



**WASTE CONTROL SPECIALISTS LLC**

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March 13, 2001

Mr. Thomas H. Essig  
Chief, Environmental and Performance Assessment Branch  
Division of Waste Management  
Office of Nuclear Material Safety and Safeguards  
Nuclear Regulatory Commission  
Washington, DC 20555-0001

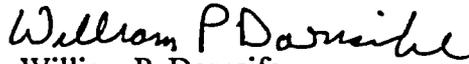
Dear Mr. Essig:

In response to your letter of January 29, 2001 you will find attached responses to the WCS action items identified in the site visit summary report. This should allow the continued processing of our requested exemption from 10 CFR Part 70 for possessing special nuclear material in quantities greater than those specified in 10 CFR Part 150.

We have provided the Texas Health Department Bureau of Radiation Control with a copy of this letter, including all attachments, to keep them informed of our progress on this issue.

You may contact me at 717-540-5220 if you have questions or require additional information to process this request.

Sincerely,

  
William P. Dornsife  
Vice President-Nuclear Affairs

cc: Richard Ratliff, Chief, Bureau of Radiation Control, Texas Health Dept.

Special Nuclear Material Exemption Certification Attachment

If SNM (Special Nuclear Material) is present in the waste, this certification form must be completed and signed certifying the following conditions. This form and all required information must be attached to the Waste Profile and the form must be attached to the waste manifest.

1. Please check at least one of the following that applies to the waste stream:

Table 1. Maximum concentrations of SNM in individual waste containers (refer to above table for U-235 limits).

	Uranium Enrichment Percent	Percent MgO by Weight	Percent Beryllium by Weight	U-235 Concentration (pCi/g)	Measurement Uncertainty*(pCi/g)
<input type="checkbox"/>	<10%	<20%	<1%	<1900	<285
<input type="checkbox"/>	>10	<20%	<1%	<1190	<179

	Radionuclide	Maximum Concentration (pCi/g)	Measurement Uncertainty (pci/g)
<input type="checkbox"/>	U-233	TBD	TBD
<input type="checkbox"/>	Pu-236	TBD	TBD
<input type="checkbox"/>	Pu-238	TBD	TBD
<input type="checkbox"/>	Pu-239	TBD	TBD
<input type="checkbox"/>	Pu-240	TBD	TBD
<input type="checkbox"/>	Pu-241	TBD	TBD
<input type="checkbox"/>	Pu-242	TBD	TBD
<input type="checkbox"/>	Pu-243	TBD	TBD

\*A concentration value is used for the maximum measurement uncertainty limit rather than a percentage value to allow greater flexibility for generators with waste having very low SNM concentrations.

2. Please certify that the following conditions have been satisfied by checking each box:

- a. Concentrations of SNM in individual waste containers do not exceed the applicable values listed in the above table and SNM isotope concentrations listed in Table 1.
- b. The SNM is homogeneously distributed throughout the waste or the SNM concentrations in any contiguous mass of 145 kilograms (320 lbs) do not exceed on average the specified limits. (Based on process knowledge or testing).
- c. Except as allowed by Condition 1, the waste does not contain "pure forms" of chemicals containing carbon, fluorine, magnesium, or bismuth in bulk quantities (e.g., a pallet of drums, a B-25 box). By "pure forms," it is meant that mixtures of the above elements such as magnesium oxide, magnesium carbonate, magnesium fluoride, bismuth oxide, etc. do not contain other elements. (Based on process knowledge or testing).
- d. Except as allowed by Condition 1, the waste does not contain total quantities of beryllium, hydrogenous material enriched in deuterium, or graphite above one percent of the total weight of the waste. (Based on process knowledge, physical observations, or testing).
- e. Waste packages do not contain highly soluble forms of uranium greater than 350 grams of uranium-235 or 200 grams of uranium-233. If the waste contains mixtures of U-233 and U-235, the waste meets the sum of the fractions rule. Highly soluble forms of uranium include, but are not limited to: uranium sulfate, uranyl acetate, uranyl chloride, uranyl formate, uranyl fluoride, uranyl nitrate, uranyl potassium carbonate, and uranyl sulfate. (Based on process knowledge or testing).

3. Please indicate that the following information is attached to the Radioactive Waste Profile Record by checking each box. (Note: Only the two-page SNM Exemption Certification form needs to be included with each manifest).
- a. Provide a description of how the waste was generated, list the physical forms in the waste, and identify the uranium chemical composition and other chemicals that may be present in the waste.
  - b. Provide a general description of how the waste was characterized (including the volumetric extent of the waste, and the number, location, type, and results of any analytical testing), the range of SNM concentrations, and the analytical results with error values used to develop the concentration ranges.
  - c. Describe the process by which the waste was generated showing that the spatial distribution of SNM must be uniform, or other information supporting spatial distribution.
  - d. Describe the methods to be used to determine the concentrations on the waste profile and manifests. These methods could include direct measurement and the use of scaling factors. Describe the uncertainty associated with sampling and testing used to obtain these concentrations.
4. Generator's certification of compliance with the SNM exemption: I certify that the information provided on this form is complete, true, and correct and is based on process knowledge, physical observations, or laboratory testing. I also certify that any supporting documentation and analytical results have been submitted to WCS.

\_\_\_\_\_  
Authorized Signature

\_\_\_\_\_  
Printed Name

\_\_\_\_\_  
Title

\_\_\_\_\_  
Date

## **Response to Action Items 1 and 2:**

### **Guidelines for Review of Shipments Containing Special Nuclear Material for the Purpose of Meeting the Exemption Under 10 CFR 70.**

#### **Pre-acceptance (waste profile) review:**

Pre-acceptance review of the waste profile information shall be performed in accordance with OP-1.1.1 (Attachment 1).

A Special Nuclear Material Exemption Certification must be attached to the waste profile if any of the radionuclides in condition 1 appear on the waste profile.

The Special Nuclear Material Exemption Certification Attachment shall be reviewed and verify as follows:

**Condition 1: Verify that at least one box has been checked in Condition 1 and this matches the information on the waste profile.**

**Condition 2: Verify that all boxes in Condition 2 have been checked.**

**2.a. The value for the checked radionuclide is less than the maximum indicated limit in Condition 1 and that no other radionuclides listed in Condition 1 appear on the waste profile.**

**2.b. Based on review of information in Condition 3.c. and the radiological data in the waste profile, verify that the SNM concentration is homogeneous. (Maximum and minimum concentrations within a factor of five times the average.) If not checked or verified see guidelines for condition 3.b. below.**

**2.c. Verify by review of the waste profile and the information in Condition 3.a. that the listed chemicals do not exceed 20%.**

**2.d. Verify by review of the waste profile and the information in Condition 3.a. that the listed materials do not exceed 1%.**

**2.e. Verify by review of the waste profile and the information in Condition 3.a. that the waste does do not contain soluble forms of uranium greater than the amounts indicated.**

**Condition 3: Verify that all boxes in Condition 3 have been checked and the required additional information is attached.**

**3.b. Verify that the waste sampling and characterization methodology meets the following guidelines.**

**If Condition 2.b. has been verified and:**

- **The average concentration of the SNM radionuclide with the highest concentration is between the limit in Condition 1 and one-tenth of the limit: At least one sample for every 145 kg (320 lbs) of waste.**
- **The average concentration is between one-tenth and one-hundredth of the limit in Condition 1: At least one sample for every 1450 kg (3200 lbs) of waste.**
- **The average concentration is less than one-hundredth of the limit in Condition 1: At least one sample for every 14500 kg (32000 lbs) of waste.**
- **If Condition 2.b. has not been verified (the distribution of SNM is not homogeneous): One sample for every 145 kg (320 lbs) of waste will be required unless it can be demonstrated by some other means (process knowledge or other sampling) that there is less than 350 grams of U-235 and less than 200 grams of U-233 or Pu in the entire waste stream.**
- **If the sample frequency is not otherwise limited by the above weights, the following is the minimum sampling frequency:**

- 20-yd<sup>3</sup> Rolloffs: A composite sample consisting of two aliquots from different locations in the box.
- Boxes, Drums, and Smaller Containers: A composite sample consisting of one aliquot from each container.
- Debris. Sampling should be performed by taking representative cuttings, borings, or small pieces. If this is not possible, the concentration may be determined by performing surface surveys and converting the survey data to total activity, and then dividing by the mass of the material.

3.d. Verify that the uncertainty in the methods used to obtain the SNM concentrations on the waste profile is within the limits of Condition 1.

**Final acceptance review:**

The receipt and inspection of all incoming low level waste shipments shall be performed in accordance with OP-1.2.2 (Attachment 2).

Final acceptance review of the waste manifest information shall be performed in accordance with OP-1.1.2 (Attachment 3).

A Special Nuclear Material Exemption Certification form must be attached to each waste manifest. Upon receipt of the waste, perform the same review and verification of the Special Nuclear Material Exemption Certification form against each waste manifest using the guidelines for Condition 1 and 2 of the above pre-acceptance review.

After arrival at the site, WCS will perform verification sampling of all waste containing SNM at a frequency that is 10% of the generator sampling frequency in 3.b. above.

Acceptance sampling of the waste by WCS shall be performed in general accordance with OP-1.2.4 (Attachment 4).

Sample handling, chain of custody, and quality assurance shall be performed in accordance with AL-2.1.1 (Attachment 5).

The minimum detectable levels (MDL) and uncertainty at a 95 % confidence level for the various SNM radionuclides shall be as follows:

Radionuclide	MDL (pCi/gm)	Uncertainty
U-235	2-5	15%
U-233	2-5	15%
Pu-236	2-5	15%
Pu-238	2-5	15%
Pu-239	2-5	15%
Pu-240	2-5	15%
Pu-241	2-5	15%
Pu-242	2-5	15%
Pu-243	2-5	15%

Analysis will be performed by a certified laboratory using gamma spectroscopy, with confirmation by alpha spectroscopy and/or chemical separation as necessary.

If the result of the verification sampling for the SNM radionuclides is greater/less than three times the manifest values, the customer will be contacted to resolve the discrepancy in results. For low activity waste (<10 pCi/gm), the verification sampling results may be up to a factor of ten different than the manifest values.

**Response to Action Item 3:**

WCS has reviewed the list of reagents used in the stabilization process and the revised complete list is as follows: ferrous sulfate, ferrous sulfide, portland cement, sodium hypochlorite, sodium tri,poly-phosphate, Metalplex II (attapulgite-type clay), hexadecyl mercaptan, lime, sodium hydroxide, Metalplex III, hydrogen peroxide, sodium metabisulfite, sodium sulfide, and sodium hydrosulfide.

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<b>WASTE APPROVAL AND PRE-SHIPMENT AUTHORIZATION</b>			

**1.0 PURPOSE AND SCOPE**

The purpose of this procedure is to provide guidelines in the administration and communication process for approving requests for shipment(s) of waste from a generator, prior to shipment of the waste. It applies to all requests for shipment of low-level radioactive waste to the facility. It provides the mechanism for the shipper to gain authorization for waste shipment(s) to the facility. This procedure does not address specific waste acceptance criteria. Approval for shipment does not guarantee the acceptance of the waste for storage and processing at the facility. Any deviations from this procedure will be approved by the Facility Manager.

**2.0 EQUIPMENT AND MATERIALS**

None

**3.0 PROCEDURE**

**3.1 PREREQUISITES**

None

**3.2 TRAINING**

None

**3.3 SPECIAL PRECAUTIONS**

None

**3.4 INSTRUCTIONS**

3.4.1 The Customer Service Representative will process written or telephone requests from the customer concerning the shipment, receipt, storage and processing of waste. The Customer Service Representative will provide and assist in completing a waste profile, Exhibit B of the WCS Service Agreement, to ensure the waste is properly characterized. Any supporting information and or additional samples will be requested.

3.4.2 The Compliance Manager, Facility Manager or designee will evaluate the profile package and make written comments on the Waste Profile Compliance Review Sheet, Form OP-1.1.1-1.

1. The profile may be approved;

<b>Approval:</b>		<b>Concurrence:</b>	
<u>Signature on File</u>	_____		
Operations Manager	Date		
<u>Signature on File</u>	_____		
Compliance Manager	Date		
<u>Signature on File</u>	_____	<u>Signature on File</u>	_____
Radiation Safety Officer	Date	Quality Assurance Manager	Date

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2. The profile may be approve conditionally with additional requirements or information needed noted on the form; or
3. The profile may be not approved and comments noted as why.
4. The reviewer will sign and date Waste Profile Compliance Review Sheet.
5. Those packages that are not approved or are conditionally approved will be forwarded to the customer service representative or appropriate person for completion or resolution.
6. Unconditionally approved packages will be forwarded to a clerk for processing and filing.
7. Conditionally approved packages will be forwarded to the clerk for filing after the specified conditions have been met. These packages do not require additional approval from the person who provided the conditional approval.
8. Profile packages that were not approved may be resubmitted for review after the problems or issues have been addressed.

3.4.3 Radioactive or mixed waste requires a Waste Profile Rad Review. The Radiation Safety Officer, the Facility Manager and the V.P. of Nuclear Affairs will evaluate the profile package and make written comments on the Waste Profile Rad Review.

1. This written authorization indicates that the waste described by the profile and supporting documents is acceptable to ship to WCS under the terms of the radioactive materials license and applicable regulations.
2. For material to be processed and/or stored approval must be received from the Radiation Safety Officer and either the Facility Manager or VP of Nuclear Affairs on the Waste Profile Rad Review Processing & Storage, Form OP-1.1.1-2.
3. For material with a radioactive constiuent to be disposed, the approval of the Radiation Safety Officer, Facility Manager and VP of Nuclear Affairs is required on the Waste Profile Rad Review Disposal, Form OP-1.1.1-3.
4. The RSO may designate a Waste Acceptance Specialist for profile approval.

3.4.4 After the approval is complete a Waste Safety and Compliance Sheet, Form OP-1.1.1-4, will be created that represents that waste stream.

1. This document provides the following information, as applicable, for the waste: Profile number, Generator name, Waste name, EPA waste codes, Specific Lab needs, Waste description, Hazardous constituents, compatibility information, flammability, decomposition products, prescribed treatment and disposal methods, appropriate personal protective equipment, Health effects and first aid information, small spill response measures, and radiation safety issues.
2. The Waste Safety and Compliance Sheet will be distributed to the lab and operations personnel on either a paper or electronic format.

3.4.5 After the required approvals are completed a letter will be issued to the customer indicating that WCS is in possession of all of the necessary permits and licenses to accept the waste.

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1. A Shipment Scheduling Request and Approval Form, Form OP-1.1.1-5 will be provided to the customer for all radioactive and mixed-waste profiles for materials to be received under the Texas Radioactive Materials License.
  2. For radioactive material, the shipper will submit a Shipment Scheduling Request and Approval Form, with first section completed, to notify WCS of the intent to ship material.
  3. The shipper can submit requests by FAX.
  4. Customer Service will verify that the profile has all required approvals, the acceptance letter has been issued and, if applicable the customer certification has been received.
  5. The Waste Acceptance Specialist will verify that the materials indicated will not exceed the limits of the license by comparison to on-site and expected inventory changes of volume, activity, and grams of special nuclear material.
  6. The Customer Service will decide in conjunction with the Operations Manager, area Operations Supervisor, and the Waste Acceptance Specialist of the scheduled arrival date of the waste shipment. Consideration will be given to generator need, workload at the facility, waste and container type, availability of off-loading equipment, and other similar factors that could significantly impact waste management operations at the facility.
  7. The Shipment Scheduling Request and Approval Form will be completed by Customer Service and faxed to the customer. Any changes or problems will be noted on the form. If a Radioactive Manifest was not submitted with or before the Shipment Scheduling Request and Approval Form one will be requested.
  8. The Operations Manager, area Operations Supervisor, and the Radiation Safety Officer shall make arrangements to ensure the appropriate facility staff will be present to meet the shipment when it arrives.
- 3.4.2. For RCRA loads the same form may be used to approve the shipment but routing to the RSO and Waste Acceptance Specialist is not required.
- 3.4.3. The shipper should submit the shipment manifest prior to shipment for approval. This will minimize unloading time. After review the Waste Acceptance Specialist will notify the customer of any problems with the manifest.

#### 4.0 RECORDS

##### 4.1 REQUIRED FORMS

- 4.1.1 Waste Profile Compliance Review Sheet, Form Number OP-1.1.1-1 (or equivalent)
- 4.1.2 Authorization to Ship Radioactive or Mixed Waste for Processing and/or Disposal, Form Numbers OP-1.1.1-2 and/or OP-1.1.1-3 (or equivalent)
- 4.1.3 Waste Safety and Compliance Sheet, Form Number OP-1.1.1-4 (or equivalent)
- 4.1.4 Shipment Scheduling Request and Approval, Form OP-1.1.1-5 (or equivalent)

##### 4.2 QUALITY ASSURANCE REQUIREMENTS

- 4.2.1 Documents required or created in support of this procedure are quality assurance records.

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4.2.2 The records will be submitted to Records Management who will ensure that each document is complete, legible and adequately identifiable.

4.2.3 The quality assurance records resulting from this procedure will be retained in accordance with "Quality Assurance Program Manual."

## 5.0 REFERENCES

Quality Assurance Program Manual

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**WASTE PROFILE COMPLIANCE REVIEW SHEET**  
Form OP-1.1.1-1

Generator: \_\_\_\_\_ Profile: \_\_\_\_\_

Date	Comment

Conditional approval: This profile is approved pending the following actions.

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Conditionally approved by: \_\_\_\_\_ date: \_\_\_\_\_

Approval: This profile is approved as is.

Approved by: \_\_\_\_\_ date: \_\_\_\_\_

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**Authorization to Ship Radioactive or Mixed Waste for Processing and/or Disposal**  
Form OP-1.1.1-2  
(Attached)

<b>WCS</b> <hr/> <i>WASTE CONTROL SPECIALISTS LLC</i>	Operations Department	Issue Date 6/1/99	OP-1.1.1
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**Authorization to Ship Radioactive or Mixed Waste for Processing & Storage**  
OP-1.1.1-3  
(Attached)

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**Waste Safety and Compliance Sheet**  
Form OP-1.1.1-4  
(Attached)

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**Shipment Scheduling Request and Approval**

Form OP-1.1.1-5

(Attached)

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<b>WASTE SHIPMENT ACCEPTANCE</b>			

**1.0 PURPOSE AND SCOPE**

The purpose of this procedure is to document methods for receipt and inspection of incoming vehicles and waste packages, which is performed to assure that waste shipments meet facility waste acceptance criteria and are in compliance with applicable regulations and license criteria. This procedure applies to low-level radioactive waste (LLW) shipped in barrels, boxes, or other appropriate containers. This procedure provides a check list to ensure that a LLW shipment has been properly inspected and surveyed for contamination, and that the manifest is reviewed and waste classification verified before acceptance.

**2.0 EQUIPMENT AND MATERIALS**

**2.1 OPERATING EQUIPMENT**

None.

**2.2 RADIATION DETECTION INSTRUMENTATION**

Personal (breathing zone) air samplers

Portable air sampler

Portable contamination and radiation detection instruments

**2.3 SAFETY EQUIPMENT**

2.3.1 Gloves

2.3.2 Coveralls

2.3.3 Safety glasses

2.3.4 Steel-toed shoes

<b>Approval:</b>		<b>Concurrence</b>	
		<u>Original signed by Donald Conner</u> 8/8/00 <b>Health and Safety Officer</b> <b>Date</b>	
<u>Original signed by Gus W. Copeland</u> 5/4/00 <b>Operations Manager</b> <b>Date</b>		<u>Original signed by David Kania</u> 8/8/00 <b>Radiation Safety Officer</b> <b>Date</b>	

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### 3.0 RESPONSIBILITIES

The Waste Acceptance Specialist is responsible for the performance of this procedure. The Radiation Safety officer is responsible for final review of the Waste Shipment Acceptance Checklist and acceptance of the waste. The Radiation Safety staff is responsible for performing surveys required by this procedure and assisting in off-loading activities.

### 4.0 PROCEDURE

#### 4.1 PREREQUISITES

4.1.1 The following procedures are applicable for determining the proper acceptance of waste and must be conducted before this procedure is implemented:

1. RS -3.1.7, "Incoming Vehicle Surveys"
2. RS-3.1.6, "Surveys of Incoming and Outgoing Shipments"
3. OP-1.2.3, "Waste Classification Verification"
4. OP-1.1.2, "Shipment Document Review"
5. OP-1.1.1, "Pre-shipment Authorization"
6. OP-1.2.1, "Arriving Vehicle Safety Inspection"
7. OP-1.2.6, "Waste Shipment Off-loading"

4.1.2 The following procedures may, under specific circumstances, be applicable during the process for determining the acceptance of the waste:

1. OP-1.2.4, "Waste Verification Testing"
2. OP-1.2.5, "Waste Containers Not Acceptable Upon Arrival"
3. OP-1.2.8, "Handling Damaged Waste Containers"
4. OP-1.2.9, "Overpacking/Repackaging Damaged Waste Containers"
5. OP-1.2.10, "Non-Routine Operations"

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4.1.3 A Radiation Safety Technician (RST) will be present to perform radiation and contamination surveys and to check for compliance with operating licenses and to correlate packages to the manifest. Waste shipment acceptance activities will not commence until the RST has completed all appropriate radiological surveys and is present to monitor radiation levels.

4.1.4 Safety training will be according to OP-1.1.4, "On-Site Training." Documentation of training shall be placed in the employee's training record.

#### 4.2 SPECIAL PRECAUTIONS

4.2.1 Care should be taken when opening the back doors of a closed waste transport vehicles. If there is any sign of leakage, unusual stains, concentrations of dirt, damaged waste packages, unusual odors, etc., the inspection will be stopped and the Radiation Safety Officer will be notified.

4.2.2 Gloves, coveralls, safety glasses, and steel-toed shoes will be worn when entering closed trailers. Anti-C apparel, if required, will be in accordance with Radiation Safety staff instructions.

4.2.3 Inspection will normally occur after the waste container has been unloaded per OP-1.2.6, "Waste Shipment Off-loading".

4.2.4 To reduce radiation exposure, Radiation Safety may determine that the visual inspection should be performed from a remote location. Containers with a contact dose rate of 200 mR/hr or greater should be visually inspected remotely.

#### 4.3 INSTRUCTIONS

4.3.1 The Waste Acceptance Specialist will complete the acceptance checklist and verify that the prerequisites listed in Section 4.1 have been met or that deficiencies have been noted and corrective actions have been approved and implemented.

4.3.2 The waste shipment will be visually inspected by the Waste Acceptance specialist and Radiation Safety staff to ensure that waste packages comply with facility and license requirements and that proper handling techniques can be applied.

1. For waste packages with a contact dose rate of 200 mR/hr or greater, self -reading dosimeters will be required and will be checked frequently. Visual inspection may be done remotely using binoculars, if appropriate.

2. The Radiation Safety Officer will specifically approve any movement of material if any of the actions required to move the waste package could pose an unanticipated external radiation hazard to personnel.

4.3.3 The inspection includes the following:

1. Visually verify container integrity by looking for signs of leakage, rust around the closure head, loose lids, bulging or swollen containers, or other unusual signs.

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2. Verify that each waste package is properly labeled and marked in accordance with the license requirements, 49 CFR 173, and 25 TAC 289.202 (cc), (dd), and (ee). The waste classification must be durably marked on the top of the container and must be clearly legible.
  3. Verify that the quantity and types of waste containers are as stated on the manifest.
  4. Verify that the containers are capable of being safely handled by on-site equipment. Review the container weights listed on the manifest to ensure they are within the limitations of the equipment that will be used to move them.
- 4.3.4 The Waste Acceptance Specialist will be notified immediately of any deficiencies identified during the acceptance inspection.
- 4.3.5 Deficiencies on a Nonconformance Report (NCR).
1. The NCR number and closure date will be entered in the unsatisfactory column of the Waste Shipment Acceptance Checklist by the Waste Acceptance Specialist.
  2. A copy of the NCR will be provided to the by Waste Acceptance Specialist and the waste generator will be notified.
  3. If no deficiencies are found, the inspector's initials and date will be entered in the "Satisfactory" column on the checklist.
- 4.3.6 If loss of container integrity is found, the inspection will be stopped.
1. Radiation Safety will evaluate the potential for the spread of contamination or exposure to facility workers and will take immediate necessary actions to minimize any potential danger.
  2. The following personnel will be notified as soon as practical:
    - a. Health and Safety Manager
    - b. Operations Manager
    - c. Waste Acceptance Specialist
    - d. Radiation Safety Officer
  3. The requirements of OP 1.2.5, "Waste Containers Not Acceptable Upon Arrival", OP 1.2.8, "Handling Damaged Waste Containers", and OP 1.2.9, "Overpacking/Repackaging Damaged Waste Containers", will be implemented as necessary.
- 4.3.7 If there is evidence of a discrepancy between the waste received and the shipping manifest, verification testing is required.
1. The waste will be taken to the PermaCon enclosure in the radwaste processing area for testing.

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4.3.8 The waste will not be accepted unless all deficiencies and NCRs are closed out after the waste verification testing is completed.

4.3.9 Acceptance will be indicated by the signatures of the Waste Acceptance Specialist and the Radiation Safety Officer on the Waste Shipment Acceptance Checklist.

## 5.0 RECORDS

### 5.1 REQUIRED FORMS

Waste Shipment Acceptance Checklist, Form Number OP 1.2.2-1

### 5.2 COMPLETION AND APPROVAL REQUIREMENTS

Visual inspections will be completed by WCS inspection personnel. The Waste Shipment Acceptance Checklist will be completed by Waste Acceptance Specialist. It will be reviewed and approved by the Radiation Safety Officer.

### 5.3 QUALITY ASSURANCE REQUIREMENTS

5.3.1 Documents required or created in support of this procedure are quality assurance records. The Waste Shipment Acceptance Checklist, NCRs, correspondence, or memos relating to resolution of discrepancies, repairs, etc., will be included in the quality assurance records package.

5.3.2 The records will be submitted to Records Management who will ensure each document is complete, legible, and adequately identifiable.

5.3.3 The quality assurance records resulting from this procedure will be retained in accordance with Quality Assurance Program Manual.

## 6.0 REFERENCES

25 TAC 289.202, Standard for Protection against Radiation  
49 CFR 173, General Requirements for Shipments and Packaging  
Waste Acceptance Criteria  
Quality Assurance Program Manual

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**WASTE SHIPMENT ACCEPTANCE CHECKLIST  
FORM NUMBER OP 1.2.2-1**

Each of the items listed below must be initialed as being satisfactory by the Waste Acceptance Specialist and signed by the Radiation Safety Officer before the waste can be accepted. If an unsatisfactory is initialed, the deficiency must be resolved through use of a Nonconformance Report.

WASTE SHIPPER/GENERATOR \_\_\_\_\_ TRACKING NUMBER \_\_\_\_\_

The following procedures have been performed and completed.

Procedure No.	Procedure Title	Satisfactory	Unsatisfactory
OP 1.1.1	Preshipment Authorization		
OP 1.2.1	Arriving Vehicle Safety Inspection		
OP 1.1.2	Shipment Document Review		
RS-3.1.6	Surveys of Incoming and Outgoing Shipments		
RS 3.1.7	Incoming Vehicle Surveys		
OP 1.2.3	Waste Classification Verification		
<b>Criteria for Visual Inspection</b>		<b>Satisfactory</b>	<b>Unsatisfactory</b>
		<b>Initials/Date</b>	<b>NCR Number</b>
			<b>Initials/Date Closed</b>
a.	Container integrity is acceptable.		
b.	Containers are properly labeled and marked.		
c.	Container numbers and types are as stated on manifest.		
d.	On-site equipment can handle containers.		

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**WASTE SHIPMENT ACCEPTANCE CHECKLIST  
FORM NUMBER OP 1.2.2-1 (cont.)**

Is waste verification testing per OP 1.2.4 required? (yes or no) _____		
If required, date completed _____		
Comments: _____		
_____		
_____		
_____		
Waste shipment is acceptable for storage and processing.		
_____	_____	_____
Radiation Safety Officer	Waste Acceptance Specialist	Date

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**INSTRUCTIONS FOR  
WASTE SHIPMENT ACCEPTANCE CHECKLIST  
FORM NUMBER OP 1.2.2-1**

The Waste Shipment Acceptance Checklist will be completed by the Waste Acceptance Specialist. The instructions for completing the Waste Shipment Acceptance Checklist are as follows:

1. Fill in the name of the waste shipper/generator (e.g., John R. Doe, ACME Waste Brokers).
2. Fill in the unique tracking number associated with the waste shipment.
3. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing OP 1.1.1, "Pre-Shipment Authorization."
4. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing OP 1.2.1, "Arriving Vehicle Safety Inspection."
5. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing OP 1.1.2, "Shipment Document Review."
6. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing OP 3.1.6, "Surveys of Incoming and Outgoing shipments."
7. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing RS 3.1.7, "Incoming Vehicle Surveys."
8. Place a mark in the appropriate box, "Satisfactory" or "Unsatisfactory," for performing and completing OP 1.2.3, "Waste Classification Verification."
9. Place your initials and date in the appropriate box, "Satisfactory" or "Unsatisfactory," for container integrity. If the results were unsatisfactory, fill in the NCR Number.
10. Place your initials and date in the appropriate box, "Satisfactory" or "Unsatisfactory," for containers being properly labeled and marked. If the results were unsatisfactory, fill in the NCR Number.
11. Place your initials and date in the appropriate box, "Satisfactory" or "Unsatisfactory," for container numbers and types stated on the manifest. If the results were unsatisfactory, fill in the NCR Number.
12. Place your initials and date in the appropriate box "Satisfactory" or "Unsatisfactory" for on-site equipment capable of handling containers. If the results were unsatisfactory, fill in the NCR Number.
13. Answer "Yes" or "No" (see para. 3.4.6 and per OP-1.2.4. If "Yes," fill in the date completed.
14. Enter any applicable comments.
15. The Radiation Safety Officer Waste Acceptance Specialist will sign and date the completed form indicating that the waste shipment is acceptable for receipt.

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<b>SHIPMENT DOCUMENT REVIEW</b>			

**1.0 PURPOSE AND SCOPE**

The purpose of this procedure is to describe the methods for review of the waste generator's or waste broker's shipping papers. This procedure provides a checklist to ensure that the shipping documents have been properly inspected and reviewed for accuracy. These document reviews are the responsibility of the Laboratory Manager, Customer Service Representative, and the Waste Acceptance Specialist. The Waste Acceptance Specialist will perform the radiological portion of review for any radiological shipment. Any deviations from this procedure will be approved by the Facility Manager.

**2.0 EQUIPMENT AND MATERIALS**

None.

**3.0 PROCEDURE**

**3.1 PREREQUISITES**

- 3.1.1 If the certification on each manifest is not signed, the shipment shall not be accepted until the certification is signed.
- 3.1.2 The following procedures may be applicable during the process of reviewing the consignor's shipping papers:
  - 1. OP 1.1.1, "Pre-Shipment Authorization"
  - 2. OP 1.2.2, "Waste Shipment Acceptance"
  - 3. EP-108, "Incident Investigation, Reporting, and Notifications"

**3.2 TRAINING**

- 3.2.1 The shipment document review will be performed by personnel approved by the Laboratory Manager for Hazardous Materials and by the Radiation Safety Officer for Radioactive materials.
- 3.2.2 Personnel who perform the review must be knowledgeable of the facility Waste Acceptance Criteria and appropriate state and federal regulations

**3.3 SPECIAL PRECAUTIONS**

None

<b>Approval:</b>		<b>Concurrence</b>	
_____ Laboratory Manager	_____ Date	_____ Waste Acceptance Specialist	_____ Date
_____ Operations Manager	_____ Date	_____ Radiation Safety Officer	_____ Date

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### 3.4 INSTRUCTIONS (Radioactive shipments only)

3.4.1 The Waste Acceptance Specialist, or individual authorized by the Radiation Safety Officer, will conduct the shipment document review using a Radioactive Shipment Document Review Form *OP-1.1.2-1*, which identifies the specific documents to be reviewed.

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1. The Waste Acceptance Specialist will fill out the Shipment Document Review form per the instruction sheet and initial and date either "satisfactory" or "unsatisfactory" for each item.
2. If the item is not applicable to the shipping papers being reviewed The Waste Acceptance Specialist will check the "N/A" (not applicable) column.

3.4.2 Unsatisfactory items will generally result in an "unsatisfactory" mark on the Shipment Document Review Form, along with applicable comments.

1. Generally, the corrective action required is notification to the waste generator or broker, who in turn will submit a copy of corrected shipping papers (e.g., manifest) with the identified problem resolved.
2. The Waste Acceptance Specialist will request that a Non-conformance Report be issued if such action is necessary.
3. The Non-conformance Report number and closure date will be entered in the "Satisfactory" column of the Shipment Document Review Form by the Waste Acceptance Specialist.

3.4.3 The Waste Acceptance Specialist will verify *the accuracy of the Uniform Hazardous Waste Manifest corresponding with the NRC 540/541 manifest and the following information upon review of the shipping papers:*

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1. USDOT proper shipping name as found below or listed in 49 CFR 172.101.
  - a. Radioactive material, excepted package - article manufactured from natural or depleted uranium or natural thorium, 7, UN2910
  - b. Radioactive material, excepted package - empty packaging, 7, UN2910
  - c. Radioactive material, excepted package - instruments or articles, 7, UN2910
  - d. Radioactive material, excepted package - limited quantity of material, 7, UN2910
  - e. Radioactive material, fissile, n.o.s., 7, UN2918
  - f. Radioactive material, low specific activity LSA, n.o.s., 7, UN2912
  - g. Radioactive material, n.o.s., 7, UN2982
  - h. Radioactive material, special form n.o.s., 7, UN2974
  - i. Radioactive material, surface contaminated object, 7, UN2913
2. Hazard class per 49 CFR 172.202 (a) (2), 172.101, Column 3.
3. Shipment identification number.

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- a. The shipment identification number (preceded by "UN") prescribed for the material is listed below, or is found in the 49 CFR 172.101, Hazardous Materials Table:
  - Radioactive material, empty packages (UN2910)
  - Radioactive material, limited quantity (UN2910)
  - Radioactive material, n.o.s. (UN2982)
  - Radioactive material, fissile, n.o.s. (UN2918)
  - Radioactive material, LSA, n.o.s. (UN2912)
  - Radioactive material, special form, n.o.s. (UN2974)
  - Radioactive material, instruments and articles (UN2910)
  - Radioactive material, articles depleted uranium or natural thorium (UN2910)
  - Radioactive material, SCO, (UN2913)
  
4. The total amount of shipment by weight and volume.
5. The quantity of packaging, including number of packages, type and volume, and specification number or certificate of compliance number as applicable. For example: (12) 55-gallon 7A drums.
6. The name of each radionuclide present [see 49 CFR 172.203 (d) (2)].
7. A description of the physical and chemical form of the radioactive material [see 49 CFR 172.203 (d) (3)].
8. The activity of the material in each package [see 49 CFR 172.203 (d) (4)].
9. The category of label applied to each package in the shipment [see 49 CFR 172.203 (d) (5)] (e.g., LSA, RADIOACTIVE WHITE-I, RADIOACTIVE YELLOW-II, or RADIOACTIVE YELLOW-III).
10. The classification of waste as Class A, Class B, or Class C clearly identified.
11. The transport index of each package with a Radioactive Yellow-II or Radioactive Yellow-III label (the radiation level in mrem per hour at 1 meter) [see 49 CFR 172.203(6), 173.403].
12. Chelating Agents.
  - a. Verify by reviewing the manifest that wastes containing more than 0.1 percent chelating agents by weight are identified and that the percent weight has been estimated. *If none are present, "NP" will be marked instead of NA on Form OP-1.1.2-1.*
13. Vehicle driver's instructions
  - a. For exclusive-use shipments, specific instructions will be furnished by the waste generator or waste broker to the driver of the transport vehicle explaining how to maintain the exclusive-use (sole-use) shipment controls.
  - b. A shipment which exceeds 200 mrem per hour at any point on the external surface of the package and has a transport index of  $\leq$  10 is designated as an exclusive-use shipment and conforms to 49 CFR 173.441 (B) (1).
  - c. Verify from the shipping papers whether or not the shipment is exclusive-use and whether the criteria stated below are met.

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1. If the waste shipment is exclusive-use, verify that the driver's instructions are present.
2. The 200 mrem per hour limit must not be exceeded for exclusive-use shipments unless the following conditions occur, per 49 CFR 173.441.
  - d. A dose rate limit of 1,000 mrem per hour on contact with the external surface of the package is allowed if the following conditions are met: Per CFR 173.441 (1-4)
    1. The shipment is made in a closed transport vehicle and the package is secured during transportation;
    2. 200 mrem per hour is not exceeded at any point on the external surface of the car or vehicle (including top and underside of the vehicle);
    3. There is no loading or unloading operations between the beginning and end of the transportation;
    4. 10 mrem per hour is not exceeded at any point 6.6 feet (2 meters) from the vertical planes projected by the outer lateral surface of the car or vehicle or if the load is transported in an open transport vehicle, at any point 6.6 feet (2 meters) from the vertical planes projected from the outer edges of the vehicle;
    5. 2 mrem per hour is not exceeded in any normally occupied position in the cab of the vehicle, except that this provision does not apply to a private carriers radiation worker.

14. Shipper's certification statement.

The certification at the bottom of a shipping paper form provided by the licensee (disposal facility) is preprinted and complies with the exact wording as required by CFR 172.204.

- a. The certification must be legibly signed by a principal, officer, partner, or employee of the waste generator or waste broker (shipper or shipper's agent).
- b. The certification may be written legibly by hand, by typewriter, or by other mechanical means. In addition, it must be signed (freehand) and may also have the name of the person signing typed on the sheet.

Example: "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."

John B. Doe (Must be handwritten signature.)

John B. Doe (may be typed underneath handwritten signature for legibility purposes)

3.4.4 In the event any discrepancies are detected, the Waste Acceptance Specialist conducting the review will advise the Radiation Safety Officer of the extent of the discrepancy and request further instructions.

3.4.5 For discrepancies that are immediately correctable:

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1. Corrections will be made by the waste generator/broker
  2. The Corrective Actions section of the Shipment Document Review form will be completed by the Waste Acceptance Specialist.
  3. The item will be rechecked by the Waste Acceptance Specialist or designee.
  4. For items that pass the reinspection, the Waste Acceptance Specialist will check the "Satisfactory" column of the Shipment Document Review form and initial and date this column.
- 3.4.6. For all discrepancies that are not immediately correctable, the Waste Acceptance Specialist will request that a Non-conformance Report be issued.
1. The Non-conformance Report number and closure date (the date when the non-conformance is resolved) will be entered in the NCR Number/Date column of the form.
  2. When the non-conformance has been resolved, the Waste Acceptance Specialist will enter the non-conformance report number and the date it was resolved in the NCR Number/Date Closed column of the form.

### 3.5 INSTRUCTIONS (Non-Radioactive shipments only)

- 3.5.1 The Drum Supervisor, or individual authorized by the Laboratory Manager, will conduct the shipment document review using a Non-Radioactive Shipment Document Review Form, which identifies the specific documents to be reviewed.
1. The Laboratory Manager will fill out the Shipment Document Review form per the instruction sheet and initial and date either "satisfactory" or "unsatisfactory" for each item.
  2. If the item is not applicable to the shipping papers being reviewed, the Laboratory Manager will check the "N/A" (not applicable) column.
- 3.5.2 Unsatisfactory items will generally result in an "unsatisfactory" mark on the Shipment Document Review Form, along with applicable comments.
1. Generally, the corrective action required is notification of the waste generator or broker, who in turn will submit a copy of corrected shipping papers (e.g., manifest) with the identified problem resolved.
  2. The Laboratory Manager will request that a Non-conformance Report be issued if such action is necessary.
- 3.5.3 The Laboratory Manager will verify the following information upon review of the shipping papers.
1. All waste received by the facility will be on a Texas Hazardous Waste Manifest. The manifest will be verified for the following information:
    - a. The generators name, address, phone number, state id number, and EPA ID number should be printed or typed in the proper spaces provided.
    - b. The transporters name, EPA id number and state id number should be printed in the proper spaces provided.

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- c. The designated disposal facilities name, address, phone number, state id number, and EPA id number should be printed in the proper space provided.
  - d. USDOT proper shipping name as listed in 49 CFR 172.101.
  - e. The total amount of shipment by weight or volume.
  - f. The quantity of packaging, including number of packages, type and volume, and specification number or certificate of compliance number as applicable. For example: (12) 55-gallon 7A drums.
  - g. The state waste code assigned to the specific waste stream(s) being shipped
  - h. The generator's designee must print his or her name, sign and date the manifest in the space provided.
  - i. The shipper or transporter must print his or her name, sign and date the manifest in the space provided.
2. Each hazardous waste stream shipped must accompany an LDR (Land Disposal Restriction) or one must be on file within the facility. The LDR will be checked for completeness and must match the original profile sent in for approval. The LDR must meet the requirements found in 40 CFR 268.7 and 268.9.
  3. Each TSCA (PCB) load that is received must be accompanied by a PCB continuation sheet if all needed information is not on manifest. The PCB continuation sheet must include the following information:
    - a. The generators name, address, and EPA id number
    - b. The type of PCB article or container
    - c. A unique id number for each article or container
    - d. Amount of PCB's in each article or container
    - e. Weight of each article or container (in kilograms)
    - f. The date in which the material was removed from service
  4. The waste stream must be approved prior to acceptance by the facility
- 3.5.4 In the event any discrepancies are detected, the Laboratory Manager conducting the review will advise the appropriate personnel of the extent of the discrepancy and request further instructions.
- 3.5.5 For discrepancies that are immediately correctable:
1. Corrections will be made by the waste generator/broker
  2. The Corrective Actions section of the Shipment Document Review form will be completed by the Laboratory Manager.
  3. The item will be rechecked by the Laboratory Manager or designee.
  4. For items that pass the reinspection, the Laboratory Manager will check the "Satisfactory" column of the Shipment Document Review form and initial and date this column.

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3.5.6. For all discrepancies that are not immediately correctable, the Laboratory Manager will request that a Non-conformance Report be issued.

1. The Non-conformance Report number and closure date (the date when the non-conformance is resolved) will be entered in the NCR Number/Date column of the form.
2. When the non-conformance has been resolved, the Laboratory Manager will enter the non-conformance report number and the date it was resolved in the NCR Number/Date Closed column of the form.

#### 4.0 RECORDS

##### 4.1 REQUIRED FORMS

4.1.1 Radioactive Shipment Document Review Form Number OP 1.1.2-1

4.1.2 Non-Radioactive Shipment Document Review Form Number OP1.1.2-2

##### 4.2 COMPLETION AND APPROVAL REQUIREMENTS

The Shipment Document Review form will be completed by the Waste Acceptance Specialist for all radiological shipments conducting the review of the shipping papers. It will be reviewed and approved by the Radiation Safety Officer if the shipment includes radioactive material.

##### 4.3 QUALITY ASSURANCE REQUIREMENTS

4.3.1 Documents required or created in support of this procedure are quality assurance records. Shipment Document Review forms notifications to or authorizations from the waste generator (shipper), or any other correspondence or memos relating to resolution of discrepancies, repairs, or other matters will be included in the quality assurance records package.

4.3.2 The records will be submitted to Records Management who will ensure that each document is complete, legible, and adequately identifiable. The quality assurance records resulting from this procedure will be retained in accordance with Quality Assurance Program Manual.

#### 5.0 REFERENCES

10 CFR Part 20.2006, Federal Regulations for Transfer for Disposal and Manifests

49 CFR Parts 100-177, Federal Regulations for Transportation

49 CFR Parts 178-199, Federal Regulations for Transportation

40 CRF Parts 761 (TSCA)

40 CRF Parts 268.7 & 268.9 (RCRA)

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**RADIOACTIVE SHIPMENT DOCUMENT REVIEW  
FORM NUMBER OP 1.1.2-1**

Each of the items listed below must be deemed SATISFACTORY prior to the waste shipment being authorized for emplacement in a disposal unit. If an UNSATISFACTORY is checked, it must be documented and corrected prior to release.

SHIPPER NAME : \_\_\_\_\_ Manifest #: \_\_\_\_\_

SHIPMENT RECEIVED (DATE) : \_\_\_\_\_ Time : \_\_\_\_\_

**INSPECTION RESULTS**

ITEM	SATISFACTORY INITIALS/DATE	UNSATISFACTORY INITIALS/DATE	NCR NUMBER/ DATE CLOSED	N/A
Shipping Name				
Hazard Class				
Shipment ID #				
Shipment Total Weight or Volume				
Radionuclide(s)				
Physical and Chemical Description				
Activity				
Package Information: (Type, Quantity, Number, Volume)				
Transport Index				
Fissile Shipment Class I, II, III				
Driver's Instructions				
Chelating Agents				
Shipper's Certification Statement				

Discrepancies: \_\_\_\_\_

NCR Number: \_\_\_\_\_

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RADIOACTIVE SHIPMENT DOCUMENT REVIEW  
 FORM NUMBER OP 1.1.2-1  
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**CORRECTIVE ACTIONS:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**COMMENTS:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

**Completed by:**

\_\_\_\_\_

Waste Acceptance Specialist Date \_\_\_\_\_

Shipment documentation is acceptable.

\_\_\_\_\_

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

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**INSTRUCTIONS FOR RADIOACTIVE SHIPMENT DOCUMENT REVIEW  
FORM NUMBER OP 1.1.2-1**

When completing the Shipment Document Review, verify that the entry is appropriate (e.g., in Instruction 6: If Cs-137 was listed on the manifest, this would indicate a typographical error). Also, check the information for accuracy (e.g., in Instruction 8: A shipment with a total activity of 5,000 Ci Co-60 would be questionable).

1. Verify that the proper shipping name is listed on the manifest (e.g., radioactive material, n.o.s.).
2. Verify that the proper hazard class is listed on the manifest (e.g., radioactive material-limited quantity).
3. Verify that the proper shipment identification number was listed on the manifest (e.g., radioactive material, n.o.s. UN2982).
4. Verify that the shipment manifest has a unique shipment identification number listed.
5. Verify that the shipment total weight or volume is listed in the manifest (e.g., 3500 kg or 350 liters).
6. Verify that the proper radionuclide abbreviated names are listed in the manifest (e.g., Mn-54, Fe-59, Cs-137, Pu-239).
7. Verify that the proper physical and chemical forms are listed in the manifest (e.g., Metallic Oxides).
8. Verify that the activity of the shipment is listed in the manifest (e.g., 500 mBq).
9. Verify that the quantity of packaging, including the number of packages, type of packages, volume or weight, and specification number or certificate of compliance number is listed on the manifest [e.g., (12) 55-gallon DOT 7A drums].
10. Verify that the appropriate transport index was used on the manifest (e.g., 1 meter reading in mrem/hr.)
11. Verify that the appropriate fissile class was used on the manifest (e.g., "Fissile Exempt").
12. Verify that the manifest includes specific driver's instructions for exclusive-use shipments.
13. Verify that the bottom of the manifest is preprinted with the following certification statement or similar words:  
  
"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 U.S. Department of Transportation."
14. Verify that the shipper's certification signature is legible.

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**NON RADIOACTIVE SHIPMENT DOCUMENT REVIEW  
FORM NUMBER OP 1.1.2-2**

Each of the items listed below must be deemed SATISFACTORY prior to the waste shipment being authorized for emplacement in a disposal unit. If an UNSATISFACTORY is checked, it must be documented and corrected prior to release.

GENERATOR NAME : \_\_\_\_\_ Manifest #: \_\_\_\_\_

SHIPMENT RECEIVED DATE : \_\_\_\_\_ Time : \_\_\_\_\_

DOCUMENT REVIEW DATE: \_\_\_\_\_

**INSPECTION RESULTS**

ITEM	SATISFACTORY INITIALS	UNSATISFACTORY INITIALS	NONCONFORMANCE	N/A
Generator Information				
Transporter information				
EPA ID				
Designated facility information				
Proper shipping name				
Shipment total weight				
Piece count				
State waste codes				
Generators signature				
Transports signature				
LDR (If Hazardous)				
PCB continuation sheet (if TSCA Regulated)				
Waste stream approval				

Have nonconformance reports been issued?  No  Yes - NCR# \_\_\_\_\_

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**INSTRUCTIONS FOR NON RADIOACTIVE SHIPMENT DOCUMENT REVIEW  
FORM NUMBER OP 1.1.2-2**

When completing the Shipment Document Review, verify that the entry is appropriate

1. Verify that the generator information is filled out properly.
2. Verify that the Shipper information is filled out properly.
3. Verify that the designated facility information is filled out properly.
4. Verify that the proper shipping name is correct.
5. Verify that the shipment total weight or volume is listed in the manifest (e.g., 3500 kg or 350 liters).
6. Verify that the piece count is correct.
7. Verify that the proper state waste codes are on the manifest.
8. Verify that generators signature is present.
9. Verify that the transporters signature is present.
10. Verify that the LDR is filled out properly.
11. Verify that the PCB continuation sheet is filled out properly if load is TSCA regulated.
12. Verify that the waste stream is approved.
13. Verify that waste profile conforms to the profile pre-approved prior to the shipment's arrival.



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**2.3 RADIATION DETECTION INSTRUMENTATION**

Appropriate air sampler

Beta-Gamma Portable Survey Meter

Alpha Portable Survey Meter

**2.4 SAFETY EQUIPMENT**

Anti-contamination clothing as prescribed in Radiation Work Permit (RWP).

Respiratory protection equipment as prescribed in RWP.

Leather gloves

Chemical-resistant gloves

Spill kit (e.g., spark-resistant tools, absorbent, spill booms, overpack drum, anti-contamination clothing, respiratory protection)

Lead aprons or shielding as prescribed in RWP

**3.0 PROCEDURE**

**3.1 PREREQUISITES**

3.1.1 Prior to shipping the radioactive waste to the facility, the waste generator or broker will verify the form and content of the waste. Each shipment will be inspected at the point of origin as required by the generators license.

3.1.2 A Radiation Safety Technician (RST) will be present to perform radiation and contamination surveys and ensure:

1. Personnel have required dosimetry
2. Verify the proper placement of dosimetry
3. Insure temporary shielding is installed as required
4. Insure time limits, distance, or other engineering controls are in place as appropriate.

3.1.3 Off-loading activities will not commence until a Radiation Safety Technician has completed all necessary radiological surveys and is present to monitor radiation levels.

3.1.4 All reasonable efforts will be made to avoid opening containers and to minimize personnel exposures. Efforts are to include double checking waste manifest information, seeking additional information from inspectors at the waste generator, and consulting directly with the waste generator in the event of a discrepancy.

3.1.5 Containers should not be punctured or destructively opened in any way.

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3.1.6 Containers containing solidified liquids or resins will be subject to compliance with the freestanding liquids criteria found in the WCS waste acceptance criteria.

3.1.7 If free liquid is suspected within a waste container of solidified material, the package may be tested by striking the external surface with a blunt striking device. In most cases, solidified material will exhibit the same tone on all surfaces. Should any portion exhibit a different tone, it could indicate that solidification was incomplete, and that liquid may be present in a void space

3.1.8 If the container is bulging, Radiation Safety shall notify the Operations Supervisor and barricade the immediate area.

NOTE: A bulging container indicates possible pressurization. The Operations Supervisor and the Radiation Safety Supervisor will determine the method to be used for handling bulging containers.

3.1.9 The following procedures may be applicable during the waste verification testing process:

OP-1.2.5, "Waste Containers Not Acceptable Upon Arrival"

OP 1.2.8, "Handling Damaged Waste Containers"

OP 1.1.2, "Shipment Document Review "

OP 1.1.1, "Pre-Shipment Authorization"

OP 1.2.2, "Waste Shipment Acceptance"

OP 1.2.12, "On-Site Generated Waste Disposal"

OP 1.2.10, "Non-Routine Operations"

## 3.2 TRAINING

3.2.1 Site personnel required to perform an on-site inspection will be trained as appropriate for the method and personal protective equipment used.

3.2.2 Safety training will be conducted in accordance with OP 1.1.4, "On-Site Safety Training."

3.2.3 Personnel operating equipment and vehicles at the disposal facility will have valid certification in all operations and safety training for the types of vehicles they are operating.

3.2.4 Documentation of training shall be placed in the employee's training record.

## 3.3 SPECIAL PRECAUTIONS

3.3.1 Anti-contamination clothing and respiratory equipment will be worn as required by RWP.

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- 3.3.2 Keep ALARA concepts in mind at all times. Minimize time of exposure, add shielding, and maximize distance as much as possible.
- 3.3.3 Be aware of the potential for biological and chemical constituents as well as radiological conditions. The primary reason for inspecting these containers is to ensure that enough absorbent material is in place and, for biological wastes, that an inner container exists.
- 3.3.4 Never use hands to move material in containers that hold syringes, broken glass, or other sharp articles. Sharp articles should not be packaged in containers unless they are crushed.
- 3.3.5 Under no circumstances will any waste package(s) containing radioactive material be opened without permission of the Waste Acceptance Specialist or the Radiation Safety Officer.
- 3.3.6 In the event a package is visibly leaking prior to the waste container inspection, the leakage will be contained and absorbed. Inspection will not take place until directed by the Radiation Safety Technician with concurrence from the Radiation Safety Officer.
- 3.3.7 Materials to contain and absorb liquids will be readily available.
- 3.3.8 Air sampling will be required when performing inspections that involve opening or puncturing containers.
- 3.3.9 Outside inspection operations will not take place during periods of precipitation, or when continuous wind speeds exceed 10 mph. A Radiation Safety Technician will postpone the package inspection requirement under those conditions or move package to a sheltered location such as BSA-1.

### 3.4 INSTRUCTIONS

- 3.4.1 The Waste Acceptance Specialist or the Radiation Safety Officer will determine the level of investigation based on the criteria stated in Section 1.0 Purpose and Scope. The following considerations shall be made:
  1. Waste should not be packaged in cardboard or fiberboard boxes.
  2. Liquid waste must be solidified or absorbed in sufficient absorbent material to absorb twice the volume of the liquid. Solid wastes containing liquid will contain as little free standing and non-corrosive liquid as is reasonably achievable, but in no case will the liquid exceed one percent of the volume.
  3. Wastes that are spontaneously flammable or explosive will not be accepted. If such wastes are received, they will be isolated at a remote location, and the shipper will be directed to make arrangements for immediate return.
  4. Wastes in gaseous form will be packaged at a pressure that does not exceed 1.5 atmospheres at 20 degrees centigrade. Total activity will not exceed 100 curies per container.

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5. Wastes that present non-radiological hazards, such as infectious wastes, will be treated prior to shipment to the WCS facility to reduce the associated hazards.

3.4.2 If the results of the preliminary verification determines that a visual inspection of the waste form or content is required due to apparent compliance violations or discrepancies, the Operations Supervisor or designee will:

1. Initiate a Radiation Work Permit and forward it to the Radiation Safety Officer and the Operations Manager for approval.
2. Initiate a Waste Verification Inspection Plan, and forward it to the Waste Acceptance Specialist. The complexity and level of detail of the plan will vary to accommodate the specific inspection verification needs.
  - a. For example; the plan may require simple visual inspection of the waste package contents, puncturing of the container to locate voids or liquids, or collection of samples for laboratory analysis.

3.4.3 The waste package will be moved to a location designated by the Operations Supervisor and Radiation Safety Supervisor.

3.4.4 The floor or ground surface around the container will be protected with plastic sheeting. If checking for free liquids, a liquid containment pan will be placed under the waste container.

3.4.5 Materials which exceed LSA-1 criteria:

1. The waste container will be placed in a PermaCon enclosure with an attached high efficiency particulate air (HEPA) filtered ventilation system.
2. Air samples from the ventilation system HEPA filter exhaust will be collected continually during the inspection. The HEPA filter exhaust air sampler will be run until the inspection is completed.

3.4.6 Individuals who perform the waste inspection will review the inspection plan with a Radiation Safety Technician to ensure proper understanding of the inspection precautions, objectives, and steps.

3.4.7 Inspection personnel will dress in the personal protective equipment required in the Radiation Work Permit.

3.4.8 Inspection personnel will enter the enclosure and open the waste container, or, if checking for free liquids, puncture the container at the suspected location of the free liquid.

3.4.9 Inspection personnel will perform the inspection or sampling as detailed in the inspection plan.

Note: All liquids will be verified to be non-corrosive ( $4 < \text{pH} < 11$ ) prior to being disposed. Testing for pH may be done by any pH measuring method. Prior to disposal of liquid, it will be solidified with an approved solidification agent and packaged in a manner consistent with license requirements that would allow for its disposal. If the package is to be returned to the generator, it will

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be the responsibility of the generator to package and manifest it according to applicable rules and regulations.

- 3.4.10 If required a representative sample of the suspect waste will be collected. All appropriate documentation (location, etc.) will be prepared. The site laboratory or a qualified external laboratory will perform waste characterization analyses.
- 3.4.11 Upon completion of the inspection, the waste container will be closed and sealed. Samples, if taken, will be handled as detailed in the inspection plan.
- 3.4.12 An area contamination survey will be performed at the completion of the inspection activities.
- 3.4.13 Air samples and any smears obtained during the inspection will be analyzed.
- 3.4.14 When contamination levels are below the limits, normal access may be restored to the inspection location and the inspected container can be removed.
- 3.4.15 The Waste Acceptance Specialist or the Radiation Safety Officer will be responsible for documenting the inspection results on the Waste Verification Inspection Plan, supplemented as necessary with supporting attachments.
- 3.4.16 If the visual verification and/or sampling methods listed above are not sufficient to verify the accuracy of the manifest document, the Waste Acceptance Specialist will contact the generator to perform any additional required testing.
- 3.4.17 If the waste verification test methods listed above result in a noncompliance finding, then the Waste Acceptance Specialist will note any deficiencies on a Non-conformance Report (NCR).
- 3.4.18 The Radiation Safety Officer will report violations of any state, local, or federal regulations to the state inspector, as required.
- 3.4.19 When the results of the verification testing are known, the disposition of the waste will be recorded on the Waste Verification Inspection Plan, and agreed to by the Waste Acceptance Specialist and the Radiation Safety Officer.

#### **4.0 RECORDS**

Records generated by this procedure are required to be maintained in accordance with facility policies and federal and state regulations.

##### **4.1 REQUIRED FORMS**

Form Number OP 1.2.4-1, Waste Verification Inspection Plan

##### **4.2 COMPLETION AND APPROVAL REQUIREMENTS**

The Radiation Safety Officer will complete and sign the Waste Verification Inspection Plan form. The Waste Acceptance Specialist will review and sign the form.

#### **4.3 QUALITY ASSURANCE REQUIREMENTS**

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- 4.1 Documents required or created in support of this procedure are quality assurance records. The Waste Verification Inspection Plan, will be included in the quality assurance records package.
- 4.2 The records will be submitted to Records Management, who will ensure each document is complete, legible, and adequately identifiable.
- 4.3 The quality assurance records resulting from this procedure will be retained in accordance with "Quality Assurance Program Manual

**5.0 REFERENCES**

Quality Assurance Program Manual

TRCR Part 21, Standard for Protection Against Radiation

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**WASTE VERIFICATION INSPECTION PLAN  
FORM NUMBER OP 1.2.4-1**

(Attached)

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**INSTRUCTIONS FOR WASTE VERIFICATION INSPECTION PLAN  
FORM NUMBER OP 1.2.4-1**

(Attached)

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<b>SAMPLE RECEIPT, STORAGE, AND CHAIN-OF-CUSTODY</b>			

**1.0 OBJECTIVES:**

This document establishes procedures for laboratory personnel to receive, store, and dispose of samples to be analyzed.

**2.0 SCOPE AND APPLICATION:**

2.1 This procedure applies to all laboratory personnel who accept custody of samples for WCS.

**3.0 POLICY:**

This procedure is written to ensure samples that are received at the WCS laboratory are logged-in, tracked, stored, and disposed of in an accountable and responsible manner.

**4.0 HEALTH AND SAFETY AND ENVIRONMENTAL COMPLIANCE:**

4.1 Health and Safety: Standard laboratory PPE shall be worn when handling samples. At a minimum, gloves, safety glasses with side-shields, and a full-length laboratory coat are required.

4.2 Environmental Compliance:

4.2.1 Samples are managed within the requirements of 40 CFR 261.4, 264, and 268 Subpart D.

4.2.2 For samples being shipped to other destinations, all DOT requirements must be met.

**5.0 SUMMARY OF METHOD:**

All samples received at WCS are assigned a unique laboratory number to reference a specific generator and waste profile. Storage of samples is done in accordance with applicable analytical methods. Disposal is tracked to ensure accountability for all samples.

**6.0 SAMPLE COLLECTION, PRESERVATION AND HANDLING:**

6.1 All samples requiring organic or other labile compound analyses shall be stored at approximately 4°C until analyzed, unless otherwise directed.

6.2 Preservative shall be added to unpreserved samples as applicable according to the appropriate analytical method(s).

**7.0 PROCEDURES:**

7.1 Pre-acceptance Samples:

7.1.1 Sample Receipt: Pre-acceptance samples are generally received in coolers from shippers using courier services such as Federal Express or UPS. To be accepted by WCS, a

<b>Approval:</b>		<b>Concurrence</b>		
<u>Signature on File</u>	<u>4/27/99</u>			
Facility Manager	Date			
<u>Signature on File</u>	<u>4/27/99</u>	<u>Signature on File</u>	<u>4/27/99</u>	
Customer Service Manager	Date	Laboratory Manager	Date	

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Chain-of-Custody (COC) form must accompany each sample received. It is preferable that a WCS Waste Profile Form also accompany each sample, but this is not always possible since the completion of this form often depends upon the analytical results for which the sample is being submitted. In lieu of a Waste Profile Form, the originator should indicate sample information (description, origin location, anticipated hazardous constituents, etc.) on the COC form.

- 7.1.2 Open the shipping container and inspect the contents and condition of the sample containers. Review all paperwork. Sign and date the COC form, noting any abnormal sample conditions.
- 7.1.3 If no COC form is received and no reference can be made, contact the Customer Service Department for assistance. Have available the shipping papers and any other information as to the origin of the sample.
1. Customer Service will contact the originator of the sample and require that proper sample documentation be forwarded to WCS within 24 hours. A facsimile copy is acceptable for initial acceptance, but original documentation must still be forwarded via courier or US mail.
  2. If appropriate documentation is not available from the sample originator within 24 hours from time of sample receipt, the sample shall be returned to its originator at cost to the originator.
- 7.1.4 If a Waste Profile Form was provided with the sample, ensure the Waste Profile number is also indicated on the COC form and sample container. If the Waste Profile number is not indicated on the Waste Profile Form, obtain the number from Customer Service.
- 7.1.5 Log the sample onto a Pre-Acceptance Sample Status Report. Include all information that can be obtained from the COC and/or Waste Profile forms including any hazard and sample description information. Complete a WCS Pre-Acceptance Sample label and affix it to the sample container.
- 7.1.6 Sample status reports should contain such information as the condition of sample containers if any damage has occurred during shipment, and whether the samples were packed with ice or cold packs when applicable. Sample status reports shall also contain the quantity, size, and type of sample container.
- 7.1.7 Notify the Laboratory Manager or designee, and Customer Service of the receipt and acceptance of all pre-acceptance samples.
- 7.1.8 Sample status reports shall indicate the analyses required. This information is obtained from the COC form. The Laboratory Manager or designee will track the analytical work on the sample using the Pre-Acceptance Sample Status Report until all data has been validated and distributed/archived to the appropriate areas.
- 7.1.9 Place the sample in the appropriate refrigerator or storage space until the analyses are to be performed. Segregate samples as required.
- 7.1.10 All paperwork received with samples is forwarded to the Customer Service Department for archiving in the profile folder.

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- 7.1.11 For samples that require the analytical services of an outside lab, a laboratory employee (preferably IATA-certified) will package and send the sample with appropriate COC and sample information to the contracted laboratory.
- 7.1.12 After all analyses have been completed for the sample, a determination is made as to the status of the projected waste stream.
1. If the stream is to be rejected, a copy of the rejection letter is given to a laboratory employee (preferably IATA-certified), and any remaining sample shall be returned to the generator/originator. When this is done, the sample is logged out of the sample tracking system (or entered on the Pre-Acceptance Sample Status Report) with the destination listed as "Returned to Generator". A copy of the COC form is kept by the sender and the original returned with the sample.
  2. If the wastestream is to be accepted, the sample will be disposed with the waste, if possible, when it is received. Alternatively, it may be disposed of with another compatible wastestream when it is received. When this is done, the sample is logged out of the system with a date and destination of "With Receipt".
  3. If the wastestream is not received on-site, or when a maximum of 90 days has passed, the sample is routed for off-site disposal or to on-site treatment and disposal. For off-site disposal, the sample is packaged with waste(s) having compatible EPA Waste Codes/characteristics. It is then transferred to the Container Storage Warehouse for eventual off-site transportation.
  4. For on-site treatment and disposal, samples are combined with waste(s) having compatible EPA waste codes/characteristics, and transferred to Stabilization for incorporation into a treatment campaign. The sample is logged out with the date in which the campaign will be treated.

**7.2 On-Site Acceptance Samples:**

- 7.2.1 A Laboratory Technician or drum warehouse employee during load acceptance operations collects samples of waste.
- 7.2.2 Samples shall be logged into laboratory sample records, and appropriate labels prepared and affixed to the sample container.
- 7.2.3 An analytical request sheet shall be completed by the sample collector or supervisor, and forwarded with the sample to the laboratory when applicable. This sheet need not be completed for on-site analysis.
- 7.2.4 If organic parameters are to be performed, the sample shall be stored in the storage cooler until it is forwarded for such analyses. Once all analytical work has been completed, the samples can be stored with wastes of compatible EPA codes and characteristics until storage or disposal can be coordinated.

**7.3 Environmental Samples:**

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7.3.1 Upon receipt of these samples, fingerprint analyses are performed when required. If additional analyses are necessary, the sample will be preserved or refrigerated as appropriate.

7.3.2 After all analyses are completed, the samples may be held or disposed of appropriately. When the disposal of the sample is complete, the sample is logged out with a destination of "Lab Waste".

**8.0 QUALITY ASSESSMENT AND QUALITY CONTROL:**

Periodically, the laboratory technician who normally receives samples will review the system to ensure the accuracy of the log-out procedure. In addition, when samples are sent to treatment campaigns, the laboratory technician will ensure that each sample listed has been logged out to the appropriate location.

**9.0 REFERENCES:**

9.1 Code of Federal Regulations, Title 40, Parts 261.4, 264 and 268.40, USGPO, 1995.

**10.0 RECORD KEEPING:**

All sample receipts are recorded in the lab profile records under each respective sample number. In addition, samples that are treated in campaigns are logged out with appropriate signatures. These records are archived with the appropriate campaign file.