

EXPORT CONTROLLED



Team Product Document

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Distribution			Abstract		
*	Name	Mail Addr.	This procedure delinates the steps and criteria for the packaging, loading, and shipping of low level radioactive waste (LLW) to approved disposal sites, specifically to DOE-NTS and DOE-Hanford.		
			As of this revision, Hanford is not accepting waste from outside the State of Washington. Before this procedure may be used to ship to Hanford additional updates will be required.		
* Complete Document No Asterisk, Title Page/Summary or Change Page Only.			Reserved for Proprietary/Legal Notice		

Supporting Document

Summary of Change

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Rev.	Summary of Change	Approvals and Date
A	Minor editorial changes to correct referenced document and department numbers; corrected Radioactive Waste Container Traveler	R. Marshall R. Amar S. Reeder P. Rutherford B. Sujata J. Kucinkas
B	Revised steps 31.2, 31.4, 31.5, 31.6, and 32.1 to address verification of containers planned for shipment with the Hanford approval list Added the NTCWAC and HNF-EP-0063 to Section 3.0 Deleted "Fine Particulates" from Section 6.0, "Prohibited Materials" Added new Section 9.0, "Fine Particulates" Added new Section 10.0, "Sealed Sources" Added weight limits on loaded containers to Section 16.0, "Containers" Added new Section 21.0, "NTS Notifications" Added new Section 22.0, "Transportation" Added new Section 25.2 for SSG QM inspection at receiving Added containers weight observance to Sections 26.7 and 29.2 Added a requirement for annual review of the NTSWAC NIC implementation in new Section 30.2 Added requirements to provide DOE/NV notification related to quality Non-conformances and transportation in new Sections 30.5 and 30.6 Added Appendix A, "Acronyms"	R. Marshall R. Amar S. Reeder P. Rutherford B. Sujata J. Kucinkas
C	Procedure revised for conformance with Revision 4 of the NTSWAC, and to incorporate corrective actions developed as a result of annual QA audit of the RMHF Moderate editorial changes Some Sections deleted and/or renumbered Example forms updated References to Envirocare deleted ALL EFFECTED PERSONNEL REQUIRED TO RE-READ DOCUMENT.	R. Marshall R. Amar D. Koncel P. Rutherford T. Venable J. Kucinkas
D	Sections have been revised and new sub-sections added for clarification and compliance with NTSWAC-REV5 and with the 1/04 NTS audit findings. Provisions added for shipping radioactive waste not regulated by DOT as Class 7 Material. ALL EFFECTED PERSONNEL REQUIRED TO RE-READ DOCUMENT.	R. Marshall R. Amar D. Koncel P. Rutherford T. Venable J. Kucinkas

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<u>Rev.</u>	<u>Summary of Change</u>	<u>Approvals and Date</u>
E	<ul style="list-style-type: none"> • 19.0 & 27.19 – Added HAZTRAK as the preferred method for notifying NTS of shipment information • 23.4 – Revised marking requirement from: stencil and paint; to: durably mark. Deleted examples of tracking number format • 23.7 – Added verification of container markings and container free from damage • 24.2 – Deleted in entirety • 24.15 – Added a RMHF review of Lot Follower and associated documentation prior to the transfer of waste containers/packages to the RMHF • 26.1 & 26.4 – Deleted the requirement for an EWR for re-packaging operations • 27.18 – Redefined contents of the documentation package provided to the driver • 28.7 – Replaced direction to use the WCO Checklist (Appendix B) with the QA-00002 checklist • Miscellaneous editorial changes throughout 	<p>R. Marshall R. Amar J. Kucinskaskas J. Vargo P. Waite M. Spenard</p> <p>(approvals in Metaphase)</p>
F	<p>Incorporated changes for consistency with NTS WAC 325 Rev. 6-02</p> <ul style="list-style-type: none"> • 15.1 – Added new paragraph beginning “Intermodal roll-off containers - - - “ • 19.0 – Revised item 8 to include “critical processes, procedures” • 20.0 & 27.18 – Added requirement that “driver must be U.S. citizen” • 16.0, 24.10, 24.16, 27.17-18 & 29.15 – Added requirement for “non-lead containing” tamper indicator • 27.2 – Added NOTE beginning “When preparing the PSDR - - “ • Other changes • Appendix B, form 6, Replaced with updated form • 22.0 – Added new paragraph allowing shipment directly from generating facility • 19.0 Removed item 10, notification requirement • 27.1 Removed NOTE <p>Incorporated changes for shipping asbestos containing LLW (ALLW) to DOE/NV</p>	<p>_____</p> <p>R. Amar</p> <p>_____</p> <p>J. Kucinskaskas</p> <p>_____</p> <p>J. Vargo</p> <p>_____</p> <p>S. Gevorgiz</p> <p>_____</p> <p>P.Rutherford</p> <p>_____</p> <p>T. Venable</p>

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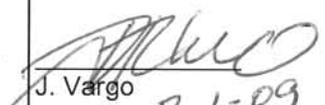
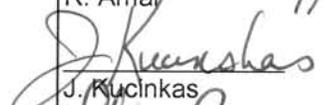
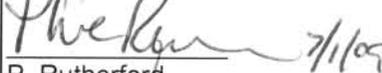
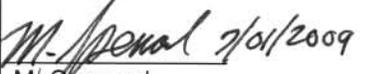
Rev.	Summary of Change	Approvals and Date
<p>F cont.</p>	<ul style="list-style-type: none"> • 7.2 – Revised to include shipping of ALLW to DOE/NV • 7.2 – Added footnote • 27.1 – Added requirements to prepare EPA Hazardous Manifest and NTS Advanced Shipment Notification • 27.11 – Added requirements for ALLW labeling • Appendix B – added forms 18 & 19, EPA Hazardous Waste Manifest & ALLW Warning Labels, replaced form 12, Asbestiform Shipment Notification • Replaced SHEA with EHS throughout • Replaced STS with TS throughout 	
<p>Rev. G</p>	<p>Summary of Change</p> <ol style="list-style-type: none"> 1) 2.0 - Added "(with the exception of ALLW, refer to 7.2)" to the 5th sentence 2) 7.2 - Rewritten to incorporate NTSWAC Mixed Waste requirements 3) 8.0 - Editorial change (clarification) per customer request 4) 27.1 - Change title EPA Form 8700-22 5) Append B - page has been updated with Form 654-T-018; and changed title for EPA Form 8700-22 6) Pg 48 - Replaced EPA Form 8700-22 with current revision 	<p>Approvals and Date</p> <hr/> <p>J. Vargo</p> <hr/> <p>R. Amar</p> <hr/> <p>J. Kucinkas</p> <hr/> <p>P. Rutherford</p> <hr/> <p>T. Venable</p> <hr/> <p>M. Spenard</p>

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	Summary of Change	Approvals and Date
Rev. H	<p>Incorporated previously approved redlines (Feb 25, 2009) to bring procedure into compliance with NTSWAC DOE/NV-325-Rev. 7 June 2008.</p> <p>Changes: 6.0, Added Item 14; 7.2, Regulated Asbestos LLW (RALLW) was Asbestiform LLW (ALLW); 15.1, Minor revisions to description of packaging/container requirements; 15.2, Minor revisions to description of package closure strength, and rigging device requirements; 15.4, 3.3.2 was Table 3.1; 19.0, Item 1. Added email notification requirement; Item 7. NIC-00001 was PMP-00003; 27.1, 27.11 & App B, RALLW was ALLW; 27.18, Added "2 ..."Driver's Questionnaire"..."; App A, Added RALLW;</p>	<p> J. Vargo 7-1-09</p> <p> R. Amar 7/1/09</p> <p> J. Kucinkas</p> <p> P. Rutherford 7/1/09</p> <p> T. Venable 7/2/09</p> <p> M. Spenard 7/2/2009</p>

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1.0 OBJECTIVES

The objectives of this procedure are to provide the requirements, limitations, and steps to package, load, and ship low level radioactive waste (LLW) to approved disposal sites.

2.0 SCOPE

The scope of this document is limited to LLW generated during the Boeing DOE site restoration activities (ETEC Closure) at the SSFL. The approved disposal sites include DOE-NTS and DOE-Hanford. The procedure provides step-by-step guidance and functional group responsibilities for the associated activities. The procedure includes requirements imposed by the disposal sites, DOT, EPA, DOE, NRC, CAL EPA DTSC, and the Boeing Radioactive Waste Management Plan. Handling of TRU and mixed wastes (with the exception of ALLW, refer to 7.2) is not within the scope of this procedure. Packaging radioactive waste for interim (temporary) storage is also not within the scope of this procedure. When similar requirements are listed in separate regulations the more stringent must be adhered to. Appendix A includes a list of acronyms used in this document.

3.0 APPLICABLE DOCUMENTS

- | | | |
|----|-------------|--|
| 1. | PMP-00003 | Radioactive Waste Management Plan for LLW and MLLW |
| 2. | NTSWAC | Nevada Test Site Waste Acceptance Criteria |
| 3. | HNF-EP-0063 | Hanford Site Solid Waste Acceptance Criteria |

4.0 REFERENCE DOCUMENTS

- | | | |
|-----|--------------|---|
| 1. | QA-00001 | Quality Assurance Program Plan for ETEC Closure |
| 2. | QA-00002 | Quality Assurance Inspection Requirements for Radioactive Shipments |
| 3. | RS-00011 | Procedures for Surveys of Radioactive Shipments |
| 4. | RS-00012 | Methods and Procedures for Radiological Monitoring |
| 5. | EID-04360 | Sampling Procedure for Containerized Materials |
| 6. | EID-04450 | DOE-Site Restoration Training Plan |
| 7. | EID-04451 | On-Site Radioactive Materials Transfer Plan |
| 8. | EID-04486 | Procedure for Using the RMHF Tracking System (RTS) |
| 9. | EID-04488 | Waste Minimization and Pollution Prevention Awareness Plan |
| 10. | EID-04489 | Waste Containers Specification |
| 11. | EID-04493 | Procedure for Packaging and Shipping of Radioactive Materials |
| 12. | EID-04495 | Qualification and Shipment of LLW to Envirocare |
| 13. | C-200 Series | Environmental Protection |
| 14. | C-300 Series | Health & Safety |
| 15. | C-400 Series | Radiological Health (& Transportation) |

5.0 APPLICABLE FORMS

The Boeing and typical site forms referenced in this document are included in Appendix B. Additional site-specific forms may be required, and must also be completed prior to shipment. Such additional forms are not included in this document. The latest revision of all the applicable forms and documents must be used (refer to Section 31). Many of these forms are defined as quality records and must be completed properly, correctly, and legibly in ink. Changes or corrections must be made with a single line through the old information and the new information added. Any individual making a change must initial and date the entry. Changes affecting quality must have SSG Quality Management (SSG QM) concurrence.

6.0 PROHIBITED MATERIALS

The following materials are PROHIBITED from waste packaged for LLW disposal:

1. Alpha-emitting transuranic (TRU) waste with half-lives greater than 20 years and exceeding 100 nCi/g (see NTSWAC Sec. 3.1)
2. Listed or Characteristic hazardous waste (see CCR Title 22 and 40 CFR Part 261) (see NTSWAC Sec. 3.1.4) (see Sec. 8.0)
3. Free liquids (see Sec. 7.1)
4. Compressed gases exceeding 1.5 atmospheres absolute at 20° C, compressed gases as defined in 49 CFR, and unpunctured aerosol cans (see NTSWAC Sec. 3.1.7)
5. Etiological agents (see NTSWAC Sec. 3.1.9)
6. Chelating agents (Greater than 1% of the waste, unless stabilized or solidified) (see NTSWAC Sec. 3.1.10)
7. Polychlorinated biphenyls (PCBs) (e.g., fluorescent and mercury vapor ballasts) (see Sec. 7.5)
8. Explosives and pyrophorics (see NTSWAC Sec. 3.1.12 & 3.1.13)
9. Regulated asbestos (DOE-Hanford only; NTS may accept if packaged in accordance with Sec. 7.2)
10. Alkali metals (see NTSWAC Sec. 3.1.12)
11. Sealed Sources, Smoke detectors (see Sec. 7.6)
12. Radioactive animal carcasses (Unless packaged per NTSWAC Sec. 3.1.16)
13. Low-Level Beryllium Waste (Unless packaged per NTSWAC Sec. 3.1.17)
14. Hydrocarbon burdened LLW (Unless processed per NTSWAC 3.1.19)

NOTE: Refer to the disposal site's WAC for a complete list of site specific prohibited materials.

7.0 WASTE REQUIRING SPECIAL HANDLING

Certain types of waste may be disposed at NTS with some limitations. These wastes require special care in handling and packaging as indicated in the following sections (Refer to NTSWAC Sec. 3.1 for more details).

7.1 Free Liquids

Waste containing free liquids must be converted into a form that contains as little freestanding and non-corrosive liquid as reasonably achievable. Liquid waste must be solidified or packaged in sufficient absorbent to absorb twice the volume of the liquid. The residual liquid waste must be placed in a sealed secondary container. Free liquid must not exceed 1% of the waste volume in a container or 0.5% of the waste when processed to a solidified form.

Waste must be evaluated to determine its potential to release liquid during handling, storage, and transportation. If "high moisture content waste" is present, the decisions concerning characterization and sorbent selection must be documented in accordance with NTSWAC Sec 3.1.5.

7.2 Asbestos Containing LLW

Asbestos is regulated as a hazardous waste by the state of California (Title 22, Appendix XII, Waste Code 151). All asbestos-containing packages must be segregated. A separate mixed waste profile (MWP) must be approved by NTS for ALLW. The profile must include the number of containers, container size and dose rates at 30 cm. The MW profile is valid for one year and may be renewed.

LLW containing regulated asbestos (regulated asbestos LLW [RALLW]) must be packaged, marked, and labeled in accordance with applicable requirements (40 CFR, 49 CFR, State of California, State of Nevada and the disposal site WAC). Each container of RALLW must bear a label as specified in the NTSWAC (3.1.15) (see Appendix B, form 19 of this document). Additionally, all MW packages of 416 liters (110 gallons) or less must be marked in accordance with NTSWAC (3.3.6.1).

RALLW must be wetted with water and surfactant and packaged in a plastic bag which is not less than 6-mil in thickness, a combination of plastic bags which equal at least 6 mil in thickness, or a container which is lined with plastic. Free liquids must be absorbed, stabilized, or otherwise removed from the waste. Sorbents must be nonbiodegradable and identified on the MWP.

RALLW containers must be packaged so that they are at least "90% full" when placed in the landfill. Incompatible wastes as defined by the NTSWAC (3.3.5.3) shall not be placed in the same container.

When requested by NTS, Boeing shall provide support for NTSWAC (3.3.8) verification activities. If a package has been inspected as part of the NTS verification plan, the TID must not be removed or altered. The package must be loaded and transported in a manner to protect the TID from damage. Analytical data used to support MW determinations must be from a DOECAP audited laboratory or equivalent.

A pre-shipment notification (Appendix B, form 12) must be faxed to NTS at least 7 days prior to shipment arrival at NTS. A signed copy of the notification must be returned by NTS prior to shipment.

Re-shipment of any previously rejected package shall be processed in accordance with the NTSWAC (3.3.8.2).

7.3 Fine Particulates

Fine particulate waste (less than 200 micrometer) must be packaged in overpacks (drum in a drum), or in drums with a 6-mil plastic liner (min.), or in steel boxes with no liner. If packaged otherwise, the waste must be immobilized so that the waste contains no more than 1 weight % of < 10 micron particles, or no more than 15 weight % of < 200 micron particles. (Refer to Sec. 3.1.6 of the NTSWAC for more details).

7.4 Stabilization

Waste must be reduced to stable form. It must be chemically stable and compatible with other waste in the package and the packaging (see Sec. 3.1.8 of the NTSWAC).

7.5 PCB Waste

PCB contaminated LLW may be acceptable for disposal at NTS if it meets the definition specified in Sec. 3.1.11 of the NTSWAC.

7.6 Sealed Sources

All sources must be segregated from the LLW and must be evaluated by Radiation Safety and the DOE-Site Restoration Person-In-Charge (PIC) in concert with the Transportation Specialist (TS) to determine disposition and packaging. Sources containing transuranic nuclides must be individually evaluated against the transuranic criteria of the disposal site (see NTSWAC section 3.1.1). Sealed sources with an activity of 3.7 MBq (100 μ Ci) or greater must be segregated from other waste and profiled as a separate waste stream. The sources must be characterized on an individual basis using the volume or mass of the source to determine the radionuclide concentration. Acceptance criteria for sources vary from site to site (refer to NTSWAC Section 3.1.14 or HNF-EP-0063 for details). Some small sources could be part of a waste stream such as contaminated trash, but must be identified in the waste profile (WP).

8.0 HAZARDOUS/MIXED WASTE

A hazardous waste is defined as a waste meeting the description of either 40 CFR 261 or 22 CCR 66261. Hazardous waste is managed in accordance with C-203. A mixed waste is a hazardous waste that also contains radioactive constituents. Mixed waste (with the exception of ALLW, refer to 7.2) shall not be handled or shipped under this procedure.

CAUTION: All containers with suspect or known hazardous material must be segregated from “radioactive only” waste containers. HAZARDOUS AND/OR MIXED WASTE MUST NOT BE SHIPPED FOR DISPOSAL AT DOE-NTS OR DOE-HANFORD. This does not apply to mixed waste containing asbestos for shipment for disposal at DOE-NTS (refer to 7.2).

9.0 WASTE CHARACTERIZATION

Wastes may be characterized by process knowledge and/or by performing waste sampling and laboratory analysis. ONLY waste that meets waste profiles approved by the designated disposal site (see Section 10.0) may be shipped for disposal.

9.1 Process Knowledge

The D&D operations that lead to the generation of each waste stream are described in the Working Procedures for the individual activities. Those procedures provide information on the specific facility and on the nature, handling, and segregation of the materials that make up the bulk of the individual waste stream. Further documentation is provided by facility operational plans, procedures and reports, surveillance reports, audit reports, photographs, site surveys and personnel interviews. Face to face interviews must be documented and signed by the interviewer and interviewee. Telephone interviews must be documented and signed by the interviewer (and the interviewee if possible). Together these documents provide process knowledge of possible contaminants in each of the waste streams. The aggregate process knowledge to be used for waste characterization must undergo a documented evaluation including uncertainties, inconsistencies, limitations, and usefulness of the data. Characterization by process knowledge is appropriate under conditions such as:

1. The waste stream is difficult to sample due to its physical form. This applies primarily to solid matrix materials such as metal, concrete, glass, and wood.
2. Sampling and analysis of the waste would result in unacceptable risks of radiation exposure (i.e., violate the ALARA principle).
3. The waste is too heterogeneous in composition (e.g., soft compactable trash containing clothing, plastic, and paper, and D&D waste such as building rubble and debris).

Based on process knowledge, there are NO LISTED wastes in the ETEC Closure Area IV waste streams.

9.2 Sampling and Analysis

Wastes are characterized using sampling and laboratory analysis when detailed information is required for waste management. All data must be scientifically valid, defensible, and of known precision and accuracy so as to identify the physical, chemical and radiological properties of the waste. When waste streams are characterized by sampling and analysis, the process must be controlled and documented. Propagation of error throughout the sampling and analytical process must be evaluated and considered when ascertaining usability of data for characterization of waste. Results of RCRA hazardous and underlying hazardous constituent determinations must be reported in the WP. Controls must be in place to trace each sample number to a specific package number. Sampling and analysis must be performed in accordance the "Sampling Procedure for Containerized Materials," EID-04360 based on the controls and criteria of EID-04487.

9.3 Data Validation

Data validations must be performed on a portion of the sampling and analysis data prior to its use for radiological or chemical waste characterization on a WP basis. The validation must be performed by technically qualified personnel independent of those performing the analysis. Analytical results summaries must be prepared in accordance with WP instructions. Validation summary report criteria and contents must comply with the requirements identified in EID-04487 section 8.2 in accordance with NTSWAC Section 4.2.1.

Electronic spreadsheets (e.g., Shipment Work Sheet) used to calculate values for input to the PSDR or other reportable data forms must be validated when originally configured and each time formulas or conversion factors are updated. A hand calculation must be performed on the spreadsheet, signed and dated by the person performing the validation and retained as proof of validation. As an alternative, the validation process of RS-00011, section 9, may be utilized.

10.0 WASTE PROFILE

A WP must be prepared and submitted to the respective disposal site (DOE-NTS [NNSA/NSO] or DOE-Hanford) for each waste stream planned for shipment to the respective disposal site. Waste Profiles will be coordinated with all the relevant elements of the process prior to submitting to the disposal site. The WP form and instructions (for Hanford and NTS) are available on <http://www.hanford.gov/wastemgt/wac/tools.cfm> and is self explanatory. The WP summarizes the waste form and characterization data and must include a list of referenced procedures including number and title. The WP must be prepared in accordance with the latest revision of the disposal site WAC

(NTSWAC or HNF-EP-0063) and must be submitted to the disposal site for review and approval. Waste characterization activities must be completed prior to submitting the WP for review.

This section provides a general guidance for preparation of waste profiles. The profile preparer must obtain all the information required to complete the forms from the project file, and the waste generation and characterization documentation. Support organizations: QA&SS (WCO), Radiation Safety, Environmental Protection shall be consulted as necessary. The radionuclides and min/max ranges are determined from the Lot Followers of completed packages. Allowances to the ranges should be made for waste packages that are to be generated later.

Changes to approved waste profiles must be submitted to the respective disposal site for review and approval. The disposal site must also be notified in writing when an approved WP is terminated.

10.1 DOE-NTS

The WP must be submitted through the Waste Acceptance Review Panel (WARP) process for review and approval. Request for changes and notices of waste stream termination must also be submitted to the WARP. General guidance for the Radioactive Waste Acceptance Program is available through <http://www.nv.doe.gov/programs/RadioactiveWasteAcceptance.htm>. In addition to the WP, a "NTS Implementation Crosswalk" (NIC) must be prepared, using the format specified by NTS, and submitted to WARP. The NIC must describe and/or reference the quality affecting procedures, processes, or methods that demonstrate compliance and/or implement the specified NTSWAC criteria (see **PMP-00003**).

For waste planned to be characterized by Process Knowledge, the required radiological information is obtained from Radiation Safety. The radionuclides concentrations must be reported on the profile in accordance with Appendix E of the NTSWAC. Calculation of the U-235 Fissile Gram Equivalence (FGE) for the waste must be prepared in accordance with Appendix E.8 of the NTSWAC, reported in Table E-3 and submitted with the WP for approval. The package activity limits based on Pu-239 equivalent grams (PE-g) must be prepared in accordance with Section 3.2.2 and the conversion factors in Appendix B of the NTSWAC. The WCO must be included and involved in all phases of the profile preparation and must sign the profile before submittal for approval. Once the profile is approved the LWIS-G must be updated to reflect the radionuclides and ranges, and the revision number and date. This is accomplished by entering the information through the LWIS-G maintenance menu.

For waste characterized by sampling and analyses, the sampling and analysis results and the validation reports must be attached to the WP and submitted through the WARP process.

10.2 DOE-Hanford

New waste profiles must be prepared in accordance with the latest revision of HNF-EP-0063. Existing waste profiles must be updated annually in accordance with Hanford Site Solid Waste Acceptance Program guidance. General guidance is available through <http://www.hanford.gov/wastemgt/wac/tools.cfm>.

11.0 VOID VOLUME

Containers must be filled in a manner that will maintain the integrity of the container, the inner liner (if used), and the container seal. Containers must be loaded as efficiently and compactly as practical to minimize void space. Void space must be limited to 10% of the internal container volume for disposal at Hanford. Approved fillers must be used, such as diatomaceous earth or similar inert material acceptable to the disposal site to which the waste is destined. Compactable soft trash, including paper, cloth, rubber, and non-rigid plastic (i.e., paper towels, gloves, booties, hats, garments, plastic covers, plastic bags, tape, etc.) may also be used to fill void space. Fillers that are not radioactive material must be so noted on the Lot Follower along with the weight of such material.

12.0 WASTE MINIMIZATION

A concerted effort must be made to minimize the volume of radioactive waste generated and packaged for shipment off-site, with consideration for ALARA principals, and in accordance with **EID-04488**. Where practical, hardware items must be unbolted, cut apart, or otherwise dismantled to segregate radioactive contaminated sections of

material from non-radioactive sections. Plastic bags containing radioactive waste must be compacted to remove excess air prior to sealing. Solid waste must be size-reduced and compacted where practical. Radioactive waste liquids must be transferred to the RMHF for processing in accordance with approved procedures.

13.0 RADIOACTIVE LLW SHIPPING

Packaging and shipment of all LLW must comply with the destination sites' Waste Acceptance Criteria (WAC), and 49 CFR requirements.

14.0 EXCLUSIVE USE SHIPMENTS

All radioactive waste packaged in accordance with this procedure must be shipped via an "Exclusive Use Shipment," unless brokered.

15.0 WASTE PACKAGE CRITERIA

Waste must be packaged in accordance with applicable DOE Orders, 10 CFR, 40 CFR, and 49 CFR.

15.1 Containers

Packaging used to transport radioactive materials for off-site disposal shall be, at a minimum, IP-1 per CFR49 173.410 & 173.411. Container types may include metal boxes, drums, "roll-offs," SealandTM, and/or soft-sided packages (e.g., Super-SaksTM, Lift-LinerTM) and at the direction of the Project Manager or Site Restoration Manager may include "used" containers. Containers (packages) must be inspected for identification, damage, and applicable certifications upon receipt.

Metal boxes (IP type containers) must meet the criteria specified in EID-04489. Containers must not be loaded in excess of the Certificate of Compliance (C of C) weight limit, or the Boeing maximum weight limit indicated on the C of C by Q&SS.

Procurement requirements for the above containers, including deliverables and inspection requirements (e.g., pre-fabrication design drawings and/or calculations) to verify the same, must be clearly identified on the initiating EASY document.

Used roll-off bins must be in such condition that they conform in all respects to the prescribed requirements of 49CFR. Roll-Off Bins must be evaluated for structural stability and the evaluation must be documented. Before reuse, each package must be inspected for damage that would impede the shipping integrity (i.e., cracks, holes, incomplete welds, gaps in doors etc.). The inspection must be documented on a "Used Roll-off Receivable Report" (See QA-00002, appendix D) and be retained in the data package for each shipment. Based on the inspection results and the documented engineering evaluation, roll-off bins may be modified and/or repaired to remove identified deficiencies and meet disposal site criteria. Modified or repaired bins must be reinspected to verify correction of deficiencies. Non-required signage on roll-off Bins must be obliterated and loose items such as chains must either be removed or secured prior to shipment.

Intermodal roll-off containers that will be unloaded at NTS and returned to the generator must meet the specific requirements/criteria of the NTS WAC Appendix F. Refer to Appendix F for specific requirements on prohibited wastes, acceptable design, acceptable wastes, loading, radiological limits and other specific criteria.

Drums must be palletized / banded and shipped in a closed conveyance.

For bulk items having external contamination, the contamination must be fixed, covered, or contained sufficiently for safe transport (e.g., wrapped in plastic). Bulk waste containers and methods for transport must be coordinated with and approved on a case-by-case basis by the Waste Management Federal Project Director per NTSWAC 3.2.14. Containers (e.g. lift liners, burrito wraps) must meet the activity limits of NTSWAC Sec. 3.2.2 for soft-sided packages.

15.2 Handling

Containers destined for shipment to NTS must be limited to a maximum of 9,000 lbs gross weight for boxes and 1,200 lbs gross weight for drums. Under no conditions, however, may a container be loaded in excess of its manufacturer's C of C or the Boeing maximum weight limit indicated on the C of C by Q&SS. The package closure must be sturdy enough to ensure they will withstand the effects of changing temperatures, weather, pressures, and/or vibrations under normal handling and shipping conditions and not breach or lose the package contents.

Auxiliary lifting devices extending from the top of the waste package must be no higher than 0.1 m (4 inches). Auxiliary lifting devices (i.e., lifting straps on soft-sided packaging) must be designed with a safety factor of 5:1. All rigging devices that are not permanently attached to the waste package MUST have a current load test based on the requirements of the DOE Hoisting and Rigging manual, DOE-STD-1090-current publication and have traceable certifications provided with the shipping documents. Permanently attached rigging devices MUST have traceable certifications. All rigging, permanently attached or otherwise, must show no signs of deterioration (e.g., corrosion, kinking, bird caging) during the final shipping inspection. In accordance with the NTSWAC Section 3.2.6, any container (package) requiring cranes for off-loading at the disposal site must have an approved Lift Plan generated by NTS Operations prior to shipment. LLW packages that have abnormal centers of gravity MUST be clearly marked with the center of gravity. Top-heavy loads are severely discouraged, and bulk waste shipments with complex geometries MUST be loaded in the most stable configuration.

Refer to NTSWAC section 3.2.6 for additional criteria and/or limitations that may be applicable to specific packages.

15.3 Remote Handling

Packages destined for disposal at NNSA/NSO exceeding 1 mSv/hr (100 mR/hr) dose rate at 30 cm must be considered for remote handling. For waste requiring remote handling, handling procedures and ALARA documentation must be referenced on the WP.

15.4 Fissile Material & Activity Limitations

In a waste package, the fissile material must be limited to a degree that an infinite array of such packages will remain subcritical under "as packaged" conditions and if the array were to be flooded with water. Waste Profiles should document the compliance of the waste package with the fissile material limit addressed in NTSWAC Appendix E8.

Waste packages destined for DOE-NTS must have Plutonium-239 equivalent grams (PE-g) limits in accordance with 3.3.2 of the NTSWAC. Regardless of the type of transport vehicle, bulk waste containers with a reasonable probability of breaching during offloading must meet the package activity limitations of NTSWAC SEC 3.2.2 for soft-sided packages. This is specific to unloading operations involving dumping, which are conditions other than "normal to transportation".

15.5 Deliverable Materials

Materials, such as sorbents, solidifiers and other items used in waste packages must be inspected and controlled to ensure their traceability is maintained and that the specified items are correct and acceptable for use. Product or process designs (e.g. waste containers, sorbents, waste treatment operations) performed by others (e.g. suppliers or other generators) must be reviewed and the review documented to ensure they conform to established requirements and end-use application. Supplier of components (e.g. off-the-shelf sorbents) that are tested or verified by the purchasing organization for conformance to technical requirements may not need to be evaluated, provided the testing demonstrates the procured component conforms to design requirements. Conformance testing must be documented. Lead used for shielding (if required) must not be radioactively contaminated when introduced.

16.0 TAMPER-INDICATING SEALS

Non-lead containing tamper-indicating seals are applied to all packages, unless an exception is made by the disposal site WAC or specific agreement with the waste site. In addition, the cargo compartment of enclosed vehicles used to transport containerized waste must be sealed with a non-lead containing tamper-indicating seal, prior to releasing the shipment to the carrier.

17.0 ALARA

All operations involved in the handling of radioactive materials and packages must be performed in such a manner as to maintain personnel radiation exposure As Low As Reasonably Achievable (ALARA principle).

18.0 TRAINING

All persons performing waste handling activities per this procedure must have completed the training specified in **EID-04450**.

19.0 NTS NOTIFICATIONS

1. Notify and coordinate planned shipments with the Bechtel-Nevada (BN) site. Prior to the last Monday of each month, fax (702-295-3112) or email (gordonsj@nv.doe.gov) a "Monthly Shipment Schedule" which includes the estimated number of shipments and arrival dates for the upcoming month, waste profile numbers, type and quantity of containers/packaging, and if applicable, any special handling requirements.
2. Submit the shipment information via HAZTRAK <https://gw1.nv.doe.gov> or fax BN the NTS Advance Shipment Notification with the required information prior to the cutoff time and date as specified in Sec.6.2.1 of the NTSWAC. HAZTRAK is the preferred method of notification.
3. Notify BN of any changes to the estimated arrival.
4. Notify DOE-NTS when nonconforming conditions are identified that affect the quality of previously shipped waste.
5. Notify DOE-NTS when (1) the motor carrier(s) is being evaluated; (2) the motor carrier route selection is being reviewed; (3) a motor carrier discrepancy, noncompliance, or inadequate performance has been identified; or (4) there is a transportation incident or emergency situation.
6. Provide the names and telephone numbers of the WCO and other individuals (if applicable) authorized to certify waste packages and shipments.
7. Submit the QAP, QA-00001, and the NIC (NIC-00001) to DOE-NTS.
8. Notify DOE-NTS in writing of any changes to critical processes, procedures and/or key personnel (WCO).
9. Notify DOE-NTS in writing when changing or terminating an approved WP.

20.0 TRANSPORTATION

The EHS Transportation Specialist (TS) is responsible for evaluation, selection, and coordination with the motor carriers used for transportation of LLW as required by the NTSWAC. Drivers must be U.S. citizens. The TS must prepare the shipping documentation and instructions in accordance with CSOP C-404. The TS must notify the WCO of all activities related to motor carriers, which may require notification of DOE-NTS.

21.0 DOCUMENT REDLINING

A single designated "Working Copy" of this document must be maintained at the work site and identified on the front cover as the "Working Copy." Should any procedural changes become necessary, the working copy may be

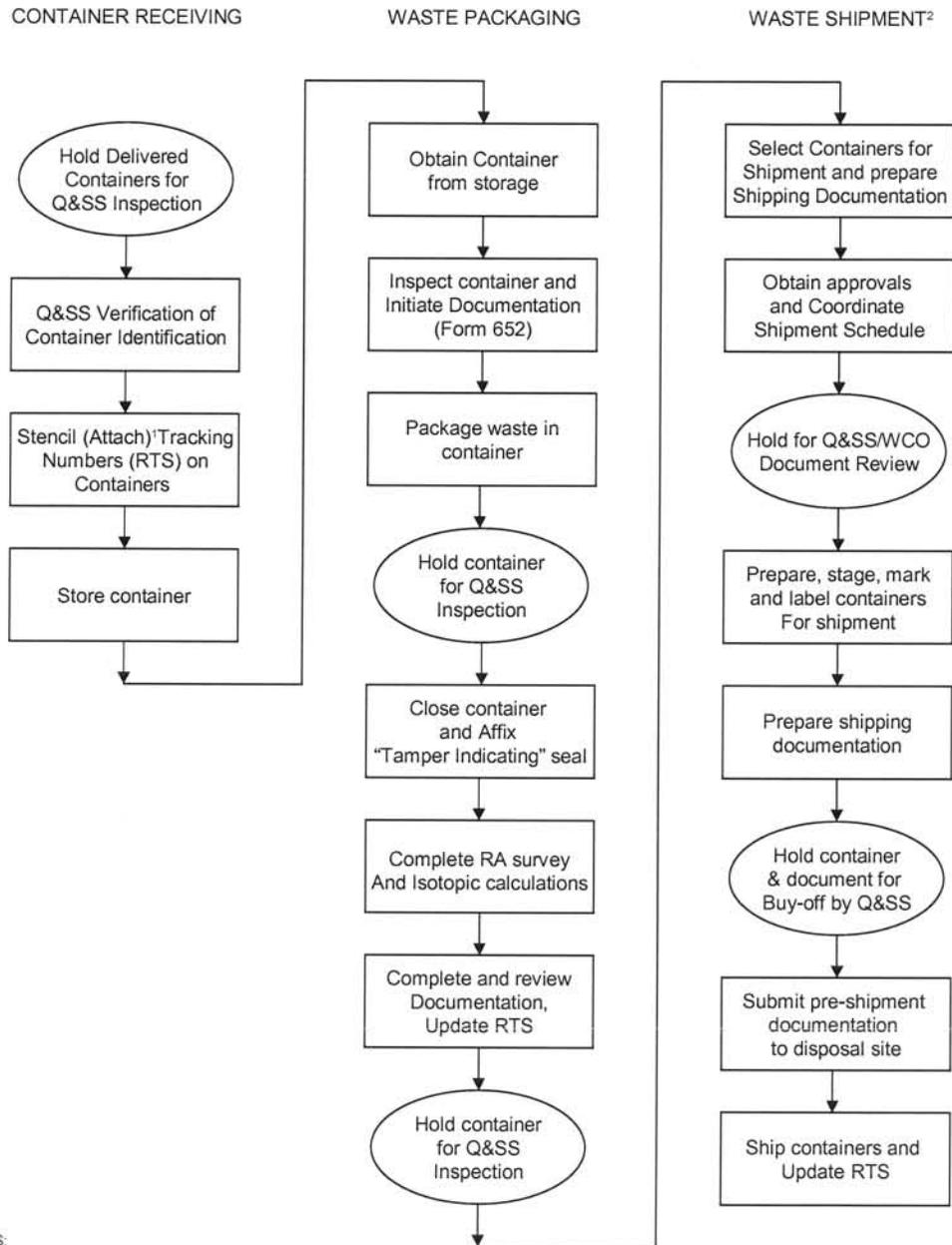
redlined (in red ink), and approved by the DOE-Site Restoration Department Manager or his designee. Radiation Safety must approve and sign any changes affecting radiological safety, SSG QM must sign and approve any changes affecting quality and EP must sign off on any changes affecting environmental issues. The TS must sign and approve any changes affecting transportation. The Waste Certification Official (WCO) must sign and approve changes affecting waste for DOE-NTS. Copies of all pages with redline changes must be forwarded to the RMHF the same day as the changes are made. As soon as practical, all redlined changes will be incorporated into this document and released through Engineering Release.

22.0 OPERATING PROCEDURES

The following sections provide detailed step-by-step instructions for waste handling operations, from the receipt of new empty containers to waste packaging, waste certification, and shipment. The process flow diagram for waste handling operations is provided in Figure 1.

For the following sections, references to RMFH Operations shall include corresponding activities performed by operations personnel at the generating facility when the LLW is to be shipped directly from the generating facility without being physically processed through the RMHF.

Radioactive waste not regulated by DOT as Class 7 Material (see Section 9.4), must be packaged and shipped under this procedure.



NOTES:

1. See text for special considerations for soft-sided packages
2. All RAD waste packaged per EID-04482, LLW shipped per EID-04482 & QA-00002.

Figure 1. Waste Handling Process Flow Diagram.

23.0 RMHF OPERATIONS – RECEIPT OF CONTAINERS

- 23.1 RMHF Management, operating under the DOE-Site Restoration Department: Upon delivery of empty containers from a supplier, contact and request a SSG QM Representative. Complete a “Used Roll-Off Receivable Report” for all used roll-off Bins. (see section 15.1).
- 23.2 SSG QM representative: Inspect the containers for conformance with the Purchase Order (the drawing or specification called), and any additional required inspection document. Resolve all discrepancies, inconsistencies, and non-conformances before acceptance.
- 23.3 SSG QM representative: Place copies of the Certification of Compliance (C of C), the Purchase Order, Receiving Inspection Report and any pertinent tests, reports, data and certifications in the RMHF Files.
- 23.4 RMHF Operations: For containers purchased under **EID-04489**, durably mark the RMHF Tracking System (RTS) tracking number on the container with 1-inch-high (minimum) lettering using a color in sharp contrast to the background.
- 23.5 SSG QM representative & RMHF Operations: For containers purchased under **EID-04489** verify that the container serial number (S/N) is on the C of C, certifying compliance with the NTS 3,375 lb/ft² strength requirements¹ before labeling. Using a durable method, mark with “**EID-04489 SPEC**” designation near the container tracking number.
- 23.6 RMHF Operations: Place all marked containers in storage and enter assigned tracking numbers and serial numbers in the RTS per **EID-04486**.
- 23.7 RMHF Operations: When issuing an empty container, verify all required markings are legible and the container is free of damage. Enter the building (facility) to which it is being issued in the “origin” column of the RTS.

24.0 GENERATING DEPARTMENT – WASTE PACKAGING

This procedure must be followed by the generating organization (building/area including RMHF operations) when packaging waste that may be shipped to an approved disposal site. Unless otherwise noted all actions are by the generating facility operations personnel.

- 24.1 Obtain a RMHF approved container (contact the PIC for assistance). Large items such as concrete and steel blocks with fixed contamination or activation may be wrapped in plastic to meet disposal site and transportation requirements.
- 24.2 Intentionally Blank
- 24.3 Initiate the *Waste Container Traveler* and the *Radioactive Material Lot Follower (Form 652A)*. Enter the approved waste profile number in Block E, if known.
- 24.4 Provide the SSG QM Representative, the Environmental Protection Representative and the Radiation Safety Representative with a notice of intent to load the container.
- 24.5 Radiation Safety Representative: Perform the necessary surveillance activities in accordance with **RS-00012** to determine the radiological characteristics of the waste.
- 24.6 Environmental Protection (EP) Representative: Perform the necessary surveillance/inspection activities to verify that the waste is non-hazardous.

¹ EID-04489 specifies a minimum strength of 3,750 lb/ft² exceeding the NTS requirement.

- 24.7 Proceed to load waste into the container, with the SSG QM Representative present. The container can be filled with general waste materials and the contents entered in Column L of the Lot Follower (i.e., contaminated gloves, shoe covers, plastic, wire, rebar, wood, filters, concrete, asphalt, rock, metals, etc.). Do not place waste categories identified in Section 6.0 in the container. If these materials are encountered, they must be segregated and handled on a case-by-case basis. Load containers: 1) to distribute the radiological activity throughout the container, 2) to maintain the integrity of the container, inner liner (if used), and the container seal, and 3) as efficiently and compactly as practical to minimize void space. Observe the weight limits specified in Section 15. Void space can be filled with compactable soft trash (see Section 12), diatomaceous earth, or similar inert material.

CAUTION: If suspected or known mixed waste or prohibited materials are encountered during packaging do NOT load into the container. Stop and immediately notify the PIC.

- 24.8 Describe all waste items placed in the container in Column L as specified in Note 8 of the Lot Follower. Be sure to note the weight of "surface contaminated objects" and non-radioactive items which may have been added to minimize void space in Column P. Sign and date the entry line that lists the materials/items placed in the container in Column M. The packager signature is a "certification" that the waste is properly identified and properly packaged. An independent observer from the SSG QM department must provide surveillance during packaging, sign and date the entry lines in Column N to verify the "description" in Column L.
- 24.9 If the container is full and the container requires a seal gasket, ensure that a SSG QM Representative verifies that the gasket is in place and in good condition. Close the lid and seal the container. If the container is not full, secure the lid, but do not seal with a gasket.

NOTES: 1) As needed, refer to manufacturer's instructions for any special container closure requirements (e.g., bolt-torque for drum closure) or request instructions from PIC. 2) PIC: Retain the partially completed Lot Follower and Traveler.

- 24.10 SSG QM Representative: At the completion of each container loading, and when the container is closed between partial loading operations, apply a non-lead containing tamper-indicating seal to the lid or the compactor loading chute door. The seal must not be removed without the knowledge and concurrence of the SSG QM Representative.
- 24.11 After all entries to Column L of the Lot Follower have been made and the container is sealed (full container), draw a diagonal line between the last entry and the end of Column L and sign and date on the diagonal line. (Column O, "Estimated Volume" needs not be completed for NTS waste.)
- 24.12 Radiation Safety Representative: Perform radiation and smear surveys of the container, complete the *Radioactive Container Survey Form* and the *Radiation Survey Report (Form 732-A)* in accordance with RS-00011, and complete and attach a *Radioactive Material Tag (Form 708-R)* to the container.

CAUTION: If the package exceeds 2 mSv/h (200 mR/h) on any external surface or 1 mSv/h (100 mR/h) at 30 cm, notify the RMHF Manager or PIC (for evaluation as a remote handled package per 15.3) prior to proceeding.

- 24.13 As directed by a Radiation Safety Representative, decontaminate all external surfaces of the container to less than 100 dpm/100 cm² beta-gamma and 20 dpm/100 cm² alpha prior to removal from the generating facility. Packages exceeding this level are prohibited from leaving the area without management approval.
- 24.14 Facility Manager or PIC: Complete and sign Section H of the Lot Follower after review of applicable working file documents.
- 24.15 If the container/package is to be stored at RMHF, notify RMHF personnel that the container is complete and ready for transfer. Submit Lot Follower and associated documentation to RMHF for review. Upon RMHF approval, transfer the container to the RMHF in accordance with **EID-04451**, when applicable.

NOTE: The container will not be accepted at RMHF and will be returned to the on-site generating facility if improperly packaged, improperly identified, or if the required forms are missing, incomplete, or improperly filled out.

- 24.16 If the container/package is to be stored at the generating facility, forward the Lot Follower and associated documentation to the RMHF. Retain a copy of the Lot Follower and associated documentation at the generating facility. Store the package in a secure, protected area to prevent deterioration and unauthorized intrusion per NTSWAC 3.2.10. Containers/packages stored outside must be located in an area with adequate drainage to prevent pooling of rainwater.

NOTE: To satisfy the “intrusion” criteria closed metal containers must have a non-lead containing tamper indicating seal. Administrative controls (e.g., storage in a roped-off or fenced area with appropriate signage) and training may be used as an alternative to tamper indicating seals when a package cannot be practically or effectively sealed.

25.0 WASTE PACKAGE DOCUMENTATION COMPLETION

- 25.1 Radiation Safety Representative: Upon receipt of a full package/container verify the data on the *Radioactive Container Survey Form*, enter the maximum radiation readings in Section G of the Lot Follower, revise/replace the 708-R form, if required, and sign the Traveler and Lot Follower.

- 25.2 RMHF personnel: Review the generator data (Lot Follower and associated documentation) for completeness and content. If the forms are incomplete or improperly completed, notify the generator to have the form(s) corrected. Upon RMHF approval, the waste generator shall transfer the container to the RMHF in accordance with **EID-04451**, when applicable. Weigh the package/container and complete Section F of the Lot Follower.

NOTE: Pre-operation weight testing of the scale must have been performed within the last 24 hours before the weighing of containers to be shipped to NTS. Verify that the scale is in current calibration before weighing any packages/containers.

- 25.3 RMHF personnel: Inspect the package/container for the integrity of all surfaces, including banding, dents, bulges, loose barrel rings, etc. and report any problems to RMHF Manager. Complete an *Inspection Discrepancy and Correction Record* (IDCR) for unacceptable containers. Hold the container at the RMHF until disposition of the IDCR is complete.
- 25.4 RMHF personnel: Place the package/container in the designated “holdup” area. Make a copy of the Lot Follower and the Radioactive Container Survey Form and deliver to Radiation Safety for radiological calculations. Update the RTS by entering all available information from the Lot Follower.
- 25.5 Radiation Safety Representative: Determine the container isotopic and curie content in accordance with **RS-00011**, and complete Sections I and J of the Lot Follower. If transuranics are present, enter the activity in the space provided. Calculate and enter the value of thermal energy in the space provided. Return the completed Lot Follower, Traveler, and supporting calculations to the RMHF office.
- 25.6 RMHF personnel: Verify or determine and enter the Waste Stream or WP number in Section E of the Lot Follower based on a detailed review of the lot follower data and existing profiles. Verify that the Lot Follower is completed. Sign and date Section K of the Lot Follower. Update the RTS and retain the original Lot Follower and Traveler in the RMHF.

NOTE: If the description of contents listed in Column L does not fit an existing WP, the description of contents listed in Column L must be used to revise an existing or prepare a new WP for waste site submittal and approval.

- 25.7 RMHF personnel: Store the package in a secure, protected area to prevent deterioration and unauthorized intrusion per NTSWAC 3.2.10. Containers/packages stored outside must be located in an area with adequate drainage to prevent pooling of rainwater. (See 24.16 Note for details).

26.0 CONTAINER REPACKAGING

Complete the following steps when a previously packaged and sealed container must be reopened. This operation may take place at the generating facility or at the RMHF.

- 26.1 Facility Manager or PIC: Provide direction/instructions and documentation of items removed, added or inspected.
- 26.2 RMHF personnel: Notify the SSG QM representative of the planned repackaging operation.
- 26.3 RMHF personnel: Obtain the original Lot Follower from the RMHF Lot Followers file.
- 26.4 RMHF personnel: Follow Section 24.0 for all repackaging operations. Attach a copy of the original Lot Follower to the new Lot Follower.
- 26.5 Radiation Safety representative: If the container was emptied perform a radiation survey of the emptied container and complete a new 708-R if required.
- 26.6 RMHF personnel: Update the RTS to reflect the disposition of any containers used in repackaging.
- 26.7 RMHF personnel: Handle and process the repackaged container at the RMHF as any other container per Section 25.0.

27.0 SHIPPING TO NTS

This section must be followed in preparation of a waste shipment to NTS. Shipments of radioactive waste that are not regulated by DOT as Class 7 Material must be shipped using this Procedure.

- 27.1 Shipment Coordinator: Select and identify containers for the planned shipment to NTS, and prepare a **RMHF Shipment Work Sheet Summary**. Validate the work sheet by performing and signing a hand calculation on the work sheet for one line item (container) after each revision of the worksheet. Verify the waste description conforms to the designated WP. Initiate the **Radioactive Material Shipping Instructions, Form 710-S-1** and obtain approval signatures. Provide WM Project Manager the information required to request DOE approval to ship, where applicable.

For asbestos containing (RALLW) shipments prepare an EPA form 8700-22, *Uniform Hazardous Waste Manifest*. Prepare and fax an *Advanced Shipment Notification* to DOE/NV at least 7-days prior to shipment arrival. A signed copy of the notification must be returned by DOE/NV prior to shipment.

- 27.2 Shipment Coordinator: Enter the shipment data in the NTS Low Level Waste Information System For Generators (LWIS-G)² and print the NTS Site forms (**Package Storage and Disposal Request**), **PSDR**, and the DOE-NTS **Bar Code Labels** for each container on the shipment. Verify materials and printed labels satisfy the following: weatherproof (must not deform when wet or fade in the sun), resistant to tearing, peeling and cracking, print must be permanent indelible ink and legible. Refer to NTSWAC Appendix C, "Marking and Labeling" for specific requirements and instructions.

Note: When preparing the PSDR, "If the package was rejected from NTS and is being re-shipped to NTS, the original package number of the previously rejected package (parent) must be entered in parentheses. All packages generated from the repackaging of the rejected waste (progeny) shall have the original rejected

² LWIS-G is a BN provided program for preparation of NTS forms (PSDR & barcodes) meeting NTSWAC criteria.

package number (parent) entered in parentheses in the comment section". (NTS WAC REV 6-02, Appendix D).

- 27.3** Shipment Coordinator: Report the radionuclides on the PSDR in accordance with Appendix E of the NTSWAC, verify that the radionuclides concentrations do not exceed the approved profile limits and verify that the DOE-NTS container gross weight limits are not exceeded.
- 27.4** Shipment Coordinator: Verify that the total U-235 FGE calculated per Table E-3 of NTSWAC has been prepared and that no criticality safety analysis is needed.
- 27.5** Shipment Coordinator: Request the Radiation Safety representative to prepare **NRC Form 741** for transfer of SNM, if present. A copy of the Form 741 must be faxed to BN (see NTSWAC Section 6.3.1 for details) prior to arrival of the shipment.
- 27.6** Shipment Coordinator: Have the PSDR information verified and signed by an independent reviewer.
- 27.7** Shipment Coordinator: Provide the Transportation Specialist (TS) the approved 710-S form (Radiation Safety and DOE Site Restoration Management), the RMHF Shipment Work Sheet Summary, the original signed PSDR, the Form 732-A's for each package and the individual items for the SCO items, DOE permission to ship (if required), copy of the Form 741 (if required), and copies of the complete Lot Followers for preparation of shipping documentation, instructions, and transportation in accordance with **C-404**.
- 27.8** Shipment Coordinator: Submit the PSDR forms to NTS Site Operations, and coordinate the shipment schedule with Bechtel Nevada (BN), Q&SS, TS, and the WCO to establish shipping/arrival dates. Transmit an electronic file of the LWIS-G shipment file (PSDR) to BN at wmdata@nv.doe.gov.
- 27.9** Shipment Coordinator: Request that RMHF personnel prepare the containers for shipment (verify physical integrity, use touch-up paint as needed, and add wood skids if required).
- 27.10** Shipment Coordinator: Provide the Waste Certification Official (WCO) copies of the Lot Follower & Traveler, RMHF Shipment Work Sheet Summary, PSDR, 710-s, the Barcode Labels and request the WCO to: (1) certify the shipment (Refer to Sec. 28.0), (2) prepare the **LLW Certification Statement**, and (3) affix the **Package Certification Label** (PCL) and the NTS barcode labels to each container on the shipment.

NOTES: Labels must be securely attached. Marking and labeling must be intact and readable when the shipment arrives at the disposal site.

A total of two bar code labels must be placed on each package near the top and on opposite sides. The two bar codes for the drums must be placed one on the side near the top, and the other on top of the drum lid.

For soft-sided packages (e.g., Super-Saks™, Lift-Liner™) DOE-NTS may request that barcodes and labels be forwarded with the packages in a separate envelope. If multiple packages are placed in the same conveyance, the package number must be on clearly labeled on the side of each package.

CAUTION: ONLY containers with the PCL affixed AND listed on the signed LLW Certification Statement may be staged for shipment.

- 27.11** RMHF personnel: Mark and label the package to 49 CFR requirements per instructions provided by the TS. For all RALLW packages, a warning label (Appendix B, Form 19) per 29 CFR 1910 (also required by DOE/NV-325 section 3.1.15) and a hazardous waste label (for packages with a capacity of 110-gal. or less) per 49 CFR 172.304 are required.
- 27.12** RMHF personnel: On the date of the shipment, stage the shipment within the RMHF compound or other selected location, in accordance with the anticipated loading configuration and wait for the arrival of representatives of the functional organizations affecting the shipment. The final loading configuration will be determined jointly by RMHF personnel, radiation safety, TS, and the driver.

- 27.13** Radiation Safety Representative: Upon arrival of the transport vehicle perform a radiation survey of the vehicle and document the results on a *Radiation Survey Report (Form 732-A)*.
CAUTION: Incoming vehicle contamination limits must not exceed those specified in **RS-00011**. If contamination limits are exceeded, do not load the waste and inform the TS and the PIC.
- 27.14** RMHF personnel: When the survey is satisfactorily completed, proceed to load the containers onto the transport vehicle. Caution must be exercised during the loading sequence to maintain the integrity of the containers. Block and brace the containers in the transport vehicle (trailer) to prevent shifting during transportation.
- 27.15** As Identified: Complete the *Radioactive Shipment Container Verification Form* as the vehicle is loaded to verify that all departments have performed their functions and checks as follows (not required for radioactive waste not regulated by DOT as Class 7 Material):
1. Transportation Specialist (TS): Ensure proper labeling/markings as required by DOT and that package is in acceptable condition for transport.
 2. RMHF Management, WCO and TS: Verify satisfactory physical integrity.
 3. Radiation Safety representative: Verify that maximum surface radiation and non-fixed contamination levels are within the limits of 10 CFR 835, Appendix D and radiation levels consistent with DOT limits described in RS-00011. Complete the *Radiation Survey Report (Form 732-A)*.
 4. SSG QM representative: Verify that the Radioactive Shipment Container Verification form is completed per **QA-00002**.

CAUTION: Under **NO** conditions shall containers reading in excess of 2 mSv/h (200 mR/hr) on any point on the external surface of the container be loaded in anything other than a “closed transport vehicle.” Containers reading up to 10 mSv/h on the external surface of the container (1,000 mR/h) may be loaded in a “closed transport vehicle” with additional administrative controls applied as required in 49CFR.

- 27.16** Radiation Safety Representative: After loading is complete, survey the transport vehicle to verify that contamination levels are within the limits of 10 CFR 835, Appendix D and radiation levels consistent with DOT limits described in RS-00011 (as required, the vehicle may be moved to a low background area). Complete and sign the *Radioactive Material Transportation Departure Survey Form*.
- 27.17** SSG QM representative: Install a non-lead containing tamper-indicating, serialized seal on the cargo compartment door of any enclosed transport vehicle. Verify the serial number(s) is recorded on the shipping papers.
- 27.18** Transportation Specialist (TS): Record the non-lead containing tamper-indicating seal serial number(s) on the shipping papers. Offer placards per DOT requirements for the vehicle and complete the shipping activity per **C-404**. Provide the driver with the original signed PSDR, the LLW Certification Statement signed by the WCO. The document package provided to the driver shall also include, originals or copies of, the Commercial Shipping Document Form 45-L, Bill of Lading Form F710000007, Radioactive Material Transportation Departure Survey Form, driver’s instructions, and Emergency Response Guide (required for regulated shipments only). **Instruct the driver that in accordance with the NTSWAC, 1) transportation of LLW to NTS must avoid Hoover Dam and Las Vegas, and 2) on the importance of fully completing the “Drivers Questionnaire” at the NTS before leaving the RWMC.** Ensure that the driver is informed of site receiving hours and conditions per NTSWAC 6.2.3. Provide the Shipment Coordinator with the driver and vehicle information required by the HAZTRAK input including verification that the driver is a U.S. citizen.

NOTE: For soft-sided packages also include the PCL and NTS Barcode Labels in the document package provided to the driver.

- 27.19** Shipment Coordinator: Submit the shipment information via HAZTRAK at <https://gw1.nv.doe.gov> prior to 1500 NTS local time **at least one working day prior to shipment arrival** (e.g. for shipments scheduled to arrive on Tuesday, the information must be sent by 1500 NTS local time on the previous day, Monday). If HAZTRAK system is unavailable, complete the NTS Advance Shipment Notification Form and fax it to NTS, along with the “proper shipping paper” (typically Bill of Lading). If the ETA should change, notify BN of the new ETA.
- 27.20** SSG QM Representative: Complete the shipment inspection checklist per **QA-00002**.
- 27.21** RMHF personnel: After vehicle departure, update the RTS, entering shipment data.
- 27.22** Shipment Coordinator: On the scheduled arrival date confirm the shipment arrival and unloading. Notify the TS by e-mail that this has occurred; include date of acceptance.
- 27.23** SSG QM Representative: Complete a data package for each shipment per **QA-00001**.

28.0 NTS WASTE CERTIFICATION OFFICIAL

The Waste Certification Official (WCO) is responsible for the following activities:

- 28.1** Review and sign-off the generator WP certifying that the information is correct and that the waste stream(s) will meet the NTSWAC upon implementation of the certification program. Perform and document an annual review of the NTS approved waste profiles, based on the current revision date of each profile, to ensure the characterization data, waste stream information, and reference documents are current.
- 28.2** Perform a documented annual review of the NTSWAC Implementation Crosswalk (NIC) (Appendix B of **PMP-00003**) to ensure procedures, process, and methods referenced in the NIC are current. Update and submit the NIC to the BN Radioactive Waste Acceptance Program (RWAP) Manager.
- 28.3** Perform the internal audits, inspections, and surveillances related to NTS waste operations per requirements set forth in QA-00001.
- 28.4** Identify any deficiencies related to NTS waste operations per requirements set forth in QA-00001.
- 28.5** Notify DOE-NTS when nonconforming conditions affecting the quality of previously shipped waste are identified.
- 28.6** Notify DOE-NTS when informed by the TS that (1) the motor carrier(s) is being evaluated; (2) the motor carrier route selection is being reviewed; (3) a motor carrier discrepancy, noncompliance, or inadequate performance has been identified; or (4) there is a transportation incident or emergency situation.
- 28.7** Validate that each container is acceptable for shipment by completing the checklist found in QA-00002 Appendix A. Include the completed checklist in the shipment data package.
- 28.8** Independently verify the waste description on the lot follower during the packaging operation (Section 24.0), and tamper-sealing of the container (Section 24.10). This activity may be performed by a SSG QM representative or by the WCO.
- 28.9** Review documents provided by the Shipment Coordinator (ref 27.10) and verify that all portions of the documents have been completed.
- 28.10** Review each container tracking number, S/N, Purchase Order, C of C, receiving inspection, IDCRs, if any, and container compliance with the container criteria.
- 28.11** Verify that the waste in each container has had the required radiological survey information, analysis, and complete isotopic characterization performed.

- 28.12** Verify that the waste stream packaged in each container has the required EP department surveillance reports on file, or an approval signature on the Traveler, and that the waste has been cleared as non-hazardous on the basis of process knowledge or analysis.
- 28.13** Verify that an EP department representative has evaluated the analytical results for waste characterized by sampling and analysis, and has cleared the waste as non-hazardous.
- 28.14** Perform shipping duties per QA-00002.
- 28.15** Inspect the container's physical integrity, and marking/labeling for compliance with the NTSWAC requirements.
- 28.16** Sign-off and apply the PCL (see Appendix B) and NTS bar code labels to each waste package. This label provides highly visible confirmation that the waste is certified as meeting the NTSWAC.
- 28.17** Sign-off the LLW certification statement (see Appendix B). This statement must be included in the shipping papers and indicates that the shipment conforms with the NTSWAC.

29.0 SHIPPING TO HANFORD

This section shall be followed in the preparation of waste shipments to the DOE-Hanford Site.

- 29.1 Shipment Coordinator: Select and identify containers for the planned shipment and prepare a RMHF Shipment Work Sheet Summary.
- 29.2 Shipment Coordinator: Prepare the *Hanford Site Container Data Sheet* (CDS) forms for each container and verify that the radionuclide concentrations in each container do not exceed the approved profile limits.
- 29.3 Shipment Coordinator: Submit the CDS forms and copies of the Lot followers to Hanford Waste Management for review and approval.
- 29.4 Shipment Coordinator: After receipt of Hanford approval ("Hanford Solid Waste Information and Tracking System Receipt Report"), prepare the *RMHF Shipment Work Sheet Summary* and the *Radioactive Material Shipping Instructions Form 710-S-1* and obtain approval signatures. Provide WM Program Manager the information required to request DOE approval to ship where applicable.

NOTE: For multiple shipments of radioactive waste not regulated by DOT as Class 7 Material, where the individual shipments are assigned isotopic content based on the weight of the waste, verify that Radiation Safety has completed a *Radiological Determination Letter* that includes isotopic concentration for the total waste and certifies that the waste to be shipped is below levels that mandate regulation as Class 7 radioactive material by DOT.

- 29.5 Shipment Coordinator: Provide the TS with a complete package of the documents identified in Step 29.4, Form 741 (if required) along with copies of the Lot Followers for the containers approved for shipment, for preparation of shipping documentation, instructions, and transportation in accordance with **C-404**.
- 29.6 Shipment Coordinator: Coordinate the shipment schedule with Hanford Site Operations, Q&SS, and the TS to establish shipping/arrival dates.
- 29.7 Shipment Coordinator: Request that Radiation Safety to prepare *NRC Form 741* if accountable material is present.
- 29.8 Transportation Specialist (TS): Provide instructions to the RMHF to mark and label containers in accordance with Appendix C of the Hanford Site Solid Waste Acceptance Criteria.
- 29.9 Shipment Coordinator: Request that RMHF personnel prepare the containers for shipment (verify physical integrity, touch-up paint as needed, add wood skids if required).
- 29.10 RMHF personnel: On the date of the shipment, stage the shipment within the RMHF compound, or other selected location, in accordance with the tentative loading configuration and wait for the arrival of representatives of the functional organizations affecting the shipment. The final loading configuration will be determined jointly by RMHF personnel, radiation safety, TS, and the driver.
- 29.11 Radiation Safety representative: Upon arrival of the transport vehicle, Perform a radiation survey of the vehicle and document the results on a *Radiation Survey Report (Form 732-A)*.

CAUTION: Incoming vehicle contamination limits shall not exceed those specified in **RS-00011**. If contamination limits are exceeded, do not load the waste and inform the TS and the PIC.

- 29.12 RMHF personnel: When the survey is satisfactorily completed, proceed to load the containers onto the transport vehicle. Caution must be exercised during the loading sequence to maintain the integrity of the containers. Block and brace the containers in the transport vehicle (trailer) to prevent shifting during transportation.

29.13 As Identified: Complete the *Radioactive Shipment Container Verification Form* as the vehicle is loaded to verify that all departments have performed their functions and checks as follows (not required for waste not regulated by DOT as Class 7 Material):

1. TS: Ensure proper labeling/markings as required by DOT and containers are acceptable for transport.
2. RMHF Management, SSG QM representative and TS: Verify satisfactory physical integrity.
3. Radiation Safety representative: Verify that maximum surface radiation and non-fixed contamination levels are within the limits of 10 CFR 835, Appendix D and radiation levels consistent with DOT limits described in RS-00011. Complete the *Radiation Survey Report (Form 732-A)*.
4. SSG QM representative: Verify that the Radioactive Shipment Container Verification form is completed per **QA-00002**.

CAUTION: Under **NO** conditions shall containers reading in excess of 2 mSv/h on any point of the external surface of the container (200 mR/hr) be loaded in other than a closed-transport vehicle. Containers reading up to 10 mSv/h on the external surface of the container (1,000 mR/h) may be loaded onto a closed transport vehicle with additional administrative controls applied as required in 49CFR.

29.14 Radiation Safety representative: After loading is completed survey the transport vehicle to verify that contamination levels are within the limits of 10 CFR 835, Appendix D and radiation levels consistent with DOT limits described in RS-00011 (as required, the vehicle may be moved to a low background area). Complete and sign the *Radioactive Material Transportation Departure Survey Form*.

29.15 SSG QM representative: Install a non-lead containing tamper-indicating serialized seal on the cargo compartment door of any enclosed transport vehicle. Record the serial number(s) on the shipping papers.

29.16 Transportation Specialist (TS): Offer placards per DOT requirements for the vehicle, provide driver's instructions, complete the shipping activity per **C-404**, and provide the driver with the original signed CDS.

29.17 Shipment Coordinator: Complete the Hanford Advance Shipment Notification Form and fax to Hanford.

29.18 SSG QM representative: Complete the shipment inspection checklist per **QA-00002**

29.19 RMHF personnel: After vehicle departure, update the RTS, entering shipment data.

29.20 Shipment Coordinator: On the scheduled arrival date, confirm the shipment arrival and unloading with the disposal site. Notify the TS by e-mail that this has occurred; include date of acceptance.

29.21 SSG QM representative: Prepare a data package for each shipment per the requirements of QA-00001.

30.0 HANFORD SHIPMENT OVERSIGHT

SSG QM is responsible for assuring that all waste packages, data, and shipments to Hanford comply with the Hanford site requirements (HNF-EP-0063). The SSG QM representative is responsible for performing the following activities:

30.1 Complete and review the shipment data package (Lot Followers, Travelers, etc.). Verify that the containers selected for shipment per RMHF Shipment Work Sheet Summary are listed on the Hanford approval form, "Hanford Solid Waste Information and Tracking System Receipt Report," and verify completeness of all portions of the documents.

30.2 Review each container tracking number, S/N, Purchase Order, C of C, receiving inspection, IDCs, if any, and container compliance with the container criteria.

- 30.3 Verify that the waste in each container has had the required radiological survey information, analysis, and complete isotopic characterization performed.
- 30.4 Verify that the waste stream packaged in each container has the required EP surveillance reports on file, or an approval signature on the Traveler, and that the waste has been cleared as non-hazardous on the basis of process knowledge or analysis.
- 30.5 Review the Hanford site shipment forms.
- 30.6 Inspect the container's physical integrity, and marking/labeling for compliance with the Hanford requirements.
- 30.7 Complete the Shipment inspection checklist per **QA-00002**.

31.0 EXAMPLE DOCUMENTS

Examples of the documents (forms) generated in the process of the waste packaging, certification, and shipping operations referenced in this procedure are included in Appendix B. Preparation, sign-offs, and approvals of these documents are addressed in the previous sections and/or the forms.

Use the latest version of all forms. The forms presented in Appendix B are examples and may not represent the latest version of the form. Downloadable copies of the latest Boeing forms with a form number may be located on the Santa Susana Field Laboratory Forms Library. Contact the issuing group responsible person for the latest version of forms without form numbers.

APPENDIX A - ACRONYMS

ALARA	As Low as Reasonably Achievable
BN	Bechtel-Nevada
CAL	California (State of)
CCR	California Code of Regulations
CDS	Container Data Sheet (Hanford Site)
CFR	Code of Federal Regulations
C of C	Certificate of Compliance
CPSOP	Canoga Park System of Procedures
D&D	Decontamination and decommissioning
DOE	Department of Energy
DOE-NTS	Department of Energy Nevada Test Site (includes reference to NNSA/NSO [National Nuclear Security Administration Nevada Site Office] and NTS Operations)
DOT	Department of Transportation
DTSC	Department of Toxic Substances Control (State of California)
EHS	Environment, Health & Safety
EP	Environmental Protection
EPA	Environmental Protection Agency
ETEC	Energy Technology Engineering Center
EWR	Engineering Work Request
FGE	U-235 Fissile Gram Equivalent
ID	Identification
IDCR	Inspection Discrepancy and Correction Report
IP	Industrial Package
LLW	Low level radioactive waste
LSA	Low specific activity
MLLW	Mixed low level waste
MTRU	Mixed transuranic waste
NRC	Nuclear Regulatory Commission
NIC	NTSWAC Implementation Crosswalk
NTS	Nevada Test Site
NTSWAC	Nevada Test Site Waste Acceptance Criteria
PCB	Polychlorinated biphenyl
PCL	Package Certification Label
PIC	Person-In-Charge
PSDR	Package Storage and Disposal Request
Q&SS	Quality & System Safety
RALLW	Regulated Asbestos Low Level Waste
RCRA	Resource Conservation Recovery Act
RMHF	Radioactive Materials Handling Facility
RTS	RMHF Tracking System
RWAP	Radioactive Waste Acceptance Program (Bechtel-Nevada)
S/N	Serial number
SNM	Special nuclear materials
SSFL	Santa Susana Field Laboratory
TRU	Transuranic
TS	Transportation Specialist
WCO	Waste Certification Official
WP	Waste Profile

**APPENDIX B
APPLICABLE FORMS**

Form	Title	Page
1.	Radioactive Material Lot Follower and Procedure Verification (Form 652-A)	28
2.	Waste Container Traveler (no form number)	31
3.	Radioactive Container Survey (no form number)	32
4.	Radiation Survey Report (Form 732-A)	33
5.	Radioactive Materials Tag (Form 708-R)	34
6.	RMHF Shipment Work Sheet Summary (no form number)	35
7.	Radioactive Material Shipping Instructions (Form 710-S-1)	36
8.	Radioactive Shipment Container Verification (654-T-018)	37
9.	Radioactive Material Transportation Departure Survey (X31848)	38
10.	Boeing Commercial Shipping Document (Form 45-L-1)	39
11.	Straight Bill of Lading (Form F710000007)	40
12.	Asbestiform Shipment Notification (form FRM-1901)	41
13.	NTS Package Certification Label (PCL)	42
14.	NTS LLW Certification Statement	43
15.	NTS Package, Storage, and Disposal Request (PSDR)	44
16.	Hanford Container Data Sheet (CDS)	45
17.	Hazardous Waste (Form 642-J)	47
18.	EPA Uniform Hazardous Waste Manifest (EPA form 8700-22)	48
19.	Asbestos containing LLW Warning Labels (no form number).....	49

Lot Follower _____ of _____



RADIOACTIVE MATERIAL LOT FOLLOWER AND PROCEDURE VERIFICATION

(A) Bldg/Area	(B) Tracking No.	(C) Packaging Procedure No./Rev.	(D) Program	(E) Waste Profile No.			
(F) CONTAINER DESCRIPTION							
Container Type	Length	Width	Height	Cubic Feet	Tare Weight (lbs)	Gross Weight (lbs)	
<input type="checkbox"/> Type 3 Box	85.5"	48.5"	28.5"	68.4	659		
<input type="checkbox"/> Type 4 Box	85.5"	48.5"	52.0"	124.8	896		
<input type="checkbox"/> 7 A Type A 55-Gallon Drum		22.5" dia.	34.5"	7.9	60		
<input type="checkbox"/> Roll-off							
<input type="checkbox"/> Other							
Operations Dept. Sign and Date: _____							
(G) CONTAINER DOSE RATES mR/hr							
CONTACT: _____ 30 CENTIMETER: _____ 1 METER: _____ Radiation Safety Dept. Sign and Date: _____							
(H) WASTE FORM CHECK SHEET							
Hazardous Materials:	No	Free Liquids:	No	Yes	Pyrophorics:	No	Yes
Asbestos:	No	Fine Particulate, <200µm:	No	Yes	Explosives:	No	Yes
PCB's:	No	Compressed Gases:	No	Yes	Other:	No	Yes
Lead:	No	Etiologic Agents:	No	Yes		No	Yes
Mercury:	No	Chelating Agents:	No	Yes	Operations Dept. Sign/Date:		
Alkali Metals:	No	Animal Waste:	No	Yes			
(I) ISOTOPIC mCi							
Analysis Procedure Number _____							
Transuranics: No Yes nCi/g							
Thermal Energy: Watts/cu. ft.							
Performed By (Sign/Date): _____							
(J) ANALYSIS METHOD							
(K) LOT FOLLOWER AND SUPPORTING DOCUMENTATION COMPLETE							
Operations Dept. Sign and Date: _____							

List container contents on the back of this form

RADIOACTIVE MATERIAL LOT FOLLOWER AND PROCEDURE VERIFICATION INSTRUCTIONS

1. **Block A** shall contain the Building or Area number where the waste was generated.
2. **Block B** (front and back of form) shall contain the TRACKING NUMBER assigned to this LOT FOLLOWER and the container to which it applies. The number shall be permanently marked on the container in block letters.
3. **Block C** shall contain the PACKAGING PROCEDURE NUMBER and REVISION NUMBER used for the packaging operation.
4. **Block D** shall contain the PROGRAM NAME for the packaging operation (i.e., Site Restoration).
5. **Block E** shall contain the WASTE PROFILE NUMBER for the container contents.
6. In **Section F**, place a check mark in the appropriate box for the container type being used. If container is a roll-off or is not listed, fill in the appropriate information (container description, length, width, height, diameter and volume). When container is full and lid has been sealed, weigh container and record in **Section F**.
7. After arrival at RMHF, Operations personnel shall verify all information in **Section F**, log the received date, weigh the container, store container in accordance with facility procedures, and sign/date **Section F**. The RMHF HP shall verify the data on the accompanying Container Survey Form by performing an independent survey, and shall enter the maximum radiation readings, and sign/date **Section G**.
8. **Column L** shall contain a description of each item loaded into the container. The description shall identify the type of material and/or chemical form, and the pertinent physical dimensions (length, width, height, diameter) of each waste item or package and the origin (source) of the material being generated (i.e., building, column, room).
9. **Column R** shall contain a contact dose rate for each line item described in **Column L**.
10. **Column Q** shall be checked when a Surface Contaminated Object (SCO) is included in **Section L**. If the SCO box is checked, attach associated survey data and note the estimated weight in **Block P** *Ref. RS-00033 Rocketdyne Policies Regarding SCO and LSA Waste*.
11. **Column M** shall be signed and dated by qualified generation facility personnel performing or observing packaging.
12. **Column N** shall be signed and dated by an independent observer to verify contents to be as represented by **Column L**. When required by the PACKAGING PROCEDURE listed in **Block C**, the signer shall be a member of the Canoga Park Quality Assurance department.
13. When required by the PACKAGING PROCEDURE, enter a volume estimate in **Column O** and the weight in **Column P** for each item in **Section L**. When the container is fully loaded, cross out any remaining lines in **Column L** and initial.
14. **Section H**, the WASTE FORM CHECK SHEET shall be completed and signed by the Operations Manager or designee verifying that the information provided in **Blocks A through H** are complete and correct.
15. **Block I** shall identify the isotopes present excluding the daughter products. Enter the total isotopes in millicuries. Include daughter products in the total when required by the PACKAGING PROCEDURE identified in **Block C**. The person performing the analysis shall sign/date this LOT FOLLOWER in **Section J**.
16. **Section J** shall contain a description of the measurement and/or analysis method used to determine the ISOTOPES AND ISOTOPIC CONTENT described in **Section I**. Include the procedure number and/or analysis report number as applicable. If TRANSURANICS are present, circle "Yes" and enter the activity level in the space provided in nCi/g, otherwise circle "No". Calculate the THERMAL ENERGY generated by the radioactive isotopes and enter the TOTAL value in the space provided in watts per cubic foot.
17. **Section K** shall be signed by the RMHF Operation manager or designee verifying that the LOT FOLLOWER and supporting documentation are accurate and complete and that the container is acceptable for storage or shipment.

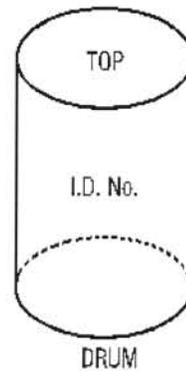
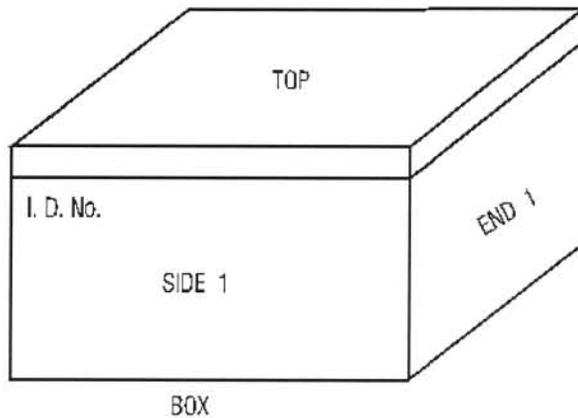
RADIOACTIVE WASTE CONTAINER TRAVELER

TRACKING NO. _____		MFG. S/N _____		P.O. NO. _____	
STEP	DEPT	DATE	SIGNATURE/STAMP	OPERATION	
01	117	_____	_____	Verify receiving inspection stamp, PO, S/N, Tracking No. & Spec. No. on container, & complete Sections A through E of form 652-A (Lot Follower).	
02	117	_____	_____	Prepare container for waste loading, remove lid and verify no damage.	
03	117	_____	_____	Provide D/280(QA) & D/641(HP) notice of intent to load container.	
04	280	_____	_____	Verify receiving inspection stamp, PO No., S/N, and tracking No. on this traveler and Lot Follower are complete and correct.	
NOTE: Partial loading of a waste container may be performed, follow steps 05 through 09 as required.					
		Date	Initial	Date	Initial
05	117	_____	_____	_____	_____
					Repeat step 03 for each partial loading.
06	117	_____	_____	_____	_____
					Load waste into container and enter information required in sections L, M, O,P, Q and R.
07	280	_____	_____	_____	_____
					Witness loading container and complete sections N (if container is full, proceed to step 10).
08	117	_____	_____	_____	_____
					Secure container during storage.
09	280	_____	_____	_____	_____
					Attach tamper proof seal if required.
STEP	DEPT	DATE	SIGNATURE/STAMP	OPERATION	
10	280	_____	_____	After final loading verify the container lid gasket is in place and intact.	
11	117	_____	_____	For final closure install lid and locking clips.	
12	280	_____	_____	Witness final closure of container and attach tamper proof seal.	
13	117	_____	_____	Complete and sign Section H of Form 652-A and place a copy of the Lot Follower and Traveler in the generating facility file.	
15	641	_____	_____	Complete Radioactive Container Survey Form, Radioactive Survey Report Form 732-A, and complete a 708R Form and attach to container.	
16	117	_____	_____	Transfer the container to the RMHF Hold up area per EID-04451.	
17	641	_____	_____	Verify radiological survey, complete and sign Section G of the Lot Follower.	
18	117	_____	_____	Weigh container, complete and sign Section F of the Lot Follower.	
19	543	_____	_____	Review and approve loaded waste as non-hazardous.	
22	641	_____	_____	Complete Sections I & J of Lot Follower, return with supporting data to RMHF.	
24	117	_____	_____	Examine data package for completeness; update the RTS, sign section K of the Lot Follower and place the Lot Follower and Traveler in RMHF files.	
Notes:					
Dept. 117		DOE-Site Restoration			
Dept. 280		Quality Assurance			
Dept. 543		Environmental Protection			
Dept. 641		Radiation Protection – Health Physicist			

RADIOACTIVE CONTAINER SURVEY

Page _____ of _____

Container ID No.: _____ Type: Box: _____ Drum: _____ Other: _____
 Survey Location: RMHF: _____ Generator Facility: _____
 Instruments
 Model: _____ S/N: _____ Cal. Due Date: _____
 Model: _____ S/N: _____ Cal. Due Date: _____
 Signature: _____ Date: _____
 Remarks: _____



Radiation Survey Summary (mR/h)

Location	Contact	30 cm *	1 Meter	2 Meter
Top				
Bottom				
Side 1 (Dia.)				
Side 2				
End 1				
End 2				

TRANSPORT LIMITS

1. Normal: < 200 mR/h contact and transport index < or = 10
2. Exclusive Use: < 200 mR/h OR < 1000 mR/h contact IF ALL OTHER 49 CFR 173.441(b) EXCLUSIVE USE CONDITIONS ARE MET.

NOTIFY D642 Management in writing if contact reading > 200 mR/h.

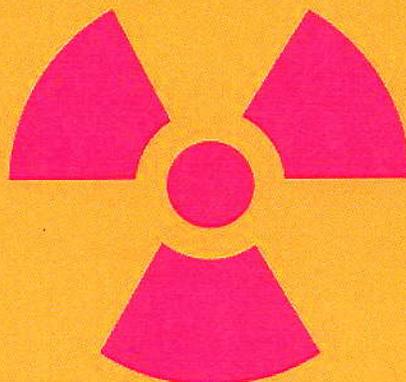
Person notified: _____

Signature: _____ Date: _____

*** NTS CRITERIA:**

1. >100 mR/h (1mSv/h) @ 30 cm shall be considered for remote handling.

CAUTION



RADIOACTIVE MATERIAL

CONTENTS _____

ESTIMATED ACTIVITY (MCI) _____

INTENSITY (mrem/hr)	@ SURFACE	@ 1 METER
BETA-GAMMA		
NEUTRON		

SURFACE CONTAMINATION (dis/min/100 cm²)

ALPHA _____ BETA-GAMMA _____

TYPE OF ACTIVITY _____

HANDLING INSTRUCTIONS _____

SIGNATURE _____ DATE _____

FORM 708-R

The Boeing Company		RADIOACTIVE MATERIAL SHIPPING INSTRUCTIONS						
REQUESTER		DEPT. AND GROUP	MAIL ADDRESS	PHONE	MANAGER'S APPROVAL	DATE		
DATE TO BE SHIPPED	Dept Number	Activity ID		P.O. NO.	FREIGHT CHARGES <input type="checkbox"/> TO BE PREPAID <input type="checkbox"/> COLLECT FROM CONSIGNEE			
SECURITY CLASSIFICATION OF ITEMS TO BE SHIPPED: <input type="checkbox"/> UNCLASSIFIED <input type="checkbox"/> CONFIDENTIAL <input type="checkbox"/> SECRET			METHOD OF TRANSPORTATION DESIRED OR SPECIFY OTHER: <input type="checkbox"/> RAIL <input type="checkbox"/> RAIL EXPRESS <input type="checkbox"/> TRUCK <input type="checkbox"/> AIR FREIGHT <input type="checkbox"/> PARCEL POST <input type="checkbox"/> OTHER _____					
ITEMS DESCRIBED ON THIS FORM ARE TO BE SHIPPED TO: NAME: _____ ADDRESS: _____ CITY, STATE, ZIP CODE: _____					HAZARDS <input type="checkbox"/> RADIOACTIVE <input type="checkbox"/> FISSILE <input type="checkbox"/> FLAMMABLE <input type="checkbox"/> PYROPHORIC <input type="checkbox"/> EXPLOSIVE <input type="checkbox"/> TOXIC <input type="checkbox"/> CORROSIVE <input type="checkbox"/> OTHER _____			
SPECIAL SHIPPING INSTRUCTIONS (REQUESTER)			PACKAGING INSTRUCTIONS		SHIPPING INSPECTION			
REASON FOR SHIPMENT: <input type="checkbox"/> TO DOE-APPROVED SITE FOR BURIAL <input type="checkbox"/> TO SUPPLIER/CO. DIVISION FOR SERVICES <input type="checkbox"/> EXCESS PROPERTY DISPOSITION <input type="checkbox"/> _____			PACKAGE AND TRANSPORT AS NOTED BELOW _____ EHS Transportation Support _____ DATE		OPERATION	DOE SITE RESTR.	QA INSP.	DATE
					MATERIAL VERIFICATION			
					PACKAGE*			
					LOADING			
*INSPECTION INCLUDES CHECKS FOR: (1) PROPER CLOSURE AND SEALS; (2) CONTAINER DAMAGE; AND (3) PROPER IDENTIFICATION OF PACKAGE.								
RADIATION SAFETY APPROVAL			NUCLEAR MATERIALS MANAGEMENT (IF SNM OR SOURCE MATERIAL IS PRESENT)					
ITEM NO.	QUANTITY	PACKAGE IDENT. NO.	DESCRIPTION				RAD MAT'L TRANSP. UNITS	
DOE SITE RESTORATION APPROVAL _____ DATE _____				EHS Transportation Support APPROVAL _____ DATE _____				
PACKAGING APPROVAL				FOR EHS USE ONLY				
DATE PACKAGED:	CARTONS:	BOXES:	PACKING SHEET NO.:	B/L NO.:	DOT ID NO.:			
CRATES:	WEIGHT:	DRUMS:	DIMENSIONS:	SHIPPED:	CARRIER:			

The Boeing Company		1. PRIME CONTRACT/PURCHASE ORDER				6. INVOICE NO. DATE		7. PAGE OF 8. ACCEPTANCE POINT	
2. SHIPMENT NO.		3. DATE SHIPPED		4. B/L TCN		24. ORDER NO.			
9. CONTRACTOR The Boeing Company Santa Susana Field Lab 5800 Woolsey Canyon Road Canoga Park, CA 91304					25. SOLD TO				
11. SHIPPED FROM Same as above					26. _____ DATE _____ COMPANY REPRESENTATIVE THE REQUIRED PQA OF LISTED ITEMS HAS BEEN PERFORMED _____ TYPED NAME AND OFFICE DATE SIGNATURE OF AUTHORIZED GOVT. REP.				
13. SHIPPED TO					14. MARKED FOR				
15. ITEM NO.	16. STOCK/PART NO.	DESCRIPTION			17. QUANTITY	18. UNIT	19. UNIT PRICE	20. AMOUNT	
23. A. Acct. Dept.		B. Job Number		U. INFORMATION					
E. CONTROL NUMBERS									
F.	G. GROSS WT.	H. CUBE							
I. LENGTH	J. WIDTH	K. HEIGHT							
L. Approval Signature				M. PRINTED/TYPED NAME		N. DEPT.	O. MAIL CODE	P. PHONE EXT.	
Q. DATE CUSTOMER REPRESENTATIVE				R. PACKAGING INFORMATION		S. PREP. DATE	T. PACKING LIST NO.		

BOEING **SHIPPER'S DOMESTIC TRUCK BILL OF LADING**

Non-Negotiable

CARRIER	CARRIER NO/PRO:	B/L NO.
VEHICLE NO.	SCAC	REF:
US DOT HAZ. MAT. REGISTRATION NO.		DATE
SHIPPER:		
BILL TO		

RECEIVED, subject to the "COMMON CARRIER RATE AGREEMENT" or the CONTRACT between the Shipper and Carrier in effect on the date of shipment, the property described below, in apparent good order, except as noted (contents and condition of contents of packages unknown), marked consigned, and destined as shown below. This Bill of Lading is not subject to any tariff classifications whether individually determined or filed with any federal or state regulatory agency, except as specifically agreed to in writing by the shipper and the carrier.

CONSIGNEE	ADDRESS
-----------	---------

SPECIAL INSTRUCTIONS:

No. Pkgs.	HM	Description of Articles, Packages, Markings, Exceptions	Weight	Rate*	Freight Charges: <input type="checkbox"/> Prepaid <input type="checkbox"/> Collect
					Subject to Section 7 of the Terms and Conditions of Carriage, if the shipment is to be delivered to the consignee without recourse on the consignor, the consignor shall sign the following statement: The carrier shall not make delivery of this shipment without payment of freight and all other lawful charges. _____ (Signature of consignor) C.O.D. amount \$ _____ Remit C.O.D. amount to: _____ (Carrier's C.O.D. fee to be paid by:) <input type="checkbox"/> Shipper <input type="checkbox"/> Consignee

* Rate is individually determined and NOT subject to filed tariffs unless stated in Common Carrier Rate Agreement.

Shipper's Certification: (if any required) This is to certify that the above named materials are properly classified, described, packaged, marked and labeled, and are in proper condition for transportation according to the applicable regulations of the Department of Transportation. Placards Required <input type="checkbox"/> Yes <input type="checkbox"/> No per _____ Print Name _____ Signature _____ Date _____	Accepted in good order and condition, unless otherwise stated herein, _____ pieces Exceptions: _____ _____ _____
<input type="checkbox"/> Haz Mat. Emergency response number _____ Carrier's liability is for actual loss unless otherwise agreed in Common Carrier Rate Agreement, or stated below. The agreed or declared value of the property is hereby specifically stated by the shipper to be not exceeding \$ _____ per pound. per _____ Shipper	_____ Carrier _____ (Driver's Signature) <input type="checkbox"/> AM Time & Date tendered _____ <input type="checkbox"/> PM

NSTec Form FRM-1901	ASBESTIFORM SHIPMENT NOTIFICATION Fax to (702) 295-1153	07/10/06 Rev. 0 Page 1 of 1
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The generator signed below shall submit this notification to NNSA/NSO at least seven days in advance of arrival of shipment of Asbestiform low-level waste to the Area 5 Radioactive Waste Management Site (RWMS).

Generator: _____

Generator Address: _____

Generator Telephone Number: _____ Fax Number: _____

Transporter Name: _____

Transporter Address: _____

Transporter Telephone Number: _____ Fax Number: _____

Waste Stream Identification Number: _____

Shipment Number: _____

Number of Containers: _____ Net Weight of Waste: _____ Net Volume of Waste: _____

Shipment Date: _____ (Approximate)

Arrival Date: _____ (Approximate*)

*Arrival Date is dependent on weather and other conditions.

I certify that the wastes in this shipment are packaged and labeled to the asbestos requirements and are Asbestiform low-level radioactive waste authorized for disposal by NNSA/NSO.

Generator Signature	Title	Date
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Note: Failure to notify NNSA/NSO seven days in advance of shipment may result in refusal of shipment.

FOR NNSA/NSO USE ONLY

Signature	Title	Date
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The above NNSA/NSO/WMP signature authorizes the generator to release the identified shipment. If you have any questions or comments, please call NNSA/NSO/WMP at (702) 295-7063.

To: _____ (Generator)

From: NNSA/NSO/WMD

CC: NDEP BFF (Las Vegas) – (702) 468-2863
This is an official notice for the identified Asbestiform shipment.

NSTec WMP (Area 5) – (702) 295-6852
This is an official authorization to receive the identified Asbestiform shipment.

PACKAGE CERTIFICATION LABEL

This label certifies that this package meets the requirements of DOT (49 CFR), EPA (40 CFR) and the NTSWAC for transportation and disposal.

DATE: _____

CERTIFIED BY (Print): _____

CERTIFIED BY (Signature): _____

WASTE CERTIFICATION OFFICAL

ALTERNATE WASTE CERTIFICATION OFFICAL

PACKAGER CERTIFIER

Low-Level Waste Certification: BNL

"I certify that containers:

do not contain hazardous waste as defined in title 40 CFR 261 or California Title 22 hazardous waste regulations:

- (1) according to the results of test performed in accordance with the requirements as specified in Subpart C of Title 261; and/or
- (2) according to the supporting documentation provided to me about the materials and processes that produced this waste.

To the best of my knowledge, I believe the information I have submitted is true, accurate, and complete."

Generator Waste Certification Official

Package Storage and Disposal Request

Shipment Number: **BNL00012**
Date: **22-Jun-2000**

Prepared By: *Ben Bassal*
Manifest Number:

Package No: **RC0001** Contact (mSv/h): **0.65** Completed Date: **17-Sep-1999**
 Container Code: **210** 1 Meter (mSv/h): **0.07** Operation Type: **B**
 External Volume (m³): **4.250E+00** Gross Weight (kg): **2.417E+03** Total Activity (Bq): **9.727E+09**
 Waste Volume (m³): **3.850E+00** Net Weight (kg): **1.923E+03** Activity Date: **29-Nov-1999**
 Comment: **B-356**

Waste Stream /Profile	Form Code	Form Description	Treatment Code	Treatment Description	Rev. No.	Revision Date	Nuclide	Qty (Bq)
BNRCDD2000005	029		100		06	04-Apr-2000	CO-60	7.792E+08
BNRCDD2000005	029		100		06	04-Apr-2000	SR-90	4.535E+09
BNRCDD2000005	029		100		06	04-Apr-2000	CS-137	4.173E+09
BNRCDD2000005	029		100		06	04-Apr-2000	PU-239	1.342E+08
BNRCDD2000005	029		100		06	04-Apr-2000	PU-241	1.057E+08

Package No: **RC0002** Contact (mSv/h): **0.00014** Completed Date: **18-May-2000**
 Container Code: **200** 1 Meter (mSv/h): **0.00014** Operation Type: **B**
 External Volume (m³): **1.832E+00** Gross Weight (kg): **1.602E+03** Total Activity (Bq): **1.036E+06**
 Waste Volume (m³): **1.510E+00** Net Weight (kg): **1.312E+03** Activity Date: **22-May-2000**
 Comment: **B-1090A**

Waste Stream /Profile	Form Code	Form Description	Treatment Code	Treatment Description	Rev. No.	Revision Date	Nuclide	Qty (Bq)
BNRCDD2000005	029		100		06	04-Apr-2000	CO-60	9.546E+03
BNRCDD2000005	029		100		06	04-Apr-2000	SR-90	1.288E+04
BNRCDD2000005	029		100		06	04-Apr-2000	CS-137	1.014E+06

Package No: **RC0003** Contact (mSv/h): **0.45** Completed Date: **02-Jun-1999**
 Container Code: **200** 1 Meter (mSv/h): **0.06** Operation Type: **B**
 External Volume (m³): **1.832E+00** Gross Weight (kg): **2.357E+03** Total Activity (Bq): **9.944E+08**
 Waste Volume (m³): **1.510E+00** Net Weight (kg): **2.067E+03** Activity Date: **07-Dec-1999**
 Comment: **B-1134**

Waste Stream /Profile	Form Code	Form Description	Treatment Code	Treatment Description	Rev. No.	Revision Date	Nuclide	Qty (Bq)
BNRCDD2000005	029		100		06	04-Apr-2000	SR-90	1.247E+07
BNRCDD2000005	029		100		06	04-Apr-2000	CS-137	9.820E+08



Waste Management
Federal Services of Hanford, Inc.

Container Data Sheet

Package ID Number (CIN): 995800026
Portfolio #:

30. Reportable Radionuclides

Isotope	Activity Ci	Mass grams	Spec.Act. Ci/gram
H-3	8.00E-08	8.28E-12	9.66E+03
Fe-55	1.00E-08	4.20E-12	2.38E+03
Co-60	2.30E-07	2.04E-10	1.13E+03
Sr-90 - Y90	1.20E-04	4.35E-07	2.76E+02
Cs-137 - Ba-137m	1.20E-04	7.10E-07	1.69E+02
Eu-152	1.62E-06	9.31E-09	1.74E+02
Eu-154	1.20E-07	4.44E-10	2.70E+02
Total Activity (Ci):	2.42E-04		
31. Waste Category:	1.00E+00		
32. TRU/LLW:	LLW		

HAZARDOUS WASTE

1) CONTAINER # _____

SSFL OTHER

2) 5800 WOOLSEY CANYON ROAD
SIMI VALLEY, CA 93063

3) DATE OF 1ST ACCUMULATION _____

4) DATE OF STORAGE _____

5) Properties: Ignitable (Flash Point <140°F) Corrosive - pH = (pH < 2 or > 12.5) Toxic Reactive

6) Physical State: Solid Liquid Gas

7) Component Names (list all components)

_____	8) Percent or Range	_____	9) Profile #	_____
_____	%	_____	10) Process Generating Waste	_____
_____	%	_____	11) Bldg. #	_____
_____	%	_____		_____
_____	%	_____		_____

Generator's Certification

To the best of my knowledge, the above named are properly identified, classified and labeled according to environmental regulations and company directives. Failure to comply with these requirements can result in the issuance of extensive fines or imprisonment.

12) Generator Name _____ (PRINT) 13) Generator Signature _____

FOR EHS USE ONLY

Quantity in Container _____ Date Received _____ Date Shipped _____

TSD Manifest Doc. # _____ State Manifest # _____

Please print or type. (Form designed for use on elite (12-pitch) typewriter.)

Form Approved. OMB No. 2050-0039

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator ID Number	2. Page 1 of	3. Emergency Response Phone	4. Manifest Tracking Number 000096995 FLE			
		5. Generator's Name and Mailing Address				Generator's Site Address (if different than mailing address)		
Generator's Phone:								
6. Transporter 1 Company Name				U.S. EPA ID Number				
7. Transporter 2 Company Name				U.S. EPA ID Number				
8. Designated Facility Name and Site Address				U.S. EPA ID Number				
Facility's Phone:								
GENERATOR	9a. HM	9b. U.S. DOT Description (including Proper Shipping Name, Hazard Class, ID Number, and Packing Group (if any))	10. Containers		11. Total Quantity	12. Unit Wt./Vol.	13. Waste Codes	
			No.	Type				
	1.							
	2.							
	3.							
4.								
14. Special Handling Instructions and Additional Information								
<p>15. GENERATOR'S/OFFEROR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by the proper shipping name, and are classified, packaged, marked and labeled/placarded, and are in all respects in proper condition for transport according to applicable international and national governmental regulations. If export shipment and I am the Primary Exporter, I certify that the contents of this consignment conform to the terms of the attached EPA Acknowledgment of Consent. I certify that the waste minimization statement identified in 40 CFR 262.27(a) (if I am a large quantity generator) or (b) (if I am a small quantity generator) is true.</p>								
Generator's/Offeror's Printed/Typed Name				Signature		Month	Day	Year
16. International Shipments <input type="checkbox"/> Import to U.S. <input type="checkbox"/> Export from U.S. Port of entry/exit: _____ Date leaving U.S.: _____								
17. Transporter Acknowledgment of Receipt of Materials								
Transporter 1 Printed/Typed Name				Signature		Month	Day	Year
Transporter 2 Printed/Typed Name				Signature		Month	Day	Year
18. Discrepancy								
18a. Discrepancy Indication Space <input type="checkbox"/> Quantity <input type="checkbox"/> Type <input type="checkbox"/> Residue <input type="checkbox"/> Partial Rejection <input type="checkbox"/> Full Rejection								
Manifest Reference Number: _____								
18b. Alternate Facility (or Generator)				U.S. EPA ID Number				
Facility's Phone:								
18c. Signature of Alternate Facility (or Generator)				Signature		Month	Day	Year
19. Hazardous Waste Report Management Method Codes (i.e., codes for hazardous waste treatment, disposal, and recycling systems)								
1.	2.	3.	4.					
20. Designated Facility Owner or Operator: Certification of receipt of hazardous materials covered by the manifest except as noted in Item 18a								
Printed/Typed Name				Signature		Month	Day	Year

EPA Form 8700-22 (Rev. 3-05) Previous editions are obsolete.

DESIGNATED FACILITY TO DESTINATION STATE (IF REQUIRED)

Asbestos Containing Low-Level Waste (ALLW) Caution Labels

Each container used to dispose of RALLW must bear a label that contains one of the following statements (see DOE/NV-325 section 3.1.15).

CAUTION
CONTAINS ASBESTOS FIBERS
AVOID OPENING OR BREAKING CONTAINER
BREATHING ASBESTOS IS HAZARDOUS TO YOUR HEALTH

CAUTION CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
MAY CAUSE SERIOUS BODILY HARM

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD