



# Radiation Safety



## **RADIATION PROCEDURES MANUAL** **Procedure Cover Sheet**

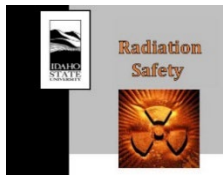
Procedure Title: Nuclear Materials Management and Safeguards System (NMMSS)  
Reporting

Procedure Number: RS-05 Rev.0

Effective Date: 12/31/2020

Approved By: Radiation Safety Committee

Date: 12/18/2020

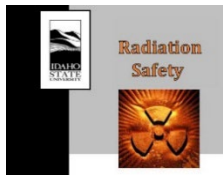


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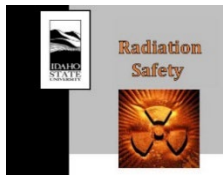
### Revision History

Revision Number	Author Name	Date	Approved by/date
RS 5.0	Mason Jaussi & John Longley	01/04/21	RSC-12/18/20
RS 5.0	Kristi Moser-McIntire	10/24/22	RSC-12/18/20



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## 1. INTRODUCTION

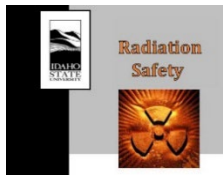
The Nuclear Materials Management and Safeguards System (NMMSS) is the U.S. Government's national level system for tracking and accounting for domestically held source and special nuclear material and for tracking imports and exports of the materials to and from the U.S. The system also tracks various other U.S. Department of Energy (DOE)-owned nuclear materials for financial, materials management, and safeguards purposes. The NMMSS program is co-sponsored by the DOE and the U.S. Nuclear Regulatory Commission (NRC) and is managed by the National Nuclear Security Administration's (NNSA) Office of Nuclear Materials Integration (OMNI), NA-53.

Data and reports from the NMMSS database are used in fulfilling U.S. Government reporting obligations under International Treaties and Agreements and in preparation of DOE Annual Financial Reports used to meet DOE/NNSA financial reporting requirements under Federal Statutes.

Material control and accounting of special nuclear material recordkeeping and reporting requirements for licensees are described in Title 10 of the Code of Federal Regulations (10 CFR) Part 74, Nuclear material transactions, material balances and inventories are reported to and documented in NMMSS at the Reporting Identification Symbol (RIS) level. NRC licensees with DOE-owned materials (owner code G) at their facilities should follow the instructions of the current NMMSS Users Guide. NRC-licensed facilities with non-DOE-owned (owner code J) materials should be documented in and reported to NMMSS per instructions provided by the current revisions of NRC NUREG/BR-0007, *Instructions for the Preparation and Distribution for Material Status Reports*, and NRC NUREG/BR-0006, *Instructions for Completing Nuclear Material Transaction Reports*.

Idaho State University has both DOE-owned and non-DOE-owned material subject to NMMSS reporting requirements. NUREG/BR-006 and NUREG/BR-007 provide guidance for common reporting forms and formats that are used to minimize the reporting burden on licensees that are required to provide nuclear material data to one or both agencies in accordance with current regulations or contractual obligations. In this manner, licensees can file one report to meet the reporting requirements of the NRC and DOE.

In addition to the physical inventory reporting requirements in 10 CFR 74, licensees may also be required to report to the NMMSS all receipts, transfers, and inventory adjustments of DOE-owned, -loaned, or – leased material in their possession that they obtained from the DOE. In such cases, licensees shall file DOE NRC Form 741, "Nuclear Material Transaction Report," DOE/NRC Form 742, "Material Balance Report," and DOE/NRC form 742C, "Physical Inventory Listing."



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## 2. PURPOSE

The purpose of this procedure is to explain the steps involved in completing DOE/NRC forms 741, 742 and 742C for reportable nuclear material at Idaho State University (reporting identification symbol ZJK).

## 3. SCOPE

This procedure is limited to the completion and submittal of DOE/NRC forms 741, 742 and 742C to NMMSS.

## 4. ROLES AND RESPONSIBILITIES

### Radiation Safety Officer

- Maintain this procedure and applicable sections of the Radiation Safety Manual.
- Ensure that physical inventory is conducted at adequate time intervals to comply with NMMSS reporting requirements.
- Ensure NMMSS Points of Contacts are current with NRC/NMMSS.

### Authorized Users

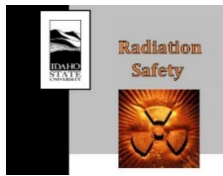
- Assist with their permits physical inventory.
- Assist with filling out DOE/NRC Form 741 as necessary.

### Radiation Safety Staff NMMSS Points of Contacts

- Assist with physical inventory.
- Fill out and submit to NMMSS DOE/NRC 741 form per NUREG/BR-0006.
- File appropriate DOE/NRC 741 forms in Records folder on Box (Radiation Safety Program>Records>NMMSS (400)>741(400-1)).
- Fill out and submit DOE/NRC Forms 742 and 742C per NUREG/BR-007 and 10 CFR 74.
- File appropriate DOE/NRC 742 and 742C forms in Records folder on Box (Radiation Safety Program>Records>NMMSS (400)>Annual Report (400-2)).
- Update HPAssist per Radioactive Material Inventory Procedure, RS-16

## 5. ACRONYMS/DEFINITIONS

DOE: Department of Energy  
ISU: Idaho State University



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NRC: Nuclear Regulatory Commission  
RIS: Reporting Identification Symbol  
RS: Radiation Safety  
SNM: Special Nuclear Material

## 6. REQUIRED MATERIALS

- Radioactive Material Inventory Procedure, RS-16
- Current Revision of NUREG/BR-007 “Instructions for the Preparation and Distribution of Material Status Reports.”
- 10 CFR 74, current revision
- Current revision of DOE/NRC Form 742
- DOE/NRC Form 742C, current revision
- All DOE/NRC 741 forms submitted and received for reporting period
- Current Inventory report
- DOE/NNSA Nuclear Materials Management and Safeguards System (NMMSS) Users Guide, current revision
- Current revision of DOE/NRC Form 741

## 7. REQUIRED TRAINING(S)

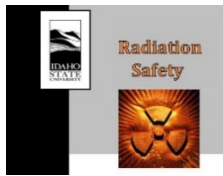
None.

## 8. PROCEDURE

### 8.1. NRC/DOE 741 Form Submission

8.1.1. NRC/DOE 741 forms are required whenever nuclear material in the types and amounts stated in NUREG/BR-006 Section 1.2 moves between locations or operations that have been assigned different reporting identification symbols (RISs) and whenever SNM and source material inventories change. These transactions refer to both physical and administrative changes, and the licensees shall report such transfers to NMMSS in the timeframe specified in the applicable regulations identified in NUREG/BR-006 Sections 1.2 and 2.1.

- Each licensee that transfers material shall report the transfer by completing and submitting the DOE/NRC Form 741 as specified in NUREG/BR-006 no later than the close of business the next working day after the material is transferred.



- Each licensee that receives the material shall report the receipt by completing and submitting the DOE/NRC Form 741 within 10 days after the material is received.

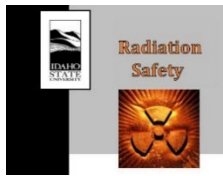
As a licensee, ISU must document and report the nuclear material change data (including burnup, production, measured discards, category changes, and decay) to NMMSS before or at the same time as the implementation of the physical inventory, unless the NRC has authorized another arrangement.

- 8.1.2. The shipper will initiate the DOE/NRC Form 741. If the ISU is involved in a transfer of material with a party that is not required to prepare a DOE/NRC Form 741, then ISU must prepare and submit both the shipper's and the receiver's section of the form. Detailed instructions for completing Form 741 are given in Section 2 of NUREG/BR-006 and an example is given in Appendix A.

**NOTE:** For transfer of government material, put receiving RIS in boxes 12.b and 13.b and leave addresses blank.

## 8.2. NRC/DOE Forms 742 and 742C Preparation and Submission

- 8.2.1. DOE/NRC Forms 742 and 742C are the means for submitting reports of material balance and physical inventory listing data to the NMMSS. The information must be completed in accordance with the instructions in NUREG/BR-007, current revision, and must be submitted in computer-readable format. These reports are submitted at the end of the annual period on March 31 each year.
- 8.2.2. Gather all DOE/NRC 741 forms for the reporting period. These forms are stored in the BOX folder (Radiation Safety Program>Records>NMMSS (400)>741(400-1)). The DOE/NRC 741 forms account for material received in or shipped out during the current reporting period for the ISU RIS (ZJK).
- 8.2.3. Obtain NMMSS annual report submittal from previous reporting year. This report is stored in the BOX folder (Radiation Safety Program>Records>NMMSS (400)>Annual Report (400-2)).
- 8.2.4. Contact the ISU NMMSS representative at [NMMSS@nnsa.doe.gov](mailto:NMMSS@nnsa.doe.gov) to request the following NMMSS Reports:
- M-742A, Material Balance Report by Action Date
  - IA-OBL-05, Obligation Summary Report
  - TJ-045, Transaction Detail for Shipments, Receipts, and Onsite Gains and Losses
  - Contact RSO to verify current physical inventory has been completed in the appropriate time frame (within 30 days) for NMMSS reporting per NUREG/BR-



007.

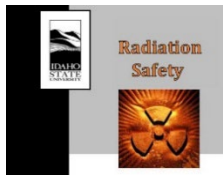
- 8.2.5. Obtain current copy of physical inventory file located in the following box folder (Radiation Safety Program>Records>NMMSS (400)>Physical Inventory (400-3)).
- 8.2.6. Use DOE/NRC Form 742 to report a summary of activity for a specified material within a material balance reporting period, as specified in 10 CFR 74.13, “Material Status Reports.” The report conveys beginning and ending inventory balances; activities such as shipments and receipts involving other facilities; and decay, transmutation, and production calculations. This information is useful for validating a facility’s ending book inventory. Detailed instructions are given in Section 2 of NUREG/BR-007 and an example is given in Appendix B.
- 8.2.7. Use DOE/NRC Form 742C to report ISU’s physical inventory listing as of a specified date. For each material type category, the report lists the amount of material in the facility’s possession at the time of the inventory. The form can show each individual batch or summarize totals of “like” batches. The totals for each material type category must match the ending balance in the corresponding material balance report (DOE/NRC Form 742). Detailed instructions are given in Section 3.1 of NUREB/BR-007 and an example is given in Appendix C.

NOTE: The NMMSS relies heavily on the quality of the data reported. The data submitted to the NMMSS are subject to evaluation according to the restrictions placed on nuclear activity by the policies of various governing agencies of the United States. The NMMSS receives the data after they are verified by “edit checks” as acceptable within the restrictions of the system.

### 8.3. NMMSS Form Submittal and Reconciliation

- 8.3.1. Once the NRC/DOE 742 and 742C forms are completed, compare final balances and transactions with reports obtained in Step 8.2.4 for accuracy.
- 8.3.2. Submit the draft report to the RSO for review. Incorporate edits appropriately into the draft NMMSS submission.
- 8.3.3. Submit the draft report to the INL/BEA Safeguards for review. Incorporate edits appropriately into the draft NMMSS submission.
- 8.3.4. Submit draft report to ISU NMMSS representative for review. Incorporate edits appropriately into the draft NMMSS submission.
- 8.3.5. Once all edits have been made submit final report to ISU NMMSS representative for reconciliation. Once email confirmation has been received from ISU NMMSS representative stating that the ZJK reconciliation has been completed the report can





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be considered final and can be uploaded into BOX (Radiation Safety Program>Records>NMMSS (400)> Annual Report (400-2) correct year).

## **9. LIST OF FORMS**

DOE/NRC form 741

DOE NRC Form 742

DOE NRC Form 742C

## **10. REFERENCES**

None.

## **11. CHANGE HISTORY**

None.

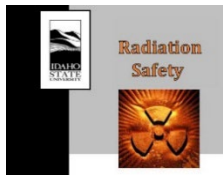
## **12. APPENDICES**

APPENDIX A – Example of NRC/DOE 741 Form

APPENDIX B – Example of NRC/DOE 742 Form


APPENDIX C – Example of NRC/ DOE 742C Form



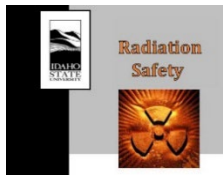


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APPENDIX B - EXAMPLE OF NRC/DOE 742 FORM

<b>DOE/NRC FORM 742</b> (04-2018) MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30, 40, 50, 70, 72, 74, 75, 150, Public Laws 83-703, 93-438, 95-91		 <b>U.S. DEPARTMENT OF ENERGY          AND          U.S. NUCLEAR REGULATORY COMMISSION</b>		APPROVED BY OMB: NO. 3150-0004 Estimated burden per response to comply with this mandatory collection request: 2 hours for small licensees and 5 hours for large licensees. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Information Services Branch (T-2 F43), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by e-mail to <a href="mailto:Infocollect.Resource@nrc.gov">Infocollect.Resource@nrc.gov</a> , and to the Desk Officer, Office of Information and Regulatory Affairs, NE08-10202, (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.	EXPIRES: 04/30/2021
<b>MATERIAL BALANCE REPORT</b>					
1. NAME AND ADDRESS IDAHO STATE UNIVERSITY CAMPUS BOX 8106 POCATELLO, ID 83209		2. LICENSE NUMBER(S) 11-27380-01, SNM-1373 R-110		3. REPORTING IDENTIFICATION SYMBOL (RIS) ZJK	
		4. REPORT PERIOD (MM/DD/YYYY) FROM: 4/1/2019 TO: 3/31/2020		5. MATERIAL TYPE (Submit separate report for each type) 10	
<b>SECTION A MATERIAL ACCOUNTABILITY</b>					
PC	SEQ		A. ELEMENT WEIGHT	B. ISOTOPE WEIGHT	
		8. BEGINNING INVENTORY -- U.S. GOVT-OWNED	54		
		9. BEGINNING INVENTORY -- NOT U.S. GOVT-OWNED	116		
<b>RECEIPTS</b>					
		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			
		22. FROM OTHER MATERIALS			
		a. ICT			
		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)	170		
<b>REMOVALS</b>					
		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			





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APPENDIX C - EXAMPLE OF NRC/DOE 742C FORM

<b>NRC FORM 742C</b> (04-2018) MANDATORY DATA COLLECTION AUTHORIZED BY 10 CFR 30.40, 40.70, 72.72, and 72.73 Public Laws 85-703, 89-438, 95-91		<b>U.S. DEPARTMENT OF ENERGY          AND          U.S. NUCLEAR REGULATORY COMMISSION</b> <b>PHYSICAL INVENTORY LISTING</b>		<b>APPROVED BY OMB: NO. 3150-0058</b> Estimated burden per response to comply with this mandatory collection request: 2 hours for small licensees and 8 hours for large licensees. This information is required by NRC to fulfill its regulatory responsibilities as a participant in the USIAEA Safeguards Agreement. Send comments regarding this burden estimate or the information collection requirements, including suggestions for reducing the burden, to Washington, DC 20553-0001, or by e-mail to <a href="mailto:infocoll@nrc.gov">infocoll@nrc.gov</a> , and to the Desk Officer, Office of Information and Regulatory Affairs, Paperwork Project Director, 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.		<b>EXPIRES: 04/30/2021</b>													
<b>1. NAME AND ADDRESS</b> IDAHO STATE UNIVERSITY STREET ADDRESS CAMPUS BOX 8106 CITY POCATELLO		<b>STATE</b> ID	<b>ZIP CODE</b> 83209	<b>3. INVENTORY DATE</b> 04/01/2019	<b>4. LICENSE NUMBER(S)</b> 11-2738-01, SNM-1373, R-110	<b>2. REPORTING IDENTIFICATION SYMBOL (RIS)</b> ZJK													
<b>5. BATCH DATA</b>																			
a. NUCLEAR TYPE	b. COMPA CODE	c. ELEMENT WEIGHT	d. ISOTOPE WEIGHT	e. DOE PROJECT NO.	f. SCRAP PROGRAM	g. WEIGHT PER- CENT ISOTOPE	h. OWNER CODE	i. SEQUENCE NUMBER	j. BATCH NAME	k. NO. OF ITEMS	l. KEY MEAS POINT	m. MEASUREMENT I.D. MEAS BASIS	n. OTHER MEAS. POINT	o. MEAS METHOD	p. ENTRY STATUS	q. MSA	r. SITE IDC	s. PROCESS CODE	
10	771	1	0	JAF0200ARM			G	1											
10	746	1	0	JDN2010000			G	2											
10	746	2	0	JDN2010000			G	3											
10	745	5	0	JAF0200ZPR			G	4											
10	745	44	0	JAF0200ZPR			G	5											
10	746	1	0	JDN2010000			G	6											
10	864	1.16	0				J	7											
<b>6. TOTALS</b>																170	0	8	
<b>7. SIGNATURE</b> 		<b>8. TITLE</b> Health Physicist/CAES Safety Officer		<b>9. DATE</b> 3/27/20															
<b>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.</b>																			
NRC FORM 742C (04-2018) To the best of my knowledge and belief, the information given above and in any attached schedules is true, complete, and correct.																			