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CP3-WM-9503 **FRev. 1A**	**TITLE**: Off-Site Shipments by Air Transport	Page 1 of 20

DOCUMENT CATEGORY: ☐ Administrative ☒ Technical

LEVEL OF USE: ☐ Information Level ☒ Reference Level ☐ Continuous Use

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REVISION/CHANGE LOG

Revision/Change Letter	Description of Changes	Pages Affected	Date of Revision/Change
FR0	Procedure Bluesheet	All	8/10/17
FR1	Initial Release. Non-intent revision to incorporate bluesheet changes.	All	12/14/17
FR1A	Remove the phrase “on behalf of U.S. Department of Energy.” Corrected the number for Software Quality Assurance	3, 6	6/13/18

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1.0 PURPOSE AND SCOPE

1.1 Purpose

This procedure provides instructions for preparing shipments of hazardous and non-hazardous material via air transport to ensure that they are properly shipped. This procedure provides the processes to satisfy the requirements related to shipments in the following:

- 49 *Code of Federal Regulations* (*CFR*), *Transportation* (Parts 100-177)
- International Civil Air Organization (ICAO)
- International Air Transportation Association (IATA)

1.2 Scope

The requirements of this procedure apply to all off-site shipments of hazardous and non-hazardous materials via air transport performed by the Paducah Deactivation and Remediation (D&R) Contractor at the Department of Energy (DOE) Paducah Gaseous Diffusion Plant Site. This includes samples and other types of regulated materials such as radiological instruments and articles, and chemical products. Chg A

Samples containing regulated quantities of radioactive material cannot be shipped in accordance with IATA Section 3.11.1 which allows for conservative classification and packaging when sufficient information is not available. These guidelines cannot be used for radioactive material as referenced in IATA Section 3.11.3(b). Sufficient radiological information must be available to properly categorize radiological material for shipment. Information may come from Process Knowledge (PK), Analytical Data Sources, or Radscreen Analysis.

2.0 REFERENCES

2.1 Use References

- 49 *CFR*, *Transportation* (Parts 100-185)
- CP3-QA-1002, *Software Quality Assurance* Chg A
- CP3-QA-3005, *Occurrence Reporting*
- CP3-RP-1105, *Receipt, Transport, and Movement of Radioactive Materials*
- CP3-WM-3028, *Off-Site Shipping*
- IATA *Dangerous Goods Regulations*

2.2 Source References

None

3.0 COMMITMENTS

None

4.0 PRECAUTIONS AND LIMITATIONS

None

5.0 PREREQUISITES

5.1 Prior to Shipment preparation,

- OBTAIN Radiological Shipment Survey on the shipping containers (s) and sample bottles/containers
- CHOOSE a carrier **AND** ENSURE State and Carrier Limitations (per IATA, Section 2, *Dangerous Goods Regulations*) are met. This includes U.S. Government (USG) Variations only for domestic shipments.
- ENSURE Laboratory is approved by Sample Management Office (SMO), if applicable.

NOTE:

CP3-WM-9503-F01. "Acceptance of Radiological Materials" is not required for materials that are considered non-radiological (no rad added or free-releasable) In this case; an email or equivalent form from the receiving facility is acceptable. Material being sent to non-Nuclear Regulatory Commission (NRC) licensed facilities must be free-released by the Radiation Protection organization.

5.2 **IF** the shipment contains radiological material, **THEN** NOTIFY the lab or receiving facility prior to shipment using CP3-WM-9503-F01, "Acceptance of Radiological Materials" form or PROVIDE equivalent information with the analytical laboratory statement of work for samples.

5.3 PRIOR to shipment, the D& R Contractor must ENSURE that samples can be received, either by telephone, fax, or email that the laboratory or receiving facility can accept the materials being shipped.

5.4 OBTAIN the special tools, equipment and shipment supplies needed including the following, as applicable:

A. Shipping container

1. Cooler packs

2. Expected packaging

3. 1 A2/X or Y drums

B. Artificial ice

C. Adsorbent packing material

D. Bubble wrap

E. Plastic bags (i.e. quart size)

F. Tamper indicating tape

G. Reinforcement tape

H. Assortment of labels(i.e. Corrosive, Packaging Orientation, and Cargo Aircraft Only).

6.0 INSTRUCTIONS

6.1 Pre-Shipment Activities

Certified Shipper

6.1.1 OBTAIN a Radiological Shipment Survey on the shipping container(s) and sample bottles/containers in accordance with CP3-RP-1105, *Receipt, Transport, and Movement of Radioactive Materials*.

NOTE:

The limitations include USG Variations only for domestic shipments.

6.1.2 CHOOSE a carrier AND FOLLOW State and Carrier Limitations (per IATA, Section 2, *Dangerous Goods Regulations*) as applicable.

6.2 Radiological and Chemical Characterization

Certified Shipper

6.2.1 DETERMINE if the material has no added rad (per PK; or if the material is essentially equivalent to background).

NOTE:

Contamination means the presence of a radioactive substance on a surface in quantities in excess of 0.4 Bq/cm2 (2,400 dpm/100 cm2) for beta and gamma emitters and low toxicity alpha emitters; or 0.04 Bq/cm2 (240 dpm/100 cm2) for all other alpha emitters. Contamination as used here includes both fixed and removable contamination.

If contamination is present above the levels specified above and exceeds the Exempt Consignment limits in IATA Table 10.3.A, the material must be regulated as Class 7. The Waste Transportation Department shall be contacted for assistance in determining the Proper Shipping Name (PSN) and shipping requirements.

Material with Fixed Beta/Gamma contamination less than 4,000 dpm/100 cm2 may be free-released, but the limit for contamination, as described by the U. S. Department of Transportation (DOT), is 2,400 dpm/100 cm2; which means that material that is free-released may still be regulated as Class 7

6.2.2 DETERMINE if the material is surface contaminated.

NOTE:

Radionuclides will be listed on shipping papers utilizing PK for radioactive material shipments when only gross alpha/beta data has been provided.

For all regulated shipments of radioactive material (Class 7 as primary or subsidiary hazard), calculations and associated shipping documents must be peer reviewed by a qualified shipper from the Waste Transportation Department prior to release.

6.2.3 DETERMINE if the material is volumetrically contaminated per results from a rad survey, PK, or historical data. PERFORM calculations in accordance with 49 *CFR* 173.403/IATA 10.3.1 to determine if the material is:

- Non-regulated as Class 7 by DOT/IATA;
- Regulated as Class 7 and can be shipped as limited quantity; or
- Regulated as Class 7 and can be shipped as low specific activity (LSA) or surface contaminated objects (SCO)

6.2.4 **IF** calculations confirm that the material should be regulated as Class 7, **THEN** CONTACT the Waste Transportation Department for assistance in determining the PSN and shipping requirements.

NOTE:

Safety Data Sheets (SDS), Analytical Data, and/or PK may be used to determine if the material is a regulated material.

For all other regulated shipments of hazardous materials not containing radioactive material, shipment preparation must be completed by an IATA trained person and peer reviewed by a qualified shipper from the Waste Transportation Department prior to release.

6.2.5 DETERMINE if the material has chemical properties that may be regulated by the DOT

6.3 Additional General Characterization Requirements

Certified Shipper

NOTE:

All software, spreadsheets and/or databases must be quality checked for accuracy.

6.3.1 TEST **AND** VALIDATE computer programs **AND** VERIFY data results in accordance with CP3-QA-1002, *Software Quality Assurance*. Chg A

NOTE:

This checklist should be complete for all shipments, hazardous and non-hazardous.

6.3.2 COMPLETE CP3-WM-9503-F02, “Air Shipment Preparation Checklist” and INCLUDE in the shipment file.

NOTE:

Guidance to determine the appropriate documentation to be retained in the Shipment File, for typical shipment types, is provided in Attachment B.

Peer reviews are documented on the appropriate Checklist and Calculations Worksheet as identified in Appendix B.

6.3.3 ENSURE a peer review, including calculations, is completed for each regulated shipment of radioactive material.

6.3.4 USE form CP3-WM-9503-F03, “Limited Quantity Radioactive Materials Checklist/Peer Review” when material is being shipped as a Limited Quantity in an Excepted Package.

6.3.5 USE one of the current checklists as provided in the IATA regulations, as appropriate. Examples are provide as follows:

- "Dangerous Goods Checklist for a Non Radioactive Shipment" (Appendix C)
- "Dangerous Goods Checklist for a Radioactive Shipment" (Appendix D)

6.3.6 INITIATE a shipment utilizing the following information in one or more of these formats:

- PK and Radiation Protection Surveys
- Data and Radiation Protection Surveys
- Radiological analysis and Radiation Protection Surveys
- SDS

Sample Management Organization/Samplers

NOTE:
Additional information may be requested if necessary by Waste Transportation personnel.

6.3.7 PROVIDE the following information, as necessary, to determine appropriate shipment classification, the number of packages required, and for verification of the materials being packaged:

- Identification number(s)
- Matrix
- Container Type (e.g. Glass 40 ml bottle)
- Quantity (net of material)
- Preservation media
- Delivery schedule
- Known as possible constituents (Radiological activity, acids as preservatives, etc.)
- Number of blanks to be shipped with the samples
- Physical Form (i.e. liquid, solid, gas)
- Chemical Form (i.e. oxides or nitrates)
- Technical Name
- Industrial Hygiene (IH) Samples

Certified Shipper

6.3.8 CLASSIFY the material as Dangerous Goods (hazardous), or Not Restricted (non-hazardous), as applicable in accordance with IATA Section 3.

6.3.9 VERIFY that different dangerous goods (multi-hazard classes) packed in one outer packaging meet the requirements in IATA Section 5.0.2.11

6.4 Packaging

Certified Shipper

NOTE:

IATA *Dangerous Goods Regulations* shall be referred to for specific packaging requirements when shipping hazardous materials by air and DOT 49 *CFR* parts 100 to 185 when shipping hazardous materials by ground. Ground shipments of regulated materials must be conducted in accordance with CP3-WM-3028, *Off-Site Shipping*.

Packages containing regulated amounts of solid and/or liquid radioactive materials or any liquid hazardous materials, must comply with IATA Section 10.6.1.3. Packages must be capable of withstanding leakage at normal operating pressure plus 95 kPa. Vendor certifications for outer and/or intermediate packaging will be maintained by the Waste Transportation Department.

6.4.1 PACKAGE materials by PERFORMING **AND** VERIFYING that the following steps have been completed:

- Friction-type closures are secured with tape (i.e. stoppers, corks, etc.);
- Packages with liquid in the inner packaging have package orientation labels (up arrows) on **two** opposing sides;
- Packaging instructions are followed, secondary containment may be required; and
- Liquids are surrounded by absorbent material sufficient enough to meet IATA Table 5.0B

6.4.2 For sample shipments, ENSURE the original chain-of-custody for each sample has been signed by appropriate personnel and is included in the package.

6.4.3 APPLY all applicable DOT/ IATA and ICAO labeling and markings, airway bill and Shipper's Declaration to the shipping container.

NOTE:

Packages must include the United Nations (UN) identification number if specification packaging is required by the applicable IATA Packing Instruction.

For sample shipments, the label of each sample must match the chain-of-custody along with the list of samples to be shipped

6.4.4 Obtain the off-site release survey from Radiation Protection.

6.4.5 Review the off-site release survey to ensure that samples and final package being shipped off-site is on the off-site release survey **PRIOR** to shipping.

NOTE:

Ullage – Sufficient outage must be left to ensure that neither leakage nor permanent distortion of packaging will occur during transit. Liquids must not completely fill a packaging at 55°C (130°F).

When samples requiring no "head space" (e.g. volatile and semi-volatile samples) are shipped, an intermediate containment MUST be used.

6.4.6 ENSURE Limited Quantity Radioactive Material packages are designed to meet the requirements of IATA Section 10.5.9

6.4.7 OBTAIN an estimated weight for each package prior to shipment.

6.5 Notification

Certified Shipper

6.5.1 Contact carrier to arrange shipment pickup.

6.5.2 INFORM carrier if material needs special handling (i.e. to be palletized).

6.6 Documentation

Certified Shipper

NOTE:

Each air carrier has its own airway bill. For example, the airway bill for Fed Ex and UPS can be "labels created" online.

6.6.1 ATTACH the airway bill to the package.

6.6.2 ATTACH the Shipper's Declaration of Dangerous Goods shipping document to the package, when applicable.

6.6.3 **WHEN** required to do so by the carrier, SEND a copy of the Shipper's Declaration of Dangerous Goods airway bill to the appropriate air carrier for review prior to shipment.

6.6.4 SEND appropriate number of originals with the shipment as determined by the carrier (usually three will suffice).For sample shipments, PLACE signed copies of the chain-of-custody forms for each sample in the shipment file.

6.6.5 USE guidance in Appendix B for determining the additional documentation requirements for various shipment types.

6.7 Post-Shipment Activities

Certified Shipper

6.7.1 RETAIN the original signed copy of airway bill and an original of the Shipper's Declaration.

6.7.2 NOTIFY the Plant Shift Superintendent (PSS) and provide copy of Shipper's Declaration or Bill of Lading for all regulated (hazardous) shipments.

6.7.3 ENSURE all shipping containers were received at the off-site laboratory by running a package trace or by making a phone call.

6.7.4 **IF** all containers were **NOT** received within the expected delivery time, **THEN** INITIATE a trace to locate the shipment.

6.7.5 SURVEY returned shipping containers in accordance with CP3-RP-1105, *Receipt, Transport, and Movement of Radioactive Materials*, EMPTY returned contents if necessary, and INSPECT for future use.

6.7.6 **IF** a DOT or other regulatory shipping violation has occurred, **THEN** INITIATE an occurrence report in accordance with CP3-QA-3005, *Occurrence Reporting*.

7.0 ACCEPTANCE CRITERA

None

8.0 POST PERFORMANCE WORK ACTIVITIES

None

9.0 RECORDS

9.1 Records Generated

The following records may be generated by this procedure:

- Airway bill (or copy of UPS or FedEx label)
- Shipper's Declaration of Dangerous Goods, when applicable
- Radiological data
- Transportation calculations generated
- Hazardous Materials checklist and peer review, or equivalent
- Radiation Protection survey outer box, when prepared in an RMA
- Radiation Protection survey of materials
- Other pertinent data (i.e. Chain-of Custody, etc.)
- Form CP3-WM-9503-F01, "Acceptance of Radiological Materials"
- Form CP3-WM-9503-F02, "Air Shipment Preparation Checklist"

  Form CP3-WM-9503-F03, "Limited Quantity Radioactive Materials Checklist/Peer Review"

9.2 Records Disposition

The records are to be maintained in accordance with CP3-RD-0010, *Records Management Process*.

Appendix A – Acronyms/Definitions

ACRONYMS

A. ***CFR*** *– Code of Federal Regulations*

B. **DOE** – U. S. Department of Energy

C. **DOT** – U. S. Department of Transportation

D. **D&R** – Deactivation and Remediation

E. **IATA** – International Air Transportation Association

F. **ICAO** – International Civil Air Organization

G. **PK** – Process Knowledge

H. **PSN** – Proper Shipping Name

I. **SDS** –Safety Data Sheet

J. **USG** – U.S. Government

DEFINITIONS

A. **Data Quality Objectives**—A set of criteria established for the collection of data to ensure that the data is adequate to make the required decision. For waste characterization, the data quality objectives will include the analyses required, the analytes (the contaminants of concern), the type and number of samples, the quality control samples and analyses, and the degree of confidence required.

B. **Hazardous Material**—Hazardous material means a substance or material that the Secretary of Transportation has determined is capable of posing an unreasonable risk to health, safety, and property when transported in commerce, and has designated as hazardous under section 5103 of Federal hazardous materials transportation law (49 U.S.C. 5103). The term includes hazardous substances, hazardous wastes, marine pollutants, elevated temperature materials, materials designed as hazardous in the Hazardous Materials Table (see 49 *CFR* 172.101), and materials that meets the defining criteria for hazard classes and divisions in Part 173 of subchapter C of this chapter.

C. **Process Knowledge**—As it applies to waste characterization and certification, process knowledge (PK) is documented knowledge of the processes and sources associated with generation of a waste or waste stream that allows a reliable estimation of the constituents and quantities for handling, storage, treatment, and disposal. PK is information, ultimately based on either analytical data or knowledge of the waste generating activity, that relates to the material to be characterized, but does not directly represent the material itself.

Appendix B - Documentation Requirements for Typical Shipments by Air

Shipment Classification	Radiological Status	Proper Shipping Name (PSN) Examples	Required Shipping Documents	Shipping File to Include
Non-Regulated by DOT/IATA	No Rad Added[1] Free Releasable[2]	N/A	Air Waybill	• Air Shipment Preparation Checklist • Completed Air Waybill • RCT Survey for Release • Confirmation of Delivery
	Contains Rad Material[3]	N/A	Air Waybill	• Air Shipment Preparation Checklist • Acceptance of RAM Form or equivalent SOW • Analytical Data (Rad Screen) • Calculations with Peer Review Signature • Completed Air Waybill • RCT Survey for Release • Confirmation of Delivery
Regulated as Class 7 Radioactive	Meets Limited Quantity Requirements for Class 7	UN2910, Radioactive material, excepted package, limited quantity of material, 7	Air Waybill – Must include PSN on the waybill in the Nature and Quantity of Goods	• Air Shipment Preparation Checklist • Acceptance of RAM Form or equivalent SOW • Analytical Data (Rad Screen) • Calculations with Peer Review Signature • Completed Air Waybill • Completed LTD QTY Checklist • RCT Survey for Release • Confirmation of Delivery
	Exceeds Limited Quantity Requirements, but meets appropriate LSA Requirements	UN2912, Radioactive material, low specific activity (LSA-I), 7	Air Waybill Shipper's Declaration of Dangerous Goods	• Air Shipment Preparation Checklist • Acceptance of RAM Form or equivalent SOW • Analytical Data (Rad Screen) • Calculations with Peer Review Signature • Completed Air Waybill • Completed Dangerous Goods Declaration • Completed IATA Radioactive Checklist • RCT Survey for Release • Confirmation of Delivery

Appendix B - Documentation Requirements for Typical Shipments by Air (Continued)

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Shipment Classification	Radiological Status	Proper Shipping Name (PSN) Examples	Required Shipping Documents	Shipping File to Include
Not Class 7 but Regulated as Another DOT Class (Ex. Corrosives – Class 8, Miscellaneous – Class 9, etc.)	No Rad Added or Free Released (not Class 7)	UN3082, Environmentally hazardous substance, liquid, n.o.s., 9, (PCB)	Air Waybill Shipper's Declaration of Dangerous Goods	• Air Shipment Preparation Checklist • Analytical Data (if applicable for non-rad constituents) • Completed Air Waybill • Completed Dangerous Goods Declaration • Completed IATA Non-Radioactive Checklist • RCT Survey for Release • Confirmation of Delivery
Not Class 7 but Regulated as Another DOT Class (Ex. Corrosives – Class 8, Miscellaneous – Class 9, etc.)	Contains Rad Material and meets Limited Quantity Requirements for Class 7	UN1760, Corrosive Liquid n.o.s., 8 (7), (Nitric Acid Solution)	Air Waybill Shipper's Declaration of Dangerous Goods	• Air Shipment Preparation Checklist • Acceptance of RAM Form or equivalent SOW • Analytical Data (Rad Screen and other data as applicable) • Calculations with Peer Review Signature • Completed Air Waybill • Completed Dangerous Goods Declaration • Completed IATA Non-Radioactive Checklist • RCT Survey for Release • Confirmation of Delivery
Not Class 7 but Regulated as Another DOT Class (Ex. Corrosives – Class 8, Miscellaneous – Class 9, etc.)	Contains Rad Material but doesn't meet Class 7 Requirements	UN3082, Environmentally hazardous substance, liquid, n.o.s., 9, (PCB)	Air Waybill Shipper's Declaration of Dangerous Goods	• Air Shipment Preparation Checklist • Acceptance of RAM Form or equivalent SOW • Analytical Data (Rad Screen and other data as applicable) • Calculations with Peer Review Signature • Completed Air Waybill • Completed Dangerous Goods Declaration • Completed IATA Non-Radioactive Checklist • RCT Survey for Release • Confirmation of Sample Delivery

1. No Rad Added – Either known by process knowledge (PK) never to have been in contact with radiological contamination; or essentially equivalent to background levels.
2. Free-Releasable Material – Must meet the surface criteria established in DOE Order 5400.5, Chg. 2, (equivalent to 10 *CFR* 835, App. D; except for Transuranic Waste, which is 100 dpm/100cm^2); or must be determined equivalent to background if the material is volumetrically contaminated. Samples being sent to non-NRC licensed facilities must be free-released by RADCON.
3. Contains Rad Material – Any radiological material that cannot be described as "No Rad Added" or "Free-releasable". Radiological material may or may not meet Class 7 requirements and be regulated by DOT. Calculations will be performed to determine this.

Appendix C – Dangerous Goods Checklist for a Non-Radioactive Shipment

Page 1 of 2

2015
DANGEROUS GOODS CHECKLIST FOR A NON-RADIOACTIVE SHIPMENT

The recommended checklist appearing on the following pages is intended to verify shipments at origin.

Never accept or refuse a shipment before all items have been checked.

Is the following information correct for each entry?

SHIPPERS DECLARATION FOR DANGEROUS GOODS (DGD)

	YES	NO*	N/A
1. Two copies in English and in the IATA format including the air certification statement [8.1.1, 8.1.2, 8.1.6.12]	☐	☐	
2. Full name and address of Shipper and Consignee [8.1.6.1, 8.1.6.2]	☐	☐	
3. If the Air Waybill number is not shown, enter it. [8.1.6.3]	☐		
4. The number of pages shown [8.1.6.4]	☐	☐	
5. The non-applicable Aircraft Type deleted or not shown [8.1.6.5]	☐	☐	
6. If full name of Airport or City of Departure or Destination is not shown, enter it. [8.1.6.6 and 8.1.6.7] Information is optional	☐		☐
7. The word "Radioactive" deleted or not shown [8.1.6.8]	☐	☐	
Identification			
8. UN or ID Number, preceded by prefix [8.1.6.9.1, Step 1]	☐	☐	
9. Proper Shipping Name and the technical name in brackets for asterisked entries [8.1.6.9.1, Step 2]	☐	☐	
10. Class or Division, and for Class 1, the Compatibility Group, [8.1.6.9.1, Step 3]	☐	☐	
11. Subsidiary Risk, in parentheses, immediately following Class or Division [8.1.6.9.1, Step 4]	☐	☐	☐
12. Packing Group [8.1.6.9.1, Step 5]	☐	☐	☐
Quantity and Type of Packing			
13. Number and Type of Packages [8.1.6.9.2, Step 6]	☐	☐	
14. Quantity and unit of measure (net, or gross followed by "G", as applicable) within per package limit [8.1.6.9.2, Step 6]	☐	☐	
15. When different dangerous goods are packed in one outer packaging, the following rules are complied with:			
– Compatible according to Table 9.3.A.	☐	☐	☐
– UN packages containing Division 6.2 [5.0.2.11(c)]	☐	☐	☐
– "All packed in one (type of packaging)" [8.1.6.9.2, Step 6(f)]	☐	☐	☐
– Calculation of "Q" value must not exceed 1 [5.0.2.11 (g) & (h); 2.7.5.6; 8.1.6.9.2, Step 6(g)]	☐	☐	☐
16. Overpack			
– Compatible according to Table 9.3.A. [5.0.1.5.1]	☐	☐	☐
– Wording "Overpack Used" [8.1.6.9.2, Step 7]	☐	☐	☐
– If more than one overpack is used, identification marks shown and total quantity of dangerous goods [8.1.6.9.2, Step 7]	☐	☐	☐
Packing Instructions			
17. Packing Instruction Number [8.1.6.9.3, Step 8]	☐	☐	
18. For lithium batteries in compliance with Section IB, "IB" follows the packing instruction [8.1.6.9.3, Step 8]	☐	☐	☐
Authorizations			
19. Check all verifiable special provisions. The Special Provision Number if A1, A2, A4, A5, A51, A81, A88, A99, A130, A190, A191 [8.1.6.9.4, Step 9]	☐	☐	☐
20. Indication that governmental authorization is attached, including a copy in English and additional approvals for other items under [8.1.6.9.4, Step 9]	☐	☐	☐
Additional Handling Information			
21. The mandatory statement shown for self-reactive and related substances of Division 4.1 and organic peroxides of Division 5.2, or samples thereof, for PBE and for fireworks [8.1.6.11.1, 8.1.6.11.2, 8.1.6.11.3 and 8.1.6.11.5]	☐	☐	☐
22. Name and Telephone Number of a responsible person for Division 6.2 Infectious Substance shipment [8.1.6.11.4]	☐	☐	☐
23. **Name and Title (or Department) of Signatory, Place and Date** indicated and **Signature** of Shipper [8.1.6.13, 8.1.6.14 and 8.1.6.15]	☐	☐	
24. **Amendment** or alteration signed by Shipper [8.1.2.6]	☐	☐	☐

EXAMPLE

Appendix C – Dangerous Goods Checklist for a Non-Radioactive Shipment (Continued)

Page 2 of 2

	YES	NO*	N/A
AIR WAYBILL–HANDLING INFORMATION			
25. The statement: "Dangerous goods as per attached Shipper's Declaration" or "Dangerous Goods as per attached DGD" [8.2.1(a)]	☐	☐	
26. "Cargo Aircraft Only" or "CAO", if applicable [8.2.1(b)]	☐	☐	☐
27. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [8.2.2]	☐	☐	☐
PACKAGE(S) AND OVERPACKS			
28. Packaging conforms with packing instruction and is free from damage or leakage [The relevant PI and 9.1.3]	☐	☐	
29. Same number and type of packagings and overpacks delivered as shown on DGD [9.1.3]	☐	☐	
Markings			
30. UN Specification Packaging, marked according to 6.0.4 and 6.0.5:			
– Symbol and Specification Code	☐	☐	☐
– X, Y or Z meets or exceeds Packing Group/Packing Instruction requirements	☐	☐	☐
– Gross Weight within limits (Solids, Inner Packagings or IBCs [SP A179])	☐	☐	☐
– Infectious substance package marking [6.5.3.1]	☐	☐	☐
31. The UN or ID number(s) [7.1.4.1(a)]	☐	☐	
32. The Proper Shipping Name(s) including technical name where required [7.1.4.1(a)]	☐	☐	
33. The full name(s) and Address(es) of Shipper and Consignee [7.1.4.1(b)]	☐	☐	
34. For consignments of more than one package of all classes (except ID 8000 and Class 7) the net quantity, or gross weight followed by "G", as applicable, unless contents are identical, marked on the packages [7.1.4.1(c)]	☐	☐	☐
35. Carbon Dioxide, Solid (Dry Ice), the net quantity marked on the packages [7.1.4.1(d)]	☐	☐	☐
36. The Name and Telephone Number of a responsible person for Division 6.2 Infectious Substances shipment [7.1.4.1(e)]	☐	☐	☐
37. The Special Marking requirements shown for Packing Instruction 202 [7.1.4.1(f)]	☐	☐	☐
38. Limited Quantities mark [7.1.4.2]	☐	☐	☐
39. The Environmentally Hazardous Substance Mark [7.1.5.3]	☐	☐	☐
Labelling			
40. The label(s) identifying the Primary risk as per 4.2, Column D [7.2.3.2; 7.2.3.3(b)]	☐	☐	☐
41. The label(s) identifying the Subsidiary risk, as per 4.2, Column D [7.2.3.2; 7.2.6.2.3]	☐	☐	☐
42. Cargo Aircraft Only label [7.2.4.2; 7.2.6.3]	☐	☐	☐
43. "Orientation" labels on two opposite sides, if applicable [7.2.4.4]	☐	☐	☐
44. "Cryogenic Liquid" labels, if applicable [7.2.4.3]	☐	☐	☐
45. "Keep Away From Heat" label, if applicable [7.2.4.5]	☐	☐	☐
46. "Lithium battery" label, if applicable [7.2.4.7]	☐	☐	☐
47. All required labels are displayed correctly [7.2.6] and all irrelevant marks and labels removed or obliterated [7.1.1; 7.2.1]	☐	☐	
For Overpacks			
48. Packaging Use markings and hazard and handling labels, as required must be clearly visible or reproduced on the outside of the overpack [7.1.7.1, 7.2.7]	☐	☐	☐
49. The word "Overpack" marked if markings and labels are not visible [7.1.7.1]	☐	☐	☐
50. If more than one overpack is used, identification marks shown and total quantity of dangerous goods [7.1.7.2]	☐	☐	☐
GENERAL			
51. State and Operator variations complied with [2.8]	☐	☐	☐
52. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors	☐	☐	☐
53. For IB lithium batteries, one "lithium battery document" with the required information accompanying the consignment [8.1.6.11.7]	☐	☐	☐

Comments: _____

_____

Checked by: _____

Place: _____ Signature: _____

Date: _____ Time: _____

*** IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.**

EXAMPLE

Appendix D – Dangerous Goods Checklist for a Radioactive Shipment

Page 1 of 2

2015
DANGEROUS GOODS CHECKLIST FOR A RADIOACTIVE SHIPMENT

The recommended checklist appearing on the following pages is intended to verify shipments at origin.

Never accept or refuse a shipment before all items have been checked.

Is the following information correct for each entry?

SHIPPERS DECLARATION FOR DANGEROUS GOODS (DGD)

	YES	NO*	N/A
1. Two copies in English and in the IATA format including the air certification statement [10.8.1.2; 10.8.1.4, 8.1.1 and 10.8.3.12.2]	☐	☐	
2. Full name and address of Shipper and Consignee [[10.8.3.1, 10.8.3.2]	☐	☐	
3. If the Air Waybill number is not shown, enter it. [10.8.3.3]	☐		
4. The number of pages shown [10.8.3.4]	☐	☐	
5. The non-applicable Aircraft Type deleted [10.8.3.5]	☐	☐	
6. If full name of Airport or City of Departure or Destination is not shown, enter it. [10.8.3.6 and 10.8.3.7] Information is optional.	☐		☐
7. The word "Non-Radioactive" deleted [10.8.3.8]	☐	☐	
Identification			
8. UN Number, preceded by prefix "UN" [10.8.3.9.1, Step 1]	☐	☐	
9. Proper Shipping Name [10.8.3.9.1, Step 2]	☐	☐	
10. Class 7 [10.8.3.9.1, Step 3]	☐	☐	
11. Subsidiary Risk, in parentheses, immediately following Class [10.8.3.9.1, Step 4] and Packing Group if required for Subsidiary Risk [10.8.3.9.1, Step 5]	☐	☐	☐
Quantity and Type of Packing			
12. Name or Symbol of Radionuclide(s) [10.8.3.9.2, Step 6 (a)]	☐	☐	
13. A description of the physical and chemical form if in other form [10.8.3.9.2, Step 6 (b)]	☐	☐	☐
14. "Special Form" (not required for UN 3332 or UN 3333) or low dispersible material [10.8.3.9.2, Step 6 (b)]	☐	☐	☐
15. The number and type of packages and the activity in becquerel or multiples thereof in each package. For Fissile Material the total weight in grams or kilograms of fissile material may be shown in place of activity [10.8.3.9.2, Step 7]	☐	☐	
16. For different individual radionuclides, the activity of each radionuclide and the words "All packed in one" [10.8.3.9.2, Step 7]	☐	☐	☐
17. Activity within limits for Type A packages [Table 10.3.A], Type B, or Type C (see attached competent authority certificate)	☐	☐	☐
18. Words "Overpack Used" shown on the DGD [10.8.3.9.2, Step 8]	☐	☐	☐
Packing Instructions			
19. Category of package(s) or overpack [10.8.3.9.3, Step 9 and Table 10.5.C]	☐	☐	
20. Transport Index and dimensions (preferably in sequence Length x Width x Height) for Category II and Category III only [10.8.3.9.3, Step 9]	☐	☐	☐
21. For Fissile Material the Criticality Safety Index or the words "Fissile Excepted" [10.8.3.9.3, Step 9]	☐	☐	☐
Authorizations			
22. Identification marks shown and a copy of the document in English attached to DGD for the following [10.8.3.9.4, Step 10; 10.5.7.2.2]:			
– Special Form approval certificate	☐	☐	☐
– Low dispersible material approval certificate	☐	☐	☐
– Type B package design approval certificate	☐	☐	☐
– Other approval certificates as required	☐	☐	☐
23. **Additional Handling Information** [10.8.3.11]	☐	☐	☐
24. **Name and Title (or Department) of Signatory, Place and Date** indicated [10.8.3.13 and 10.8.3.14] and **Signature** of Shipper [10.8.3.15]	☐	☐	
25. **Amendment** or alteration signed by Shipper [10.8.1.7]	☐	☐	☐

EXAMPLE

Appendix D – Dangerous Goods Checklist for a Radioactive Shipment (Continued)

Page 2 of 2

	YES	NO*	N/A
AIR WAYBILL–HANDLING INFORMATION			
26. The statement: "Dangerous goods as per attached Shipper's Declaration" or "Dangerous Goods as per attached DGD" [10.8.8.1(a)]	☐	☐	
27. Cargo Aircraft Only or CAO, if applicable [10.8.8.1(b)]	☐	☐	☐
28. Where non-dangerous goods are included, the number of pieces of dangerous goods shown [10.8.8.2]	☐	☐	☐
PACKAGE(S) AND OVERPACKS			
29. Same number and type of packagings and overpacks delivered as shown on DGD	☐	☐	
30. Unbroken transportation seal [10.6.2.4.1.2] and package in proper condition for carriage [9.1.3; 9.1.4]	☐	☐	
Markings			
31. The UN Number [10.7.1.3.1]	☐	☐	
32. The Proper Shipping Name [10.7.1.3.1]	☐	☐	
33. The full Name and Address of the Shipper and Consignee [10.7.1.3.1]	☐	☐	
34. The permissible gross weight if it exceeds 50 kg [10.7.1.3.1]	☐	☐	☐
35. Type A packages, marked as per 10.7.1.3.4	☐	☐	☐
36. Type B packages, marked as per 10.7.1.3.5	☐	☐	☐
37. Type C packages, Industrial Packages and packages containing Fissile material marked as per 10.7.1.3.6, 10.7.1.3.3 or 10.7.1.3.7	☐	☐	☐
Labelling			
38. Two correctly completed Radioactive Hazard labels on opposite sides [10.7.3.3; 10.7.4.3.1]	☐	☐	
39. Applicable label(s) identifying the Subsidiary [10.7.3.2; 10.7.4.3]	☐	☐	☐
40. Two Cargo Aircraft Only labels, if required, on the same surface near the Hazard labels [10.7.4.2.4; 10.7.4.3.1; 10.7.4.4.1]	☐	☐	☐
41. For fissile materials, two correctly completed Criticality Safety Index (CSI) labels on the same surface as the hazard labels [10.7.3.3.4; 10.7.4.3.1]	☐	☐	☐
42. All displayed labels correctly located, affixed, and irrelevant marks and labels removed or obliterated [10.7.1.1; 10.7.2.1; 10.7.4]	☐	☐	
For Overpacks			
43. Packaging markings as required must be clearly visible or reproduced on the outside of the overpack [10.7.1.4.1]	☐	☐	☐
44. If more than one overpack is used, identification marks shown [10.7.1.4.2]	☐	☐	☐
45. Hazard labels reflect total for overpack [10.7.3.4]	☐	☐	☐
GENERAL			
46. State and Operator variations complied with [2.8]	☐	☐	☐
47. Cargo Aircraft Only shipments, a cargo aircraft operates on all sectors	☐	☐	☐
48. Packages containing Carbon dioxide solid (dry ice), the marking, labelling and documentary requirements complied with [Packing Instruction 954; 7.1.4.1 (d); 7.2.3.9]	☐	☐	☐

Comments: _____

_____

Checked by: _____

Place: _____ Signature: _____

Date: _____ Time: _____

*** IF ANY BOX IS CHECKED "NO", DO NOT ACCEPT THE SHIPMENT AND GIVE A DUPLICATE COPY OF THIS COMPLETED FORM TO THE SHIPPER.**

EXAMPLE

Appendix E – Form CP3-WM-9503-F01 – Acceptance of Radiological Materials

Acceptance of Radiological Materials

To:_____
Fax number

_____
Contact

_____

Based on attached data and proposed proper shipping name, please confirm the following:

a) _____ This facility can accept the material based on reviewing the radioactive analysis/summary
b) _____ This facility has no administrative action of license revocation pending against it.

NRC Radioactive License No. _____Expiration Date:_____

Signature verification:_____Date_____

Fax back to:
Attn:

Proposed Ship Date: _____

Shipment Doc #:_____

☐ TSCA regulated PCB's >500 ppm source

☐ RCRA codes attached

☐ DOT/IATA-ICAO HM Shipping documents attached

☐ Low Specific Activity II Radioactive Material UN3321

☐ Non Regulated for Shipment

☐ Limited Quantity Radioactive Material UN2910

Page 1 of _____

Appendix F – Form CP3-WM-9503-F02 – Air Shipment Preparation Checklist

Air Shipment Preparation Checklist

Shipment Information

1. Document Identification/Reference No.: _____
2. Brief Description of material: _____
3. Proposed shipping date: _____
4. Receiving Facility Name: _____
5. Selected Transporter Name: _____
6. Documents to include in Shipment File:

   a. ____ Draft copy of all shipping documents (Air Waybill, DG Shipper's Dec, DOT BOL, etc.)

   b. Certification of no administrative action or license revocation pending against the receiving facility

   c. ____ Certification that the receiving facility can accept the material

   d. ____ Radiological Calculations and Peer Review signature for Hazardous and Non Hazardous Shipments containing radioactive material

   e. ____ Appropriate Checklist for Hazardous Material shipments – must include Peer Reviewer's Signature [Circle One: LTD QTY, IATA Non-Rad, IATA Rad]

   f. Analytical data

   g. ____ HP Survey for Off-Site Release of Samples and Final Package

   h. ____ Confirmation of Sample Delivery (i.e. Fed Ex Tracking Report)

Additional Comments:

_____

_____

_____

_____

Appendix G – Form CP3-WM-9503-F03 – Limited Quantity Radioactive Materials Checklist/Peer Review

Limited Quantity Radioactive Materials Checklist / Peer Review

Ship Date: _____ Air Waybill Number: _____

Requirements for Limited Quantity Shipments of Radioactive Material:
(Must meet ALL applicable Dangerous Goods Regulations & Department of Transportation Regulations listed below)

- Package Requirements:
  - Must meet the general requirements of 10.6.0
  - Must meet the general requirements of 49CFR 173.410
  - Must meet the additional requirements of 10.6.1 *(withstand leakage at normal operating pressure plus 95 kPa.)*
- Package Radiation Levels:
  - Package surface is <0.5 mRem/hr on contact (Actual dose ____)
- Packages Containing Fissile Material:
  - Must meets one of the Fissile Exceptions in 10.3.7.2
- Exterior Package Contamination Levels
  - Exterior must not exceed the limits in 10.5.3.2
    - **Alpha Removable - 240 dpm/100 cm2**
    - **Beta/gamma Removable -2400 dpm/100 cm2**
- Marking Requirements:
  - UN 2910
  - "Radioactive" on the outside of the package or the outside of the inner package if there is an inner package
  - Full name and address of both the consignor and consignee.
    Note: the waybill is not sufficient to meet this requirement and the name and address must be on the package.
  - Gross weight in kg if the package is >110 pounds
- Labeling Requirements:
  - Must meet the requirements of 10.7.4.4.3
    - Radioactive material excepted package handling label
- Shipping Papers:
  - Air Waybill marked as dangerous goods no declaration required.
  - Meet the requirements 10.8.8.3.3
    - "Radioactive Material, excepted package – limited quantity of material, UN2910" must appear in the nature and quantity of goods section of the air waybill.
    - If using solid dry ice as a refrigerant the details of the Carbon Dioxide is required in the nature and quantity of goods section of the air waybill.

_____ _____
Signature Date

_____ _____
Peer Reviewer Date