCEREPORT>
```

This last listing shows the nodes and attributes in their properly nested configuration with information detailing the data requirements.

```
<MATERIALBALANCEREPORT VERSION="2">
  <MATERIALBALANCE
    RIS="ABC"
      Attribute in MaterialBalance node
      4 Alphanumeric Characters
      Validated by RIS Authority Reference Table
    STARTDATE="4/27/2010"
      Attribute in MaterialBalance node
      Date in mm/dd/yyyy format
    ENDDATE="4/26/2011"
      Attribute in MaterialBalance node
      Date in mm/dd/yyyy format
  >
  <MATERIAL
    PROCESSCODE=""
      Attribute in Material node
      1 Alpha Character
      Accepted values A,C or D
    SEQUENCENUMBER="2"
      Attribute in Material node
      Integer, non-negative
    DATACODE=""
      Attribute in Element node
      1 Alphanumeric Character
      Allowed values; 3 or 4
      Also known as TypeCode
    MATERIALBALANCECATEGORY="80"
      Attribute in Material node
      2 Alphanumeric Characters
      Validated by RIS Material Balance Category Authority Reference Table
  >
  <ELEMENT
    ELEMENTWEIGHT="0.0000000"
```

Attribute in Element node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
TYPEINVENTORYCHANGE="MF"
Attribute in Element node
2 Alpha Characters
Validated by Inventory Change Type section of StaticData

Authority Reference Table

OTHERRIS="ACD"
Attribute in Element node
4 Alphanumeric Characters
Validated by RIS Authority Reference Table
ENTRYSTATUS=""
Attribute in Element node
1 Alpha Character
Validated by Entry Status section of StaticData Authority

Reference Table

>

<ISOTOPE
MATERIALTYPE="20"
Attribute in Isotope node
2 Alphanumeric Characters
Validated by MaterialType Authority Reference Table
ISOTOPEWEIGHT="9.0000000"
Attribute in Isotope node
Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied

/>

</ELEMENT>

<CONCISENOTE

PROCESSCODE=""
Attribute in ConciseNote node
1 Alpha Character
Accepted values A,C or D

LINENUMBER="1"
Attribute in ConciseNote node
Integer, non-negative

ENTRYREFERENCE="ENTRY"
Attribute in ConciseNote node
20 Alphanumeric Characters

TEXTOFCONCISENOTE="MESSAGE OF CONCISE NOTE"
Attribute in ConciseNote node
60 Alphanumeric Characters

/>

</MATERIAL>

</MATERIALBALANCE>

</MATERIALBALANCEREPORT>

Root Tag <MATERIALBALANCEREPORT>

Header Information <MATERIALBALANCE>

| <u>Field Description</u> | <u>742</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|------------|-------------|------------------|-------------|
| RIS | 3 | Char(4) | ✓ | |
| Report Period From | 4 | Date | ✓ | MM/DD/YYYY |
| Report Period To | 4 | Date | ✓ | MM/DD/YYYY |

Concise Note Information Attached to Header <CONCISENOTE>

Note: if concise note information is not reported, there is no need to include a Concise Note section.

| <u>Field Description</u> | <u>740M</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|-------------|-------------|------------------|-----------------|
| Process Code | 5e | Char(1) | ✓ | See Appendix A. |
| Line Number | 7a | Num(2) | | |
| Entry Reference | 7b | Char(20) | | |
| Concise Note Text | 7c | Char(60) | | |

Detail Information <Material>

Note: If both the element weight and isotope weight are zero, there is no need to include a Material section.

| <u>Field Description</u> | <u>742</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|---|-------------------------------------|-------------|------------------|---------------------------------------|
| Process Code | Sec. A & B PC | Char(1) | ✓ | See Appendix A. |
| Sequence Number ¹⁹ | Sec. A & B SEQ | Num(6) | ✓ | |
| Data Code | - | Num(1) | ✓ | Value is 3 (Receipts) or 4 (Removals) |
| Material Balance Category ²⁰ | Sec A Row # Sec B column 1 | Char(2) | | Right justified Zero fill blanks |

Concise Note Information Attached to Material (Item) <CONCISENOTE>

Note: if concise note information is not reported, there is no need to include a Concise Note section.

| <u>Field Description</u> | <u>740M</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|-------------|-------------|------------------|-----------------|
| Process Code | 5e | Char(1) | ✓ | See Appendix A. |
| Line Number | 7a | Num(2) | | |
| Entry Reference | 7b | Char(20) | | |
| Concise Note Text | 7c | Char(60) | | |

Detail Information <ELEMENT>

| <u>Field Description</u> | <u>742</u> | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|--------------------------|------------|-------------|------------------|-------------|
|--------------------------|------------|-------------|------------------|-------------|

¹⁹ Sequence number should begin at one for the entire material balance per material type and should be consecutively numbered.

²⁰ Call the NMMSS or go to NMMSS.com for the latest list of Material Balance Categories codes related to Obligations (Section B)

| | | | |
|--|--|-----------|--|
| Element Weight ²¹ | Sec A column A Sec B Column 2 | Num(19,7) | ✓ ²² |
| Inventory Change Type (ICT) line 22 & 71 | | Char(2) | <i>Value must include a decimal point.</i> |
| Other RIS | line 11,30, 42,43 & 51 | Char(4) | |
| Entry Status | - | Char(1) | |
| Unit of Measure | - | Char(4) | List tag only |

Detail Information <ISOTOPE>

| <u>Field Description</u> | <u>742</u> | <u>Type</u> | <u>Essential Note</u> |
|---------------------------------|--|--------------------|---|
| Material Type | 5 | Char(2) | |
| Isotope Weight ³⁷ | Sec A column B Sec B Column 3 | Num(19,7) | ✓ ³⁸ |
| Unit of Measure | - | Char(4) | <i>Value must include a decimal point.</i> List tag only |

²¹ The RIS must attain authorization from NRC to report to the 3rd decimal. Three decimal reporting is only allowed when reporting Source Material.

²² Element or Isotope weight may be essential to successful file import depending on the specified material type.

APPENDIX A

PROCESS CODE

PROCESS CODE

DEFINITION: The process code identifies the type of system action to be taken for the data being reported as follows:

1. Process code A is used to signify the initial submittal of data. Use process code C to replacement a data set already submitted to the NMMSS;
2. Process code C is used to signify the replacement of previously reported data. Its use is restricted to the replacement of data in the same reporting month;
3. Process code D applies when the facility intends the deletion of previously reported data. Its use is also restricted to applying only to data in the same reporting month; and
4. Process code Z is used in conjunction with action code D by the receiver to accept a shipper's change without the receiver having to retype the detailed lines.

SPECIAL NOTE: If replacement or deletion of data is desired, it is suggested that the reporting facility ensures that the accounting month to be affected is still "open" (being processed by the NMMSS) by calling the appropriate NMMSS contact since these actions are restricted and based on specified accounting periods.

Example 1

XML format:

```
<TRANSACTIONS>
<SHIPMENT
  SHIPPERRIS="ABC" RECEIVERRIS="DEF" TRANSFERNUMBER="131"
  CORRECTION="" PROCESSCODE="A" ACTIONCODE="A" NUMBEROFLINES="3"
  NATUREOFTRANSACTION="" SHIPPEDFORRIS="" SHIPPEDTORIS=""
  TRANSFERAUTHORITY="" UKFLAG="" ACTIONDATE="12/31/2002"
  LICENSENUMBER="" TOTALGROSSWEIGHT="20081" TOTALVOLUME=""
  SEALEDSOURCE="" TOTRANSFERAUTHORITY="">
<MATERIAL
  PROJECT="" COEILINENUMBER="309" TYPEINVENTORYCHANGE=""
  OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT=""
  NETWEIGHT="" TOPROJECT="" TOCOEILINENUMBER=""
  BACKREFLINENUMBER="" LINENUMBER="1" BATCH="A BATCH ID"
  NUMBEROFITEMS="1">
<ELEMENT
  ELEMENTWEIGHT="426.00" ELEMENTLOE="" UNIT="" >
  <ISOTOPE
    MATERIALTYPE="10" WEIGHTPERCENT="0.6610"
    ISOTOPEWEIGHT="3.00" ISOTOPELOE="" UNIT="" >
  </ISOTOPE>
</ELEMENT>
</MATERIAL>
<MATERIAL
  PROJECT="" COEILINENUMBER="309" TYPEINVENTORYCHANGE=""
  OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT=""
  NETWEIGHT="" TOPROJECT="" TOCOEILINENUMBER=""
  BACKREFLINENUMBER="" LINENUMBER="2" BATCH="A BATCH ID"
  NUMBEROFITEMS="1">
<ELEMENT
  ELEMENTWEIGHT="2213.00" ELEMENTLOE="" UNIT="" >
  <ISOTOPE
    MATERIALTYPE="20" WEIGHTPERCENT="2.5305"
    ISOTOPEWEIGHT="56.00" ISOTOPELOE="" UNIT="" >
  </ISOTOPE>
</ELEMENT>
</MATERIAL>
<MATERIAL
  PROJECT="" COEILINENUMBER="309" TYPEINVENTORYCHANGE=""
  OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT=""
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Example 2

XML format:

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Example 3a

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

NUCLEAR MATERIAL TRANSACTION REPORT

DO ENRC FORM 711
ISSUED PREVIOUS EDITIONS OBSOLETE
APPROVED BY (DO ENRC) 40,50,70,72,74,75, 150 PUBLIC
UNW 03/12/05-03, 05/01

APPROVED BY (DO ENRC) 3 (6-xxxx)
Estimated burden per response to comply with this mandatory collection request is minimal. This information is required for RRI accounting reports that show changes in inventory of nuclear materials. Send comments regarding burden estimate to the Records Management Branch (74-05), U.S. Nuclear Regulatory Commission, Washington DC 20555-4001, or by Internet email to records@nrc.gov, and to the local Office of Information Management Regulatory Affairs, NRC Region (40-05-xxxx), Office of Management and Budget, Washington, DC 20503. Do not mail to impose an information collection does not change a current valid OMB control number. This OMB control number may not be conducted or sponsored by a person that is not approved to the information collection.

EXPIRES 12/31/17

| | | | | | |
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| 1. SHIPPER'S RIS | 2. RECEIVER'S RIS | 3. TRANSACTION NO. | 4. CORRECTION NO. | 5. RECEIVING CODE | 6. ACTION CODE |
| ABC | DEF | 131 | | | |
| 7. NAME AND ADDRESS OF SHIPPER | 8. NAME AND ADDRESS OF RECEIVER | 9. NO. OF PARTS | 10. NO. OF PARTS | 11. NUMBER OF TRANSACTION | 12. DISTRIBUTION OF COPIES |
| Advanced Physics 123 Anywhere Road Commontown ZA 1111 | | 0 | | 12345678901234567890 | 1 2 3 4 5 6 7 8 9 |
| 13. ATTENTION | 14. TELEPHONE | 15. TELEPHONE | 16. TRANSPORT AUTHORITY, CONTRACT, MATERIAL, OR ORDER NUMBER | 17. EXPORT OF NUCLEAR MATERIALS LICENSE NO. | |
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| 18. MATERIAL TYPE AND DESCRIPTION | 19. NUCLEAR BASIS | 20. NUCLEAR BASIS | 21. NUCLEAR BASIS | 22. ACTION DATE | 23. MONTH YEAR (MM/YY) |
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Example 3c

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| DOE/NRC FORM 740M PUBLIC RELEASE AND DISTRIBUTION ARE UNRESTRICTED AUTHORIZED BY DOE/NRC 40150, 70, 72, 74, 75, 80 PUBLIC LAW 95-623, 95-651 | | U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION | | APPROVED BY OMB NO. 3150-0008 Expires 05/31/2016 Be limited to one response to comply with the mandatory collection request rules. This information is required by the providers of the IERMS. Subsequent Agreement. Send comments regarding burden estimate to the Records Management Branch (70150, U.S. Nuclear Regulatory Commission, Washington DC 20545-0001), or to the Office of Management and Budget (Washington, DC 20503). It is a means used to impose an information collection burden on individuals. 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. | |
| CONCISE NOTE | | 2. ATTACHMENT TO <input checked="" type="checkbox"/> A. DOE/NRC 741 <input type="checkbox"/> B. DOE/NRC 742 <input type="checkbox"/> C. DOE/NRC 743 | | 3. RIS | |
| STREET ADDRESS 123 Anywhere Road CITY Commontown | | 5. TRANSACTION DATA A. SHIPPERS REF: ABC B. REVIEWERS REF: RGHI C. TRANSMISSION NUMBER: 10257 D. CORR. NUMBER: E. PC: A F. AC: A | | 4. REPORTING PERIOD FROM: TO: 6. REPORTING DATE | |
| 7a. LINE NO. | 7b. ENTRY REFERENCE | 7c. TEXT OF CONCISE NOTE | | | |
| 01 | Whole Report | Country of Oblig Code 32 Canada BL18 | | | |
| 02 | Whole Report | MBA Code UABC BL1 | | | |
| 03 | Whole Report | Batch ID -Any Batch Name- BL24d | | | |
| 04 | Whole Report | Material Type Code BL24g as follows: | | | |
| 05 | Whole Report | US material type 10 is IAEA code D | | | |
| 06 | Whole Report | US material type 20 is IAEA code EG | | | |
| To the best of my knowledge and belief, the information given above and in any attached schedule is true, complete, and correct. | | | | | |
| 8. SIGNATURE (See instructions [NUREG/BR-R-0006] for provisions regarding confidentiality.) | | 9. TITLE | | 10. DATE | |
| John Doe | | MC&A Representative | | 12/31/2002 | |
| WARNINGS: 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. | | | | | |

Example 3a, 3b, 3c, 3d

XML format:

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    TRANSFERAUTHORITY="" UKFLAG="" ACTIONDATE="12/31/2002" LICENSENUMBER=""
    TOTALGROSSWEIGHT="" TOTALVOLUME="" SEALEDSOURCE=""
    TOTRANSFERAUTHORITY="">
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  <SHIPMENT
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    CORRECTION="" PROCESSCODE="A" ACTIONCODE="A" NUMBEROFLINES="3"
    NATUREOFTRANSACTION="" SHIPPEDFORRIS="" SHIPPEDTORIS=""
    TRANSFERAUTHORITY="" UKFLAG="" ACTIONDATE="12/31/2002"
    LICENSENUMBER="GEN-LIC" TOTALGROSSWEIGHT="58499" TOTALVOLUME=""
    SEALEDSOURCE="" TOTRANSFERAUTHORITY="">
    <CONCISENOTE
      LINENUMBER="1" ENTRYREFERENCE="WHOLE REPORT"
      TEXTOFCONCISENOTE="Country of Oblig Code 32 Canada BL18">
    </CONCISENOTE>
    <CONCISENOTE
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      TEXTOFCONCISENOTE="MBA Code UABC BL1">
    </CONCISENOTE>
    <CONCISENOTE
      LINENUMBER="3" ENTRYREFERENCE="WHOLE REPORT"
      TEXTOFCONCISENOTE="Batch ID -Any Batch Name- BL24d">
    </CONCISENOTE>
    <CONCISENOTE
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      TEXTOFCONCISENOTE="Material Type Code BL24g as follows">
    </CONCISENOTE>
    <CONCISENOTE
      LINENUMBER="5" ENTRYREFERENCE="WHOLE REPORT"
      TEXTOFCONCISENOTE="US material type 10 is IAEA code D">
    </CONCISENOTE>
    <CONCISENOTE
      LINENUMBER="6" ENTRYREFERENCE="WHOLE REPORT"
      TEXTOFCONCISENOTE="US material type 20 is IAEA code EG">
    </CONCISENOTE>
  <OBLIGATION>
    <MATERIAL
      LINENUMBER="1" COUNTRYCODE="32">
      <ELEMENT
        ELEMENTWEIGHT="426.00" UNIT="">
        <ISOTOPE
          MATERIALTYPE="10" ISOTOPEWEIGHT="0.00" UNIT=""/>
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL>
    <MATERIAL
      LINENUMBER="2" COUNTRYCODE="32">
      <ELEMENT
        ELEMENTWEIGHT="2213.00" UNIT="">
        <ISOTOPE
          MATERIALTYPE="20" ISOTOPEWEIGHT="56.00" UNIT=""/>
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL>
  </OBLIGATION>
</TRANSACTIONS>
```

```

    </MATERIAL
  </OBLIGATION>
  <MATERIAL
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    KEYMEASUREPOINT="" MEASUREBASIS="" OTHERMEASUREPOINT=""
    MEASUREMETHOD="" GROSSWEIGHT="" NETWEIGHT="" TOPROJECT=""
    TOCOEILINENUMBER="" BACKREFLINENUMBER="" LINENUMBER="1" BATCH=""
    NUMBEROFITEMS="1">
    <ELEMENT
      ELEMENTWEIGHT="420.00" ELEMENTLOE="" UNIT="" >
      <ISOTOPE
        MATERIALTYPE="10" WEIGHTPERCENT="0.6610"
        ISOTOPEWEIGHT="3.00" ISOTOPELOE="" UNIT="" >
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
  <MATERIAL
    PROJECT="" COEILINENUMBER="309" TYPEINVENTORYCHANGE="" OWNER="J"
    KEYMEASUREPOINT="" MEASUREBASIS="" OTHERMEASUREPOINT=""
    MEASUREMETHOD="" GROSSWEIGHT="" NETWEIGHT="" TOPROJECT=""
    TOCOEILINENUMBER="" BACKREFLINENUMBER="" LINENUMBER="2" BATCH=""
    NUMBEROFITEMS="1">
    <ELEMENT
      ELEMENTWEIGHT="2213.00" ELEMENTLOE="" UNIT="" >
      <ISOTOPE
        MATERIALTYPE="20" WEIGHTPERCENT="2.5305"
        ISOTOPEWEIGHT="56.00" ISOTOPELOE="" UNIT="" >
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
</SHIPMENT>
<SHIPMENT
  SHIPPERRIS="ABC" RECEIVERRIS="ABC" TRANSFERNUMBER="00021229"
  CORRECTION="" PROCESSCODE="A" ACTIONCODE="M" NUMBEROFLINES="2"
  NATUREOFTRANSACTION="" SHIPPEDFORRIS="" SHIPPEDTORIS=""
  TRANSFERAUTHORITY="" UKFLAG="" ACTIONDATE="12/31/2002" LICENSENUMBER=""
  TOTALGROSSWEIGHT="" TOTALVOLUME="" SEALEDSOURCE=""
  TOTRANSFERAUTHORITY="">
  <MATERIAL
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    OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
    OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT=""
    NETWEIGHT="" TOPROJECT="" TOCOEILINENUMBER=""
    BACKREFLINENUMBER="" LINENUMBER="1" BATCH="" NUMBEROFITEMS="">
    <ELEMENT
      ELEMENTWEIGHT="4767.00" ELEMENTLOE="" UNIT="" >
      <ISOTOPE
        MATERIALTYPE="50" WEIGHTPERCENT="45.6681"
        ISOTOPEWEIGHT="1255.00" ISOTOPELOE="" UNIT="" >
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
  <MATERIAL
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    OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
    OTHERMEASUREPOINT="" MEASUREMETHOD="" GROSSWEIGHT=""
    NETWEIGHT="" TOPROJECT="" TOCOEILINENUMBER=""
    BACKREFLINENUMBER="" LINENUMBER="2" BATCH="" NUMBEROFITEMS="">

```

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<ELEMENT
  ELEMENTWEIGHT="10945.00" ELEMENTLOE="" UNIT="" >
  <ISOTOPE
    MATERIALTYPE="50" WEIGHTPERCENT="24.4303"
    ISOTOPEWEIGHT="10945.00" ISOTOPELOE="" UNIT="" >
  </ISOTOPE>
</ELEMENT>
</MATERIAL>
</SHIPMENT>
</TRANSACTIONS>
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Example 4 Physical Inventory Listing

| NRC FORM 742CU (MM-YYYY) DATA COLLECTION AND REPORTING TO OCH, 30, 40, 50, 70, 72, 74, 75, 80, Public Laws 83-703, 93-438, 95-91 | | U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION | | APPROVED BY OMB: NO. 3150-0058 | | EXPRES: MM/DD/YYYY | | | | | | | | | | | | | |
|---|-----------------|--|-------------------|---|------------------|-----------------------------|---------------|----------------------|---------------|----------------|----------------------|---------------------------------|----------------------|-----------------------|-----------|--------|--------|-----------------------|---|
| PHYSICAL INVENTORY LISTING | | | | Estimated burden per response to comply with this mandatory collection required 6 hours. This information is required by NRC to fulfill its safeguards responsibilities, bilateral agreements, and responsibilities as a participant in the US/IAEA Safeguards Agreement. Send comments regarding burden estimate to the Records and FOIA/Private Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet email to nrc.comments@nrc.gov . For more information on this collection, contact the Office of Management and Budget, Paperwork Project Director (M-2050), Washington, DC 20503. If a measure 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. | | | | | | | | | | | | | | | |
| 1. NAME AND ADDRESS <i>Advanced Physics</i> <i>123 Anywhere Road</i> <i>Commontown</i> | | | | 2. REPORTING IDENTIFICATION SYMBOL (RIS) ABC | | | | | | | | | | | | | | | |
| STATE <i>LA</i> | | ZIP CODE <i>11111</i> | | 3. INVENTORY DATE 12/31/2002 | | 4. LICENSE NUMBER(S) | | | | | | | | | | | | | |
| 5. BATCH DATA | | | | | | | | | | | | | | | | | | | |
| a. MATERIAL CODE TYPE | b. ELEMENT CODE | c. ELEMENT WEIGHT | d. ISOTOPE WEIGHT | e. DOE PROJECT NO. | f. SCRAP PROGRAM | g. MEASUREMENT CENT ISOTOPE | h. OTHER CODE | i. RESOLVENCE NUMBER | j. BATCH NAME | k. NO OF ITEMS | l. KEY MEASURE POINT | m. MEASUREMENT BASIS | n. MEASUREMENT POINT | o. MEASUREMENT METHOD | p. STATUS | q. MBE | r. IDC | s. PROC CODE | |
| E1 | 860 | 99 | 3 | | | | J | 1 | | | | | | | | | | | A |
| E1 | 863 | 61 | 1 | | | | J | 2 | | | | | | | | | | | A |
| E1 | 864 | 45 | 2 | | | | J | 3 | | | | | | | | | | | A |
| E1 | 865 | 65 | 4 | | | | J | 4 | | | | | | | | | | | A |
| 6. TOTALS | | 270 | 10 | | | | | 5 | | | | | | | | | | | |
| To the best of my knowledge and belief, the information given above and in any attached schedules is true, complete, and correct. | | | | | | | | | | | | | | | | | | | |
| 7. SIGNATURE <i>John Doe</i> | | | | | | | | | | | | 8. TITLE MC&A Representative | | | | | | 9. DATE 12/31/2002 | |
| 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. | | | | | | | | | | | | | | | | | | | |

Example 4

XML format:

```
<PHYSICALINVENTORY>
<INVENTORY
  RIS="ABC" DATE="12/31/2002" >
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="1" PROJECT=""
    COEILINENUMBER="860" OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
    OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""
    ENTRYSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">
  <ELEMENT
    ELEMENTWEIGHT="99.00" UNIT="">
  <ISOTOPE
    MATERIALTYPE="E1" WEIGHTPERCENT=""
    ISOTOPEWEIGHT="3.00" UNIT="">
  </ISOTOPE>
  </ELEMENT>
</MATERIAL>
<MATERIAL
  PROCESSCODE="A" SEQUENCENUMBER="2" PROJECT=""
  COEILINENUMBER="863" OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""
  ENTRYSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">
  <ELEMENT
    ELEMENTWEIGHT="61.00" UNIT="">
  <ISOTOPE
    MATERIALTYPE=" E1" WEIGHTPERCENT=""
    ISOTOPEWEIGHT="1.00" UNIT="">
  </ISOTOPE>
  </ELEMENT>
</MATERIAL>
<MATERIAL
  PROCESSCODE="A" SEQUENCENUMBER="3" PROJECT=""
  COEILINENUMBER="864" OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""
  ENTRYSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">
  <ELEMENT
    ELEMENTWEIGHT="45.00" UNIT="">
  <ISOTOPE
    MATERIALTYPE=" E1" WEIGHTPERCENT=""
    ISOTOPEWEIGHT="2.00" UNIT="">
  </ISOTOPE>
  </ELEMENT>
</MATERIAL>
<MATERIAL
  PROCESSCODE="A" SEQUENCENUMBER="4" PROJECT=""
  COEILINENUMBER="865" OWNER="J" KEYMEASUREPOINT="" MEASUREBASIS=""
  OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""
  ENTRYSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">
  <ELEMENT
    ELEMENTWEIGHT="65.00" UNIT="">
  <ISOTOPE
    MATERIALTYPE=" E1" WEIGHTPERCENT=""
    ISOTOPEWEIGHT="4.00" UNIT="">
  </ISOTOPE>
  </ELEMENT>
</MATERIAL>
</MATERIAL
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```
PROCESSCODE="A" SEQUENCENUMBER="5" PROJECT=""  
COEILINENUMBER="899" OWNER="" KEYMEASUREPOINT="" MEASUREBASIS=""  
OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""  
ENTRYSSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">  
<ELEMENT  
  ELEMENTWEIGHT="270.00" UNIT="">  
  <ISOTOPE  
    MATERIALTYPE="20" WEIGHTPERCENT=""  
    ISOTOPEWEIGHT="10.00" UNIT="">  
  </ISOTOPE>  
</ELEMENT>  
</MATERIAL>  
</INVENTORY>  
</PHYSICALINVENTORY>
```


Example 5

XML format:

```
<PHYSICALINVENTORY>
<INVENTORY
  RIS="ABC" DATE="12/31/2002">
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="1" PROJECT=""
    COEILINENUMBER="OGRB" OWNER="J" KEYMEASUREPOINT="02"
    MEASUREBASIS="N" OTHERMEASUREPOINT="" MEASUREMETHOD=""
    SCRAPPROGRAM="" ENTRYSTATUS="N" NUMBEROFITEMS="10"
    BATCH="BATCH0422" LOCATION="" SITEMBA="">
    <ELEMENT
      ELEMENTWEIGHT="155.00" UNIT="">
      <ISOTOPE
        MATERIALTYPE="E3" WEIGHTPERCENT=""
        ISOTOPEWEIGHT="112.00" UNIT="">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="2" PROJECT=""
    COEILINENUMBER="OGRB" OWNER="J" KEYMEASUREPOINT="02"
    MEASUREBASIS="N" OTHERMEASUREPOINT="" MEASUREMETHOD=""
    SCRAPPROGRAM="" ENTRYSTATUS="N" NUMBEROFITEMS="10"
    BATCH="BATCH0434" LOCATION="" SITEMBA="">
    <ELEMENT
      ELEMENTWEIGHT="268.00" UNIT="">
      <ISOTOPE
        MATERIALTYPE="E3" WEIGHTPERCENT=""
        ISOTOPEWEIGHT="159.00" UNIT="">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="3" PROJECT=""
    COEILINENUMBER="899" OWNER="" KEYMEASUREPOINT="" MEASUREBASIS=""
    OTHERMEASUREPOINT="" MEASUREMETHOD="" SCRAPPROGRAM=""
    ENTRYSTATUS="" NUMBEROFITEMS="" BATCH="" LOCATION="" SITEMBA="">
    <ELEMENT
      ELEMENTWEIGHT="423.00" UNIT="">
      <ISOTOPE
        MATERIALTYPE="20" WEIGHTPERCENT=""
        ISOTOPEWEIGHT="271.00" UNIT="">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
</INVENTORY>
</PHYSICALINVENTORY>
```

Example 6a
Material Balance Report

| | | | | | | | |
|---|----------|---|------------|---|--|---|--|
| DOE/NRC FORM 742U <small>(MM-YYYY) MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30.40, 50, 70, 72, 74, 75, 150, Public Laws 83-703, 93-438, 95-91</small> | | U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION | | APPROVED BY OMB: NO. 3150-0004 | | EXPIRES: MM/DD/YYYY | |
| MATERIAL BALANCE REPORT | | | | <small>Estimated burden per response to comply with this mandatory collection request: 5 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), 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, (3150-0004), Office of Management and Budget, Washington, DC 20503. 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.</small> | | | |
| 1. NAME AND ADDRESS <i>Advanced Physics 123 Anywhere Road Commontown, ZA 11111</i> | | | | 2. LICENSE NUMBER(S) | | 3. REPORTING IDENTIFICATION SYMBOL (RIS) ABC | |
| | | | | 4. REPORT PERIOD (MM/DD/YYYY) FROM: 01/01/2002 TO: 12/31/2002 | | 5. MATERIAL TYPE (Submit separate report for each type) 50 | |
| SECTION A MATERIAL ACCOUNTABILITY | | | | | | | |
| PC | SEQ | | | A. ELEMENT WEIGHT | | B. ISOTOPE WEIGHT | |
| A | 1 | 8. BEGINNING INVENTORY -- U.S. GOVT-OWNED | | 0.00 | | 0.00 | |
| | | 9. BEGINNING INVENTORY -- NOT U.S. GOVT-OWNED | | | | | |
| | | RECEIPTS | | | | | |
| | | 11. PROCUREMENT FROM DOE RIS | | | | | |
| A | 2 | FROM: | DEF | 11207.00 | | 1112.00 | |
| | | | | | | | |
| | | 13. PROCUREMENT -- FOR THE ACCOUNT OF DOE | | | | | |
| | | 14. DOD RETURNS -- USE A | | | | | |
| | | 15. DOD RETURNS -- USE B | | | | | |
| | | 16. DOD RETURNS -- OTHER USES | | | | | |
| | | 21. PRODUCTION | | | | | |
| | | 22. FROM OTHER MATERIALS | | | | | |
| | | | a. ICT | | | | |
| | | | b. ICT | | | | |
| | | | c. ICT | | | | |
| | | 30. RECEIPTS REPORTED TO DOE/NRC ON DOE/NRC 741 (not listed elsewhere) | | | | | |
| A | 3 | FROM: | RIS | 38.00 | | 25.00 | |
| | | | GHI | | | | |
| | | | | | | | |
| | | 34. RECEIPTS -- MISC | | | | | |
| | | 37. PROCUREMENT BY OTHERS | | | | | |
| | | 38. DONATED MATERIAL -- FROM U.S. GOVT TO OTHERS | | | | | |
| | | 39. DONATED MATERIAL -- FROM OTHERS TO U.S. GOVT | | | | | |
| | | 40. TOTAL (Lines 8-39) | | | | | |
| | | REMOVALS | | | | | |
| | | 41. EXPENDED IN SPACE PROGRAMS | | | | | |
| | | 42. SALES TO U.S. GOVT RIS TO: | | | | | |
| | | | RIS | | | | |
| | | TO: | | | | | |
| | | 43. SALES TO OTHERS FOR THE ACCOUNT OF U.S. GOVT RIS | | | | | |
| | | TO: | | | | | |
| | | 44. DOD -- USE A | | | | | |
| | | 45. DOD -- USE B | | | | | |
| A | 4 | 46. DOD -- OTHER USES | | 2.00 | | 1.00 | |
| | | 47. EXPENDED IN U.S. GOVT TESTS | | | | | |
| | | 48. ROUTINE TESTS | | | | | |
| | | 49. SHIPPER -- RECEIVER DIFFERENCE | | | | | |
| | | 51. SHIPMENTS REPORTED TO NRC/DOE ON NRC/DOE 741 (not listed elsewhere) | | | | | |
| | | TO: | | | | | |
| | | | RIS | | | | |

Example 6b
Material Balance Report

| | | | | | | | |
|--|-----|---|--|---|--|---|--|
| DOE/NRC FORM 742U <small>(MM-YYYY) MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, Public Laws 83-703, 93-438, 95-91</small> | | U.S. DEPARTMENT OF ENERGY AND U.S. NUCLEAR REGULATORY COMMISSION | | APPROVED BY OMB: NO. 3150-0004 | | EXPIRES: MM/DD/YYYY | |
| MATERIAL BALANCE REPORT | | | | <small>Estimated burden per response to comply with this mandatory collection request: 5 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Services Branch (T-5 F52), 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, (3150-0004), Office of Management and Budget, Washington, DC 20503. 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.</small> | | | |
| 1. NAME AND ADDRESS Advanced Physics 123 Anywhere Road Commontown, ZA 11111 | | 2. LICENSE NUMBER(S) | | 3. REPORTING IDENTIFICATION SYMBOL (RIS) ZZZ | | 4. REPORT PERIOD (MM/DD/YYYY) FROM 01/01/2002 TO 12/31/2002 | |
| | | | | 5. MATERIAL TYPE (Submit separate report for each type) E2 | | | |
| SECTION A MATERIAL ACCOUNTABILITY | | | | | | | |
| PC | SEQ | | | A. ELEMENT WEIGHT | | B. ISOTOPE WEIGHT | |
| | | 8. BEGINNING INVENTORY -- U.S. GOVT-OWNED | | | | | |
| A | 1 | 9. BEGINNING INVENTORY -- NOT U.S. GOVT-OWNED | | 800.00 | | 150.00 | |
| | | RECEIPTS | | | | | |
| | | 11. PROCUREMENT FROM DOE RIS | | | | | |
| | | FROM: | | | | | |
| | | 13. PROCUREMENT -- FOR THE ACCOUNT OF DOE | | | | | |
| | | 14. DOD RETURNS -- USE A | | | | | |
| | | 15. DOD RETURNS -- USE B | | | | | |
| | | 16. DOD RETURNS -- OTHER USES | | | | | |
| | | 21. PRODUCTION | | | | | |
| A | 2 | 22. FROM OTHER MATERIALS a. ICT ED | | 74.00 | | 14.00 | |
| | | b. ICT | | | | | |
| | | c. ICT | | | | | |
| | | 30. RECEIPTS REPORTED TO DOE/NRC ON DOE/NRC 741 (not listed elsewhere) | | | | | |
| | | FROM: RIS | | | | | |
| | | 34. RECEIPTS -- MISC | | | | | |
| | | 37. PROCUREMENT BY OTHERS | | | | | |
| | | 38. DONATED MATERIAL -- FROM U.S. GOVT TO OTHERS | | | | | |
| | | 39. DONATED MATERIAL -- FROM OTHERS TO U.S. GOVT | | | | | |
| | | 40. TOTAL (Lines 8-39) | | | | | |
| | | REMOVALS | | | | | |
| | | 41. EXPENDED IN SPACE PROGRAMS | | | | | |
| | | 42. SALES TO U.S. GOVT RIS TO: RIS | | | | | |
| | | TO: | | | | | |
| | | 43. SALES TO OTHERS FOR THE ACCOUNT OF U.S. GOVT RIS | | | | | |
| | | TO: | | | | | |
| | | 44. DOD -- USE A | | | | | |
| | | 45. DOD -- USE B | | | | | |
| | | 46. DOD -- OTHER USES | | | | | |
| | | 47. EXPENDED IN U.S. GOVT TESTS | | | | | |
| | | 48. ROUTINE TESTS | | | | | |
| | | 49. SHIPPER -- RECEIVER DIFFERENCE | | | | | |
| | | 51. SHIPMENTS REPORTED TO NRC/DOE ON NRC/DOE 741 (not listed elsewhere) | | | | | |
| | | TO: RIS | | | | | |

Example 6a, 6b

XML format:

```
<MATERIALBALANCEREPORT>
<MATERIALBALANCE
  RIS="ABC" STARTDATE="01/01/2002" ENDDATE="12/31/2002">
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="1" DATACODE="3"
    MATERIALBALANCECATEGORY="11">
    <ELEMENT
      ELEMENTWEIGHT="11207.00" TYPEINVENTORYCHANGE=""
      OTHERRIS="DEF" ENTRYSTATUS="N">
      <ISOTOPE
        MATERIALTYPE="50" ISOTOPEWEIGHT="1112.00">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL>
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="2" DATACODE="3"
    MATERIALBALANCECATEGORY="30">
    <ELEMENT
      ELEMENTWEIGHT="38.00" TYPEINVENTORYCHANGE=""
      OTHERRIS="GHI" ENTRYSTATUS="N">
      <ISOTOPE
        MATERIALTYPE="50" ISOTOPEWEIGHT="25.00">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL >
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="3" DATACODE="4"
    MATERIALBALANCECATEGORY="46">
    <ELEMENT
      ELEMENTWEIGHT="2.00" TYPEINVENTORYCHANGE="" OTHERRIS=""
      ENTRYSTATUS="N">
      <ISOTOPE
        MATERIALTYPE="50" ISOTOPEWEIGHT="1.00">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL >
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="4" DATACODE="4"
    MATERIALBALANCECATEGORY="81">
    <ELEMENT
      ELEMENTWEIGHT="11243.00" TYPEINVENTORYCHANGE="" OTHERRIS=""
      ENTRYSTATUS="N">
      <ISOTOPE
        MATERIALTYPE="50" ISOTOPEWEIGHT="1136.00">
      </ISOTOPE>
    </ELEMENT>
  </MATERIAL >
</MATERIALBALANCE>
<MATERIALBALANCE
  RIS="ZZZ" STARTDATE="01/01/2002" ENDDATE="12/31/2002">
  <MATERIAL
    PROCESSCODE="A" SEQUENCENUMBER="1" DATACODE="3"
    MATERIALBALANCECATEGORY="09">
    <ELEMENT
      ELEMENTWEIGHT="800.00" TYPEINVENTORYCHANGE="" OTHERRIS=""
      ENTRYSTATUS="N">
```

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        <ISOTOPE
          MATERIALTYPE="E2" ISOTOPEWEIGHT="150.00">
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL >
    <MATERIAL
      PROCESSCODE="A" SEQUENCENUMBER="2" DATACODE="3"
      MATERIALBALANCECATEGORY ="22">
      <ELEMENT
        ELEMENTWEIGHT="74.00" TYPEINVENTORYCHANGE="34" OTHERRIS="">
        <ISOTOPE
          MATERIALTYPE="E2" ISOTOPEWEIGHT="14.00">
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL >
    <MATERIAL
      PROCESSCODE="A" SEQUENCENUMBER="3" DATACODE="4"
      MATERIALBALANCECATEGORY ="81">
      <ELEMENT
        ELEMENTWEIGHT="874.00" TYPEINVENTORYCHANGE="" OTHERRIS=""
        ENTRYSTATUS="N">
        <ISOTOPE
          MATERIALTYPE="E2" ISOTOPEWEIGHT="164.00">
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL >
    <MATERIAL
      PROCESSCODE="A" SEQUENCENUMBER="4" DATACODE="4"
      MATERIALBALANCECATEGORY ="86">
      <ELEMENT
        ELEMENTWEIGHT="320.00" TYPEINVENTORYCHANGE="" OTHERRIS=""
        ENTRYSTATUS="N">
        <ISOTOPE
          MATERIALTYPE="E2" ISOTOPEWEIGHT="20.00">
        </ISOTOPE>
      </ELEMENT>
    </MATERIAL>
  </MATERIALBALANCE>
</MATERIALBALANCEREPORT>
```


| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|-------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| Transfer Authority | | | | | | | | | | | | | | | | | | | U | Action Date | | | | | | | | | | C | | | | | | | | | |

Detail Information (Data Code 2)

| <u>Field Description</u> | <u>741</u> | <u>80 Column File Format Position</u> | | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|-------------------------------------|-------------------|--|-------------------|--------------------|-------------------------|-------------------------------------|
| | | <u>Begin</u> | <u>End</u> | | | |
| Shipper RIS | 1 | 1 | 4 | Char(4) | ✓ | Left justified |
| Receiver RIS | 2 | 5 | 8 | Char(4) | ✓ | Left justified |
| Transaction/Transfer Number | 3 | 9 | 14 | Char(6) | ✓ | Right justified Zero fill blanks |
| Correction Number (Change Digit) | 4 | 15 | 15 | Char(1) | | |
| Process Code | 5 | 16 | 16 | Char(1) | ✓ | See Appendix A. |
| Action Code | 6 | 18 | 18 | Char(1) | ✓ | |
| Data Code | - | 19 | 19 | Num(1) | ✓ | Value is 2 |
| Line Number | 26/27 b | 20 | 21 | Num(2) | ✓ | Right justified |
| Type of Inventory Change | 26/27 c | 22 | 23 | Char(2) | | |
| Batch Name/Identification | 26/27 d | 24 | 39 | Char(16) | | Left justified All Caps |
| Number of Items | 26/27 e | 40 | 43 | Num(4) | | Right justified |
| Project Number ²⁴ | 26/27 f | 44 | 53 | Char(10) | | Left justified |
| Material Type | 26/27 g | 54 | 55 | Char(2) | | Left justified |
| Composition-Facility Code | 26/27 h | 56 | 59 | Char(4) | | Left justified |
| Owner Code | 26/27 i | 61 | 61 | Char(1) | | |
| Key Measurement Point | 26/27 j | 70 | 71 | Char(2) | | Left justified |
| Measurement Basis | 26/27 k1 | 72 | 72 | Char(1) | | |
| Other Measurement Point | 26/27 k2 | 73 | 74 | Char(2) | | Left justified |
| Measurement Method | 26/27 k3 | 75 | 75 | Char(1) | | |
| Back Reference Number ²⁵ | 26/27 a | 76 | 78 | Char(3) | | Zero fill blanks |

Note: If both the element weight and isotope weight are zero, there is no need to submit a data line for data code 2 and 5.

Visual representation of field placement in 80 column file formatting of transaction detail information.

741A Detail Information (Data Code 2)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|--------------|---|---|---|--------------|----|----|----|------|----|------|----|-------|----|-----|----|----------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 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 |
| Shipper RIS | | | | Receiver RIS | | | | Transfer Num | | | | CoPC | | ACDC | | Line# | | TIC | | Batch ID | | | | | | | | | | 4 | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---------|----|-----------|----|----|----|----|----|-----------|----|----|----|-----|----|----|----|-----|----|----|----|--------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| # Items | | Project # | | | | MT | | Comp Code | | O | | KMP | | Mb | | OMP | | Mn | | B Ref# | | | | | | | | | | | | | | | | | | | |

²⁴ Project numbers are reported only for government owned material.

²⁵ Back Reference Number; the first character is the correction identifier. The second and third characters are the line number referenced. When reported, insert zeros for blank values.

Quantitative Detail Information (Data Code 5)

| <u>Field Description</u> | <u>741</u> | <u>80 Column File</u> | | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|---|------------|-----------------------|-----------------|------------------------|------------------|-------------------------------------|
| | | <u>Format</u> | <u>Position</u> | | | |
| | | <u>Begin</u> | <u>End</u> | | | |
| Shipper RIS | 1 | 1 | 4 | Char(4) | ✓ | Left justified |
| Receiver RIS | 2 | 5 | 8 | Char(4) | ✓ | Left justified |
| Transaction/Transfer Number | 3 | 9 | 14 | Char(6) | ✓ | Right justified Zero fill blanks |
| Correction Number (Change Digit) | 4 | 15 | 15 | Char(1) | | |
| Process Code | 5 | 16 | 16 | Char(1) | ✓ | See Appendix A. |
| Action Code | 6 | 18 | 18 | Char(1) | ✓ | |
| Data Code | - | 19 | 19 | Num(1) | ✓ | Value is 5 |
| Line Number | 26/27 b | 20 | 21 | Num(2) | ✓ | Right justified |
| Gross Weight | 26/27 l | 22 | 26 | Num(5) | | Right justified |
| Net Weight | 26/27m | 27 | 34 | Num(8) | | Right justified |
| Element Weight | 26/27 n | 43 | 53 | Num(11,2) | ✓ ²⁶ | Right justified |
| <i>The value can contain a decimal point. Only XML format accepts 3 decimal place values.</i> | | | | | | |
| Element Limit of Error | 26/27 o | 54 | 58 | Num(5) | | Right justified |
| Weight Percent Isotope/Parts Per Million | 26/27 p | 59 | 64 | Num(6,4) ²⁷ | | Right justified |
| <i>The value can contain a decimal point.</i> | | | | | | |
| Isotope Weight | 26/27 q | 65 | 75 | Num(11,2) | ✓ ¹⁶ | Right justified |
| <i>The value can contain a decimal point. Only XML format accepts 3 decimal place values.</i> | | | | | | |
| Isotope Limit of Error | 26/27 r | 76 | 80 | Num(5) | | Right justified |

Note: If both the element weight and isotope weight are zero, there is no need to submit a data line for data code 2 and 5.

Visual representation of field placement in 80 Column File formatting of transaction detail information.

741A Detail Information (Data Code 5)

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|-------------|---|---|---|--------------|---|---|---|-----------------|----|----|----|------|----|------|----|-------|----|----|----|--------------|----|----|----|------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 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 | | | | | | | | |
| Shipper RIS | | | | Receiver RIS | | | | Transaction Num | | | | CoPC | | AQDC | | Line# | | | | Gross Weight | | | | Net Weight | | | | | | | | | | | | | | | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|----------------|----|----|----|----|----|----|----|----|----|----|----|----|--------------------|----|----|----|----------|----|----|----|----------------|----|----|----|--------------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| Element Weight | | | | | | | | | | | | | Ele Limit of Error | | | | Weight % | | | | Isotope Weight | | | | Iso Limit of Error | | | | | | | | | | | | | | |

Import/Export Detail Information (Data Code 3)

| <u>Field Description</u> | <u>741</u> | <u>80 Column File</u> | | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|-----------------------------|------------|-----------------------|-----------------|-------------|------------------|-----------------|
| | | <u>Format</u> | <u>Position</u> | | | |
| | | <u>Begin</u> | <u>End</u> | | | |
| Shipper RIS | 1 | 1 | 4 | Char(4) | ✓ | Left justified |
| Receiver RIS | 2 | 5 | 8 | Char(4) | ✓ | Left justified |
| Transaction/Transfer Number | 3 | 9 | 14 | Char(6) | ✓ | Right justified |

²⁶ Element or Isotope weight may be essential to successful file import depending on the specified material type.

²⁷ Weight Percent Isotope/Parts Per Million is reported as a percentage except when the material type is 70 (total uranium enriched in U-233), which is reported using 6 numeric digits and converted to decimal form by NMMSS.

Obligation Information (Data Code 7)

| <u>Field Description</u> | <u>741</u> | <u>80 Column File Format Position</u> | | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|---|------------|---------------------------------------|------------|-------------|------------------|-------------------------------------|
| | | <u>Begin</u> | <u>End</u> | | | |
| Shipper RIS | 1 | 1 | 4 | Char(4) | ✓ | Left justified |
| Receiver RIS | 2 | 5 | 8 | Char(4) | ✓ | Left justified |
| Transaction/Transfer Number | 3 | 9 | 14 | Char(6) | ✓ | Right justified Zero fill blanks |
| Correction Number (Change Digit) | 4 | 15 | 15 | Char(1) | | |
| Process Code | 5 | 16 | 16 | Char(1) | ✓ | See Appendix A. |
| Action Code | 6 | 18 | 18 | Char(1) | ✓ | |
| Data Code | - | 19 | 19 | Num(1) | ✓ | Value is 7 |
| Line Number | 17 | 20 | 21 | Num(2) | | Right justified |
| Material Type | 19 | 22 | 23 | Char(2) | | Left justified |
| Obligated Element Weight | 20 | 24 | 34 | Num(11,2) | ✓ | Right justified |
| <i>The value can contain a decimal point. Only XML format accepts 3 decimal place values.</i> | | | | | | |
| Obligated Isotope Weight ²⁹ | 21 | 35 | 45 | Num(11,2) | | Right justified |
| <i>The value can contain a decimal point.</i> | | | | | | |
| Country ³⁰ | 18 | 46 | 47 | Char(2) | | Left justified |

Note: if obligated data is not reported, there is no need to submit a data line for data code 7.

Visual representation of field placement in 80 Column File formatting of Transaction Obligation information.

| 741A Obligation Information (Data Code 7) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|----|----|----|--------------|----|----|------|-----------------|----|----|----|----|----|----|----|----|----|----|---------|----|----------------|----|----|----|----|----|----|----|----|----|----|-----------|----|----|----|----|----|----|----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Shipper RIS | | | | Receiver RIS | | | | Transaction Num | | | | | | | Co | PC | AC | DC | (Line#) | MT | Element Weight | | | | | | | | | | | Isotope W | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| weight | | | | | | | Ctry | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

Concise Note Information DOE/NRC Form 740M (Data Code 6)

| <u>Field Description</u> | <u>740M</u> | <u>80 Column File Format Position</u> | | <u>Type</u> | <u>Essential</u> | <u>Note</u> |
|----------------------------------|-------------|---------------------------------------|------------|-------------|------------------|-------------------------------------|
| | | <u>Begin</u> | <u>End</u> | | | |
| Shipper RIS | 5a | 1 | 4 | Char(4) | ✓ | Left justified |
| Receiver RIS | 5b | 5 | 8 | Char(4) | ✓ | Left justified |
| Transaction/Transfer Number | 5c | 9 | 14 | Char(6) | ✓ | Right justified Zero fill blanks |
| Correction Number (Change Digit) | 5d | 15 | 15 | Char(1) | | |
| Process Code | 5e | 16 | 16 | Char(1) | ✓ | See Appendix A. |
| Action Code | 5f | 18 | 18 | Char(1) | ✓ | |
| Data Code | - | 19 | 19 | Char(1) | ✓ | Value is 6 |
| Entry Reference | 7b | 24 | 39 | Char(16) | ✓ | Left justified |

²⁹ Obligated Isotope Weight is required for Enriched Uranium only.

³⁰ Call the NMMSS or go to NMMSS.com for the latest list of obligation country.

| | | | | | | |
|---|--|----|----|-----------|-----------------|-------------------------------------|
| Element Weight | Sec A column A Sec B Column 2 | 24 | 36 | Num(13,2) | ✓ ³⁹ | Right justified |
| <i>The value can contain a decimal point. Only XML format accepts 3 decimal place values.</i> | | | | | | |
| Isotope Weight | Sec A column B Sec B Column 3 | 37 | 49 | Num(13,2) | ✓ ³⁹ | Right justified |
| <i>The value can contain a decimal point. Only XML format accepts 3 decimal place values.</i> | | | | | | |
| Material Balance Category ⁴⁰ | Sec A Row # Sec B column 1 | 50 | 51 | Char(2) | | Right justified Zero fill blanks |
| Other RIS | line 11,30, 42,43, & 51 | 52 | 55 | Char(4) | | Left justified |
| Inventory Change Type (ICT) | line 22 & 71 | 56 | 57 | Char(2) | | Left justified |
| Entry Status | - | 58 | 58 | Char(1) | | |
| Process Code | Sec A & B PC | 74 | 74 | Char(1) | ✓ | See Appendix A. |
| Sequence Number ⁴¹ | Sec A & B SEQ | 75 | 80 | Num(6) | ✓ | Right justified |

Note: If both the element weight and isotope weight are zero, there is no need to submit a data line for data code 1.

| Visual representation of field placement in 80 Column File formatting of material balance detail information. | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|-----|----|----|----|----|----|--------------------|----|----|----|----|-----|----|----|----|----|------------------|----|----|----|----|-----|----|----|----|----|----------------|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--|--|--|--|--|---------------|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|--|
| Material Balance Report Detail Information (Data Code 3 & 4) | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 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 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| DC | RIS | MT | | | | | Report Period From | | | | | | | | | | Report Period To | | | | | | | | | | Element Weight | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 | 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 | 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 | 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| Isotope Weight | | | | | | | | | | | | MBC | | | | | Other RIS | | | | | ICT | | | | | E | | | | | C | | | | | | | | | | | | | | | PC Sequence # | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

³⁹ Element or Isotope weight may be essential to successful file import depending on the specified material type.

⁴⁰ Call the NMMSS or go to NMMSS.com for the latest list of Material Balance Categories codes related to Obligations (Section B)

⁴¹ Sequence number should begin at one for the entire material balance per material type and should be consecutively numbered.

APPENDIX D TRANSACTION SCHEMA

Transaction Schema Version 2

```
<?xml version="2.0" encoding="UTF-8"?>
<!-- edited with XML Spy v4.4 U (http://www.xmlspy.com) by Rick Edwards
(Westinghouse Savannah River Co) -->
<!--W3C Schema generated by XML Spy v4.4 U (http://www.xmlspy.com)-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">
  <xs:element name="TRANSACTIONS">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="SHIPMENT" maxOccurs="unbounded">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="CONCISENOTE"
minOccurs="0" maxOccurs="unbounded">
                <xs:complexType>
                  <xs:attribute
name="LINENUMBER" type="xs:int" use="required">
                    <xs:annotation>
                      <xs:documentation source="Comment LINENUMBER">Integer, non-
negative</xs:documentation>
                    </xs:annotation>
                  </xs:attribute>
                  <xs:attribute
name="ENTRYREFERENCE" type="xs:string" use="required">
                    <xs:annotation>
                      <xs:documentation source="Comment ENTRYREFERENCE">20 Alphanumeric
Characters</xs:documentation>
                    </xs:annotation>
                  </xs:attribute>
                  <xs:attribute
name="TEXTOFCONCISENOTE" type="xs:string" use="required">
                    <xs:annotation>
                      <xs:documentation source="Comment TEXTOFCONCISENOTE">60 Alphanumeric
Characters</xs:documentation>
                    </xs:annotation>
                  </xs:attribute>
                  <xs:anyAttribute/>
                </xs:complexType>
              </xs:element>
            <xs:element name="OBLIGATION"
minOccurs="0" maxOccurs="unbounded">
              <xs:complexType>
                <xs:sequence>
                  <xs:element
name="MATERIAL">
                    <xs:complexType>
                      <xs:sequence>
```

```
<xs:element name="ELEMENT">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="ISOTOPE">
        <xs:complexType>
          <xs:attribute name="MATERIALTYPE"
type="xs:string" use="required">
            <xs:annotation>
              <xs:documentation source="Comment
MATERIALTYPE">2 Alphanumeric Characters
Validated by MaterialType Authority Reference Table
</xs:documentation>
            </xs:annotation>
          </xs:attribute>
          <xs:attribute name="ISOTOPEWEIGHT"
type="xs:decimal" use="required">
            <xs:annotation>
              <xs:documentation source="Comment
ISOTOPEWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
decimal point is not implied
              </xs:documentation>
            </xs:annotation>
          </xs:attribute>
          <xs:anyAttribute/>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
    <xs:attribute name="ELEMENTWEIGHT" type="xs:decimal"
use="required">
      <xs:annotation>
        <xs:documentation source="Comment
ELEMENTWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
decimal point is not implied</xs:documentation>
      </xs:annotation>
```

```
        </xs:attribute>
        <xs:anyAttribute/>
    </xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="LINENUMBER" type="xs:int" use="required">
    <xs:annotation>
        <xs:documentation source="Comment LINENUMBER">Integer, non-
negative</xs:documentation>
    </xs:annotation>
</xs:attribute>
<xs:attribute name="COUNTRYCODE" type="xs:string" use="required">
    <xs:annotation>
        <xs:documentation source="Comment COUNTRYCODE">2 Alpha Character
Validated by CountryCode section of StaticData Authority Reference Table
</xs:documentation>
    </xs:annotation>
</xs:attribute>
<xs:anyAttribute/>
</xs:complexType>
                                </xs:element>
                                </xs:sequence>
                                <xs:anyAttribute/>
                                </xs:complexType>
                                </xs:element>
                                <xs:element name="MATERIAL"
minOccurs="0" maxOccurs="unbounded">
                                    <xs:complexType>
                                        <xs:sequence>
                                            <xs:element
name="ELEMENT">
                                                <xs:complexType>
                                                    <xs:sequence>
                                                        <xs:element name="ISOTOPE">
                                                            <xs:complexType>
                                                                <xs:attribute name="MATERIALTYPE" type="xs:string"
use="required">
```

```

        <xs:annotation>
            <xs:documentation source="Comment MATERIALTYPE">2
Alphanumeric Characters
Validated by MaterialType Authority Reference Table</xs:documentation>
        </xs:annotation>
    </xs:attribute>

    <xs:attribute name="WEIGHTPERCENT" type="xs:decimal"
use="optional">

        <xs:annotation>
            <xs:documentation source="Comment
WEIGHTPERCENT">Numeric (16,6)
16 digits of precision and up to 6 decimal places
Decimal point is not implied</xs:documentation>
        </xs:annotation>
    </xs:attribute>

    <xs:attribute name="ISOTOPEWEIGHT" type="xs:decimal"
use="required">

        <xs:annotation>
            <xs:documentation source="Comment
ISOTOPEWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied</xs:documentation>
        </xs:annotation>
    </xs:attribute>

    <xs:attribute name="ISOTOPELOE" type="xs:decimal" use="optional">

        <xs:annotation>
            <xs:documentation source="Comment
ISOTOPELOE">Integer</xs:documentation>
        </xs:annotation>
    </xs:attribute>

    <xs:anyAttribute/>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="ELEMENTWEIGHT" type="xs:decimal" use="required">
```

```
<xs:annotation>
  <xs:documentation source="Comment ELEMENTWEIGHT">Numeric (19,7)
  19 digits of precision and up to 7 decimal places
  Decimal point is not implied
</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute name="ELEMENTLOE" type="xs:decimal" use="optional">
  <xs:annotation>
    <xs:documentation source="Comment
ELEMENTLOE">Integer</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:anyAttribute/>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute
name="LINENUMBER" type="xs:int" use="required">
  <xs:annotation>
    <xs:documentation source="Comment LINENUMBER">Integer, non-
    negative</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute
name="TYPEINVENTORYCHANGE" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation source="Comment TYPEINVENTORYCHANGE">2 Alphanumeric
    Characters
    Validated by list of Codes when required</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute
name="BATCH" type="xs:string" use="optional">
  <xs:annotation>
    <xs:documentation source="Comment BATCH">16 Alphanumeric
    Characters</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute
name="NUMBEROFITEMS" type="xs:int" use="required">
  <xs:annotation>
    <xs:documentation source="Comment
NUMBEROFITEMS">Integer</xs:documentation>
```

```

        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="OWNER" type="xs:string" use="required">
        </xs:annotation>
    <xs:documentation source="Comment OWNER">1 Alpha Character
Validated by OwnerCode section of StaticData Authority Reference Table
Also called Owner Code</xs:documentation>
        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="PROJECT" type="xs:string" use="optional">
        </xs:annotation>
    <xs:documentation source="Comment PROJECT">10 Alphanumeric Characters
Validated by ProjectNumber Authority Reference Table if required
Also called Project Number</xs:documentation>
        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="COEILINENUMBER" type="xs:string" use="optional">
        </xs:annotation>
    <xs:documentation source="Comment COEILINENUMBER">4 Alphanumeric
Characters
Validated by CompCode Authority Reference Table
Also called Comp Code
IAEA reporting facilities should put their IAEACompCode or IAEAFacilityCode
in this field, NMMSS will translate during the import
process</xs:documentation>
        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="GROSSWEIGHT" type="xs:decimal" use="optional">
        </xs:annotation>
    <xs:documentation source="Comment GROSSWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied</xs:documentation>
        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="NETWEIGHT" type="xs:decimal" use="optional">
        </xs:annotation>
    <xs:documentation source="Comment NETWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied</xs:documentation>
        </xs:annotation>
    </xs:attribute>
</xs:attribute
name="KEYMEASUREPOINT" type="xs:string" use="optional">
        </xs:annotation>
    <xs:documentation source="Comment KEYMEASUREPOINT">2 Alphanumeric
Characters
Validated by IAEAFacilityAttachment Authority Reference Table
</xs:documentation>
```



```

        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="NUMBEROFLINES"
type="xs:int" use="required">
        <xs:annotation>
            <xs:documentation
source="Comment NUMBEROFLINES">Integer, non-negative</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="NATUREOFTRANSACTION"
type="xs:string" use="optional">
        <xs:annotation>
            <xs:documentation
source="Comment NATUREOFTRANSACTION">1 Alpha Character
Validated by TICode section of StaticData Authority Reference Table if
required
Also called TI Code</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="SHIPPEDFORRIS"
type="xs:string" use="optional">
        <xs:annotation>
            <xs:documentation
source="Comment SHIPPEDFORRIS">4 Alphanumeric Characters
Validated by RIS Authority Reference Table if required
Also called ForAccount</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="SHIPPEDTORIS"
type="xs:string" use="optional">
        <xs:annotation>
            <xs:documentation
source="Comment SHIPPEDTORIS">4 Alphanumeric Characters
Validated by RIS Authority Reference Table if required
Also called ToAccount</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="TRANSFERAUTHORITY"
type="xs:string" use="optional">
        <xs:annotation>
            <xs:documentation
source="Comment TRANSFERAUTHORITY">17 Alphanumeric Characters
No validation performed</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="UKFLAG"
type="xs:string" use="optional">
        <xs:annotation>
            <xs:documentation
source="Comment UKFLAG">1 Alpha Character
Validated by SpecialIAEACode section of StaticData Authority Reference Table,
acceptable values are blank, N or R
Also called SpecialIAEACode</xs:documentation>
        </xs:annotation>
    </xs:attribute>
    <xs:attribute name="ACTIONDATE"
use="required">
        <xs:annotation>
```

```

                                <xs:documentation
source="Comment ACTIONDATE">Date in mm/dd/yyyy format
Also called Activity Date</xs:documentation>
                                </xs:annotation>
                                <xs:simpleType>
                                <xs:restriction
base="xs:string">
                                <xs:pattern
value="\d{2}/\d{2}/\d{4}" />
                                </xs:restriction>
                                </xs:simpleType>
                                </xs:attribute>
                                <xs:attribute name="LICENSENUMBER"
type="xs:string" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment LICENSENUMBER">10 Alphanumeric Characters
Validated by INMTS Authority Reference Table if required</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>
                                <xs:attribute name="PORTOFENTRY"
type="xs:string" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment PORTOFENTRY">4 Alphanumeric Characters
Discontinued 10/2003</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>
                                <xs:attribute name="TOTALGROSSWEIGHT"
type="xs:int" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment TOTALGROSSWEIGHT">Integer, non-negative
Also know as GrossWeight</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>
                                <xs:attribute name="TOTALVOLUME"
type="xs:int" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment TOTALVOLUME">Integer, non-negative</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>
                                <xs:attribute name="SEALEDSOURCE"
type="xs:string" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment SEALEDSOURCE">10 Alphanumeric Characters
No validation occurs at this time</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>
                                <xs:attribute name="TOTTRANSFERAUTHORITY"
type="xs:string" use="optional">
                                <xs:annotation>
                                <xs:documentation
source="Comment TOTTRANSFERAUTHORITY">17 Alphanumeric Characters
No longer validated, was used for Contract Transfers</xs:documentation>
                                </xs:annotation>
                                </xs:attribute>

```

```
                <xs:anyAttribute/>
            </xs:complexType>
        </xs:element>
    </xs:sequence>
    <xs:attribute name="VERSION" type="xs:int" use="required"
fixed="2"/>
    </xs:complexType>
</xs:element>
</xs:schema>
```

APPENDIX E INVENTORY SCHEMA

Inventory Schema Version 2

```
<?xml version="2.0" encoding="UTF-8"?>
<!-- edited with XML Spy v4.4 U (http://www.xmlspy.com) by Rick Edwards
(Westinghouse Savannah River Co) -->
<!--W3C Schema generated by XML Spy v4.4 U (http://www.xmlspy.com)-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">
  <xs:element name="PHYSICALINVENTORY">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="INVENTORY">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="MATERIAL">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element
name="CONCISENOTE">
          <xs:complexType>
            <xs:attribute name="PROCESSCODE" type="xs:string" use="required">
            <xs:annotation>
              <xs:documentation source="Comment PROCESSCODE">1 Alpha Character
Accepted values A,C or D </xs:documentation>
            </xs:annotation>
          </xs:attribute>
          <xs:attribute name="LINENUMBER" type="xs:int" use="required">
          <xs:annotation>
            <xs:documentation source="Comment LINENUMBER">Integer, non-
negative</xs:documentation>
          </xs:annotation>
          </xs:attribute>
          <xs:attribute name="ENTRYREFERENCE" type="xs:string" use="required">
          <xs:annotation>
            <xs:documentation source="Comment ENTRYREFERENCE">20 Alphanumeric
Characters</xs:documentation>
          </xs:annotation>
```

```
</xs:attribute>

<xs:attribute name="TEXTTOFCONCISENOTE" type="xs:string" use="required">

<xs:annotation>

  <xs:documentation source="Comment TEXTTOFCONCISENOTE">60 Alphanumeric
Characters</xs:documentation>

</xs:annotation>

</xs:attribute>

</xs:complexType>

</xs:element>
</xs:element>
name="ELEMENT">

  <xs:complexType>

    <xs:sequence>

      <xs:element name="ISOTOPE">

        <xs:complexType>

          <xs:attribute name="MATERIALTYPE" type="xs:byte" use="required">

            <xs:annotation>

              <xs:documentation source="Comment MATERIALTYPE">2
Alphanumeric Characters
Validated by MaterialType Authority Reference Table
</xs:documentation>

            </xs:annotation>

          </xs:attribute>

          <xs:attribute name="WEIGHTPERCENT" type="xs:decimal"
use="required">

            <xs:annotation>

              <xs:documentation source="Comment
WEIGHTPERCENT">Numeric (16,6)
16 digits of precision and up to 6 decimal places
Decimal point is not implied </xs:documentation>

            </xs:annotation>

          </xs:attribute>

          <xs:attribute name="ISOTOPEWEIGHT" type="xs:decimal"
use="required">

            <xs:annotation>
```

```

                <xs:documentation source="Comment
ISOTOPEWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
                </xs:documentation>
            </xs:annotation>
        </xs:attribute>
    </xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="ELEMENTWEIGHT" type="xs:decimal" use="required">
    <xs:annotation>
        <xs:documentation source="Comment ELEMENTWEIGHT">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
    </xs:documentation>
    </xs:annotation>
    </xs:attribute>
</xs:complexType>
                </xs:element>
            </xs:sequence>
        <xs:attribute
name="PROCESSCODE" type="xs:string" use="required">
                </xs:annotation>
            <xs:documentation source="Comment PROCESSCODE">1 Alpha Character
Accepted values A,C or D</xs:documentation>
                </xs:annotation>
            </xs:attribute>
        <xs:attribute
name="SEQUENCENUMBER" type="xs:boolean" use="required">
                </xs:annotation>
            <xs:documentation source="Comment SEQUENCENUMBER">Integer, non-
negative</xs:documentation>
                </xs:annotation>
            </xs:attribute>
        <xs:attribute
name="BATCH" type="xs:string" use="required">
                </xs:annotation>
            <xs:documentation source="Comment BATCH">16 Alphanumeric Characters
</xs:documentation>
                </xs:annotation>
            </xs:attribute>
        <xs:attribute
name="NUMBEROFITEMS" type="xs:boolean" use="required">
```

```
</xs:annotation>

  <xs:documentation source="Comment
NUMBEROFITEMS">Integer</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="OWNER" type="xs:string" use="required">

  <xs:annotation>

    <xs:documentation source="Comment OWNER">1 Alpha Character
Validated by OwnerCode section of StaticData Authority Reference Table
Also called Owner Code</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="PROJECT" type="xs:string" use="required">

  <xs:annotation>

    <xs:documentation source="Comment PROJECT">10 Alphanumeric Characters
Validated by ProjectNumber Authority Reference Table if required
Also called Project Number</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="COEILINENUMBER" type="xs:string" use="required">

  <xs:annotation>

    <xs:documentation source="Comment COEILINENUMBER">4 Alphanumeric
Characters
Validated by CompCode Authority Reference Table
Also called Comp Code
IAEA reporting facilities should put their IAEACompCode or IAEAFacilityCode
in this field NMMSS will translate during the import process
</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="KEYMEASUREPOINT" type="xs:string" use="required">

  <xs:annotation>

    <xs:documentation source="Comment KEYMEASUREPOINT">2 Alphanumeric
Characters
Validated by IAEAFacilityAttachment Authority Reference
Table</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="MEASUREBASIS" type="xs:string" use="required">

  <xs:annotation>

    <xs:documentation source="Comment MEASUREBASIS">1 Alphanumeric
Characters
Validated by IAEAFacilityAttachment Authority Reference
Table</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="OTHERMEASUREPOINT" type="xs:string" use="required">
```

```
</xs:annotation>

  <xs:documentation source="Comment OTHERMEASUREPOINT">2 Alphanumeric
  Characters
  Validated by IAEA Facility Attachment Authority Reference
  Table</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="MEASUREMETHOD" type="xs:string" use="required">
  </xs:annotation>

  <xs:documentation source="Comment MEASUREMETHOD">1 Alphanumeric
  Characters
  Validated by IAEA Facility Attachment Authority Reference
  Table</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="LOCATION" type="xs:string" use="required">
  </xs:annotation>

  <xs:documentation source="Comment LOCATION">20 Alphanumeric Characters
  No validation occurs at this time</xs:documentation>

  </xs:annotation>
</xs:attribute>
<xs:attribute
name="SITEMBA" type="xs:string" use="required">
  </xs:annotation>

  <xs:documentation source="Comment SITEMBA">20 Alphanumeric Characters
  No validation occurs at this time</xs:documentation>

  </xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="RIS" type="xs:string"
use="required">
  </xs:annotation>
  <xs:documentation
source="Comment RIS">4 Alphanumeric Characters
  Validated by RIS Authority Reference Table</xs:documentation>
  </xs:annotation>
</xs:attribute>
<xs:attribute name="DATE"
type="xs:string" use="required">
  </xs:annotation>
  <xs:documentation
source="Comment DATE">Date in mm/dd/yyyy format
  Also called Inventory Report Date</xs:documentation>
  </xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="VERSION" type="xs:byte"
use="required"/>
</xs:complexType>
```



```
</xs:element>  
</xs:schema>
```

APPENDIX F

MATERIAL BALANCE SCHEMA

Material Balance Schema Version 2

```
<?xml version="2.0" encoding="UTF-8"?>
<!-- edited with XML Spy v4.4 U (http://www.xmlspy.com) by Rick Edwards
(Westinghouse Savannah River Co) -->
<!--W3C Schema generated by XML Spy v4.4 U (http://www.xmlspy.com)-->
<xs:schema xmlns:xs="http://www.w3.org/2001/XMLSchema"
elementFormDefault="qualified">
  <xs:element name="MATERIALBALANCEREPORT">
    <xs:complexType>
      <xs:sequence>
        <xs:element name="MATERIALBALANCE">
          <xs:complexType>
            <xs:sequence>
              <xs:element name="MATERIAL">
                <xs:complexType>
                  <xs:sequence>
                    <xs:element
name="CONCISENOTE">
          <xs:complexType>
            <xs:attribute name="PROCESSCODE" type="xs:string" use="required">
            <xs:annotation>
              <xs:documentation source="Comment MATERIALTYPE">1 Alpha Character
Accepted values A,C or D</xs:documentation>
            </xs:annotation>
          </xs:attribute>
            <xs:attribute name="LINENUMBER" type="xs:int" use="required">
            <xs:annotation>
              <xs:documentation source="Comment MATERIALTYPE">Integer, non-
negative</xs:documentation>
            </xs:annotation>
          </xs:attribute>
            <xs:attribute name="ENTRYREFERENCE" type="xs:string" use="required">
            <xs:annotation>
              <xs:documentation source="Comment MATERIALTYPE">20 Alphanumeric
Characters</xs:documentation>
            </xs:annotation>
          </xs:attribute>
```

```
<xs:attribute name="TEXTTOFCONCISENOTE" type="xs:string" use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">60 Alphanumeric
Characters</xs:documentation>
  </xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
<xs:element
name="ELEMENT">
  <xs:complexType>
    <xs:sequence>
      <xs:element name="ISOTOPE">
        <xs:complexType>
          <xs:attribute name="MATERIALTYPE" type="xs:string"
use="required">
            <xs:annotation>
              <xs:documentation source="Comment MATERIALTYPE">2
Alphanumeric Characters
Validated by MaterialType Authority Reference Table
</xs:documentation>
            </xs:annotation>
          </xs:attribute>
          <xs:attribute name="ISOTOPEWEIGHT" type="xs:decimal"
use="required">
            <xs:annotation>
              <xs:documentation source="Comment
MATERIALTYPE">Numeric (19,7)
19 digits of precision and up to 7 decimal places
Decimal point is not implied
</xs:documentation>
            </xs:annotation>
          </xs:attribute>
        </xs:complexType>
      </xs:element>
    </xs:sequence>
```

```
<xs:attribute name="ELEMENTWEIGHT" type="xs:decimal" use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">Numeric (19,7)
    19 digits of precision and up to 7 decimal places
    Decimal point is not implied</xs:documentation>
  </xs:annotation>
</xs:attribute>

<xs:attribute name="TYPEINVENTORYCHANGE" type="xs:string"
use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">2 Alpha Characters
    Validated by Inventory Change Type section of StaticData Authority Reference
    Table</xs:documentation>
  </xs:annotation>
</xs:attribute>

<xs:attribute name="OTHERRIS" type="xs:string" use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">4 Alphanumeric
    Characters
    Validated by RIS Authority Reference Table</xs:documentation>
  </xs:annotation>
</xs:attribute>

<xs:attribute name="ENTRYSTATUS" type="xs:string" use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">1 Alpha Character
    Validated by Entry Status section of StaticData Authority Reference
    Table</xs:documentation>
  </xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute
name="PROCESSCODE" type="xs:string" use="required">
  <xs:annotation>
    <xs:documentation source="Comment MATERIALTYPE">1 Alpha Character
    Accepted values A,C or D</xs:documentation>
```

```

</xs:annotation>
</xs:attribute>
<xs:attribute
name="SEQUENCENUMBER" type="xs:byte" use="required">
</xs:annotation>
<xs:documentation source="Comment MATERIALTYPE">Integer, non-
negative</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute
name="DATACODE" type="xs:string" use="required">
</xs:annotation>
<xs:documentation source="Comment MATERIALTYPE">1 Alphanumeric
Character
Allowed values; 3 or 4
Also known as TypeCode</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute
name="MATERIALBALANCECATEGORY" type="xs:byte" use="required">
</xs:annotation>
<xs:documentation source="Comment MATERIALTYPE">2 Alphanumeric
Characters
Validated by RIS Material Balance Category Authority Reference
Table</xs:documentation>
</xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
</xs:sequence>
<xs:attribute name="RIS" type="xs:string"
use="required">
<xs:annotation>
<xs:documentation
source="Comment MATERIALTYPE">4 Alphanumeric Characters
Validated by RIS Authority Reference Table</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute name="STARTDATE"
type="xs:string" use="required">
<xs:annotation>
<xs:documentation
source="Comment MATERIALTYPE">Date in mm/dd/yyyy format</xs:documentation>
</xs:annotation>
</xs:attribute>
<xs:attribute name="ENDDATE"
type="xs:string" use="required">
<xs:annotation>
<xs:documentation
source="Comment MATERIALTYPE">Date in mm/dd/yyyy format</xs:documentation>
</xs:annotation>
</xs:attribute>
</xs:complexType>
</xs:element>
</xs:sequence>
```

```
        <xs:attribute name="VERSION" type="xs:byte"
use="required"/>
    </xs:complexType>
</xs:element>
</xs:schema>
```