

CCP-TP-508

Revision 6

CCP RH

Standard Real-Time Radiography Inspection Procedure

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PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	11/16/2006	Initial issue.
1	12/13/2006	Revised to make changes to Section 4.3 and Attachment 2.
2	02/27/2008	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 08-005.
3	04/22/2009	Revised to address Corrective Action Report (CAR)-RHINL-0001-09.
4	06/30/2010	Update language to align with permit modification.
5	07/14/2010	Revised to resolve conflict between operator and independent technical reviewer (ITR) completing and signing Attachment 6.
6	12/29/2010	Revised to incorporate Permit Modification Independent Technical Review (ITR) language.

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1.0 PURPOSE

The Real-Time Radiography (RTR) system is used to verify that the physical form matches the waste stream description and that the Waste Matrix Code (WMC) assigned to the waste container is consistent with Acceptable Knowledge (AK) of the waste. The system is also used to identify prohibited items within a waste container.

This procedure contains the requirements for the collection and review of all data generated during the RTR process.

1.1 Scope

This procedure specifies instructions for performing Nondestructive Examination (NDE) of waste containers using the RTR system. It also specifies methods for documenting the examination results as required by DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- Safety Analysis Report for the RH-TRU 72-B Waste Shipping Package

Referenced Documents

- DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-QP-002, *CCP Training and Qualification Plan*
- CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*
- CCP-QP-008, *CCP Records Management*

2.2 Training Requirements

2.2.1 Personnel conducting RTR activities will be trained and qualified in accordance with CCP-QP-002, *CCP Training and Qualification Plan*, prior to performing this procedure.

2.3 Equipment List

2.3.1 RTR system with the following:

- [A] A control and data acquisition console/station.
- [B] An x-ray producing component with controls allowing the RTR Operator to vary the voltage (e.g., 0-450 Kilovolt [kV]) to control the image quality.
- [C] An imaging system.
- [D] An enclosure for protection from radiation and potentially contaminated items.
- [E] A waste container handling system with turntable dolly assembly.

[F] An audio/video media recording system.

2.3.2 Drum handling equipment.

2.4 Precautions and Limitations

2.4.1 If this procedure can **NOT** be implemented as written, RTR personnel shall notify appropriate supervision. If it is determined that a portion of the work can **NOT** be accomplished as described in this procedure or would result in an undesirable situation, work shall be stopped. Work will **NOT** be resumed until this procedure is modified or replaced by a new document that reflects the current work practice.

2.4.2 Workers who will be working in a radiation area must have read and signed the applicable Radiation Work Permit (RWP), and received orientation to the applicable work package.

2.5 Prerequisite Actions

2.5.1 None.

2.6 Definitions

2.6.1 None.

3.0 RESPONSIBILITIES

3.1 RTR Operator

- 3.1.1 Completes Attachment 1, CCP RTR Measurement Control Report, and Attachment 2, CCP Radiography Data Sheet.
- 3.1.2 Operates the RTR system to determine the waste content attributes within a waste container.
- 3.1.3 Produces the audio/video media and a written record of the x-ray scan of the waste containers.
- 3.1.4 Performs the initial review of the data generated.
- 3.1.5 Performs an Independent Replicate Scan on one waste container per testing batch, or once per day of operation, whichever is less frequent.
- 3.1.6 Performs an Independent Observation on a waste container, from a RTR recording, at a minimum of once per batch, or once per day of operation, whichever is less frequent.
- 3.1.7 Assembles the Batch Data Report (BDR).
 - [A] Paginates the Batch Data Report (BDR) and completes Attachment 5, CCP Radiography Batch Data Report Table of Contents.

3.2 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be an individual, other than the data generator, who is qualified to perform this procedure. The ITR shall not be involved in the generation or recording of the data.

- 3.2.1 Reviews the data (e.g., Attachment 2).
- 3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.
- 3.2.3 Signs Attachment 6, CCP Radiography Batch Data Report Cover Sheet.
- 3.2.4 Review Attachments 1, 2, and the Audio/Video for each container **AND** resolve any comments with the RTR Operator(s).

3.3 RTR Lead Operator (LO)

3.3.1 Provides supervision of the characterization activities of the RTR system.

3.3.2 Ensures the technical quality for all aspects of the RTR process.

3.3.3 Ensures an ITR is designated for the BDR.

3.3.4 Ensures all RTR personnel maintain qualification and are on the List of Qualified Individuals (LOQI) before performing RTR operations.

3.3.5 Ensures that a Replicate Scan is performed once per day, or once per testing batch, whichever is less frequent.

3.3.6 Ensures that an Independent Observation is performed once per day, or once per testing batch, whichever is less frequent.

3.4 Site Project Manager (SPM)

3.4.1 Reviews and approves the BDR.

3.4.2 Completes Attachment 4, CCP Radiography Site Project Manager Review Checklist.

3.5 Facility Records Custodian

3.5.1 Transmits all records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

4.0 PROCEDURE

RTR Operator

NOTE

If during this operation any abnormal conditions are observed, STOP WORK authority should be implemented, equipment should be placed in a safe configuration, **AND** the Lead Operator (LO) and the Host facility supervisor should be notified immediately.

4.1 RTR System Startup

4.1.1 Startup the RTR System for operation in accordance with Host site and/or Central Characterization Project (CCP) procedures.

4.2 Audio/Video System Startup/Image Test Pattern

NOTE

An audio/video media of the RTR examination will be made for all waste containers.

NOTE

To assist the RTR Operator in recording information onto the data sheets, another person may be used for data entry. This person does not require any RTR qualifications, as the RTR Operator retains responsibility for the data recorded. However, if another RTR Operator performs this function, that operator must sign the data sheet below the first Operator, and shall not perform the Independent Observation (IO), Replicate, and ITR functions.

4.2.1 Install the Image Test Pattern drum assembly/device in accordance with Host site and/or CCP procedures, **AND** record the following on Attachment 1:

[A] Site Location

NOTE

BDR numbers are assigned based on the following: Site Identification (ID), remote-handled (RH) RTR designator for radiography, last two digits of year, and the next sequential number (e.g., INLRHRTR06001).

[B] Batch Data Report No.

[C] Examination Date

- 4.2.2 Ensure the audio/video media recording systems are prepared for operation in accordance with Host site and/or CCP procedures and/or the manufacturer's instructions.

NOTE

Only new, unrecorded media shall be used. Record RTR scan to audio/video media and label audio/video media as applicable according to type and/or requirements of the recording system.

- [A] Mark each audio/video media with the following information:
- [A.1] For the primary audio/video media, record the BDR number followed by the letter A (e.g., INLRHRTR06001A).
- [A.2] For the backup audio/video media, record the same BDR number followed by the letter B (e.g., INLRHRTR06001B).
- 4.2.3 Perform an audio/visual check by recording the results of the Image Test Pattern Test as follows:
- [A] Perform the Image Test Pattern Test.
- [A.1] **IF** the Image Test Pattern is correctly observed (minimum acceptable is five lines-pair/centimeters [lp/cm]), **THEN** record the results of the test, **AND** mark SAT on Attachment 1.
- [A.2] **IF** the Image Test Pattern is **NOT** correctly observed, **THEN STOP WORK, AND** notify the RTR LO.
- [B] Stop **AND** replay the audio/video media to verify the audio/visual checks are satisfactory, **AND** record SAT on Attachment 1.
- 4.2.4 Remove the Image Test Pattern drum assembly/device in accordance with Host site and/or CCP procedures.
- 4.2.5 Record comments, if any, in the Comments field of Attachment 1.
- [A] **IF** there are no comments, **THEN** record N/A in the Comments field.
- 4.2.6 Print name, sign, and date Attachment 1.

4.3 RTR System Operation

NOTE

Steps 4.3.1 through 4.3.4 will be repeated for each waste container to be examined. Sub-steps will be performed in sequential order.

4.3.1 Waste Container Loading

- [A] Load the waste container to be examined in accordance with Host site and/or CCP procedures.

4.3.2 Waste Container Scanning

NOTE

Waste Container ID Numbers shall be obtained by camera observation. Attachment 2 will be completed for all waste containers examined.

- [A] Enter the appropriate scan information (e.g., Waste Container ID, Examination Date) on the video display.
 - [B] Initiate x-rays.
 - [C] Initiate the recording of the RTR scan.
 - [D] Manipulate the waste container and x-ray controls such that 100 percent of the waste container volume is examined.
-

NOTE

The description of the material to be placed in the package shall be sufficiently detailed to allow a reviewer to evaluate the Waste Material Parameters (e.g., crescent wrench IM). The material parameters are listed in Table 2, Waste Material Parameters.

- [E] Scan the waste container, record a running commentary of the waste container contents, **AND** record the contents on Section 3, Waste Container Inventory and Comments, of Attachment 2.
- [F] **IF** the waste stream is S3000 or S4000 waste that also contains debris, **THEN** visually estimate the total weight of debris in the container of waste and record it in the comment field of Attachment 2.

4.3.3 Data Entry

NOTE

The data required by steps 4.3.3. [A.1] through [A.7] and 4.3.3 [C.1] through [C.3] may be entered on Attachment 2 at any time after the waste container is loaded into the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

NOTE

If a waste container has been placed by AK into the S3000 or S4000 category and if the RTR penetration is sufficient to determine whether there are no prohibited items or there is no liquid on the surface of the contents or along the edges of the Waste Container, then the container **DOES NOT** need to be rejected for these conditions. Otherwise, if the RTR penetration was **NOT** sufficient to determine whether there is liquid on the surface of the contents or along the edges of the Waste Container, then the waste container will be rejected in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[A] Record the following data in Section 1, General Information, of Attachment 2:

[A.1] Check (✓) the applicable type of RTR examination

[A.2] Site ID and Location

[A.3] Batch Number

[A.4] Examination Date

[A.5] Waste Container ID

NOTE

The audio/video is divided into chapters when recorded on DVD. These chapters are named the same as the container number to meet the access requirement to view the container, which is equivalent to start and stop time on VHS media.

[A.6] Audio/Video Media Number

[A.7] Procedure and Revision No.

[A.8] Nonconformance reports (NCRs), if applicable (NCR No., Date, and YES/NO)

- [B] **IF** a container is identified in the S5000 Summary Category Group that can **NOT** be penetrated by RTR method because of the presence of lead or other shielding, **THEN** the waste container will be rejected in accordance with CCP-QP-005.
- [C] Record the following data in Section 2, Waste Container Data, of Attachment 2:
- [C.1] Container Type
- [C.2] Waste Matrix Code
- [C.3] Waste Stream Number
- [C.4] **IF** a Rigid Polyethylene Liner is present, **THEN** check (✓) YES.
- [C.5] **IF** a Rigid Polyethylene Liner is **NOT** present, **THEN** check (✓) NO, **AND GO TO** step 4.3.3 [C.7].
- [C.6] Check (✓) NO, YES, or NA to indicate if the Rigid Polyethylene Liner is vented or filtered.
- (a) Check (✓) VENTED, FILTERED, **OR** NO LID, as applicable.
- [C.7] Estimate Number of Layers of Confinement.

NOTE

The fill percent of the waste container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) which protrude above the bulk of the waste are **NOT** to be included in the fill percent determination. The fill percent is to be recorded in the following increments 0-25%, 26-66%, 67-90%, or 91-100%.

NOTE

When the Radiological Characterization Technical Report requires fill factors for the internal cans, the fill percent is to be recorded in increments 0-25%, 26-66%, 67-90%, or 91-100% in Section 2 of Attachment 2 for each can.

- [C.8] Record the estimated Fill Percent.

NOTE

The primary container contents are defined as Concrete (sludge waste), Steel (ferrous and non-ferrous metal), and Organic Material (material that is **NOT** Concrete or Steel).

- [D] Determine and record primary content of the container in Section 3 of Attachment 2.
- [E] Use Table 1, Prohibited Items, to complete the checklist in Section 4, RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.
 - [E.1] **IF** any hazardous waste(s) **NOT** identified in the AK Summary Report(s) for the waste stream being characterized **OR** any nonconforming/prohibited items are noted during the RTR examination, **THEN** perform the following:
 - (a) Record a detailed description of the prohibited item(s), including location and volume of liquid, in the Comments field of Section 5, Waste Summary, of Attachment 2.
 - (b) Initiate a NCR in accordance with CCP-QP-005, **AND** record the NCR number in Section 1 of Attachment 2.

NOTE

The physical waste form requirements and waste stream descriptions for the waste stream being evaluated are found in the AK Summary Report.

- [F] Complete the checklist in Section 4 of Attachment 2, to record if the physical form of the waste matches the Waste Stream Description and the Waste Matrix Code.
 - [F.1] **IF** the waste form **DOES NOT** match the Waste Stream Description and/or the Waste Matrix Code, **THEN** initiate an NCR in accordance with CCP-QP-005.
- [G] Stop recording of the RTR scan and, if applicable, record the frame count of the waste container on the primary audio/video media.
- [H] Stop x-ray generation.

-
- [I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data, or an individual authorized to change the data. Changes will be made in accordance with CCP-QP-008.

- [I.1] Ensure changes to the data have been initialed and dated.

- [J] Print name, sign, and date Attachment 2.

4.3.4 Waste Container Unloading

- [A] Unload the waste container in accordance with Host site and/or CCP procedures.
- [B] **IF** the waste container constitutes the last container of the batch or day, **THEN STOP**, remove the audio/video media from the recording components, if applicable, **AND** properly store the media.
- [C] Repeat steps 4.3.1 through 4.3.4 until all containers in the batch have been examined.

4.4 Replicate Scan

NOTE

A Replicate Scan shall be performed once per day or once per testing batch, whichever is less frequent. The Replicate Scan is performed by a qualified RTR Operator other than the RTR Operator who performed the original scan. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.3.

Second RTR Operator

- 4.4.1 Prior to reviewing the initial Attachment 2, scan the replicate waste container in accordance with Section 4.3, **AND** record the results on a new Attachment 2.
- 4.4.2 Review the original Attachment 2, **AND** compare the results with the second Attachment 2.

4.4.3 **IF** sections 4 and 5 of Attachment 2 differ,
THEN perform the following:

[A] Reconcile the results (with both RTR Operators) as follows:

[A.1] Jointly perform a real-time review of the
Attachment 2(s).

[A.2] Jointly review the media **OR** re-scan the container,
AND make corrections, as required, to the
Attachment 2(s).

[B] **IF** the results can **NOT** be reconciled,
THEN STOP WORK, AND notify the RTR LO.

4.5 Independent Observations

NOTE

An Independent Observation of one container scan, other than the Replicate Scan, shall be performed once per day or once per testing batch, whichever is less frequent. The Independent Observation will be performed by a qualified RTR Operator other than the RTR Operator who performed the original scan. The Independent Observation will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.3 by reviewing the audio/video media.

Second RTR Operator

4.5.1 Review the audio/video media of the original scan, **AND** complete a second Attachment 2.

4.5.2 Review the original Attachment 2, **AND** compare the results with the second Attachment 2.

4.5.3 **IF** Sections 4 and 5 of Attachment 2 differ,
THEN perform the following:

[A] Reconcile the results (with both RTR Operators) as follows:

[A.1] Jointly perform a real-time review of the
Attachment 2(s).

[A.2] Jointly review the media **OR** re-scan the container,
AND make corrections, as required, to the
Attachment 2(s).

- [B] IF the results can **NOT** be reconciled,
THEN STOP WORK, AND notify the RTR LO.

4.6 RTR System Shutdown

RTR Operator

- 4.6.1 Shutdown the RTR System in accordance with Host site and/or CCP procedures.

4.7 Audio/Video System Shutdown

- 4.7.1 Ensure all audio/video media have been removed from the recording components, if applicable.
- 4.7.2 Turn OFF the audio/video media recording systems in accordance with Host site and/or CCP procedures and/or the manufacturer's instructions.

4.8 Batch Data Report (BDR) Preparation

RTR Operator

- 4.8.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.
- 4.8.2 Complete Attachment 6, **AND** record the following:
 - [A] Batch Data Report No.
 - [B] Date
 - [C] Waste Container ID Numbers
 - [D] Record which containers are by designation, Replicate Scans, and Independent Observations.
- 4.8.3 Assemble, organize, and prepare the BDR as follows:
 - [A] Attachment 6
 - [B] Attachment 5
 - [C] Attachment 3
 - [D] Attachment 1(s)

- [E] Attachment 2(s)
- [F] Copy of NCRs, if applicable
- [G] Paginate the BDR
- [H] Complete Attachment 5
- [I] Audio/Video media

4.8.4 Submit the BDR to the ITR.

4.9 Independent Technical Reviewer (ITR) Review

NOTE

The independent technical review is conducted by an individual that is qualified to have performed the initial work but who was **NOT** directly responsible for performing the work. The ITR shall not be involved in the generation or recording of the data.

ITR

- 4.9.1 Review Attachments 1, 2, and the Audio/Video for each container **AND** resolve any comments with the RTR Operator(s).
- 4.9.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** complete Attachment 3.
- 4.9.3 Print name, sign, and date Attachment 3 and 6, **AND** return the BDR to the RTR Operator.

4.10 BDR Submission

RTR Operator

- 4.10.1 Submit the BDR as follows:
-

NOTE

A second backup copy of the audio/video record shall be created to aid Waste Confirmation activities.

- [A] Obtain primary and two backup copies of audio/video media record.
- [B] Submit the BDR and audio/video media to the Facility Records Custodian in accordance with CCP-QP-008.

Facility Records Custodian

- [C] Receive, process, and transmit the BDR in accordance with CCP-QP-008.

4.10.2 Site Project Manager (SPM) Review

- [A] Obtain copy of BDR.
- [B] Enter the BDR Number on Attachment 4.
- [C] Review the BDR to the criteria in the checklist of Attachment 4, **AND** complete Attachment 4.
- [D] Print name, sign, and date Attachment 4.
- [E] Forward the completed Attachment 4 to the Facility Records Custodian or the CCP Records Custodian.

Facility Records Custodian

- 4.10.3 Transmit all records generated by this procedure in accordance with CCP-QP-008.

5.0 RECORDS

5.1 Records generated during the performance of this procedure are maintained as quality assurance (QA) records in accordance with CCP-QP-008. The records are the following:

5.1.1 QA/Lifetime

[A] BDR:

[A.1] Attachment 1, CCP RTR Measurement Control Report

[A.2] Attachment 2(s), CCP Radiography Data Sheet

[A.3] Attachment 3, CCP Radiography Independent Technical Reviewer Checklist

[A.4] Attachment 4, CCP Radiography Site Project Manager Review Checklist

[A.5] Attachment 5, CCP Radiography Batch Data Report Table of Contents

[A.6] Attachment 6, CCP Radiography Batch Data Report Cover Sheet

[A.7] Copies of NCRs, if applicable

5.1.2 QA/Non-Permanent

[A] RTR Audio/Video VHS tapes or DVDs (Primary/Backup/Confirmation Copy)

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
<p>Liquid Wastes</p> <p>Observable liquid shall be less than 1 percent by volume of the outermost container at the time of RTR or VE.</p> <p>Observable liquid shall be no more than 60 milliliters or 3 percent by volume, whichever is greater, in an internal container.</p> <p>Observable liquid shall not be present in a container with U.S. Environmental Protection Agency (EPA) Hazardous Waste Number (HWN) U134 assigned.</p>
Pyrophorics
Non-radioactive pyrophorics
Non-mixed hazardous waste
Incompatible wastes (wastes that are incompatible with backfill, seal and panel closure materials, container and packaging materials, shipping container materials, and/or other wastes).
Explosives
Compressed Gases / Pressurized containers (e.g., aerosol cans)
Observable liquid containing Polychlorinated Biphenyls (PCBs) is prohibited.
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags NOT defined in the applicable RH-TRU Payload Appendices, Table 2.5-1
Sharp or heavy objects not adequately blocked, braced, or packaged

Table 2. Waste Material Parameters

Waste Material Parameter	Description
Iron-based metals/alloys (IM)	Iron and steel alloys in the waste; does not include the waste container materials
Aluminum-based metals/alloys (AM)	Aluminum or aluminum-based alloys in the waste materials
Other metals (OM)	All other metals found in the waste materials
Other inorganic materials (OI)	Nonmetallic inorganic waste, including concrete, glass, firebrick, ceramics, sand, and inorganic sorbents
Cellulosics (C)	Materials generally derived from high polymer plant carbohydrates (e.g., paper, cardboard, wood, cloth)
Rubber (R)	Natural or man-made elastic Latex materials (e.g., surgeon's gloves, leaded rubber gloves)
Plastics (waste materials) (XPW)	Generally man-made materials, often derived from petroleum feedstock (e.g., polyethylene, polyvinylchloride)
Organic matrix (OR)	Cemented organic resins, solidified organic liquids, and sludges
Inorganic matrix (IN)	Any homogeneous materials consisting of sludge, or aqueous-based liquids which are solidified with cement, calcium silicate, or other solidification agents (e.g., waste water treatment sludge, cemented aqueous liquids, and inorganic particulate)
Soils (S)	Generally consists of naturally occurring soils which have been contaminated with inorganic waste materials
Steel (packaging materials) (ST)	U.S. Department of Transportation (DOT)-approved container
Plastics (packaging materials) (PP)	Polyethylene drum liner and plastic bags
Cellulosic packaging (CP)	Fiber Liners

Attachment 1 – CCP RTR Measurement Control Report

CCP RTR Measurement Control Report		
Site Location:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Image Test Pattern Test Lines-pair/cm: _____ (Minimum acceptable is five lines-pair/cm)	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT
Audio/Video Media Recording System - Audio/Video Checks	<input type="checkbox"/> SAT	<input type="checkbox"/> UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
<input type="checkbox"/> RTR Examination <input type="checkbox"/> RTR Replicate Scan <input type="checkbox"/> RTR Independent Observation	
Site ID and Location:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Audio/Video Media Number:	Primary: _____ Backup: _____
Procedure and Revision No:	Rev.
NCR(s) associated with the waste container? (e.g., Prohibited Items)	<input type="checkbox"/> NO <input type="checkbox"/> YES NCR No.: _____ Date: _____
Section 2: Waste Container Data	
Container Type:	
Waste Matrix Code:	
Waste Stream Number:	
Is a Rigid Polyethylene Liner present? <input type="checkbox"/> NO <input type="checkbox"/> YES	
Is there an indication the Rigid Polyethylene Liner is vented or filtered? <input type="checkbox"/> NO <input type="checkbox"/> YES <input type="checkbox"/> NA	<input type="checkbox"/> VENTED <input type="checkbox"/> FILTERED <input type="checkbox"/> NO LID
Estimated Number of Layers of Confinement:	_____ Layers
Estimated Fill Percent:	_____ %

Attachment 2 – CCP Radiography Data Sheet (Continued)

Page 2 of 3

Container ID: _____

Section 3: Waste Container Inventory and Comments (Detailed descriptions)			
Primary Contents (check one)	Concrete <input type="checkbox"/>	Steel <input type="checkbox"/>	Organic Materials <input type="checkbox"/>

Attachment 2 – CCP Radiography Data Sheet (Continued)

Container ID: _____

Section 4: RTR Summary		
Does the container have observable liquid equal to or greater than 1 percent by volume of the outermost container at the time of RTR or visual examination (VE)?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Does the container have observable liquid more than 60 milliliters or 3 percent by volume, whichever is greater in an internal container?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Does the container have observable liquid containing PCBs?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Does the container have observable liquid with an EPA HWN U134 assigned?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of wastes incompatible with backfill, seal and panel closures materials, container and packaging materials, shipping container materials, or other wastes (i.e., waste does NOT match Table of Allowable Materials for RH-TRU Waste in the RH-TRAMPAC)?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of wastes containing explosives or compressed gases?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of PCBs not authorized under an EPA PCB waste disposal authorization?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA HWNs of D001, D002, or D003)?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
RH 72B Criteria		
Were there non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Are there sealed containers GREATER than 4 liters or heat sealed bags NOT defined in the applicable TRUCON Code?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	<input type="checkbox"/> YES	<input type="checkbox"/> NO
Section 5: Waste Summary		
Comments:		

RTR Operator:

Printed Name	Signature	Date
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Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.: _____

Description			
1.	Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
2.	Was the correct revision of the procedure used? Procedure: _____ Rev.: _____	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
3.	Are there transcription errors?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
4.	Does the BDR include RTR for up to 20 containers?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
5.	Are BDR contents complete and match Attachment 5?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
6.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
7.	Is all data recorded clearly, legibly, and accurately?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
8.	Are all changes to original data lined out, initialed, and dated?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
9.	Were data changes made by the individual who originally collected the data or an individual authorized to change the data?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
10.	Does the waste match the Waste Matrix Code and waste stream description?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
11.	Are the RTR Operator's decisions regarding the RTR documented?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
12.	Is there an adequate written description of the contents of each item?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
13.	Was the audio/video media properly prepared and labeled?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
14.	Was the audio/video check performed satisfactorily and recorded on Attachment 1?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
15.	Was the Image Test Pattern Test performed satisfactorily and recorded on Attachment 1?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
16.	Was the Replicate Scan performed and recorded on an Attachment 2? (Once per batch or once per day, whichever is less frequent.)	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
17.	Was the Replicate Scan RTR Operator different from the original scan RTR Operator?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
18.	Did the Replicate Scan RTR Operator and the original scan RTR Operator agree on the results?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
19.	Was the Independent Observation performed and recorded on an Attachment 2? (Once per batch or once per day, whichever is less frequent.)	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
20.	Was the Independent Observation RTR Operator different from the original scan RTR Operator?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
21.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
22.	Were the operators qualified to perform the tasks by verification of the LOQI?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A
23.	Are the NCR(s) associated with the RTR included in the BDR?	<input type="checkbox"/> NO	<input type="checkbox"/> YES <input type="checkbox"/> N/A

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist
(Continued)

Batch Data Report No.: _____

Comments:

I have reviewed 100% of the container-specific and batch data in this BDR and find it acceptable for Site Project Manager (SPM) review.

Independent Technical Reviewer:

Printed Name	Signature	Date
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Attachment 5 – CCP Radiography Batch Data Report Table of Contents

Batch Data Report No.: _____

Date: _____

Table Of Contents		
Item	Description	Page No.
1	Attachment 6, CCP Radiography Batch Data Report Cover Sheet	
2	Attachment 5, CCP Radiography Batch Data Report Table Of Contents	
3	Attachment 3, CCP Independent Technical Reviewer Checklist	
4	Attachment 1, CCP RTR Measurement Control Report	
5	Attachment 2(s), CCP Radiography Data Sheets	
6	Copy of NCRs (N/A [Not Applicable])	

