

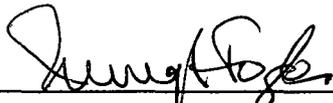
**UNLOADING AND LOADING PROCEDURE FOR
USA/9215/B(U) PACKAGE**

PROCEDURE R-2014-G

Revision 2

Effective Date _____

Reviewed for Compliance, Safety and
Adequacy for Intended Purpose and
Approved



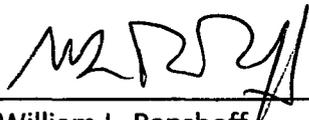
Jerry L. Fogle, QAMRT

Date MARCH 29, 2013



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Field Service Operations

Date 29 March 2013



William L. Ranshoff
Executive Management

Date 29 MARCH 2013

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Change Record: This document supersedes Revision 1.

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**UNLOADING AND LOADING PROCEDURE FOR
USA/9215/B(U) PACKAGES**

Procedure R-2014-G

Revision 2

1. PURPOSE

This procedure establishes instructions for routine handling, loading and unloading of USA/9215/B(U) packages in accordance with the Certificate of Compliance, Neutron's Quality Assurance Program for the Transportation of Radioactive Materials, and applicable provisions of 10CFR71, Subpart H.

Note: This is a general procedure applicable to any authorized user and/or facility. Authorized users/facilities should develop and implement specific procedures, work instructions, and/or other documents covering aspects of implementation which are specific to their operations.

2. SCOPE

2.1 This procedure applies only to USA/9215/B(U) packages at hot cells and field operations sites.

2.2 Transferring radioactive sources between a transfer cask and a therapy or irradiation unit is within the scope of the licensee's operating license and is not covered under this procedure.

3. DEFINITIONS AND ABBREVIATIONS

ALARA:	As low as reasonably achievable per 10CFR 20.1003
C of C:	Certificate of Compliance, USNRC
C of CA:	Certificate of Competent Authority, USDOT
OP:	Overpack – steel and wooden protective jacket portion of the package
QAMRT:	Quality Assurance Manager Radioactive Transportation
QAP:	Quality Assurance Program
RPP:	Radiation Protection Program
RSO:	Radiation Safety Officer, or qualified designee, of the shipper of record if RSO is used alone. Other RSO positions are specifically designated in the procedure

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Shipper of Record: Licensee who delivers licensed material to a carrier for transport
TC: Transfer cask, lead-steel inner portion of the package
USDOT: United States Department of Transportation
USNRC: United States Nuclear Regulatory Commission

4. REFERENCES

Certificate of Compliance and Certificate of Competent Authority - USA/9215/B(U)

QAP

R-2019-G, Maintenance and Storage Procedure for USA/9215/B(U) Package

USDOT regulations 49CFR172 and 49CFR173

USNRC regulations 10CFR20 and 10CFR71

5. QUALIFICATION AND RESPONSIBILITIES

5.1 Personnel shall be qualified and trained in accordance with the applicable QAP and RPP to perform their assigned responsibilities for operations conducted in accordance with this procedure.

5.2 The QAMRT is responsible for evaluating reports of damage to packages and consulting with executive management on plans of action to address the problem.

5.3 The RSO, or qualified designee, shall be responsible for administering the applicable RPP, as it applies to the use of the USA/9215/B(U) package.

5.4 Hot cell operations

5.4.1 The authorized hot cell manager, or qualified designee, is responsible for all operations conducted in the hot cell including verification that the source(s) to be loaded are authorized for loading by the C of C and the verification and documentation of the identity of sources.

5.4.2 Hot cell operators report to the authorized hot cell manager and are responsible for loading and unloading sources acting under the authority of the authorized hot cell manager, RSO, or their qualified designee.

5.5 Field operations

Qualified personnel are responsible for receiving, shipping, unloading, and loading shipping packages in accordance with the C of C and applicable regulations.

6. SAFETY AND SECURITY

All procedures, regulations, security measures and precautions associated with the handling of radioactive materials shall be followed.

7. EQUIPMENT REQUIREMENTS

7.1 As appropriate, tools, gauges, measuring and testing devices shall be controlled, calibrated and adjusted in accordance with the requirements of 10CFR71.125 and the applicable QAP.

7.2 Maintenance and calibration of all radiation and contamination monitoring equipment shall be in accordance with the RPP and QAP, or other documented program.

7.3 Tools and equipment for hot cell and/or field operations are specified in documents not covered under this procedure and are therefore approved under the applicable RPP or QAP.

8. RECEIPT OF PACKAGES

8.1 Receipt of packages shall be scheduled by the RSO, or qualified designee, and packages shall be received in accordance with 10CFR 20.1906.

8.2 Survey the package. If radiation levels are not within the limits specified in 10CFR71.47:

- Notify the RSO and the RSO of the receiving licensee of the situation;
- The RSO shall immediately notify the carrier and the NRC Operations office as required by 10CFR 20.1906; the parties shall work to resolve the situation; and,
- No packages shall be left unsecured and unattended during the receiving process.

- 8.3 If the radiation levels are within the limits as specified in 10CFR71.47, remove the package from the transport vehicle if necessary or desirable for unloading the TC from the OP.
- 8.4 If the package contains radioactive material, verify that the seal is unbroken. If the seal is broken or if there is no seal, notify the RSO and proceed according to his or her instructions.
- 8.5 Visually inspect the package for damage in accordance with R-2019-G. If the package appears damaged, notify the QAMRT and proceed according to his or her instructions, including a plan of action to wipe test the package as necessary and notify the RSO of the receiving licensee.
- 8.6 As appropriate for the mechanism by which the lid is to be removed, remove the plate, cover and/or bolts that render inoperable the lid lifting eye, lifting bale or lid cover bolt holes .
- 8.7 Remove the metal lid nuts and bolts and save these fasteners for shipping the package at a later time. Remove the metal lid from the OP.
- 8.8 Remove the nuts from the wooden lid and save for shipping the package at a later time. Remove the wooden lid from the OP.
- 8.9 Ensure that the cask lifting bale is securely attached by the 2 nuts and bolts supplied with the package.
- 8.10 Remove the TC from the OP and inspect both for damage in accordance with R-2019-G. Notify the QAMRT of any damage found. Use the package for further shipments only with the approval of the QAMRT. Replace both OP lids as necessary when the empty package is left outside during use of the TC.
- 8.11 Move the TC to a safe location within the receiving facility as soon as practical in accordance with all security measures in place at the time of receipt. Do not leave the TC unattended unless secured in a locked room provided and approved by the receiving facility.

9. UNLOADING/LOADING OF SOURCES FROM/INTO THE TC

Operations involving the transfers of radioactive material utilizing the transfer cask shall be performed in accordance with NRC or agreement state operating licenses specific to the proposed plan of work. In addition to authorized users of the package, hot cell operations may also be performed, in conjunction with Neutron Products, Inc., by a licensee approved by Neutron's RSO, Field Service Operations, but who is not itself an authorized user of the package. Handling, leak test, and wipe tests shall be performed in accordance with procedures and regulatory requirements of the hot cell licensee.

- 9.1 Source(s), sleeves, plugs and/or shields shall be unloaded and/or loaded into the TC in accordance with all requirements of the C of C and the specific task to be performed.
- 9.2 Verify that the gasket surfaces have not been damaged during source handling or unloading operations. If any gasket is damaged, notify Neutron's QAMRT in accordance with the latest revision of R-2019-G.
- 9.3 The cask end covers shall be secured with the bolts and tightened to 100 – 125 inch/pounds.
- 9.4 Decontaminate the external surfaces of the TC to contamination levels in accordance with 49CFR173.443 and which are as low as practical in accordance with ALARA and the hot cell licensee procedure.
- 9.5 The TC shall be inspected for damage in accordance with the latest revision of R-2019-G and prepared for shipment in accordance with Section 10.

10. LOADING THE TC INTO THE OP

- 10.1 Survey the TC and place appropriate Yellow II or Yellow III labels on end covers to serve as an indicator of the radioactive hazard present during movement of the TC to the OP for shipment.
- 10.2 Visually inspect the TC and OP assembly and lids before loading the TC in the OP in accordance with Attachment A, Visual Inspection Checklist for USA/9215/B(U) Packages, or equivalent, and document the results for shipping records. If any damages are found, notify Neutron's QAMRT in accordance with the latest revision of R-2019-G and do not use the package for shipments of radioactive material without approval of Neutron's QAMRT.

Note: No package shall be left unattended during the loading process, and shipment shall be made as soon as practical in accordance with the security measures in place at the shipping site/facility.

- 10.3 Load the TC into the OP, and install the wood and steel lids, securing the lids with the fasteners removed during unloading. If any fasteners are lost, missing or damaged, notify Neutron's QAMRT in accordance with the latest revision of R-2019-G.
- 10.4 Visually inspect the assembled package in accordance with checklist in Attachment A, or equivalent, to ensure that the package satisfies all requirements of the C of C.
- 10.5 Render the lid lifting eye inoperable for lifting the package.
- 10.6 If a lid lifting bale is used instead of the lifting eye, remove the lid lifting bale before shipping the package and install 4 nuts and bolts in the holes to render the holes inoperable for lifting.
- 10.7 Decontaminate the outside of the package to levels in accordance with 49CFR173.443 and which are as low as practical in accordance with ALARA, as necessary.
- 10.8 Prepare and affix the appropriate labels for the shipment in accordance with 49CFR172.403.
- 10.9 Install a tamper indicating seal and record the results on the visual inspection checklist, Attachment A, or equivalent.
- 10.10 The package shall be loaded onto the transport vehicle and a radiation survey performed in accordance with the applicable requirements of 10CFR71.47 and 49CFR173.441. If dose rates exceed the regulatory requirements, the RSO shall be notified and the situation corrected.

11. RECORDS

Records shall be captured and retained by the RSO in accordance with 10CFR71.91.

12. CHANGE RECORD

Cover page	Revision 2 Added RSO, Field Service Operations as reviewer
Section 3	Added QAMRT and QAP, and clarified RSO positions
Section 4	Removed reference to USA/9102/B() C of C which has expired Removed reference to ANSI specification for leak testing sources
Section 5	Added QAMRT and responsibilities Added hot cell and field operations personnel and responsibilities
Section 6	Added security measures in listed actions
Section 7	Added tools and equipment for hot cell and field operations to clarify applicability to appropriate programs and/or procedures
Section 8	Rewritten to include receiving packages only
Section 9	New - for unloading and loading of the TC at hot cell and field operation sites
Section 10	New - for loading and shipping the package only
Section 11	New – for records
Section 12	New – for change record
Appendix A	Added for parts specified on package components
Attachment A	Visual inspection checklist, or equivalent - sample

APPENDIX A

1. The following parts shall be used for the maintenance of the TC:

Bolt – hex head cap screw 1/2–13 X 1 ¼ inch long, Grade 8 steel per Item 71, Drawing 240122

Gasket – Silicon rubber, 1/16 inch thick, ASTM D-2000-80, per Item 47, Drawing 240122

Identification tag – per Item 49, Drawing 240122

2. The following parts shall be used for the maintenance of the OP:

Threaded rod – 5/8 inch UNC steel threaded rod, 41 ¼ inch long nominal per Drawing 240116, View D

Nut for wooden protective jacket – 5/8 inch UNC steel nut per Drawing 240116, View D

Washer for wooden protective jacket – 5/8 inch steel flat washer per Drawing 240116, View D

Hex nut for wooden protective jacket – 5/8 inch UNC steel hex nut per Drawing 240116, View D

Plywood sheet for wooden protective jacket – ¾ inch nominal plywood sheet per Drawing 240116, Section F-F

Screw for outer steel shell – Grade 5, steel hex head cap screw, ½-13 X 1 inch long per Drawing 240116, Section A-A

Nut for outer steel shell – Grade 5, steel hex nut, ½-13 per Drawing 240116, Section A-A

Attachment A

VISUAL INSPECTION CHECKLIST FOR USA/9215/B(U) PACKAGES

Note: The visual inspection checklist shall include at a minimum the items included hereunder.

The individual who performs the inspection shall initial and date each item.

TC

- The TC is in unimpaired physical condition except for superficial defects such as marks or dents.
- The gaskets have been inspected in accordance with Section 9 of this procedure, or with Section 6 of procedure R-2019-G.
- End cover lifting handles are correct for the USA/9215/B(U) package.
- Closures and fasteners have been inspected and installed in accordance with Sections 9 and 10 of this procedure or Section 6 of procedure R-2019-G; and bolts and hardware are not S/CI.
- End cover bolts tightened to 100 – 125 inch/pounds using torque wrench model _____ Serial number _____, and calibration due date _____.
- Axial shielding material length is at minimum 2 inches for lead and tungsten, and 3 inches for stainless steel plugs and/or spacers.
- Any damage to the TC has been reported to the QAMRT and shipment will not be made until authorized by the QAMRT.

OUTER STEEL SHELL AND WOODEN PROTECTIVE JACKET

- The OP subassembly and lids are in unimpaired condition except for superficial defects such as marks or dents, and have been inspected in accordance with Section 10 of this procedure or Section 6 of procedure R-2019-G.
- Any damage to the OP subassembly and lids has been reported to the QAMRT and shipment will not be made until authorized by the QAMRT.

ASSEMBLED PACKAGE

- The package is in unimpaired physical condition except for superficial defects such as marks or dents.
- All package bolts are in place and tightened and are not on the S/C Headmark List.
- The package has been loaded in accordance with this procedure.
- Four nuts and bolts have been installed in the metal lid corners and are not on the S/CI Headmark List.
- The lifting eye has been rendered inoperable by plates bolted to either side of the lifting bale, or covered. (Indicate which applies).
- Any damage to assembled package components has been reported to the QAMRT and shipment will not be made until authorized by the QAMRT.
- The tamper indicating seal has been installed. Seal number _____ .
- Survey and wipe tests have been performed and are acceptable.
Maximum dose rate in mR/hr at contact _____, at 1 meter (TI) _____.
- The labels and marking are applicable for this shipment.