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- ADVANCE SHIPMENT SUMMARY FORM

## 1.0 Scope

This waste acceptance criteria provides detailed criteria for the acceptance of radioactive material and radioactive waste for storage or processing at the Toxco Materials Management Center (TMMC) in Oak Ridge, Tennessee. It applies to all shipments of radioactive material made to the TMMC. It specifies the requirement for advance radioactive shipment notification and provides the mechanism for evaluation of material which does not meet the standard acceptance criteria

## 2.0 Policy

TMMC will accept material for storage or processing which meets our standard acceptance criteria, can be safely stored or processed, and meets TMMC license and contractual criteria. Material which does not meet general or specific acceptance criteria included in this procedure may be accepted after evaluation and approval by the TMMC Radiation Safety Officer.

## 3.0 Responsibilities

- 3.1 The TMMC Radiation Safety Officer (RSO) is responsible for establishing radiological criteria to ensure that TMMC can receive and process radioactive material in accordance with applicable licenses, permits, and regulations. The Radiation Safety Officer will assist in determining that material meets Department of Transportation regulations and (for waste or material which when processed generates waste) burial site criteria.
- 3.2 The TMMC RSO is responsible for evaluating advance radioactive material notification and assuring that the proposed shipment meets the standard acceptance criteria. He will also maintain the radionuclide inventory and update the shipping/receiving schedule.
- 3.3 The TMMC Facility Manager is responsible for determining how material in a proposed shipment can be safely processed and insuring that a proposed shipment will not cause fence-line dose limits to be exceeded while in storage.

## 4.0 Definitions

- 4.1 Radioactive Equipment - Radioactive equipment is non-waste material received for storage, processing, decontamination, or maintenance at TMMC's facility.
- 4.2 Radioactive Waste - Radioactive waste is radioactive material that is waste intended for processing or storage with subsequent disposal or return to the customer as waste. Note that waste requires manifesting as waste by NRC regulations in 10 CFR 20 Appendix G (or equivalent state regulations.)

- 4.3 Standard Radioactive Material - Radioactive material (equipment or waste) that meets the general or specific material acceptance criteria in Appendix A in this procedure is Standard Radioactive Material.
  - 4.4 Nonstandard Radioactive Material - Radioactive material which deviates from the general or specific acceptance criteria in Appendix A and requires submittal for further review prior to approval.
  - 4.5 Dry Active Waste (D.A.W.) - Radioactive waste consisting primarily of paper, plastic, cloth, rubber, wood, metal, etc., is dry active waste. This excludes resins, sludges, wet filter media, aqueous liquids, oils, etc.
- 5.0 Acceptance of Standard Radioactive Material
- 5.1 Standard radioactive material acceptance criteria are in Appendix A. Materials meeting these criteria require only that the customer Radioactive Waste Managers submit a completed Advance Shipment Summary Form (Appendix B) for approval prior to shipping.
  - 5.2 Radioactive material meeting the acceptance criteria may be delayed if receipt would cause radioactive material inventory limits to be exceeded. Other business or process related factors may cause delay. TMMC RSO will inform customer Radioactive Waste Managers if any of these factors require a delay in shipping at the time of review of the Advance Shipment Summary Form.
  - 5.3 Approval for shipment of standard radioactive material is made by the TMMC RSO, who will return a copy of the approved Advance Shipment Summary Form to the customer Radioactive Waste Managers prior to shipment.
- 6.0 Acceptance of Nonstandard Radioactive Material
- 6.1 Not all radioactive material meets the standard acceptance criteria. In many cases, TMMC may still be able to receive this nonstandard material. It is important that nonstandard material receive special approval prior to shipment to ensure that the material can be processed safely, license/permits limits are not exceeded, radiation and radioactive material exposures to TMMC personnel can be minimized, and the material can be processed by the method requested by the customer. This review and approval will also insure that a specific contract/purchase order is in place. TMMC may accept nonstandard material by the following steps.
    - 6.1.1 TMMC Facility Manager will work with the customer to determine and document information required by the Nonstandard Radioactive material Acceptance Form (NRAF).

- 6.1.2 The Radiation Safety Officer will review the NRAF considering ALARA and safety considerations, regulatory/license/permit limitations, and waste disposal/shipping considerations.
- 6.1.3 The TMMC Facility Manager will review the NRAF to determine if the material can be safely processed.
- 6.1.4 When review of the NRAF is complete and appropriate approvals are obtained, the TMMC RSO will notify the customer.

## 7.0 Records

Completed forms generated as a result of this procedure are project records and shall be retained with the appropriate shipment file.

## STANDARD ACCEPTANCE CRITERIA

### Applicability

These are general criteria for all material received at the TMMC. Each of TMMC's processing methods has specific criteria that must also be met.

### RCRA/TSCA Limits

TMMC is not a permitted Treatment, Storage, or Disposal Facility (TSDF) under RCRA regulations. Material received at TMMC must not be classified as listed and/or characteristic hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) or the Toxic Substances Control Act (TSCA). The criteria are those specified in U.S. Environmental Protection Agency regulations (40 CFR 261/761).

### Radiological Limits

All incoming material shall meet Class A waste acceptance criteria.

The radiological waste acceptance criteria at the Toxco Material Management Center (TMMC) are determined by the amount of each radionuclide or groups of radionuclides on site at any one time. To ensure compliance with our Tennessee radioactive materials license each manifest of radioactive material must be reviewed and compared to the current site inventory.

TMMC maximum on site inventory is:

<b>Material Radioactive</b>	<b>Maximum Radioactivity (Curies) or Quantity (grams)</b>
1. Hydrogen 3	1500 Curies
2. Carbon 14	50 Curies
3. Radioactive materials with atomic numbers 93 and 95-100 inclusive	100 Curie
4. Radioactive materials with atomic numbers 84-91 inclusive (excluding Source material)	10 Curies
5. Source Material (natural or depleted uranium, thorium)	10 Curies
6. Mixed activation and fission products with atomic numbers 3-83 (excluding C-14)	200 Curies
7. Uranium-233	200 grams*
8. Uranium-235	350 grams*
9. Plutonium	200 grams* or 2 Curies

\*Special nuclear material shall not exceed unity of "1"

### Packaging

All material should be in sealed, gasketed, steel or poly outer containers that are authorized for transportation of radioactive material per U.S. Department of Transportation regulations 49 CFR 173 sub-part I. Package radiological conditions must be in accordance with U.S.D.O.T. criteria.

Material should be loaded so that it may be removed from the delivering vehicle by fork truck. Containers should be arranged on flat bed trailers so that a fork truck can unload from the side. Materials requiring a crane for off-loading (items < 40,000 pounds on a flat bed excepted) require specific prior approval

## **SHIPPING DOCUMENTATION**

### Advance Notification

Generators/Shippers shall provide advance notification of the shipment to the TMMC RSO prior to departure of the shipment from the customer location. Failure to provide notification in advance may result in delays in processing or rejection of the shipment if not in compliance with license criteria. Advance notification should be made by completing the Advance Shipment Summary Form in Appendix B and faxing to TMMC (fax 865 482-5605), emailing to [gbarnet@toxcommc.com](mailto:gbarnet@toxcommc.com) or by providing the information over the telephone (865) 482-5532. The shipping contact person is George Barnet.

### Radioactive Material Manifest:

Radioactive material must be accompanied by a manifest (when required) that meets the current NRC and DOT requirements for the material being transported. If not included in a manifest, additional documentation must be provided that identifies each package or bulk container by a unique number and supplies the following information for each package:

- Radionuclides and activity of each radionuclide (minimum listing is that required by 49 CFR 173.433 (f) and each radionuclide whose activity exceeds 1% of the total activity in the package);
- Detailed description of contents such as: serial numbers and inventory with contamination levels for equipment; or composition% paper, plastic, cloth, wood, metal, resin (provide the specific activity in  $\mu\text{Ci/cc}$  for each isotope present in resins), etc. for waste,
- Estimated weight and volume,
- Grams of Special Nuclear Material,
- Radiation levels and removable contamination levels,
- Any special conditions that require precautionary handling requirements.

In addition to the hard copy manifest, an electronic version of the manifest from Low Track should be sent to [gbarnet@toxcommc.com](mailto:gbarnet@toxcommc.com).

### Permits

For waste intended for the Barnwell, South Carolina disposal facility, the generator must possess a valid South Carolina radioactive waste transport permit. For waste intended for the Richland, Washington commercial disposal facility, generators must possess a valid Washington Site Use Permit. For waste intended for the Clive, Utah facility, generators must possess a valid Utah Generator Site Access Permit.

All radioactive shipments shall include a valid Tennessee License for Delivery permit number.

## **EQUIPMENT STORAGE ACCEPTANCE CRITERIA**

### Applicability

These criteria apply to equipment received for storage/maintenance/repair/decontamination (not intended for waste processing).

The customer must certify that the equipment has a continuing use and value (other than scrap value).

Equipment will be packaged in sealed, steel containers that meet US Department Of Transportation (DOT) regulations 49 CFR 173, subpart I (minimum requirement is 49 CFR 173.410)

## **COMPACTABLE DAW STANDARD ACCEPTANCE CRITERIA**

### Applicability

These criteria apply to Dry Active Waste (DAW) intended for compaction. These criteria also apply to the compactable portion of shipments consisting of commingled compactable and non-compactable wastes.

DAW suitable for compaction includes paper, plastic, and cloth. DAW must meet the criteria for Low Specific Activity (LSA) in 49 CFR 173.403.

### Non-Standard Material Examples

The following wastes are non-standard for compaction:

- RCRA/TSCA Hazardous Wastes
- Explosives
- Pyrophoric material
- Liquid
- Biological Materials
- Resins
- Material with a dose rate greater than 400 mR/hr on contact.
- Gas cylinders
- Flammable solids
- Absorbed Liquids
- Sludges
- Radioactive Sealed Sources

## **NON-COMPACTABLE DAW STANDARD ACCEPTANCE CRITERIA**

### Applicability

These criteria apply to non-compactable waste and to equipment that will be scrapped following decontamination or processing.

### Non-Standard Material

Wastes or equipment containing the following are non-standard for processing:

- RCRA/TSCA Hazardous Wastes
- Explosives
- Pyrophoric material
- Components with a stored energy source (i.e., snubbers, springs, compressed air or liquids).
- Material with a dose rate greater than 400mR/hr on contact.
- Gas cylinders
- Gas sources
- Flammable solids

**NONSTANDARD RADIOACTIVE MATERIAL ACCEPTANCE FORM**

CUSTOMER INFORMATION

Company: \_\_\_\_\_ Plant/Unit # \_\_\_\_\_

Address: \_\_\_\_\_

Address: \_\_\_\_\_ Contact person: \_\_\_\_\_

Telephone: \_\_\_\_\_ Facsimile: \_\_\_\_\_ e-mail: \_\_\_\_\_

Material description: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

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TMMC ACCEPTANCE AUTHORIZATION

Conditions for acceptance: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Facility Manager \_\_\_\_\_

Signature

Date

Radiation Safety Officer \_\_\_\_\_

Signature

Date

Appendix B  
**TMMC ADVANCE SHIPMENT SUMMARY FORM**  
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TMMC Waste Acceptance Criteria  
 DOC-003/Rev. 2

Generator: \_\_\_\_\_ TN License for Delivery No: \_\_\_\_\_

Shipment Weight: \_\_\_\_\_ Total Activity (mCi): \_\_\_\_\_

Highest Contact Dose Rate: \_\_\_\_\_ SNM Grams: \_\_\_\_\_

A) Is the waste subject to LLRW Compact Export Approval?:  Yes  No (If yes, list generators and attach permits.)

B) Material Properties:  WASTE  RECYCLABLE

1. Physical State:  Solid  Semi-Solid  Powder/Dust  Free Liquid  Other: \_\_\_\_\_

2. Flash Point (°F):  ≤ 72°  >72° - 100°  >100° - 140°  >140° - 200°  > 200°  N/A  N/D

3. Reactivity:  Water Reactive  Acid Reactive  Alkaline Reactive  Oxidizer  Pyrophoric  
 Explosive  Shock Sensitive  Thermally Sensitive  Autopolymerizable

4. Odor - describe: \_\_\_\_\_  None  Mild  Strong

5. pH:  ≤ 2  2.1 - 5.0  5.1 - 9.0  9.1 - 12.4  ≥ 12.5  N/A  N/D

6. Contains Asbestos:  Yes  No If Yes, Is the Asbestos Friable?:  Yes  No

C) Does the material contain, or is it suspected to contain any of the following:

- |                                       |                                          |                                            |                                           |                                            |
|---------------------------------------|------------------------------------------|--------------------------------------------|-------------------------------------------|--------------------------------------------|
| <input type="checkbox"/> Free Cyanide | <input type="checkbox"/> Free Sulfide    | <input type="checkbox"/> Organic Compounds | <input type="checkbox"/> OSHA Substances  | <input type="checkbox"/> Infectious Agents |
| <input type="checkbox"/> Virgin Oils  | <input type="checkbox"/> Used Oils       | <input type="checkbox"/> PCBs              | <input type="checkbox"/> Oxidizing Agents | <input type="checkbox"/> Solvents          |
| <input type="checkbox"/> Pesticides   | <input type="checkbox"/> Reducing Agents | <input type="checkbox"/> Volatile Organics | <input type="checkbox"/> Herbicides       | <input type="checkbox"/> None of the Above |

**FOR WASTE MATERIAL**

D) Is this waste a characteristic hazardous waste per 40 CFR 261.21 - 24?  Yes  No

Has a TCLP analysis been performed?  Yes  No (If yes, provide results.)

E) Is this waste an F, K, P, or U Listed hazardous waste per 40 CFR 261.31-33?  Yes  No  N/A

F) Is this waste derived from the treatment, storage or disposal of hazardous waste as described in 40 CFR 261?

Yes  No If yes, explain: \_\_\_\_\_

G) Is this a "Hazardous Waste" as defined by State, Provincial, or Local Regulations?  Yes  No

If yes, enter the waste identification number, if one has been assigned: \_\_\_\_\_

H) If the waste is a sewer sludge, has analyses been performed in accordance with 40 CFR 503.8  Yes  No  
 (If yes, please submit a copy of the analyses.)

If no, explain why sampling has not been performed: \_\_\_\_\_

**FINAL DISPOSITION OPTIONS**

<input type="checkbox"/> Barnwell (Permit/ Allocation Req.)	<input type="checkbox"/> Conditional Release ( e.g., BSFR)	<input type="checkbox"/> Recycle/Reuse
<input type="checkbox"/> Energy Solutions	<input type="checkbox"/> Unrestricted Release	<input type="checkbox"/> Other (Specify): _____

**CONTAINERS**

<input type="checkbox"/> TMMC-Owned Containers or Dispose of Containers	<input type="checkbox"/> Containers to Be Returned to: _____ *
*Disposition: <input type="checkbox"/> Rad Empty <input type="checkbox"/> Return to Service <input type="checkbox"/> Unrestricted Release <input type="checkbox"/> Other _____	

Special Instructions: \_\_\_\_\_

Customer's certification: I certify that all information submitted on this form is complete and accurate and that waste being offered is in compliance with the TMMC Waste Acceptance Criteria (WAC).

Customer Representative Printed Name \_\_\_\_\_ Signature \_\_\_\_\_ Title \_\_\_\_\_

Approved By: \_\_\_\_\_ Date: \_\_\_\_\_ Shipment Number: \_\_\_\_\_

Please fax information to TMMC @ 865-482-5605. Phone: 865-482-5532. To expedite our review, please attach any laboratory analyses results, material safety data sheets and any additional information regarding this material.