Attachment 6

Central Characterization Project Procedures Real-time Radiography Procedures from 2012 to Present

LA-UR # Not Applicable

Obsolete

CCP-TP-053

Revision 11

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 07/20/2011

Larry Porter

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).

Obsolete

TABLE OF CONTENTS

1.0 PURPOSE 5
1.1 Scope 5

2.0 REQUIREMENTS 5
2.1 References 5
2.2 Training Requirements 6
2.3 Equipment List 6
2.4 Software 6
2.5 Precautions and Limitations 6
2.6 Prerequisite Actions 6
2.7 Definitions 6

3.0 RESPONSIBILITIES 7
3.1 RTR Operator 7
3.2 Independent Technical Reviewer (ITR) 7
3.3 Lead Operator (LO) 7
3.4 Records Custodian 8

4.0 PROCEDURE 9
4.1 Waste Container Preparation 9
4.2 RTR System Startup 9
4.3 Video/Audio Recorded Media System Startup/Image Test 9
4.4 RTR System Operation 11
4.5 Replicate Scan 16
4.6 Independent Observations 17
4.7 RTR System Shutdown 17
4.8 Video/Audio Recording Media System Shutdown 18
4.9 Batch Data Report Preparation 18
4.10 RTR Independent Technical Review 19

5.0 RECORDS 20

LIST OF TABLES

Table 1. Prohibited Items 21
Table 2. Waste Material Parameters 22
Table 3. Waste Item Weights 23

Obsolete

LIST OF ATTACHMENTS

Attachment 1 – CCP RTR Measurement Control Report 25
Attachment 2 – CCP Radiography Data Sheet 26
Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist.....29
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative 31
Attachment 5 – CCP Radiography Batch Data Report Cover Sheet 32

Obsolete

1.0 PURPOSE

Real-Time Radiography (RTR) inspection 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 estimate Waste Material Parameter (WMP) weights and identify prohibited items within a waste container.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams that require Nondestructive Examination (NDE). This procedure specifies instructions for performing NDE of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-002*, CCP Transuranic Waste Certification Plan*, DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- CCP-PO-001*, CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification 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*

Obsolete

2.2 Training Requirements

2.2.1 Personnel performing this procedure 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 Test Image

2.4 Software

2.4.1 None.

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. 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.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis.

2.6 Prerequisite Actions

2.6.1 None.

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designated to hold liquid at the time of original waste packaging are not internal containers.

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the waste content attributes within a waste container.

3.1.2 Produces video/audio recorded media and a written record of the x-ray scan of the waste containers.

3.1.3 Performs the initial review of the data generated.

3.1.4 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container per testing batch, or once per calendar day of operation, whichever is less frequent. In this context, independence means the individual did not perform, nor review the original work.

3.1.5 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a radiography video/audio recorded media, at a minimum of once per batch, or once per calendar day of operation, whichever is less frequent.

3.1.6 Assembles the Batch Data Report (BDR).

3.2 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be a third and independent qualified RTR Operator.

3.2.1 Reviews the raw data (e.g., Attachment 2, CCP Radiography Data Sheet).

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

3.3 Lead Operator (LO)

3.3.1 Provides supervision of the overall operation of the RTR system.

Obsolete

3.4 Records Custodian

3.4.1 Receives, processes, and transmits records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

Obsolete

4.0 PROCEDURE

NOTE
All steps within this procedure will be performed by RTR Operator unless otherwise specified.

4.1 Waste Container Preparation

4.1.1 Prepare the waste containers for examination in accordance with Host site and/or Central Characterization Project (CCP) procedures.

4.2 RTR System Startup

4.2.1 Startup the RTR system for operation in accordance with the CCP procedure.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE
Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day.

4.3.1 Record the following on Attachment 1, CCP RTR Measurement Control Report:

[A] Site.

[B] BDR Number.

[C] Examination Date.

4.3.2 Install the Image Test device

4.3.3 Prepare the video/audio media systems for operation in accordance with the manufacturer's instructions.

[A] Verify/Turn ON all the video/audio media system components and monitors.

[B] Label each video/audio media with the following information:

[B.1] For the primary video/audio recording media, record the BDR Number followed by a unique identifier (e.g., LA-RTR1-060004A).

[B.2] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.3.3[B.1].

4.3.4 Perform a video/audio recorded media system check by recording the results of the Image Test on Attachment 1 as follows:

[A] Perform the Image Test.

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO) and Vendor Project Manager (VPM).

[B] Replay the video/audio recording media, **AND** verify the video/audio recording media check are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recording media checks are **NOT** satisfactory,
THEN record the results of the test and mark UNSAT on Attachment 1, STOP WORK, and notify the LO and VPM.

4.3.5 Remove the Image Test device when it is conducive to operations.

4.3.6 Record comments if necessary, print name, sign, and date Attachment 1.

4.3.7 Place in holding file.

Obsolete

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE

Waste Container Identification (ID) Numbers shall be obtained by direct visual observation. An Attachment 2 must be completed for all waste containers examined.

The data required by steps 4.4.2[A.1] through 4.4.2[A.8] and 4.4.2[D.1] through 4.4.2[D.5](a) 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.

[A] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[B] Start recording the examination scan **AND** record verbally the information for the waste container being examined.

[C] Manipulate the container and x-ray controls such that 100% of the container volume is examined.

[D] Scan the waste container.

[E] Record the results verbally **AND** in Section 3, Container Inventory and Comments of Attachment 2.

Obsolete

4.4.2 Data Entry

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 must be exempted from the IO, Replicate, and ITR functions.

The data required by steps [A.1] through [A.8] and [D.1] through [D.5](a) may be entered on Attachment 2 at any time after the waste container is loaded to the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

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

[A.1] Check "√" the applicable type of RTR examination.

[A.2] Site ID.

[A.3] Batch Number.

[A.4] Examination Date.

[A.5] Waste Container ID.

[A.6] Waste Container ID at the top of Page 2 and Page 3 of Attachment 2.

[A.7] Video/Audio Recorded Media Number.

[A.8] Procedure and Revision No.

[B] **IF** a container is identified in the S5000 summary category group that CAN **NOT** be penetrated by the RTR method because of the presence of lead, or other shielding, **THEN** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[C] **IF** a container is identified in the S3000 or S4000 waste containers, **AND** RTR is **NOT** capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable, **THEN** initiate a NCR in accordance with CCP-QP-005.

[D] Record the following data in Section 2: Waste Container Data, of Attachment 2:

[D.1] Container Type (55/85/100 gal. Drum, Standard Waste Box, Standard Large Box).

[D.2] Content (TRUCON) Code.

[D.3] Waste Matrix Code.

[D.4] Waste Stream ID.

[D.5] Waste Container Weights (kilograms [kg]).

(a) Gross Weight (from the CCP Container Traveler or obtain the weight in accordance with the Host site Interface Document).

(b) Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

(c) Net Weight (Subtract Tare Weight from Gross Weight).

[D.6] Rigid Liner and Liner Vent Description.

(a) Describe both the rigid liner **AND** liner venting method (e.g., “90 millimeter liner with punctured lid,” **OR** “No Liner”).

[D.7] Estimated Number of Layers of Confinement.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that 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 five percent increments (e.g., 35%, 40%, 45%).

[D.8] Record the estimated Volume Utilization Percentage (VUP).

[E] Complete an itemized description of the waste inventory in the container in Section 3.

NOTE

Additional weight information for items commonly found in waste streams at each site may be provided in accordance with a controlled Operator Aid.

[F] Using packaging weight information provided by the Host site, record the estimated weight (kg) for the packaging materials in Section 4: Packaging Material and Waste Material Parameters, of Attachment 2.

[G] Using Table 2, Waste Material Parameters, Table 3, Waste Item Weights, and additional item weight information provided by the Host site, record the estimated weight for each WMP and sum all WMPs and record the total WMP weight in Section 4 of Attachment 2.

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES **NOT** indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Investigate the presence of liquids by rotating the container back and forth, tilting, or per the equipment manufacturer's instructions.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid **AND** in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[H] Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.

[H.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) Initiate an 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. The AK Summary will be available in the work area and referenced as needed.

[H.2] **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, **AND** record NCR number in Section 1 of Attachment 2 and a description in the Comments block.

[I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data or an equally qualified individual authorized to change the data.

[I.1] Ensure changes to the data have been initialed and dated with a justification, as necessary, provided in the Comments block of Attachment 2.

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

[K] Place in holding file.

[L] **IF** the waste container constitutes the last container of the batch or day,
THEN STOP, remove the video/audio recording media from the recording components, **AND** properly store the media.

[M] Repeat steps 4.4.1 through 4.4.2 until all containers in the batch have been examined.

4.5 Replicate Scan

NOTE

A Replicate Scan shall be performed once per calendar day or once per testing batch, whichever is less frequent. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

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

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[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 video/audio recording 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 LO.

4.6 Independent Observations

NOTE

An Independent Observation of one container scan, other than the Replicate Scan, shall be performed once per calendar day or once per testing batch, whichever is less frequent. The Independent Observation will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Independent Observation will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

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

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the Independent Observation Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

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

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

[A.2] Jointly review the video/audio recording 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 LO.

4.7 RTR System Shutdown

4.7.1 Shutdown the RTR system in accordance with CCP procedure.

4.8 Video/Audio Recording Media System Shutdown

4.8.1 Verify all video/audio recording media have been finalized if necessary and removed from the recording components.

4.8.2 Turn OFF the video/audio recording media recording systems in accordance with CCP procedure, or the manufacturer's instructions.

4.9 Batch Data Report Preparation

RTR Operator

4.9.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.9.2 Complete Attachment 5, CCP Radiography Batch Data Report Cover Sheet, **AND** record the following:

[A] BDR No.

[B] Date.

[C] Waste Container ID Numbers.

[D] Record which containers are by designation, Replicate Scans and Independent Observations.

4.9.3 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[B] Attachment 4, CCP Radiography Batch Data Report Table Of Contents and Batch Narrative

[C] Attachment 1, CCP RTR Measurement Control Report

[D] Attachment 2, CCP Radiography Data Sheet

[E] Copy of NCRs, if applicable.

[F] Paginate the BDR.

Obsolete

[G] Complete Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative.

[H] Audio/Video Media.

4.9.4 Forward the BDR package to the ITR.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The Independent Technical Reviewer CAN **NOT** review his/her own work.

ITR

4.10.1 Review Attachment 1, Attachment 2, and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5.

4.10.4 Insert Attachment 3, CCP Radiography Independent Technical Reviewer Checklist, as the last page in the BDR.

4.10.5 Record page number on the Attachment 3 and Table of Contents.

4.10.6 Forward the BDR package to the Records Custodian.

Records Custodian

[A] Receive, process, and transmit records in accordance with CCP-QP-008.

Obsolete

5.0 RECORDS

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

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

- Attachment 1, CCP RTR Measurement Control Report
- Attachment 2, CCP Radiography Data Sheet
- Attachment 3, CCP Radiography Independent Technical Reviewer Checklist
- Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative
- Attachment 5, CCP Radiography Batch Data Report Cover Sheet
- Copies of NCRs, if applicable

5.1.2 QA/Non-permanent

[A] RTR VHS or DVD

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive 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)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is not adequately blocked, braced, or packaged

Obsolete

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) (XPM)	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)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Obsolete

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Video/Audio Recorded Media System Check	☐ SAT	☐ UNSAT
Image Test : _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☐ SAT	☐ UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.:_____ NCR No.:_____

Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt: _____kg. Tare Wt: _____kg. Net Wt:_____kg.
Rigid Liner and Liner Vent Description: (e.g., “90 mil liner – NO Lid” or “NO Liner”)	
Number of Layers of Confinement:	
Volume Utilization Percentage:	_____%

Attachment 2 – CCP Radiography Data Sheet (Continued)

Page 2 of 3

Waste Container ID:_____

Section 3: Container Inventory and Comments (Detailed descriptions)

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight:	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Continued)

Page 3 of 3

Waste Container ID:_____

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block, except for Question 1)	Yes	No
Is there observable liquid?	☐	☐
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☐
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐	☐
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐
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 TRUCON Code[s])?	☐	☐
Is there an indication of wastes containing explosives or compressed gases?	☐	☐
Is there an indication of PCBs liquids?	☐	☐
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA hazardous waste numbers of D001, D002, or D003)?	☐	☐
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐	☐
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐
Are there sealed containers GREATER than 4 liters?	☐	☐
Are there indications of inadequate protection for heavy and/or sharp objects?	☐	☐

Comments:

RTR Operator:

Print Name	Signature	Date

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?	☐ NO	☐ YES	☐ N/A
2.	Was the correct revision of the procedure used? Procedure: Rev.:	☐ NO	☐ YES	☐ N/A
3.	Are the WMPs entered correctly?	☐ NO	☐ YES	☐ N/A
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☐ YES	☐ N/A
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☐ YES	☐ N/A
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☐ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☐ YES	☐ N/A
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☐ YES	☐ N/A
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	☐ N/A
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	☐ N/A
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☐ YES	☐ N/A
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☐ YES	☐ N/A
16.	Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	☐ N/A
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☐ YES	☐ N/A
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	☐ N/A

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

Batch Data Report No.:_____

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	☐ N/A
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☐ YES	☐ N/A
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	☐ N/A
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	☐ N/A
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☐ YES	☐ N/A
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	☐ N/A
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	☐ N/A
26.	Was the data collection performed by qualified individuals?	☐ NO	☐ YES	☐ N/A
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☐ YES	☐ N/A

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Obsolete

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

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

Batch Narrative

RTR Operator _____ Signature _____ Date _____

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Batch Data Report No.:_____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Independent Technical Reviewer:

_____ _____ _____
Printed Name Signature Date

Obsolete

CCP-TP-053

Revision 12

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 08/22/2012

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).
12	08/22/2012	Revised to change format of attachments. Clarified format of container weights and clarified steps for documenting nonconformance reports (NCRs) on Attachment 2, CCP Radiography Data Sheet (Example).

TABLE OF CONTENTS

1.0 PURPOSE 5
1.1 Scope 5

2.0 REQUIREMENTS 5
2.1 References 5
2.2 Training Requirements 6
2.3 Equipment List 6
2.4 Software 6
2.5 Precautions and Limitations 6
2.6 Prerequisite Actions 6
2.7 Definitions 6

3.0 RESPONSIBILITIES 8
3.1 RTR Operator 8
3.2 Independent Technical Reviewer (ITR) 8
3.3 Lead Operator (LO) 8
3.4 Records Custodian 9

4.0 PROCEDURE 10
4.1 Waste Container Preparation 10
4.2 RTR System Startup 10
4.3 Video/Audio Recorded Media System Startup/Image Test 10
4.4 RTR System Operation 12
4.5 Replicate Scan 17
4.6 Independent Observations 18
4.7 RTR System Shutdown 18
4.8 Video/Audio Recording Media System Shutdown 18
4.9 Batch Data Report Preparation 19
4.10 RTR Independent Technical Review 20

5.0 RECORDS 21

LIST OF TABLES

Table 1. Prohibited Items 22
Table 2. Waste Material Parameters 23
Table 3. Waste Item Weights 24

Obsolete

LIST OF ATTACHMENTS

Attachment 1 – CCP RTR Measurement Control Report 26
Attachment 2 – CCP Radiography Data Sheet (Example) 27
Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist 30
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative..... 32
Attachment 5 – CCP Radiography Batch Data Report Cover Sheet 33

1.0 PURPOSE

Real-Time Radiography (RTR) inspection 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 estimate Waste Material Parameter (WMP) weights and identify prohibited items within a waste container.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams that require Nondestructive Examination (NDE). This procedure specifies instructions for performing NDE of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-002*, CCP Transuranic Waste Certification Plan*, DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- CCP-PO-001*, CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- 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 performing this procedure 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 Test Image

2.4 Software

2.4.1 None

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. 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.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis.

2.6 Prerequisite Actions

2.6.1 None

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

Obsolete

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the waste content attributes within a waste container.

3.1.2 Produces video/audio recorded media and a written record of the x-ray scan of the waste containers.

3.1.3 Performs the initial review of the data generated.

3.1.4 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container per testing batch, or once per calendar day of operation, whichever is less frequent. In this context, independence means the individual did not perform, nor review the original work.

3.1.5 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a radiography video/audio recorded media, at a minimum of once per batch, or once per calendar day of operation, whichever is less frequent.

3.1.6 Assembles the Batch Data Report (BDR).

3.2 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be a third and independent qualified RTR Operator.

3.2.1 Reviews the raw data (e.g., Attachment 2, CCP Radiography Data Sheet Example).

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

3.3 Lead Operator (LO)

3.3.1 Provides supervision of the overall operation of the RTR system.

Obsolete

3.4 Records Custodian

3.4.1 Receives, processes, and transmits records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

4.0 PROCEDURE

NOTE

All steps within this procedure will be performed by the RTR Operator unless otherwise specified.

4.1 Waste Container Preparation

4.1.1 Prepare the waste containers for examination in accordance with Host site and/or Central Characterization Project (CCP) procedures.

4.1.2 Install the Image Test device as applicable.

4.2 RTR System Startup

4.2.1 Startup the RTR system for operation in accordance with the CCP procedure.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE

Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day.

Attachments are found on the CCP Secure File Transfer Protocol (SFTP) site.

4.3.1 Record the following on Attachment 1, CCP RTR Measurement Control Report :

[A] Site.

[B] BDR Number.

[C] Examination Date.

4.3.2 Prepare the video/audio media recording systems for operation in accordance with the manufacturer's instructions.

[A] Verify/Turn ON all the video/audio media system components and monitors.

[B] Label each video/audio media with the following information:

[B.1] For the primary video/audio recording media, record the BDR Number followed by a unique identifier (e.g., LA-RTR1-060004A).

[B.2] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.3.2[B.1].

4.3.3 Perform a video/audio recorded media system check by recording the results of the Image Test on Attachment 1 as follows:

[A] Perform the Image Test.

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO) and Vendor Project Manager (VPM).

[B] Replay the video/audio recording media, **AND** verify the video/audio recording media check are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recording media checks are **NOT** satisfactory,
THEN record the results of the test and mark UNSAT on Attachment 1, STOP WORK, and notify the LO and VPM.

4.3.4 Remove the Image Test device when it is conducive to operations.

4.3.5 Record comments if necessary, print name, sign, and date Attachment 1.

4.3.6 Place in holding file.

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE

Waste Container Identification (ID) Numbers shall be obtained by direct visual observation. An Attachment 2 must be completed for all waste containers examined.

[A] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[B] Start recording the examination scan **AND** record verbally the information for the waste container being examined.

[C] Manipulate the container and x-ray controls such that 100% of the container volume is examined.

[D] Scan the waste container.

[E] Record the results verbally **AND** in Section 3, Container Inventory and Comments of Attachment 2.

4.4.2 Data Entry

NOTE

The data required by steps [A.1] through [A.8], and [D.1] through [D.5](a), may be entered on Attachment 2 at any time after the waste container is loaded to the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

All fractional weights will be recorded to 1/10 of a kilogram.

Attachments are found on the CCP SFTP site.

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

[A.1] Check "√" the applicable type of RTR examination.

[A.2] Site ID.

[A.3] Batch Number.

[A.4] Examination Date.

[A.5] Waste Container ID.

[A.6] Waste Container ID at the top of Page 2 and Page 3 of Attachment 2.

[A.7] Video/Audio Recorded Media Number.

[A.8] Procedure and Revision No.

[A.9] Check "√" yes or no for NCR and if yes is checked record the NCR number.

[B] **IF** a container is identified in the S5000 summary category group that CAN **NOT** be penetrated by the RTR method because of the presence of lead, or other shielding, **THEN** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[C] **IF** a container is identified in the S3000 or S4000 summary category group, **AND** RTR is **NOT** capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable, **THEN** initiate a NCR in accordance with CCP-QP-005.

[D] Ensure the following data is recorded in Section 2, Waste Container Data, of Attachment 2:

[D.1] Container Type (55/85/100 gal. Drum, Standard Waste Box, Standard Large Box).

[D.2] Content (TRUCON) Code.

[D.3] Waste Matrix Code.

[D.4] Waste Stream ID.

[D.5] Waste Container Weights (kilograms [kg]).

(a) Gross Weight (from the CCP Container Traveler or obtain the weight in accordance with the Host site Interface Document).

(b) Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

(c) Net Weight (subtract Tare Weight from Gross Weight).

[D.6] Rigid Liner and Liner Vent Description.

(a) Describe both the rigid liner **AND** liner venting method (e.g., “90 millimeter liner with punctured lid,” **OR** “No Liner”).

[D.7] Estimated number of Layers of Confinement.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that 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 five percent increments (e.g., 35%, 40%, 45%).

[D.8] Record the estimated Volume Utilization Percentage (VUP).

[E] Complete an itemized description of the waste inventory in the container in Section 3.

NOTE

Additional weight information for items commonly found in waste streams at each site may be provided in accordance with a controlled Operator Aid.

[F] Using packaging weight information provided by the Host site, record the estimated weight (kg) for the packaging materials in Section 4: Packaging Material and Waste Material Parameters, of Attachment 2.

[G] Using Table 2, Waste Material Parameters, Table 3, Waste Item Weights, and additional item weight information provided by the Host site, record the estimated weight for each WMP in Section 3 and sum all WMPs and record the total WMP weight in Section 4 of Attachment 2.

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES **NOT** indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Investigate the presence of liquids by rotating the container back and forth, tilting, or per the equipment manufacturer's instructions.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid **AND** in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[H] Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.

[H.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) Initiate an NCR in accordance with CCP-QP-005 **AND** record the NCR number in Section 1 and in the comments block 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. The AK Summary will be available in the work area and referenced as needed.

[H.2] **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, **AND** record NCR number in Section 1 and in the comments block of Attachment 2.

[I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data or an equally qualified individual authorized to change the data.

[I.1] Ensure changes to the data have been initialed and dated with a justification, as necessary, provided in the Comments block of Attachment 2.

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

[K] Place in holding file.

[L] **IF** the waste container constitutes the last container of the batch or day,
THEN STOP, remove the video/audio recording media from the recording components, **AND** properly store the media.

[M] Repeat steps 4.4.1 through 4.4.2 until all containers in the batch have been examined.

4.5 Replicate Scan

NOTE

A Replicate Scan shall be performed once per calendar day or once per testing batch, whichever is less frequent. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

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

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.6 Independent Observations

NOTE

An Independent Observation of one container scan, other than the Replicate Scan, shall be performed once per calendar day or once per testing batch, whichever is less frequent. The Independent Observation will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Independent Observation will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

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

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the Independent Observation Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.7 RTR System Shutdown

4.7.1 Shutdown the RTR system in accordance with CCP procedure.

4.8 Video/Audio Recording Media System Shutdown

4.8.1 Verify all video/audio recording media have been finalized if necessary and removed from the recording components.

4.8.2 Turn OFF the video/audio media recording systems in accordance with the manufacturer's instructions.

4.9 Batch Data Report Preparation

RTR Operator

4.9.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.9.2 Complete Attachment 5, CCP Radiography Batch Data Report Cover Sheet, **AND** record the following:

[A] BDR No.

[B] Contact-handled (CH) or remote-handled (RH) waste.

[C] Date.

[D] Waste Container ID Numbers.

[E] Record which containers are by designation, Replicate Scan and Independent Observation.

[F] Site ID

[G] Print name, sign, and date.

4.9.3 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[B] Attachment 4, CCP Radiography Batch Data Report Table Of Contents and Batch Narrative

[C] Attachment 1, CCP RTR Measurement Control Report

[D] Attachment 2, CCP Radiography Data Sheet

[E] Copy of NCRs, if applicable.

[F] Attachment 3, CCP Radiography Independent Technical Reviewer Checklist

[G] Paginate the BDR.

[H] Two sets of Audio/Video Media.

4.9.4 Forward the BDR package to the ITR.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The Independent Technical Reviewer CAN **NOT** review his/her own work.

Attachments are found on the CCP SFTP site.

ITR

4.10.1 Review Attachment 1, Attachment 2s, and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5 and any additional Attachments to be inserted in the BDR.

4.10.4 Insert completed Attachment 3, CCP Radiography Independent Technical Reviewer Checklist, into the BDR.

4.10.5 Insert any additional attachments generated during ITR into the BDR.

4.10.6 Forward the BDR package to the Records Custodian.

Records Custodian

[A] Receive, process, and transmit records in accordance with CCP-QP-008.

5.0 RECORDS

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

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

- Attachment 1, CCP RTR Measurement Control Report
- Attachment 2, CCP Radiography Data Sheet
- Attachment 3, CCP Radiography Independent Technical Reviewer Checklist
- Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative
- Attachment 5, CCP Radiography Batch Data Report Cover Sheet
- Copies of NCRs, if applicable

5.1.2 QA/Non-permanent

[A] Two sets RTR media VHS or DVD

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive 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)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code.
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is not adequately blocked, braced, or packaged.

Obsolete

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) (XPM)	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)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Obsolete

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Video/Audio Recorded Media System Check	9 SAT	9 UNSAT
Image Test : _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	9 SAT	9 UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet (Example)

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.: _____ NCR No.:
Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt.: _____ kg Tare Wt.: _____ kg Net Wt.: kg
Rigid Liner and Liner Vent Description:	Liner Present: ☐ NO ☐ YES Lid: ☐ NO ☐ YES Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ NO ☐ YES Fiberboard: ☐ NO ☐ YES
Number of Layers of Confinement:	
Volume Utilization Percentage:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Waste Container ID:

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 3 of 3

Waste Container ID:

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)		
Is there observable liquid?	☐ YES	☐ NO
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ YES	☐ NO
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ YES	☐ NO
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134??	☐ YES	☐ NO
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ YES	☐ NO
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ YES	☐ 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 TRUCON Code[s])?	☐ YES	☐ NO
Is there an indication of wastes containing explosives or compressed gases?	☐ YES	☐ NO
Is there an indication of PCBs liquids?	☐ YES	☐ NO
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ YES	☐ NO
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ YES	☐ NO
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ YES	☐ NO
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ YES	☐ NO
Are there sealed containers GREATER than 4 liters?	☐ YES	☐ NO
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ YES	☐ NO
Comments:		
RTR Operator		
Print Name	Signature	Date

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?	• NO	• YES	
2.	Was the correct revision of the procedure used? Procedure: Rev.:	• NO	• YES	
3.	Are the WMPs entered correctly?	• NO	• YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	• NO	• YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	• NO	• YES	
6.	Has the data been verified for transcription errors?	• NO	• YES	• N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	• NO	• YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	• NO	• YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	• NO	• YES	
10.	Is all data recorded clearly, legibly, and accurately?	• NO	• YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	• NO	• YES	• N/A
12.	Was justification made for changing the original data?	• NO	• YES	• N/A
13.	Were data changes made by the individual who originally collected the data?	• NO	• YES	• N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	• NO	• YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	• NO	• YES	
16.	Is there an adequate written description of the contents of each item?	• NO	• YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	• NO	• YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	• NO	• YES	

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

Batch Data Report No.:_____

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	• NO	• YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	• NO	• YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	• NO	• YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	• NO	• YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	• NO	• YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	• NO	• YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	• NO	• YES	
26.	Was the data collection performed by qualified individuals?	• NO	• YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	• NO	• YES	• N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	• NO	• YES	

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

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

Batch Narrative

RTR Operator _____ Signature _____ Date _____

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Site ID:_____

Batch Data Report No.:_____ ☐ CH ☐ RH _____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

RTR Operator:

Printed Name Signature Date

Independent Technical Reviewer:

Printed Name Signature Date

Obsolete

CCP-TP-053

Revision 13

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 05/14/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).
12	08/22/2012	Revised to change format of attachments. Clarified format of container weights and clarified steps for documenting nonconformance reports (NCRs) on Attachment 2, CCP Radiography Data Sheet (Example).
13	05/14/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes, to add software used, and other editorial changes.

TABLE OF CONTENTS

1.0 PURPOSE 5
1.1 Scope 5

2.0 REQUIREMENTS 5
2.1 References 5
2.2 Training Requirements 6
2.3 Equipment List 6
2.4 Software 6
2.5 Precautions and Limitations 6
2.6 Prerequisite Actions 6
2.7 Definitions 6

3.0 RESPONSIBILITIES 8
3.1 RTR Operator 8
3.2 Independent Technical Reviewer (ITR) 8
3.3 Lead Operator (LO) 8
3.4 Records Custodian 9

4.0 PROCEDURE 10
4.1 Waste Container Preparation 10
4.2 RTR System Startup 10
4.3 Video/Audio Recorded Media System Startup/Image Test 10
4.4 RTR System Operation 12
4.5 Replicate Scan 17
4.6 Independent Observations 18
4.7 RTR System Shutdown 18
4.8 Video/Audio Recording Media System Shutdown 18
4.9 Batch Data Report Preparation 19
4.10 RTR Independent Technical Review 20

5.0 RECORDS 21

LIST OF TABLES

Table 1. Prohibited Items 22
Table 2. Waste Material Parameters 23
Table 3. Waste Item Weights 24

Obsolete

LIST OF ATTACHMENTS

Attachment 1 – CCP RTR Measurement Control Report 26
Attachment 2 – CCP Radiography Data Sheet (Example) 27
Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist 30
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative..... 32
Attachment 5 – CCP Radiography Batch Data Report Cover Sheet 33

1.0 PURPOSE

Real-Time Radiography (RTR) inspection 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 estimate Waste Material Parameter (WMP) weights and identify prohibited items within a waste container.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams that require Nondestructive Examination (NDE). This procedure specifies instructions for performing NDE of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-002*, CCP Transuranic Waste Certification Plan*, DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- CCP-PO-001*, CCP Transuranic Waste Characterization Quality Assurance Project Plan*
- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- 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 performing this procedure 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 Test Image

2.4 Software

2.4.1 RTR Data Sheet.xls

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. 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.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis.

2.6 Prerequisite Actions

2.6.1 None

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

Obsolete

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the waste content attributes within a waste container.

3.1.2 Produces video/audio recorded media and a written record of the x-ray scan of the waste containers.

3.1.3 Performs the initial review of the data generated.

3.1.4 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container per testing batch, or once per calendar day of operation, whichever is less frequent. In this context, independence means the individual did not perform, nor review the original work.

3.1.5 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a radiography video/audio recorded media, at a minimum of once per batch, or once per calendar day of operation, whichever is less frequent.

3.1.6 Assembles the Batch Data Report (BDR).

3.2 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be a third and independent qualified RTR Operator.

3.2.1 Reviews the raw data (e.g., Attachment 2, CCP Radiography Data Sheet [Example]).

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

3.3 Lead Operator (LO)

3.3.1 Provides supervision of the overall operation of the RTR system.

Obsolete

3.4 Records Custodian

3.4.1 Receives, processes, and transmits records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

4.0 PROCEDURE

NOTE

All steps within this procedure will be performed by the RTR Operator unless otherwise specified.

4.1 Waste Container Preparation

4.1.1 Prepare the waste containers for examination in accordance with Host site and/or Central Characterization Program (CCP) procedures.

4.1.2 Install the Image Test device as applicable.

4.2 RTR System Startup

4.2.1 Startup the RTR system for operation in accordance with the CCP procedure.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE

Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day.

Attachments are found on the CCP secure file transfer protocol (sftp) site.

4.3.1 Record the following on Attachment 1, CCP RTR Measurement Control Report :

[A] Site.

[B] BDR Number.

[C] Examination Date.

4.3.2 Prepare the video/audio media recording systems for operation in accordance with the manufacturer's instructions.

[A] Verify/Turn ON all the video/audio media system components and monitors.

[B] Label each video/audio media with the following information:

[B.1] For the primary video/audio recording media, record the BDR Number followed by a unique identifier (e.g., LA-RTR1-060004A).

[B.2] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.3.2[B.1].

4.3.3 Perform a video/audio recorded media system check by recording the results of the Image Test on Attachment 1 as follows:

[A] Perform the Image Test.

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO) and Vendor Project Manager (VPM).

[B] Replay the video/audio recording media, **AND** verify the video/audio recording media check are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recording media checks are **NOT** satisfactory,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK, **AND** notify the LO and VPM.

4.3.4 Remove the Image Test device when it is conducive to operations.

4.3.5 Record comments if necessary, print name, sign, and date Attachment 1.

4.3.6 Place in holding file.

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE

Waste Container Identification (ID) Numbers shall be obtained by direct visual observation. An Attachment 2 must be completed for all waste containers examined.

[A] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[B] Start recording the examination scan **AND** record verbally the information for the waste container being examined.

[C] Manipulate the container and x-ray controls such that 100 percent of the container volume is examined.

[D] Scan the waste container.

[E] Record the results verbally **AND** in Section 3, Container Inventory and Comments of Attachment 2.

4.4.2 Data Entry

NOTE

The data required by steps [A.1] through [A.8], and [D.1] through [D.5](a), may be entered on Attachment 2 at any time after the waste container is loaded to the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

All fractional weights will be recorded to 1/10 of a kilogram.

Attachments are found on the CCP sftp site.

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

[A.1] Check "√" the applicable type of RTR examination.

[A.2] Site ID.

[A.3] Batch Number.

[A.4] Examination Date.

[A.5] Waste Container ID.

[A.6] Waste Container ID at the top of Page 2 and Page 3 of Attachment 2.

[A.7] Video/Audio Recorded Media Number.

[A.8] Procedure and Revision No.

[A.9] Check "√" yes or no for NCR and if yes is checked record the NCR number.

[B] **IF** a container is identified in the S5000 summary category group that CAN **NOT** be penetrated by the RTR method because of the presence of lead, or other shielding, **THEN** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[C] **IF** a container is identified in the S3000 or S4000 summary category group, **AND** RTR is **NOT** capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable, **THEN** initiate a NCR in accordance with CCP-QP-005.

[D] Ensure the following data is recorded in Section 2, Waste Container Data, of Attachment 2:

[D.1] Container Type.

[D.2] Content (TRUCON) Code.

[D.3] Waste Matrix Code.

[D.4] Waste Stream ID.

[D.5] Waste Container Weights (kilograms [kg]).

(a) Gross Weight (from the CCP Container Traveler or obtain the weight in accordance with the Host site Interface Document).

(b) Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

(c) Net Weight (subtract Tare Weight from Gross Weight).

[D.6] Rigid Liner and Liner Vent Description.

(a) Check appropriate box for Liner or No Liner, Lid or No Lid, Liner Type, Vented or Not Vented, and Venting Method.

[D.7] Estimated number of Layers of Confinement.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that 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 five percent increments (e.g., 35%, 40%, 45%).

[D.8] Record the estimated Volume Utilization Percentage (VUP).

[E] Complete an itemized description of the waste inventory in the container in Section 3.

NOTE

Additional weight information for items commonly found in waste streams at each site may be provided in accordance with a controlled Operator Aid.

[F] Using packaging weight information provided by the Host site, record the estimated weight (kg) for the packaging materials in Section 4: Packaging Material and Waste Material Parameters, of Attachment 2.

[G] Using Table 2, Waste Material Parameters, Table 3, Waste Item Weights, and additional item weight information provided by the Host site, record the estimated weight for each WMP in Section 3 and sum all WMPs and record the total WMP weight in Section 4 of Attachment 2.

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES **NOT** indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid **AND** in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[H] Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.

[H.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) Initiate an NCR in accordance with CCP-QP-005 **AND** record the NCR number in Section 1 and in the comments block 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. The AK Summary will be available in the work area and referenced as needed.

[H.2] **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, **AND** record NCR number in Section 1 and in the comments block of Attachment 2.

[I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data or an equally qualified individual authorized to change the data.

[I.1] Ensure changes to the data have been initialed and dated with a justification, as necessary, provided in the Comments block of Attachment 2.

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

[K] Place in holding file.

[L] **IF** the waste container constitutes the last container of the batch or day,
THEN STOP, remove the video/audio recording media from the recording components, **AND** properly store the media.

[M] Repeat steps 4.4.1 through 4.4.2 until all containers in the batch have been examined.

4.5 Replicate Scan

NOTE

A Replicate Scan shall be performed once per calendar day or once per testing batch, whichever is less frequent. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

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

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.6 Independent Observations

NOTE

An IO of one container scan, other than the Replicate Scan, shall be performed once per calendar day or once per testing batch, whichever is less frequent. The IO will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The IO will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

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

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the Independent Observation Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.7 RTR System Shutdown

4.7.1 Shutdown the RTR system in accordance with CCP procedure.

4.8 Video/Audio Recording Media System Shutdown

4.8.1 Verify all video/audio recording media have been finalized if necessary and removed from the recording components.

4.8.2 Turn OFF the video/audio media recording systems in accordance with the manufacturer's instructions.

4.9 Batch Data Report Preparation

NOTE
Attachment 5, CCP Radiography Batch Data Report Cover Sheet may be filled out at any time after the container is loaded and the remaining data may be entered during the BDR assembly.

RTR Operator

4.9.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.9.2 Complete Attachment 5, **AND** record the following:

[A] BDR No.

[B] Contact-handled (CH) or remote-handled (RH) waste.

[C] Date.

[D] Waste Container ID Numbers.

[E] Record which containers are by designation, Replicate Scan and Independent Observation.

[F] Site ID

[G] Print name, sign, and date.

4.9.3 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[B] Attachment 4, CCP Radiography Batch Data Report Table Of Contents and Batch Narrative

[C] Attachment 1, CCP RTR Measurement Control Report

[D] Attachment 2, CCP Radiography Data Sheet

[E] Copy of NCRs, if applicable.

[F] Attachment 3, CCP Radiography Independent Technical Reviewer Checklist

[G] Paginate the BDR.

[H] Two sets of Audio/Video Media.

4.9.4 Forward the BDR package to the ITR.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The ITR CAN **NOT** review his/her own work.

Attachments are found on the CCP sftp site.

ITR

4.10.1 Review Attachment 1, Attachment 2s, and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5 and any additional Attachments to be inserted in the BDR.

4.10.4 Insert completed Attachment 3, CCP Radiography Independent Technical Reviewer Checklist, into the BDR.

4.10.5 Insert any additional attachments generated during ITR into the BDR.

4.10.6 Forward the BDR package to the Records Custodian.

Records Custodian

[A] Receive, process, and transmit records in accordance with CCP-QP-008.

Obsolete

5.0 RECORDS

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

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

- Attachment 1, CCP RTR Measurement Control Report
- Attachment 2, CCP Radiography Data Sheet
- Attachment 3, CCP Radiography Independent Technical Reviewer Checklist
- Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative
- Attachment 5, CCP Radiography Batch Data Report Cover Sheet
- Copies of NCRs, if applicable

5.1.2 QA/Non-permanent

[A] Two sets RTR media VHS or DVD

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive 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)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code.
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is 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 (e.g., lead, lead blankets)
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) (XPM)	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)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Obsolete

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Video/Audio Recorded Media System Check	☐ SAT	☐ UNSAT
Image Test : _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☐ SAT	☐ UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet (Example)

Page 1 of 3

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.: _____ NCR No.:
Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt.: _____ kg Tare Wt.: _____ kg Net Wt.: kg
Rigid Liner and Liner Vent Description:	Liner Present: ☐ NO ☐ YES Lid: ☐ NO ☐ YES Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ NO ☐ YES Fiberboard: ☐ NO ☐ YES
Number of Layers of Confinement:	
Volume Utilization Percentage:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 2 of 3

Waste Container ID:

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 3 of 3

Waste Container ID:

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)		
Is there observable liquid?	☐ YES	☐ NO
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ YES	☐ NO
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ YES	☐ NO
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134??	☐ YES	☐ NO
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ YES	☐ NO
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ YES	☐ 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 TRUCON Code[s])?	☐ YES	☐ NO
Is there an indication of wastes containing explosives or compressed gases?	☐ YES	☐ NO
Is there an indication of PCBs liquids?	☐ YES	☐ NO
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ YES	☐ NO
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ YES	☐ NO
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ YES	☐ NO
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ YES	☐ NO
Are there sealed containers GREATER than 4 liters?	☐ YES	☐ NO
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ YES	☐ NO
Comments:		
RTR Operator		
Print Name	Signature	Date

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?	☐ NO	☐ YES	
2.	Was the correct revision of the procedure used? Procedure: Rev.:	☐ NO	☐ YES	
3.	Are the WMPs entered correctly?	☐ NO	☐ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	☐ NO	☐ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	☐ NO	☐ YES	
6.	Has the data been verified for transcription errors?	☐ NO	☐ YES	☐ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	☐ NO	☐ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	☐ NO	☐ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	
10.	Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12.	Was justification made for changing the original data?	☐ NO	☐ YES	☐ N/A
13.	Were data changes made by the individual who originally collected the data?	☐ NO	☐ YES	☐ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	☐ NO	☐ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	☐ NO	☐ YES	
16.	Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	☐ NO	☐ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	

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

Batch Data Report No.:_____

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☐ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2? (1 per batch or 1 per day, whichever is less frequent).	☐ NO	☐ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☐ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☐ YES	

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

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

Batch Narrative

RTR Operator _____ Signature _____ Date _____

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Site ID:_____

Batch Data Report No.:_____ ☐ CH ☐ RH _____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

RTR Operator:

Printed Name Signature Date

Independent Technical Reviewer:

Printed Name Signature Date

Obsolete

CCP-TP-053

Revision 14

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 09/25/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).
12	08/22/2012	Revised to change format of attachments. Clarified format of container weights and clarified steps for documenting nonconformance reports (NCRs) on Attachment 2, CCP Radiography Data Sheet (Example).
13	05/14/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes, to add software used, and other editorial changes.
14	09/25/2013	Revised to address Carlsbad Field Office (CBFO) CAR 13-034, CBFO CAR 13-051, and Central Characterization Program (CCP) CAR-SRS-0001-13.

TABLE OF CONTENTS

1.0 PURPOSE 5
1.1 Scope 5

2.0 REQUIREMENTS 5
2.1 References 5
2.2 Training Requirements 6
2.3 Equipment List 6
2.4 Software 6
2.5 Precautions and Limitations 6
2.6 Prerequisite Actions 6
2.7 Definitions 7

3.0 RESPONSIBILITIES 8
3.1 RTR Operator 8
3.2 Independent Technical Reviewer (ITR) 8
3.3 Lead Operator (LO) 8
3.4 Records Custodian 9

4.0 PROCEDURE 10
4.1 Waste Container Preparation 10
4.2 RTR System Startup 10
4.3 Video/Audio Recorded Media System Startup/Image Test 10
4.4 RTR System Operation 12
4.5 Replicate Scan 17
4.6 Independent Observations 18
4.7 RTR System Shutdown 18
4.8 Video/Audio Recording Media System Shutdown 19
4.9 Batch Data Report Preparation 19
4.10 RTR Independent Technical Review 20

5.0 RECORDS 22

Obsolete

LIST OF TABLES

Table 1. Prohibited Items 23
Table 2. Waste Material Parameters 24
Table 3. Waste Item Weights 25

LIST OF ATTACHMENTS

Attachment 1 – CCP RTR Measurement Control Report 27
Attachment 2 – CCP Radiography Data Sheet (Example) 28
Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist 31
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative 33
Attachment 5 – CCP Radiography Batch Data Report Cover Sheet 34

1.0 PURPOSE

Real-time radiography (RTR) inspection 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 estimate Waste Material Parameter (WMP) weights and identify prohibited items within a waste container.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams that require nondestructive examination (NDE). This procedure specifies instructions for performing NDE of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, CCP-PO-002*, CCP Transuranic Waste Certification Plan*, DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*, and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

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-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*

Obsolete

- 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 performing this procedure 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 Test Image

2.4 Software

2.4.1 RTR Data Sheet.xls

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. 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.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis.

2.6 Prerequisite Actions

2.6.1 None

Obsolete

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the waste content attributes within a waste container.

3.1.2 Produces video/audio recorded media and a written record of the x-ray scan of the waste containers.

3.1.3 Performs the initial review of the data generated.

3.1.4 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container. A BDR completed in one calendar day shall contain a Replicate Scan. BDRs that span over more than one day shall contain a separate Replicate Scan. In this context, independence means the individual did not perform, nor review the original work.

3.1.5 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a radiography video/audio recorded media. A BDR completed in one calendar day shall contain an IO. BDRs that span over more than one day shall contain a separate IO.

3.1.6 Assembles the Batch Data Report (BDR).

3.2 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be a third and independent qualified RTR Operator.

3.2.1 Reviews the raw data (e.g., Attachment 2, CCP Radiography Data Sheet [Example]).

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

3.3 Lead Operator (LO)

3.3.1 Provides supervision of the overall operation of the RTR system.

Obsolete

3.4 Records Custodian

3.4.1 Receives, processes, and transmits records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

Obsolete

4.0 PROCEDURE

NOTE

All steps within this procedure will be performed by the RTR Operator unless otherwise specified.

4.1 Waste Container Preparation

4.1.1 Prepare the waste containers for examination in accordance with Host site and/or Central Characterization Program (CCP) procedures.

4.1.2 Install the Image Test device as applicable.

4.2 RTR System Startup

4.2.1 Startup the RTR system for operation in accordance with the CCP procedure.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE

Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day.

Attachments are found on the CCP secure file transfer protocol (sftp) site.

4.3.1 Record the following on Attachment 1, CCP RTR Measurement Control Report :

[A] Site.

[B] BDR Number.

[C] Examination Date.

4.3.2 Prepare the video/audio media recording systems for operation in accordance with the manufacturer's instructions.

[A] Verify/Turn ON all the video/audio media system components and monitors.

[B] Label each video/audio media with the following information:

[B.1] For the primary video/audio recording media, record the BDR Number followed by a unique identifier (e.g., LA-RTR1-060004A).

[B.2] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.3.2[B.1].

4.3.3 Perform a video/audio recorded media system check by recording the results of the Image Test on Attachment 1 as follows:

[A] Perform the Image Test.

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO) and Vendor Project Manager (VPM).

[B] Replay the video/audio recording media, **AND** verify the video/audio recording media check are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recording media checks are **NOT** satisfactory,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK, **AND** notify the LO and VPM.

4.3.4 Remove the Image Test device when it is conducive to operations.

4.3.5 Record comments if necessary, print name, sign, and date Attachment 1.

4.3.6 Place in holding file.

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE

Waste Container Identification (ID) Numbers shall be obtained by direct visual observation. An Attachment 2 must be completed for all waste containers examined.

[A] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[B] Start recording the examination scan **AND** record verbally the information for the waste container being examined.

[C] Manipulate the container and x-ray controls such that 100 percent of the container volume is examined.

[D] Scan the waste container.

[E] Record the results verbally **AND** in Section 3, Container Inventory and Comments of Attachment 2.

4.4.2 Data Entry

NOTE

The data required by steps [A.1] through [A.8], and [D.1] through [D.5](a), may be entered on Attachment 2 at any time after the waste container is loaded to the RTR unit. The remaining data required to be entered on Attachment 2 may be entered as the operator determines it during the scan.

All fractional weights will be recorded to 1/10 of a kilogram (kg).

Attachments are found on the CCP sftp site.

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

[A.1] Check "√" the applicable type of RTR examination.

[A.2] Site ID.

[A.3] Batch Number.

[A.4] Examination Date.

[A.5] Waste Container ID.

[A.6] Waste Container ID at the top of Page 2 and Page 3 of Attachment 2.

[A.7] Video/Audio Recorded Media Number.

[A.8] Procedure and Revision No.

[A.9] Check "√" yes or no for NCR and if yes is checked record the NCR number.

[B] **IF** a container is identified in the S5000 summary category group that CAN **NOT** be penetrated by the RTR method because of the presence of lead, or other shielding, **THEN** initiate a nonconformance report (NCR) in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

[C] **IF** a container is identified in the S3000 or S4000 summary category group, **AND** RTR is **NOT** capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable, **THEN** initiate a NCR in accordance with CCP-QP-005.

[D] Ensure the following data is recorded in Section 2, Waste Container Data, of Attachment 2:

[D.1] Container Type.

[D.2] Content (TRUCON) Code.

[D.3] Waste Matrix Code.

[D.4] Waste Stream ID.

[D.5] Waste Container Weights (kg).

(a) Gross Weight (from the CCP Container Traveler or obtain the weight in accordance with the Host site Interface Document).

(b) Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

(c) Net Weight (subtract Tare Weight from Gross Weight).

[D.6] Rigid Liner and Liner Vent Description.

(a) Check appropriate box for Liner or No Liner, Lid or No Lid, Liner Type, Vented or Not Vented, and Venting Method.

[D.7] Estimated number of Layers of Confinement.

NOTE

The fill percent of the container is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that 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 five percent increments (e.g., 35%, 40%, 45%).

[D.8] Record the estimated Volume Utilization Percentage (VUP).

[E] Complete an itemized description of the waste inventory in the container in Section 3.

NOTE

Additional weight information for items commonly found in waste streams at each site may be provided in accordance with a controlled Operator Aid.

[F] Using packaging weight information provided by the Host site, record the estimated weight (kg) for the packaging materials in Section 4: Packaging Material and Waste Material Parameters, of Attachment 2.

[G] Using Table 2, Waste Material Parameters, Table 3, Waste Item Weights, and additional item weight information provided by the Host site, record the estimated weight for each WMP in Section 3 and sum all WMPs and record the total WMP weight in Section 4 of Attachment 2.

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES **NOT** indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid **AND** in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[H] Using Table 1, Prohibited Items, as a reference, complete the checklist in Section 5: RTR Summary, of Attachment 2, to confirm there are **NO** prohibited items in the waste container.

NOTE

Potential hazardous wastes identifiable by radiography include:

- Batteries
- Circuit Boards (may be contained in electrical equipment)
- Cathode Ray Tube (CRT)-based computer monitors or televisions
- Lead
- Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)
- Light Bulbs (both incandescent and fluorescent)

[H.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) Initiate an NCR in accordance with CCP-QP-005 **AND** record the NCR number in Section 1 and in the comments block 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. The AK Summary will be available in the work area and referenced as needed.

[H.2] **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, **AND** record NCR number in Section 1 and in the comments block of Attachment 2.

[I] Review Attachment 2 for completeness and accuracy.

NOTE

Data changes shall be made by the individual who originally collected the data or an equally qualified individual authorized to change the data.

[I.1] Ensure changes to the data have been initialed and dated with a justification, as necessary, provided in the Comments block of Attachment 2.

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

[K] Place in holding file.

[L] **IF** the waste container constitutes the last container of the batch or day,
THEN STOP, remove the video/audio recording media from the recording components, **AND** properly store the media.

[M] Repeat steps 4.4.1 through 4.4.2 until all containers in the batch have been examined.

4.5 Replicate Scan

NOTE

A BDR completed in one calendar day shall contain a Replicate Scan. BDRs that span over more than one day shall contain a separate Replicate Scan. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

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

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.6 Independent Observations

NOTE

A BDR completed in one calendar day shall contain an IO. BDRs that span over more than one day shall contain a separate IO. The IO will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The IO will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

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

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the IO Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.7 RTR System Shutdown

4.7.1 Shutdown the RTR system in accordance with CCP procedure.

4.8 Video/Audio Recording Media System Shutdown

4.8.1 Verify all video/audio recording media have been finalized if necessary and removed from the recording components.

4.8.2 Turn OFF the video/audio media recording systems in accordance with the manufacturer's instructions.

4.9 Batch Data Report Preparation

NOTE

Attachment 5, CCP Radiography Batch Data Report Cover Sheet may be filled out at any time after the container is loaded and the remaining data may be entered during the BDR assembly.

RTR Operator

4.9.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.9.2 Complete Attachment 5, **AND** record the following:

[A] BDR No.

[B] Contact-handled (CH) or remote-handled (RH) waste.

[C] Date.

[D] Waste Container ID Numbers.

[E] Record which containers are by designation, Replicate Scan and Independent Observation.

[F] Site ID

[G] Print name, sign, and date.

4.9.3 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[B] Attachment 4, CCP Radiography Batch Data Report Table Of Contents and Batch Narrative

[C] Attachment 1, CCP RTR Measurement Control Report

[D] Attachment 2, CCP Radiography Data Sheet

[E] Copy of NCRs, if applicable.

[F] Attachment 3, CCP Radiography Independent Technical Reviewer Checklist

[G] Paginate the BDR.

[H] Two sets of Audio/Video Media.

4.9.4 Forward the BDR package to the ITR.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The ITR CAN **NOT** review his/her own work.

Attachments are found on the CCP sftp site.

ITR

4.10.1 Review Attachment 1, Attachment 2s, and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5 and any additional Attachments to be inserted in the BDR.

4.10.4 Insert completed Attachment 3 into the BDR.

4.10.5 Insert any additional attachments generated during ITR into the BDR.

4.10.6 Forward the BDR package to the Records Custodian.

Obsolete

Records Custodian

[A] Receive, process, and transmit records in accordance with CCP-QP-008.

Obsolete

5.0 RECORDS

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

5.1.1 QA/Lifetime

[A] Batch Data Report (BDR):

- Attachment 1, CCP RTR Measurement Control Report
- Attachment 2, CCP Radiography Data Sheet
- Attachment 3, CCP Radiography Independent Technical Reviewer Checklist
- Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative
- Attachment 5, CCP Radiography Batch Data Report Cover Sheet
- Copies of NCRs, if applicable

5.1.2 QA/Non-permanent

[A] Two sets RTR media VHS or DVD

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive 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)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code.
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is not adequately blocked, braced, or packaged.

Obsolete

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 (e.g., lead, lead blankets)
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) (XPM)	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)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Video/Audio Recorded Media System Check	☐ SAT	☐ UNSAT
Image Test : _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☐ SAT	☐ UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet (Example)

Page 1 of 3

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.: _____ NCR No.:
Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt.: _____ kg Tare Wt.: _____ kg Net Wt.: kg
Rigid Liner and Liner Vent Description:	Liner Present: ☐ NO ☐ YES Lid: ☐ NO ☐ YES Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ NO ☐ YES Fiberboard: ☐ NO ☐ YES
Number of Layers of Confinement:	
Volume Utilization Percentage:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 2 of 3

Waste Container ID:

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 3 of 3

Waste Container ID:

Section 5: RTR Summary (Questions answered "YES" will be explained in the Comments block)		
Is there observable liquid?	☐ YES	☐ NO
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ YES	☐ NO
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ YES	☐ NO
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134??	☐ YES	☐ NO
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ YES	☐ NO
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ YES	☐ 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 TRUCON Code[s])?	☐ YES	☐ NO
Is there an indication of wastes containing explosives or compressed gases?	☐ YES	☐ NO
Is there an indication of PCBs liquids?	☐ YES	☐ NO
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ YES	☐ NO
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ YES	☐ NO
CH or RH TRAMPAC		
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ YES	☐ NO
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ YES	☐ NO
Are there sealed containers GREATER than 4 liters?	☐ YES	☐ NO
Are there indications of inadequate protection for heavy and/or sharp objects?	☐ YES	☐ NO
Comments:		
RTR Operator		
Print Name	Signature	Date

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?	◻ NO	◻ YES	
2.	Was the correct revision of the procedure used? Procedure: Rev.:	◻ NO	◻ YES	
3.	Are the WMPs entered correctly?	◻ NO	◻ YES	
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	◻ NO	◻ YES	
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	◻ NO	◻ YES	
6.	Has the data been verified for transcription errors?	◻ NO	◻ YES	◻ N/A
7.	Does the Testing Batch Report include radiography for up to 20 containers?	◻ NO	◻ YES	
8.	BDR contents are complete and match the CCP Waste RTR Batch Data Report Table of Contents?	◻ NO	◻ YES	
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	◻ NO	◻ YES	
10.	Is all data recorded clearly, legibly, and accurately?	◻ NO	◻ YES	
11.	All changes to original data lined out, initialed and dated by the individual making the changes?	◻ NO	◻ YES	◻ N/A
12.	Was justification made for changing the original data?	◻ NO	◻ YES	◻ N/A
13.	Were data changes made by the individual who originally collected the data?	◻ NO	◻ YES	◻ N/A
14.	Does the waste match the Waste Matrix Code and Waste Stream description?	◻ NO	◻ YES	
15.	Are the RTR Operator's decisions regarding the Radiography documented?	◻ NO	◻ YES	
16.	Is there an adequate written description of the contents of each item?	◻ NO	◻ YES	
17.	Was the video/audio recording media properly prepared and labeled for each waste container?	◻ NO	◻ YES	
18.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	◻ NO	◻ YES	

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

Batch Data Report No.:_____

Description				
19.	Was the Image Test performed satisfactorily and recorded on Attachment 1?	☐ NO	☐ YES	
20.	Was the Replicate Scan performed and recorded on an Attachment 2?	☐ NO	☐ YES	
21.	Was the Replicate Scan RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
22.	Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
23.	Was the Independent Observation performed and recorded on an Attachment 2?	☐ NO	☐ YES	
24.	Was the Independent Observation RTR Operator different from the first RTR Operator?	☐ NO	☐ YES	
25.	Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	☐ NO	☐ YES	
26.	Was the data collection performed by qualified individuals?	☐ NO	☐ YES	
27.	Are the NCR(s) associated with the RTR examination included in the BDR?	☐ NO	☐ YES	☐ N/A
28.	QAOs (precision, accuracy, completeness, representativeness) have been met?	☐ NO	☐ YES	

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

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

Batch Narrative

RTR Operator _____ Signature _____ Date _____

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Site ID:_____

Batch Data Report No.:_____ ☐ CH ☐ RH _____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

RTR Operator:

Printed Name Signature Date

Independent Technical Reviewer:

Printed Name Signature Date

Controlled
Copy

CCP-TP-053

Revision 15

CCP
Standard Real-Time Radiography (RTR) Inspection Procedure

EFFECTIVE DATE: 09/11/2014

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
9	09/30/2010	Revised to incorporate another test image type.
10	03/04/2011	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR)-11-015. Deleted requirement to identify locations of dense waste material, sharp/heavy objects. Deleted requirement of identification of block and/or bracing of sharp/heavy objects and heterogeneity of the waste (e.g., DO **NOT** just list plastic, describe it as small plastic bottles, plastic tubing, plastic sheeting, or plastic coveralls etc.). Deleted requirement of recording of liquid amounts on attachments. All prohibited conditions will be addressed in the Nonconformance Report (NCR) process. Added the ability to use procedure to Real-Time Radiography (RTR) Remote-Handled (RH) waste.
11	07/20/2011	Revised to add checklist question based on agreement with New Mexico Environmental Department (NMED).
12	08/22/2012	Revised to change format of attachments. Clarified format of container weights and clarified steps for documenting nonconformance reports (NCRs) on Attachment 2, CCP Radiography Data Sheet (Example).
13	05/14/2013	Revised to incorporate Nuclear Waste Partnership (NWP) transition changes, to add software used, and other editorial changes.
14	09/25/2013	Revised to address Carlsbad Field Office (CBFO) CAR 13-034, CBFO CAR 13-051, and Central Characterization Program (CCP) CAR-SRS-0001-13.
15	09/11/2014	Revised to be more user friendly as required by WF14-084, to include Standing Order CCP-SO-080 Revision 1 and to clarify contact-handled (CH) and remote-handled (RH) quality assurance objectives (QAOs).

Controlled
Copy

TABLE OF CONTENTS

1.0 PURPOSE 5
1.1 Scope 5

2.0 REQUIREMENTS 6
2.1 References 6
2.2 Training Requirements 6
2.3 Equipment List 6
2.4 Software 7
2.5 Precautions and Limitations 7
2.6 Prerequisite Actions 7
2.7 Definitions 7

3.0 RESPONSIBILITIES 8
3.1 RTR Operator 8
3.2 Independent Technical Reviewer (ITR) 8

4.0 PROCEDURE 9
4.1 RTR System Startup 9
4.2 Waste Container Preparation 9
4.3 Video/Audio Recorded Media System Startup/Image Test 9
4.4 RTR System Operation 10
4.5 Replicate Scan 17
4.6 Independent Observations 18
4.7 Batch Data Report Preparation 18
4.8 RTR System Shutdown 20
4.9 Video/Audio Recording Media System Shutdown 20
4.10 RTR Independent Technical Review 21

5.0 RECORDS 22

Controlled
Copy

LIST OF TABLES

Table 1. Prohibited Items 23
Table 2. Waste Material Parameters 24
Table 3. Waste Item Weights 25
Table 4. Nominal Packaging Weights 27

LIST OF ATTACHMENTS

Attachment 1 – CCP RTR Measurement Control Report 28
Attachment 2 – CCP Radiography Data Sheet (Example) 29
Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist 32
Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative 35
Attachment 5 – CCP Radiography Batch Data Report Cover Sheet 36

Controlled
Copy

1.0 PURPOSE

Real-time radiography (RTR) inspection is used to identify prohibited items within a waste container and to estimate Waste Material Parameter (WMP) weights. The system is also used to verify that the physical form of the waste and currently assigned Waste Matrix Code (WMC) of the container are consistent with the Waste Stream Description as described in the Acceptable Knowledge (AK) Summary Report.

This procedure contains the requirements for the collection of data and the generation level review of data from the RTR process.

1.1 Scope

This procedure applies to non-destructive examination of S3000 homogeneous solids, S4000 soils/gravel and S5000 debris transuranic (TRU) waste streams. This procedure specifies instructions for performing nondestructive examination (NDE) of waste containers using a RTR system. It also specifies methods for documenting the examination results as required by CCP-PO-001, CCP *Transuranic Waste Characterization Quality Assurance Project Plan;* CCP-PO-002, *CCP Transuranic Waste Certification Plan;* DOE/WIPP-02-3214, *Remote-Handled TRU Waste Characterization Program Implementation Plan*; and CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*.

Controlled
Copy

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

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-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-505, *CCP Remote-Handled Transuranic Waste Authorized Methods for Payload Control (CCP RH-TRAMPAC)*
- 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 performing this procedure 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 which normally consists of the following:

- an X-ray producing device
- an imaging system
- an enclosure for radiation protection
- a waste container handling system

Controlled
Copy

- an audio/video recording system or equivalent
- an operator control and data acquisition station controls or an equivalent process which allow the operator to control image quality

2.3.2 Test Image Device

2.4 Software

2.4.1 RTR Data Sheet.xls

2.5 Precautions and Limitations

2.5.1 If this procedure CAN **NOT** be implemented as written, RTR personnel shall notify appropriate supervisors. 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.

2.5.2 Workers who will be working in a radiation area must have met the Host site requirements prior to entering the area.

2.5.3 Review the Job Hazards Analysis/Integrated Work Document.

2.6 Prerequisite Actions

2.6.1 None

2.7 Definitions

2.7.1 **Internal Container** – A container inside the outermost container examined during radiography or visual examination (VE). Drum liners, liner bags, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.7.2 **Observable Liquid** – Liquid that is observable using radiography or VE as specified in the Waste Isolation Pilot Plant (WIPP) Hazardous Waste Facility Permit.

Controlled
Copy

3.0 RESPONSIBILITIES

3.1 RTR Operator

3.1.1 Operates the RTR system to determine the attributes of the waste content of a waste container.

3.1.2 Produces video/audio recorded media.

3.1.3 Completes the attachments as required by this procedure.

3.1.4 Performs the initial review of the data generated.

3.1.5 A second and independent qualified RTR Operator performs a Replicate Scan on one waste container. A Batch Data Report (BDR) completed in one calendar day shall contain a Replicate Scan. BDRs that span more than one day shall contain a unique Replicate Scan. In this context, independence means the individual did not perform, nor review the original work.

3.1.6 A second and independent qualified RTR Operator other than any RTR Operator involved in the original scan of the container selected performs an Independent Observation (IO) on a waste container, from a recorded media of the radiography. A BDR completed in one calendar day shall contain an IO. BDRs that span more than one day shall contain a unique IO.

3.1.7 Assembles the BDR.

3.2 Independent Technical Reviewer (ITR)

NOTE

While the Replicate Scan and independent Observation operator can be the same individual, the Independent Technical Reviewer (ITR) will be performed by a third independent qualified RTR Operator.

3.2.1 Reviews the Batch Data Report.

3.2.2 Completes Attachment 3, CCP Radiography Independent Technical Reviewer Checklist.

Controlled
Copy

4.0 PROCEDURE

RTR Operator

4.1 RTR System Startup

4.1.1 Startup the RTR system for operation in accordance with the appropriate Central Characterization Program (CCP) procedure.

4.2 Waste Container Preparation

4.2.1 Prepare the waste containers for examination in accordance with the appropriate Host site and/or CCP procedures.

4.3 Video/Audio Recorded Media System Startup/Image Test

NOTE

Video/audio recording of the RTR examination **MUST** be produced for all waste containers. The Image Test is performed once per day, and after system power loss.

Attachments are found on the CCP secure file transfer protocol (sftp) site.

4.3.1 Install the Image Test device as applicable.

4.3.2 Record the following on Attachment 1, CCP RTR Measurement Control Report:

[A] Site

[B] BDR Number

[C] Examination Date

4.3.3 Prepare the video/audio media recording systems for operation in accordance with the manufacturer's instructions.

[A] Ensure all video/audio media system components and monitors are powered on.

4.3.4 Perform a video/audio media recording system check as follows, **AND** record the results on Attachment 1:

[A] Perform the Image Test.

Controlled
Copy

[A.1] **IF** the test image is correctly observed (Minimum acceptable is five lines-pair/centimeters [cm] or the #6 sieve is viewable),
THEN record the results of the test, **AND** mark SAT on Attachment 1.

[A.2] **IF** the test image is **NOT** correctly observed,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK **AND** notify the Lead Operator (LO).

[B] Replay the video/audio recording media, **AND** verify the video/audio recorded media checks are satisfactory.

[B.1] **IF** the results of the video/audio recording media check are satisfactory,
THEN mark SAT on Attachment 1.

[B.2] **IF** the results of the video/audio recorded media checks are **NOT** satisfactory,
THEN record the results of the test **AND** mark UNSAT on Attachment 1, STOP WORK, **AND** notify the LO.

NOTE
Image Test device may be removed when it is conducive to operations.

4.3.5 Record comments if necessary.

4.3.6 Print, sign, and date Attachment 1.

4.3.7 Place Attachment 1 in holding file.

4.4 RTR System Operation

4.4.1 Waste Container Scanning

NOTE
Steps 4.4.2 and 4.4.3 occur alongside step 4.4, addressing the minimum required data entries. These steps may be used for reference during performance of 4.4.1.

[A] Obtain Waste Container Identification (ID) Number and weight (in Kg) by visual observation of the container.

Controlled
Copy

[B] Load container(s) into unit in accordance with the appropriate CCP procedure.

[C] Enter the appropriate scan information (e.g., Container ID No., Date) on the video display.

[D] Start recording the examination scan.

[D.1] Manipulate the container and x-ray controls such that 100 percent of the container volume is examined.

[D.2] Record the results verbally **AND** on Attachment 2, CCP Radiography Data Sheet.

[E] Stop recording after examination of the container is complete.

[F] Ensure that the required entries for 4.4.2 are completed.

[G] Ensure the data has been evaluated for non-conformance as described in 4.4.3.

[H] Print Attachment 2 and review for completeness and accuracy.

[H.1] **IF** Attachment 2 appears satisfactorily completed, **THEN** sign the attachment **AND** place in holding file, **ELSE** perform [H.2].

[H.2] Make the required changes to the digital file, adding explanatory comments to the comments block in Section 5 of Attachment 2 as necessary, **THEN** repeat steps 4.4.1 [F] through [H].

[I] Repeat step 4.4.1 for all containers to be certified, loading additional containers as necessary and in accordance with the appropriate CCP procedure.

[I.1] **IF** the most recent container is the last container of the BDR, **THEN** proceed to 4.7.

Controlled
Copy

4.4.2 Data Entry for Attachment 2, Sections 1 through 4

NOTE

The data required on Attachment 2 may be entered as the information becomes available to the operator, during both the loading and examination stages of operation.

[A] Ensure the following data are recorded or displayed in Section 1 of Attachment 2:

- Applicable type of RTR examination.
- Site ID.
- Batch Number.
- Examination Date.
- Waste Container ID.
- Ensure the Waste Container ID is correct at the top of Page 2 and Page 3 of Attachment 2.
- Video/Audio Recorded Media Identification.
- Procedure and Revision Number.
- Yes or No for nonconformance report (NCR) and if Yes, record the NCR number(s).

[B] Ensure the following data are recorded or displayed in Section 2 of Attachment 2.

- Container Type.
- Content (TRUCON) Code.
- Waste Matrix Code.
- Waste Stream ID.
- Gross Weight (Obtained from the CCP Container Traveler or in accordance with the Host site Interface Document).

Controlled
Copy

- Tare Weight (Total Packaging Weight from Section 4: Packaging Material and Waste Material Parameters, of Attachment 2).

- Net Weight (subtract Tare Weight from Gross Weight).

- Check the appropriate Rigid Liner and Liner Vent Description boxes to accurately describe the packaging content of the container.

- Estimated number of Layers of Confinement.

NOTE

The fill percent of the container is to be recorded in five percent increments (e.g., 35%, 40%, 45%) and is based on the highest level of the bulk of the waste. Items (e.g., pipe, scrap angle, plastic bags) that protrude above the bulk of the waste are not to be included in the fill percent determination.

- Record the estimated Volume Utilization Percentage (VUP).

NOTE

Additional weight information for waste items and packaging commonly found in waste streams at each site may be provided with a controlled Operator Aid.

All fractional weights will be recorded to 1/10 of a kilogram (kg). Waste Material Parameters with no recorded items and the corresponding section weights may be left blank.

[C] Ensure that the itemized description of the waste inventory in the container in Section 3 of Attachment 2 is complete, accurate to the scan, and representative of the waste content of the container.

[D] Ensure that the estimated weight (kg) for, and brief description of, the packaging materials is recorded in Section 4 of Attachment 2.

[E] Ensure that the estimated weight for each utilized Waste Material Parameter is recorded in Section 4 of Attachment 2.

Controlled
Copy

4.4.3 Evaluation of Nonconforming Conditions

NOTE

The potential exists for prohibited items to be present in the waste container based upon shapes seen in the image and the RTR Operator's knowledge of the waste stream. For example; if the AK for the waste stream DOES NOT indicate the presence of Polychlorinated Biphenyl (PCB) free light ballasts, and a ballast is present in the container, the RTR Operator will have reason to believe that PCBs are present.

Internal containers (e.g., bottles, cans, etc.) shall have no more than 60 milliliters or 3 percent by volume, whichever is greater, observable liquid AND in no case, shall the total observable liquid volume (i.e., the sum of all internal and/or outermost container volumes) exceed >1%.

[A] Using Table 1, Prohibited Items, as a reference, confirm there are **NO** prohibited items in the waste container.
IF any nonconforming/prohibited items are noted during the RTR examination,
THEN perform the following:

[A.1] Initiate an NCR in accordance with CCP-QP-005, CCP *TRU Nonconforming Item Reporting and Control*.

[A.2] Check yes and record the NCR number in Section 1 of Attachment 2.

[A.3] Check appropriate boxes in Section 5 of Attachment 2 to describe the non-conforming condition.

[A.4] Record NCR number in the comments block of Section 5 of Attachment 2.

NOTE

Potential hazardous wastes identifiable by radiography include:

- Batteries
- Circuit Boards (may be contained in electrical equipment)
- Cathode Ray Tube (CRT)-based computer monitors or televisions
- Lead
- Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)
- Light Bulbs (both incandescent and fluorescent)

[B] **IF** any hazardous waste(s) NOT identified in the AK Summary Report for the waste stream being characterized OR any nonconforming/prohibited items are noted during the RTR examination,
THEN perform the following:

[B.1] Initiate an NCR in accordance with CCP-QP-005.

[B.2] Check yes and record the NCR number in Section 1 of Attachment 2.

[B.3] Check appropriate boxes in Section 5 of Attachment 2 to describe the non-conforming condition.

[B.4] Record NCR number in the comments block of Section 5 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. The AK Summary MUST be available in the work area and referenced as needed.

[C] **IF** the physical form of the waste DOES NOT match the Waste Stream Description and/or the Waste Matrix Code,
THEN perform the following:

[C.1] Initiate an NCR in accordance with CCP-QP-005.

[C.2] Check yes, and record the NCR number in Section 1 of Attachment 2.

Controlled
Copy

[C.3] Check appropriate boxes in Section 5 of Attachment 2 to describe the non-conforming condition.

[C.4] Record NCR number in the comments block of Section 5 of Attachment 2.

[D] **IF** a container is identified in the S3000 or S4000 summary category group, **AND** RTR is NOT capable of penetrating the container so that any liquid present on the top, sides, or bottom of the waste form is identifiable,
THEN perform the following:

[D.1] Initiate an NCR in accordance with CCP-QP-005.

[D.2] Check yes, and record the NCR number in Section 1 of Attachment 2.

[D.3] Check appropriate boxes in Section 5 of Attachment 2 to describe the non-conforming condition.

[D.4] Record NCR number in the comments block of Section 5 of Attachment 2.

[E] **IF** a container is identified in the S5000 summary category group that CAN NOT be penetrated by the RTR method because of the presence of lead, or other shielding,
THEN perform the following:

[E.1] Initiate an NCR in accordance with CCP-QP-005.

[E.2] Check yes, and record the NCR number in Section 1 of Attachment 2.

[E.3] Check appropriate boxes in Section 5 of Attachment 2 to describe the non-conforming condition.

[E.4] Record NCR number in the comments block of Section 5 of Attachment 2.

Controlled
Copy

4.5 Replicate Scan

NOTE

A BDR completed in one calendar day shall contain a Replicate Scan. BDRs that span over more than one day shall contain a unique Replicate Scan. The Replicate Scan is performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The Replicate Scan will be performed under the same uniform conditions as a routine scan of a waste container in Section 4.4.

Second RTR Operator

4.5.1 Prior to reviewing the initial, Attachment 2, scan the replicate waste container per Section 4.4, **AND** record the results on a new Attachment 2.

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

4.5.3 Perform the following when identification of the waste matrix code, liquids in excess of Treatment, Storage, Disposal Facility (TSDF)-Waste Acceptance Criteria (WAC) limits, and compressed gases differ between the two operators:

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

Controlled
Copy

4.6 Independent Observations

NOTE

A BDR completed in one calendar day shall contain an IO. BDRs that span over more than one day shall contain a unique IO. The IO will be performed by a second and independent qualified RTR Operator who was not involved in the original scan of the waste container. The IO will be performed by observing the video recording of the original scan with no audio.

Second RTR Operator

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

4.6.2 Review the original Attachment 2 for the subject container, **AND** compare the results with the IO Attachment 2.

4.6.3 Perform the following when identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases differ between the two operators.

[A] Reconcile the results with the initial RTR Operator as follows:

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

[A.2] Jointly review the video/audio recording 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 LO.

4.7 Batch Data Report Preparation

NOTE

Attachment 5, CCP Radiography Batch Data Report Cover Sheet may be filled out at any time after the batch is opened and the remaining data may be entered during the BDR assembly.

4.7.1 Assemble Attachment 2(s) for up to 20 waste containers (regardless of matrix) that have been processed from a single RTR unit.

4.7.2 Ensure the following is recorded or displayed on Attachment 5:

- Site ID
- BDR No.
- Contact-handled (CH) or remote-handled (RH) waste
- Date
- Waste Container ID Numbers
- Record which containers are by designation, Replicate Scan and Independent Observation

[A] Print, sign, and date

4.7.3 Ensure the following is recorded or displayed on Attachment 4, Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative:

- BDR No.
- Date
- Index of applicable pagination values
- Batch Narrative

[A] Print, sign, and date

4.7.4 Preparing primary and duplicate copies of recorded media

NOTE

Some RTR systems possess the capability to create MPEG encoded recorded media copies, which allow for the creation of a digital media file which is then subsequently "burned" to physical media. If the system in use provides this operational capacity, the operator may perform 4.7.4 at their discretion, or as physical media is filled to its maximum data capacity.

[A] Ensure, as necessary, media to be "finalized" contains the appropriate media files.

[B] Finalize recorded media.

[C] Label each video/audio media pair with the following information:

[C.1] Record the BDR Number

Controlled
Copy

[C.2] A unique identifier (e.g., A/B, C/D…), where the second letter is applied to the duplicate media copy

[C.3] The date for which the corresponding Attachment 2's were generated

[C.4] Operator name

[C.5] **IF** additional recording media is required to complete a BDR,
THEN label the additional media with the BDR number followed by another unique identifier as described in step 4.7.4 [C.1] through [C.4].

4.7.5 Assemble the following data for the BDR:

[A] Attachment 5, CCP Radiography Batch Data Report Cover Sheet.

[B] Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative.

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

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

[E] Copy of NCRs, if applicable.

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

[G] Two copies of each Audio/Video Media.

4.7.6 Paginate the BDR

4.7.7 Forward the BDR package to the ITR at earliest convenience

4.8 RTR System Shutdown

4.8.1 Shutdown the RTR system in accordance with the appropriate CCP procedure.

4.9 Video/Audio Recording Media System Shutdown

Controlled
Copy

4.9.1 Ensure all recording media have been finalized if necessary and removed from the recording components.

4.9.2 Ensure the video/audio media recording systems are turned off in accordance with the manufacturer's instructions.

4.10 RTR Independent Technical Review

NOTE

The independent technical review is conducted by a third and independent qualified RTR Operator who was not involved in the generation or recording of the data under review. The ITR CAN **NOT** review his/her own work.

Attachments are found on the CCP sftp site.

ITR

4.10.1 Review all attachments (Except attachment 3), and associated video/audio media recordings, **AND** resolve any comments with the RTR Operator(s).

4.10.2 Review the BDR to the criteria in the checklist of Attachment 3, **AND** document the results.

4.10.3 Print name, sign, and date Attachment 3 and Attachment 5 and any additional Attachments to be inserted in the BDR.

4.10.4 Insert completed Attachment 3 into the BDR.

4.10.5 Insert any additional attachments generated during ITR into the BDR.

4.10.6 Submit the BDR package to CCP Records in accordance with CCP-QP-008.

Controlled
Copy

5.0 RECORDS

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

5.1.1 <u>QA/Lifetime</u>

[A] Batch Data Report (BDR):

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

[A.2] Attachment 2, CCP Radiography Data Sheet

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

[A.4] Attachment 4, CCP Radiography Batch Data Report Table of Contents and Batch Narrative

[A.5] Attachment 5, CCP Radiography Batch Data Report Cover Sheet

[A.6] Copies of NCRs, if applicable

5.1.2 <u>QA/Non-permanent</u>

[A] Two sets RTR media VHS or DVD

Controlled
Copy

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid.
Nonradioactive 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)
PCB liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat Sealed Bags (unvented) with surface area less than 390 square inches and greater than 4 liters, or heat sealed bags not authorized in the RH TRUCON Code.
Sharp or heavy objects, that could reasonably be expected to cause a breach of the container during transport because it is not adequately blocked, braced, or packaged.

Controlled
Copy

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 (e.g., lead, lead blankets)
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) (XPM)	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)	Steel Drums (55- and 85- Gallon)
Plastics (packaging materials) (PP)	90-mil polyethylene drum liner and plastic bags

Table 3. Waste Item Weights[a] Page 1 of 2

ITEM	WEIGHT
Electric Drill Motor	2.2 kg
Electric 4” Side Grinder	2.5 kg
Plastic bag for waste	0.6 kg
Fiber pack	13.0 kg
Fiber pack lead-lined	66.0 kg
Lead brick (5.1 x 10 x 20 cm)	12.0 kg
Leaded Rubber Glove	2.5 kg
Aluminum Sphincter Can	0.2 kg
Leaded Rubber Apron	2.4 kg
Vermiculite	0.1 kg/liter
Oil-Dry	0.4 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Metal Can (for salt wastes)	1.1 kg
Metal Can	0.2 kg
Uncured Portland Cement	2.9 kg/liter
Setup Portland Cement	1.1 kg/liter
High-Efficiency Particulate Air (HEPA) Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
HEPA Filter (24 x 24 x 5- 7/8)	7.2 kg
HEPA Filter (24 x 24 x 11-1/2)	14.1 kg
10’ Tape Measure	0.1 kg
13 Oz. Aerosol Can ¼ Full	0.2 kg
17 Oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
2’ X 4’ Board 20" long	0.7 kg
25’ Plastic Suit Hose	2.3 kg
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
5-Gallon Metal Bucket	1.3 kg
50’ Plastic Suit Hose	5.0 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg

Table 3. Waste Items Weights[a] (Continued) Page 2 of 2

ITEM	WEIGHT
Channel Lock Pliers	0.3 kg
Coveralls	0.9 kg
Crescent Wrench	0.2 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Flashlight with Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw with Blade	0.5 kg
Hammer	0.6 kg
Large Open End Wrench	0.5 kg
Plastic Suit Top and Pants	2.3 kg
Razor Knife	0.1 kg
Sand Bag ½ Full of Gravel	12.7 kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder's Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg

[a]The weights for waste packaging and containers will use the nominal values except where identified by the program. Additional Host site/AK specification weights for waste items shall be provided in accordance with an approved Operator Aid.

Controlled
Copy

Table 4. Nominal Packaging Weights

ITEM	WEIGHT
55 Gallon drum	27.7 kg
55 gallon drum, Heavy Galvanized	30.0 kg
Baked on liner	6.4 kg
90mil Rigid Liner	6.4 kg
90mil Rigid Liner Lid	1.0 kg
Repackaging Rigid Liner (SRS)	4.9 kg
110mil Rigid Liner	6.5 kg
110 Rigid Liner Lid	1.0 kg
Fiberboard Liner	3.7 kg
Fiber Pack	2.7 kg
One trip drum (RL)	32.0 kg
Liner Bag 5mil	0.5 kg
Liner Bag 12mil	2.0 kg
SWB 10 mil Liner Bag (RL)	5.0 kg
Universal Polypropylene Pads (Rad Pads)	1.0 kg

Controlled
Copy

Attachment 1 – CCP RTR Measurement Control Report

Site ID:		
Batch Data Report No.:		
Examination Date:		
Control Checks		
Image Test: _____ (Minimum acceptable is 5 lines-pair/cm or #6 Sieve is viewable)	☐ SAT	☐ UNSAT
Video/Audio Recorded Media System Check	☐ SAT	☐ UNSAT
Comments:		
RTR Operator:		
Printed Name	Signature	Date

Attachment 2 – CCP Radiography Data Sheet (Example)

Section 1: General Information	
☐ RTR Examination ☐ RTR Replicate Scan ☐ RTR Independent Observation	
Site ID:	
Batch Number:	
Examination Date:	
Waste Container ID:	
Video/Audio Recorded Media Number:	
Procedure and Revision No.:	Rev.
NCR(s) associated with the container? (e.g., Prohibited Items)	☐ NO ☐ YES NCR No.: _____ NCR No.:
Section 2: Waste Container Data	
Container Type:	
TRUCON Code:	
Waste Matrix Code:	
Waste Stream I.D.:	
Waste Container Weights:	Gross Wt.: _____ kg Tare Wt.: _____ kg Net Wt.: kg
Rigid Liner and Liner Vent Description:	Liner Present: ☐ NO ☐ YES Lid: ☐ NO ☐ YES Type: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐ 125-mil Vented: ☐ NO ☐ YES Fiberboard: ☐ NO ☐ YES
Number of Layers of Confinement:	
Volume Utilization Percentage:	

Controlled
Copy

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Page 2 of 3

Waste Container ID:

Section 3: Container Inventory and Comments	(Detailed descriptions)
IM:	
AM:	
OM:	
OI:	
C:	
R:	
XPM:	
OR:	
IN:	
S:	

Section 4: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal / Alloys (IM):	
Aluminum-based Metals / Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (XPM):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Radiography Data Sheet (Example) (Continued)

Waste Container ID:

Section 5: RTR Summary (Questions answered "Yes" will be explained in the Comment block, except for Question 1)	
Is there observable liquid?	☐ Yes ☐ No
Is there any observable liquid in internal containers, more than 60 milliliters or 3 percent by volume, whichever is greater?	☐ Yes ☐ No
Is the total volume of observable liquid in the outermost container GREATER than 1% of the container?	☐ Yes ☐ No
Is there observable liquid in payload containers with an EPA Hazardous Waste Number of U134?	☐ Yes ☐ No
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐ Yes ☐ No
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐ Yes ☐ 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 TRUCON Code[s])?	☐ Yes ☐ No
Is there an indication of wastes containing explosives or compressed gases?	☐ Yes ☐ No
Is there an indication of PCBs liquids?	☐ Yes ☐ No
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐ Yes ☐ No
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐ Yes ☐ No
CH or RH TRAMPAC	
Are there heat-sealed bags (unvented) GREATER than 4 liters and LESS than 390 square inches in the waste, or heat sealed bags not authorized in the RH TRUCON Code?	☐ Yes ☐ No
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐ Yes ☐ No
Are there sealed containers GREATER than 4 liters?	☐ Yes ☐ No
Are there indications of inadequate blocking or bracing for heavy and/or sharp objects?	☐ Yes ☐ No
Comments:	
RTR Operator: Print Name Signature Date	

Attachment 3 – CCP Radiography Independent Technical Reviewer Checklist

Batch Data Report No.:_____

Description			
1.	Were data generation and reduction conducted in a technically correct manner in accordance with the methods used?	□ NO	□ YES
2.	Was the correct revision of the procedure used? Procedure: Rev.:	□ NO	□ YES
3.	Are the WMPs entered correctly?	□ NO	□ YES
4.	Do the estimated weights in Section 4 of Attachment 2 equal the container gross weight?	□ NO	□ YES
5.	Is the data reported in the proper units with the correct number of significant figures (e.g., one tenth of a kilogram)?	□ NO	□ YES
6.	Was transcription used? If no, proceed to question 7.	□ NO	□ YES
	6a. Has the data been verified for transcription errors?	□ NO	□ YES
7.	Does the Testing Batch Report include radiography for up to 20 containers?	□ NO	□ YES
8.	Are BDR contents complete and do they match the CCP Waste RTR Batch Data Report Table of Contents?	□ NO	□ YES
9.	Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	□ NO	□ YES
10.	Is all data recorded clearly, legibly, and accurately?	□ NO	□ YES
11.	Have changes been made to original data? If no, proceed to question 12.	□ NO	□ YES
	11a. Have all changes to original data been lined out, initialed and dated by the individual making the changes?	□ NO	□ YES
	11b. Was justification made for changing the original data?	□ NO	□ YES
	11c. Were data changes made by the individual who originally collected the data?	□ NO	□ YES
12.	Does the waste match the Waste Matrix Code and Waste Stream description?	□ NO	□ YES
13.	Are the RTR Operator's decisions regarding the Radiography documented?	□ NO	□ YES
14.	Is there an adequate written description of the contents of each item?	□ NO	□ YES
15.	Was the video/audio recording media properly prepared and labeled for each waste container?	□ NO	□ YES
16.	Was the video/audio recording media check performed satisfactorily and recorded on Attachment 1?	□ NO	□ YES

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

Batch Data Report No.:_____

Description		
17. Was the Image Test performed satisfactorily and recorded on Attachment 1?	□ NO	□ YES
18. Was the Replicate Scan performed and recorded on an Attachment 2?	□ NO	□ YES
19. Was the Replicate Scan RTR Operator different from the first RTR Operator?	□ NO	□ YES
20. Did the Replicate Scan RTR Operator and the first RTR Operator agree on the results?	□ NO	□ YES
21. Was the Independent Observation performed and recorded on an Attachment 2?	□ NO	□ YES
22. Was the Independent Observation RTR Operator different from the first RTR Operator?	□ NO	□ YES
23. Did the Independent Observation RTR Operator and the first RTR Operator agree on the results?	□ NO	□ YES
24. Was the data collection performed by qualified individuals?	□ NO	□ YES
25. Were NCRs initiated as required at DGL? If no, proceed to question 26.	□ NO	□ YES
25a. Have the NCR(s) associated with RTR been included in the BDR?	□ NO	□ YES
26. Is the RTR examination for CH waste? If no, proceed to question 27.	□ NO	□ YES
26a. Have the CH Quality Assurance Objectives (QAOs) been met (if applicable)? Precision – Precision is maintained by reconciling any discrepancies between two radiography operators with regard to identification of the waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases through independent replicate scans and independent observations. Additionally, the precision of radiography is verified prior to use by tuning precisely enough to demonstrate compliance with QAOs through viewing an image test pattern. Accuracy – Accuracy is obtained by using a target to tune the image for maximum sharpness and by requiring operators to successfully identify 100 percent of the items required to meet the DQOs for radiography specified in CCP-PO-001, Section C-4a(1) in a training container during their initial qualification and subsequent requalification. Completeness – A video and audio media recording of the radiography examination and a validated radiography data form will be obtained for 100 percent of the waste containers subject to radiography. All video and audio media recordings and radiography data forms will be subject to validation as indicated in CCP-PO-001, Section C3-4. Comparability – The comparability of radiography data from different operators shall be enhanced by using standardized radiography procedures and operator qualifications.	□ NO	□ YES

Controlled
Copy

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

Batch Data Report No.:_____

Description		
27. Is the RTR examination for RH waste? If no, proceed to comment section.	□ NO	□ YES
27a. Have the RH QAOs been met (if applicable)? Precision – Precision is maintained by reconciling any discrepancies between two operators (during Independent Observation and Replicate scans) with regard to the identification of important waste characteristics (i.e., physical form of the waste and absence of prohibited liquids) within a single container. Accuracy – Accuracy is obtained by using a target to tune the image for maximum sharpness and by requiring operators to successfully identify prohibited liquid in a training container during their initial qualification and subsequent requalification. Representativeness – All of the relevant contents in a container selected for radiography will be described. Completeness – All of the relevant waste information must be assembled and must show that each of the containers in the waste stream belongs to the waste stream. This information must be documented on videotape or other equivalent media and data form. Comparability – Comparability is ensured by meeting the program training requirements and complying with the minimum standards used to implement the radiography process.	□ NO	□ YES

Comments:

I have reviewed 100% of the container specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Controlled
Copy

Attachment 4 – CCP Radiography Batch Data Report Table of Contents and Batch Narrative

Batch Data Report No.:_____ Date:_____

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

Batch Narrative

RTR Operator _____ Signature _____ Date _____

Controlled
Copy

Attachment 5 – CCP Radiography Batch Data Report Cover Sheet

Site ID:_____

Batch Data Report No.:_____ ☐ CH ☐ RH _____ Date:_____

Waste Container ID Numbers	
Replicate Scan:	
Independent Observation:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

RTR Operator:

Printed Name Signature Date

Independent Technical Reviewer:

Printed Name Signature Date

Obsolete

CCP-TP-113

Revision 16

CCP
Standard Contact-Handled Waste Visual Examination

EFFECTIVE DATE: 04/25/2011

Larry Porter

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	03/26/2004	Initial Issue.
1	04/02/2004	Incorporated Facility Oversight Review Committee Comment resolutions, from Los Alamos National Laboratory, into Sections 1.0, 2.0 and 4.0.
2	07/15/2004	Revised in response to CBFO CAR #04-026. The change in this document involved addition of a note for clarification and implementation on percent fill of a drum. As such, this change is data quality affecting.
3	01/25/2005	Made corrections to procedure per LANL, to comply with the MSA review.
4	12/22/2005	Revised Table 4 to add the weight of an 85- and 110-Gallon Drum as well as a 55-Gallon 12-mil. Plastic Bag. Revised responsibility for pagination of the BDR.
5	08/28/2006	Revised to address CAR LANL-0006-06.
6	11/16/2006	Revised to implement changes to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/RH PMR.
7	03/19/2007	Revised to clarify notes and procedural steps. Revised to record Output Drum information in Section 4 of Attachment 1. Revised to record Waste Container ID on each page of Attachment 1.
8	09/04/2007	Revised to separate and clarify each Visual Examination (VE) process. Revised Attachment 1, CCP Waste Visual Examination Data Form and Attachment 2, CCP Waste VE Independent Technical Reviewer Checklist, to support the changes. Added new Section 4.11, Newly Generated Waste Container Data Submission, and Attachment 5, CCP Newly Generated Waste Container Data, to assist in container tracking. Incorporated additional editorial changes.
9	03/05/2008	Revised to add a step to Section 2.4 for use of Host site procedures for anomalous conditions. Attachment 1, Section 5, Prohibited Items revised to be consistent with Central Characterization Project (CCP) Nondestructive Examination (NDE) procedures and made additional editorial changes.

Obsolete

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
10	07/09/2008	Revised to address U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Request (CAR) Number CAR-08-021 and New Mexico Environmental Department (NMED) Observer Inquiry from Audit A-08-16. Also, revised to maintain control of internal package/items so that payload containers are surveyed at <200 millirem per hour (mrem/hr).
11	11/12/2008	Revised to incorporate concurrent use with CCP-TP-163, *CCP Standard Visual Examination of Records*.
12	12/01/2008	Minor revision to add notes for clarification of visual examination (VE) of record.
13	03/11/2009	Revised to address the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Report (CAR) Number 09-015 and Environmental Protection Agency (EPA) Issue Numbers INL-CCP-RH-VE-T1-002CR, 003CR, and 007CR.
14	06/30/2010	Revised to incorporate modifications to Hazardous Waste Facility Permit. Revised to address CBFO Corrective Action Report (CAR) 10-019. Revised to address procedural steps, to accommodate the visual examination (VE) process for newly generated waste and to make additional editorial changes.
15	12/29/2010	Revised to clarify independent technical reviewer (ITR) independence.
16	04/25/2011	Revised to remove recording location and clarify transportation packaging requirements.

Obsolete

TABLE OF CONTENTS

1.0 PURPOSE 6
1.1 Scope 6

2.0 REQUIREMENTS 7
2.1 References 7
2.2 Training Requirements 7
2.3 Equipment List 7
2.4 Precautions and Limitations 7
2.5 Prerequisite Actions 8
2.6 Definitions 8

3.0 RESPONSIBILITIES 10
3.1 Site Project Manager (SPM) 10
3.2 Visual Examination Expert (VEE) 10
3.3 Visual Examination Operator (VEO) 10
3.4 Independent Technical Reviewer (ITR) 10
3.5 Vendor Project Manager (VPM) 10
3.6 Facility Records Custodian 10

4.0 PROCEDURE 11
4.1 General Information and Performance Checks 11
4.2 Previously Packaged Input Waste Container Preparation. 15
4.3 Output Waste Container Verification 16
4.4 Visual Examination (VE) 18
4.5 Container Lid Installation and Closure Verification 24
4.6 Batch Data Report Preparation 25
4.7 VE Independent Technical Review 26
4.8 Newly Generated Waste Container Data Submission 26

5.0 RECORDS 28

Obsolete

LIST OF TABLES

Table 1. Prohibited Items 29
Table 2. Layers of Confinement 30
Table 3. Waste Material Parameters 31
Table 4. Waste Item Weights and Weighing Codes 32

LIST OF ATTACHMENTS

Attachment 1 – CCP Waste Visual Examination General Information Form 35
Attachment 2 – CCP Waste Visual Examination Data Form 36
Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist 41
Attachment 4 – CCP Waste VE Batch Data Report Table of Contents 43
Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet 44
Attachment 6 – CCP Newly Generated Waste Container Data 45

Obsolete

1.0 PURPOSE

CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Section C-3c, requires that containers be examined to verify the physical form of the waste and to identify items that are prohibited from disposal at the Waste Isolation Pilot Plant (WIPP). This procedure establishes how to perform visual examination (VE) of contact-handled (CH) transuranic (TRU) waste containers, which may include the removal of prohibited items; and how to prepare and review Batch Data Reports (BDRs) generated from the VE process. This procedure is designed to be accomplished in conjunction with Host site facility operating procedures that address the use of those facilities for VE. All Host site requirements for health, safety, and operations in the work place will be addressed in a Host site procedure.

1.1 Scope

This procedure applies to retrievably stored and newly generated S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste streams. VE will be used when necessary to examine a waste container to verify its physical form and to detect and remediate items that are prohibited from disposal at the WIPP.

VE cannot identify prohibited items imbedded in forms, such as S3000 and S4000, when the material is not removed from the characterized container.

VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if Carlsbad Field Office (CBFO) approves the method for the specific waste form, typically from a surveillance.

There are two methods allowed for performing a VE process. Method 1 uses one VE Operator (VEO) with audio/video recording of the process, and Method 2 uses two VEOs (without audio/video recording of the process).

Full use of this procedure is **NOT** currently authorized at Los Alamos National Laboratory (LANL), in that processing of a prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at this time.

Obsolete

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*

Referenced Documents

- 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 performing this procedure 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 Torque Wrenches

2.3.2 Certified VE Scale, as needed

2.3.3 Certified Container Scale

2.3.4 Certified Weights

2.4 Precautions and Limitations

2.4.1 Processing of prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at LANL at this time.

2.4.2 Containers with a total dose rate >200 millirem per hour (mrem/hr) at surface SHALL **NOT** be processed under this procedure.

Obsolete

2.4.3 Host site procedures may be used in conjunction with this procedure in order to handle anomalous conditions, as necessary.

2.5 Prerequisite Actions

2.5.1 Prepare containers for VE in accordance with Host site procedures.

2.5.2 Ensure **NO** hold tags that would prevent the performance of VE are on the containers before proceeding.

2.5.3 Review the radiation levels of the containers before proceeding.

2.5.4 Ensure Method 1 or Method 2 for performing the VE has been determined by the Site Project Manager (SPM).

2.5.5 Ensure Input Waste Container(s) is on the AK Tracking Spreadsheet (if applicable).

2.5.6 For Newly Generated waste processing, confirm that waste is described in an approved Acceptable Knowledge (AK) Summary Report.

2.6 Definitions

2.6.1 **Calibration Due Date** – The date recorded on a tool's or scale's sticker/label that indicates the last date the tool or scale is in calibration.

2.6.2 **Method 1** – One VEO with audio/video recording of the process created during VE.

2.6.3 **Method 2** – Two VEOs (without audio/video recording of the process) performing VE. Each VEO shall observe for themselves the waste being placed in the waste container or the contents within the examined waste container when the waste is not removed.

2.6.4 **Outermost Container** – Outer container that holds waste at time of VE.

2.6.5 **Internal Container** – A container inside the outermost container examined during visual examination. Drum liners, liner bag, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.6.6 **Observable Liquid** – Liquid that is observable by a qualified operator performing VE of the waste.

Obsolete

2.6.7 **Field Records** – are records which are generated in the field under adverse conditions (i.e., personnel are wearing Anti Cs), which need to be transcribed into a final format for legibility. Field records shall be obtained using the forms from this procedure to ensure the required information is obtained. The field record shall be signed and dated by the operator(s) performing the task. Field records that are transcribed will be included in the Batch Data Reports to ensure the absence of transcription errors.

2.6.8 **Package Control Indicator (PCI)** – A device with a unique identifier that is used when a package is uncontrolled.

Obsolete

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Determines the use of Method 1 or Method 2 for performing a VE process.

3.2 Visual Examination Expert (VEE)

3.2.1 Responsible for the overall direction and implementation of the VE operations.

3.3 Visual Examination Operator (VEO)

3.3.1 Performs the VE.

3.3.2 Assembles, paginates, and reviews the BDR.

3.4 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be someone, other than the VEO, who is qualified to have performed the work and who was not involved in the generation or recording of the data under review.

3.4.1 Reviews the BDR.

3.5 Vendor Project Manager (VPM)

3.5.1 Ensures the safe operation of the VE process.

3.5.2 Ensures all personnel maintain proficiency and identifies any additional training that may be required.

3.5.3 Coordinates remediation of prohibited items with the Host site.

3.5.4 Facilitates container tracking and management.

3.6 Facility Records Custodian

3.6.1 Receives, processes, and transmits all records generated by this procedure in accordance with CCP-QP-008, *CCP Records Management*.

Obsolete

4.0 PROCEDURE

NOTE

Weights will be recorded in kilograms (kg) out to one tenth of a kg.

A Testing Batch includes all data pertaining to VE for up to 20 waste containers without regard to waste matrix.

If, during the performance of VE, multiple Input Waste Containers are used to produce an Output Waste Container or multiple Output Waste Containers are generated from an Input Waste Container, separate data sections shall be completed for each waste container, as applicable.

N/A shall be marked in all fields of the Attachments that are not applicable.

The sections of this procedure may be performed independently and concurrently to accommodate the VE process; however, the internal steps should be performed in order. The internal steps in this procedure may only be performed in a different order than specified when required by Host site facility-specific operation procedures or as otherwise directed in that section.

For VE of Newly Generated Waste, Section 4.2 is not performed.

Remediation of prohibited items (e.g., removal, absorption, etc.) may be performed in unison with Waste Material Parameter (WMP) identification (ID).

Prohibited items are listed in Table 1, Prohibited Items, are remediated per Host site procedures, as necessary.

Any liquid in non-transparent internal containers, detected from shaking the internal container, will be handled by assuming that the internal container is filled with liquid.

Data changes and requisite approvals SHALL be made by the individual or individuals who originally collected the data, **OR** by an equally-qualified individual or individuals authorized to change data.

VEO

4.1 General Information and Performance Checks

4.1.1 Record Batch Data Report No. on Attachment 1, CCP Waste Visual Examination General Information Form, and Attachment 2, CCP Waste Visual Examination Data Form, (xxVEzzyyyy - where xx is the Site Identifier [e.g., LA for LANL], zz is the VE area identifier, and yyyy is a sequential number for that site).

Obsolete

[A] Record the following information on Attachment 1:

[A.1] Mark applicable VE process to be performed.

[A.2] Mark VE Method used.

[A.3] Site ID

[A.4] Examination Date

[A.5] Procedure No.

[A.6] Revision No.

4.1.2 Camera(s) Check (Method 1)

NOTE

If the VE continues for more than one day, a camera check will be conducted prior to continuing the VE for the new day. The results of the second camera check will be recorded on the audio/video media and noted in the Comments block on Attachment 1. The audio/video camera will be checked prior to each VE BDR to ensure proper operation of the camera. The test image segment SHALL remain intact without being erased or recorded over.

[A] **IF** audio/video recording will **NOT** be created, **THEN** mark N/A on Attachment 1, **AND** GO TO step 4.1.3.

[B] Record the Date, Container ID Number(s), BDR Number, and the Audio/Video Media Recording Number on the Audio/Video Media Label.

[C] Ensure the audio/video media is at its beginning or at the point where recording was stopped the previous day.

[D] Start the camera(s).

[E] Record a test image and narrative.

[F] Review the test segment by playing the audio/video media, **AND** verify the image is in focus and the narration is clear.

[G] Save the test recording (i.e., stop the audio/video media at the end of the playback).

[G.1] **IF** the results are UNSAT,
THEN notify the Visual Examination Expert (VEE) and Vendor Project Manager (VPM).

(a) **WHEN** the camera/audio/video media recording system is operational,
THEN repeat steps 4.1.2[D] through 4.1.2[H].

[H] Record the results of the camera/audio/video media recording check as SAT on Attachment 1.

4.1.3 Scale Operational Check

NOTE

If the VE continues for more than one day, a scale operational check will be conducted prior to continuing the VE for the new day. The results will be recorded in the Comments block on Attachment 1.

The VEE will determine when the VE Scale or the Container Scale will not be used. This section will be performed when scales are used in the performance of the VE process.

[A] VE Scale

[A.1] **IF** VE Scale is **NOT** used,
THEN mark N/A on Attachment 1, **AND** GO TO step 4.1.3[B].

[A.2] Start the camera(s) in the record mode for the Scale Operational Check, as applicable.

[A.3] Verbally record the Scale Serial/ID Number and the Calibration Due Date on the audio/video media, if in use, **AND** record the data on Attachment 1.

[A.4] Place test weight(s) on the scale to verify the scale's operability.

(a) **IF** the reading is within the scales calibration tolerance,
THEN record as SAT on Attachment 1.

(b) **IF** the reading is **NOT** within the scales calibration tolerance,
THEN STOP WORK, **AND** notify the VPM,
AND record as UNSAT on Attachment 1.

Obsolete

[A.5] Record the following Test Weight Information data on Attachment 1:

(a) Test Weight Serial/ID Number and Calibration Due Date for each weight used.

(b) Test Weight Total placed on the scale.

(c) Tray Weight, as required.

[A.6] With the tray placed on the scale, set the Tare to zero, as required.

[B] Container Scale

[B.1] Record the Scale Serial/ID Number and the Calibration Due Date on Attachment 1.

[B.2] Perform an operational check of the scale as follows:

(a) Place a known check weight(s) on the scale, **AND** verify the scale reads within 1.0 percent of the check weight used.

(a.1) **IF** the scale reads within the operational range,
THEN record SAT on Attachment 1.

(a.2) **IF** the scale reads outside of the operational range,
THEN, SUSPEND WORK, **AND** notify the VPM **AND** record as UNSAT on Attachment 1.

4.1.4 Record the following on Attachment 1:

[A] Method 1

<u>VEO 1</u>

[A.1] Print name, sign, and date.

[A.2] Mark VEO 2 as N/A.

Obsolete

[B] Method 2

VEO 1

[B.1] Print name, sign, and date.

VEO 2

[B.2] Print name, sign, and date.

4.2 Previously Packaged Input Waste Container Preparation.

NOTE
Section 4.2 is not performed for VE of Newly Generated Waste.

4.2.1 Record the Input Waste Container ID in Section 1, Output Waste Container Data, of Attachment 2.

NOTE
When performing Method 1, audio/video media recording is created to document activities that manipulate waste during the VE. It is expected that recording will be halted whenever VE is suspended. If recording is suspended, the reason is verbally documented on the audio/video media.

4.2.2 Position the camera(s) to record the VE of the Input Waste Container and its contents, **AND** start the camera(s) (if using Method 1).

4.2.3 Record verbally the Input Waste Container ID (if using Method 1).

NOTE
The Radiological Control Technician (RCT) SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.2.4 Remove/verify removal of the input waste container lid in accordance with Host site procedures.

[A] **IF** a rigid liner lid is present, **AND** the rigid liner lid is **NOT** vented (>0.3 in.) or filtered,
SUSPEND WORK, **AND** notify the VPM

[B] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

Obsolete

NOTE

VE on large or heavy packages/items SHALL be performed as they are removed from the container.

Waste from the Input Waste Container may be segregated for VE as determined by the VEO.

4.2.5 Remove/verify removal of the waste from the Input Waste Container, as appropriate.

4.2.6 Open/verify opening of waste package/items, as appropriate.

4.3 Output Waste Container Verification

4.3.1 Record the following data for the Output Waste Container in Section 1 of Attachment 2:

[A.1] Output Waste Container ID

[A.2] Waste Stream ID

[A.3] Container Type (e.g., 55-gallon drum)

[A.4] TRUCON Code

[A.5] Waste Matrix Code

[A.6] Audio/Video Media Recording Number (if applicable)

NOTE

The RCT SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.3.2 Perform the following, **AND** record the applicable data for the Output Waste Container in Section 1 of Attachment 2:

[A] Record Output Waste Container Tare Weight.

[B] Remove the container lid in accordance with Host site procedures, as applicable.

[C] **IF** a rigid liner is **NOT** present,
THEN perform the following:

[C.1] Record NO, Rigid Liner Present?

Obsolete

[C.2] Record NO, Rigid Liner Lid Present?

[C.3] Record N/A, Rigid Liner Lid is Vented (>0.3 in.), Filtered, and Serial No.?

[C.4] GO TO step 4.3.2[G].

[D] **IF** a rigid liner is present,
THEN record YES, the Type of Liner, and Thickness.

[E] **IF** a rigid liner lid is NOT present,
THEN record NO **AND** perform the following**:**

[E.1] Record N/A, Rigid Liner Lid is Vented (>0.3 in.) or Filtered?

[E.2] GO TO step 4.3.2[G].

[F] **IF** a rigid liner lid is present,
THEN record YES, **AND** perform the following**:**

[F.1] **IF** the rigid liner lid is vented (punctured) **AND** the puncture is >0.3 inches,
THEN record Vented, **AND** measure and record the Hole Size.

[F.2] **IF** the rigid liner lid is filtered,
THEN record Filtered, **AND** the Model No. and Serial No.

[F.3] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

[G] **IF** a bag liner is used,
THEN record YES.

[H] **IF** NO bag liner is used,
THEN record NO.

Obsolete

4.4 Visual Examination (VE)

NOTE

Steps 4.4.1 through 4.4.8 may be repeated, as necessary, until loading of the Output Waste Container is complete.

Waste container(s) SHALL be closed and have a PCI applied when access to the container is uncontrolled.

A new Section 2 of Attachment 2 SHALL be used each time the waste container is opened, the PCI is removed, and waste is added.

Steps 4.4.1 through 4.4.5 may be performed in any order to accommodate the process.

Individual package/item(s) may be inspected and have a Section 2 of Attachment 2 completed for each, prior to bag out. A PCI may be applied to these package/item(s) for verification purposes.

4.4.1 **IF** a container PCI is applied to the waste container lid, **THEN** remove PCI in accordance with Host site procedures, **AND** record Removed Container PCI Number in Section 2 of Attachment 2, as required.

4.4.2 Remove lid in accordance with Host site procedures, as required.

4.4.3 Position that camera(s) to record the VE of the Output Waste Container and its contents, **AND** start the camera(s), as applicable.

4.4.4 Record verbally the Output Waste Container ID, as applicable.

NOTE

When performing Method 1, the camera(s) may require repositioning to record (audio/video) the weighing and final weight of each package from the container.

4.4.5 Examine the waste, **AND** record the applicable data in Section 2 of Attachment 2, except as noted:

[A] Date.

[B] Record Package Number, as applicable.

Obsolete

NOTE

VEE will make determination on the disposition of waste > 200 mrem/hr at the surface.

[C] **IF** the waste is > 200 mrem/hr at the surface, **AND** is going to be placed into the Output Drum,
THEN perform the following:

(a) **WHEN** loading the waste,
THEN position as close as reasonably achievable to the side of the output container.

(b) **IF** the waste is a can with material in it,
THEN document it in the Comments block of Section 1 of Attachment 2.

[D] Record Waste Description.

[E] Determine the contents by WMP category per Table 3, **AND** document as follows:

[E.1] Ensure that there are no prohibited items present in the waste package/item.

NOTE

WMP weight and the method used to determine the weight of the WMP from Table 4, Waste Item Weights and Weighing Codes, may be recorded in Steps 4.4.5[E.2] **OR** 4.4.9 **OR** 4.4.14[A] to accommodate the process.

[E.2] Weight of each WMP and the method used to determine the weight of the WMP from Table 4, as required.

[F] Place a PCI on the package/item **AND** record the number, as required

[G] Place the package/item into the Output Waste Container as needed.

[H] **IF** package/item(s) are not to be direct loaded,
THEN record the following in Section 2 of Attachment 2:

Obsolete

VEO 1

[H.1] Print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

(a) **IF** Method 1 is being performed, **THEN** mark VEO 2 as N/A.

VEO 2

[H.2] **IF** Method 2 is being performed, **THEN** print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

4.4.6 **IF** loading an Output Waste Container(s) with package/items(s) that were previously inspected, **THEN** obtain appropriate Section 2(s) for items being loaded **AND** verify the information recorded on the Section 2(s) matches the package/items.

[A] **IF** package/item information recorded DOES **NOT** match the package/item, **THEN** SUSPEND work and notify VPM.

4.4.7 Record Output Waste Container ID in Section 2 of Attachment 2.

4.4.8 Place the package/item into the Output Waste Container, as needed.

4.4.9 Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

4.4.10 **IF** additional waste packages/item(s) are to be added at a later time and access to the waste container is going to be left uncontrolled, **THEN** perform the following:

[A] Apply the container PCI to the waste container in accordance with Host site procedures, **AND** record the applied PCI Number on Section 2 of Attachment 2, as required.

Obsolete

VEO

4.4.11 **IF** loading an Output Waste Container(s) with package/item(s) that were previously inspected, AND the loading is completed for the day,
THEN record the following on Section 2 of Attachment 2:

VEO 1

[A.1] **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[A.2] **IF** Method 2 is being performed,
THEN print name, sign and date.

4.4.12 **WHEN** loading of the Output Waste Container is complete,
THEN perform the following:

[A] Paginate page(s) of Section 2 of Attachment 2.

[B] Record the data listed below for the Output Waste Container in Section 1 of Attachment 2 as follows:

NOTE

The Volume Utilization Percentage (VUP) of the 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 five percent increments (e.g., 35%, 40%, 45%).

[B.1] Estimate the VUP.

[B.2] Record NO or YES, to indicate whether the waste is consistent with the assigned Waste Stream Description and Waste Matrix Code.

(a) **IF** NO,
THEN initiate a Nonconformance Report (NCR) in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

[B.3] Record Closure Method for layers of confinement, if applicable (see Table 2, Layers of Confinement).

Obsolete

[B.4] Using Table 2, determine the number and record the Number of Layers of Confinement, as applicable.

[C] GO TO Section 4.5 for Output Waste Container Lid Installation and Closure Verification.

4.4.13 Apply the PCI to the waste container **AND** record the applied PCI Number on Section 2 of Attachment 2, as required.

4.4.14 Record the Gross Weight by weighing the Output Waste Container after it is released to be moved to its staging area, in Section 1 of Attachment 2.

[A] Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

4.4.15 Perform the following, **AND** record the data in Section 3 of Attachment 2:

[A] Weigh or use Table 4 to estimate the weight of the Packaging Materials of the Output Waste Container, **AND** Total Packaging Weight.

[B] Weights of the WMPs by reviewing the WMPs listed in Section 2(s) of Attachment 2, **AND** combine all consistent WMPs.

[C] Total the WMPs, **AND** record the Total WMP Weight.

[D] Ensure the total of the WMP weights (Section 3, Attachment 2) is within five percent of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight (Section 1, Attachment 2).

4.4.16 Record the following information in Section 4, Prohibited Item(s) Summary, of Attachment 2:

[A] Output Waste Container ID.

Obsolete

[B] **IF** Section 2(s) of Attachment 2 were completed for individual package/items(s),
THEN verify signatures in Section 2(s) of Attachment 2, answer questions in Section 4 of Attachment 2 NO **OR** NA, as applicable.

[C] **IF** packaged/item(s) were direct loaded into Output Waste Container,
THEN answer NO, YES, or N/A appropriately, to the questions in Section 4 with all explanations annotated in the Comments block of Section 4 of Attachment 2.

[C.1] **IF** YES is marked in Section 4,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

4.4.17 Determine (e.g., via Radiological Label or Dose Rate Survey) if the total dose rate of the waste container is >200 mrem/hr at the surface, **AND** record YES or NO in Section 1 of Attachment 2.

[A] **IF** the total dose rate is >200 mrem/hr at the surface,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record NCR No. in Section 1 of Attachment 2.

4.4.18 STOP the camera(s) recording when VE is complete, as applicable.

4.4.19 Ensure YES or NO is recorded in Section 1 of Attachment 2 to indicate if any NCRs are associated with the applicable waste container.

[A] **IF** YES,
THEN ensure the appropriate NCR number(s) are recorded.

NOTE

All areas in the attachments that DO **NOT** have completed information SHALL be marked N/A.

4.4.20 Ensure Examination date recorded on Attachment 1 is the date the examination was completed.

Obsolete

4.4.21 Record the following in Section 5, Approvals, of Attachment 2:

[A] Method 1

VEO 1

(a) Print name, sign, and date to annotate that the VE process has been completed.

(b) Mark VEO 2 as N/A.

(c) Prepare two (2) audio/video media recordings.

[B] Method 2

VEO 1

[B.1] Print name, sign, and date to annotate that the VE process has been completed.

VEO 2

[B.2] Print name, sign, and date to annotate that the VE process has been completed.

VEO

4.4.22 Affix new CCP Container Traveler(s) (Labels) to the Output Waste Container(s) in accordance with appropriate CCP Site Container Management procedure, as necessary.

4.4.23 **WHEN** all containers for a batch are complete, **THEN** GO TO Section 4.6.

4.5 Container Lid Installation and Closure Verification

NOTE

Steps 4.5.1[A], [B], [C], [D], and [E] may be performed at any time during or after, Output Waste Container setup.

4.5.1 Perform the following, **AND** record the applicable data, for the Output Waste Container, in Section 1 of Attachment 2:

[A] Verify the Filter and Lid Ring/Bolt Torque Wrenches to be used are in calibration.

Obsolete

[B] Filter Torque Wrench Serial/ID Number and Calibration Due Date.

[C] Container Lid Filter Model and Serial Number.

[D] Ensure the filter is installed in accordance with the manufacturer's instructions.

[E] Torque the filter to the manufacturer's specifications, **AND** record the Torque Value.

[F] Ensure the container lid is installed in accordance with the manufacturer's instructions.

[G] Lid Ring/Bolt Torque Wrench Serial/ID Number and Calibration Due Date.

[H] Torque the Container Lid Ring/Bolt(s) to the manufacturer's specifications, **AND** record the Torque Value.

4.5.2 GO TO step 4.4.13 as applicable.

VEO

4.6 Batch Data Report Preparation

4.6.1 Verify Field Records have been transcribed into the appropriate forms.

4.6.2 Assemble the following data for the BDR ensuring that the BDR number and, Examination Date, and Output Waste Container ID(s), as needed, are recorded on each Attachment:

[A] Attachment 5, CCP Waste VE Batch Data Report Cover Sheet

[B] Attachment 4, CCP Waste VE Batch Data Report Table of Contents

[C] Attachment 1, CCP Waste VE General Information Form

[D] Attachment 2, CCP Waste Visual Examination Data Form

[E] Attachment 3, CCP Waste VE Independent Technical Reviewer Checklist

[F] Copies of NCRs, if applicable

Obsolete

[G] Field Records, if applicable

4.6.3 Paginate the BDR.

4.6.4 Complete Attachment 4.

4.6.5 Forward the BDR package and the audio/video media, if applicable, to the ITR.

4.7 VE Independent Technical Review

NOTE

The independent technical review is conducted by an individual who is qualified to have performed the initial work, but who is **NOT** directly responsible for performing the work. The ITR can **NOT** review his/her own work.

If any item on Attachment 3 is marked NO and the condition **CAN NOT** be mitigated, an NCR will be initiated, per CCP-QP-005, **AND** only as a single NCR that identifies all deficiencies.

Independent Technical Reviewer (ITR)

4.7.1 Review the BDR to the criteria in Attachment 3, **AND** document.

4.7.2 Items marked NO require explanation in the Comments block, **AND** items marked NA may require explanation in the Comments block, as necessary to clarify.

4.7.3 Print, sign, and date Attachment 3 and Attachment 5.

4.7.4 Forward the BDR and the audio/video media, if applicable, to the Facility Records Custodian.

Facility Records Custodian

4.7.5 Receive, process, and transmit the BDR and the audio/video media, if applicable, in accordance with CCP-QP-008.

4.8 Newly Generated Waste Container Data Submission

VPM/Designee

4.8.1 Complete Attachment 6, CCP Newly Generated Waste Container Data, for newly generated waste containers generated during the performance of VE for the BDR.

4.8.2 Print name, sign, and date Attachment 6.

Obsolete

4.8.3 Transmit the Attachment 6 to the Facility Records Custodian and transmit a copy of Attachment 6 to the cognizant Acceptable Knowledge Expert (AKE).

Facility Records Custodian

4.8.4 Receive, process, and transmit the Attachment 6 in accordance with CCP-QP-008.

Obsolete

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 <u>QA/Lifetime</u>

[A] Batch Data Report (BDR)

[A.1] Attachment 1 – CCP Waste Visual Examination General Information Form

[A.2] Attachment 2 – CCP Waste Visual Examination Data Form

[A.3] Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

[A.4] Attachment 4 - CCP Waste VE Batch Data Report Table of Contents

[A.5] Attachment 5 - CCP Waste VE Batch Data Report Cover Sheet

[A.6] Copies of NCRs, if applicable

[A.7] Field Records, if applicable

[B] Attachment 6 - CCP Newly Generated Waste Container Data

5.1.2 <u>QA/Nonpermanent</u>

[A] Two (2) Audio/Video Media Recordings (VHS Tape or DVD), if applicable

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste is not acceptable at WIPP - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid -Overpacking the outermost container that was examined or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.
Non-Radionuclide 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)
Polychlorinated Biphenyl (PCB) Liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat-sealed bags (unvented) with a surface area <390 square inches
Sharp or heavy objects (Large, bulky dense objects with sharp and obtrusive members or components with dispersible Form 1 and 2) (e.g., steel or concrete boxes, steel plate, electric motors, steel pipe, or concrete blocks) not adequately blocked, braced, or packaged.
Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of CCP-PO-001.

Obsolete

Table 2. Layers of Confinement

Container [a]		**Plastic Bags**		**Metal Cans**	
Twist and Tape	CTT/STT	Twist and Tape	TT	Sealed	C
Fold and Tape	CFT/SFT	Fold and Tape	FT		
Other Closure	COC/SOC	Other Closure	OC		
Vented	(add) F	Vented	(add) F	Vented	(add) F

[a] Container: "C" - Container
"S" - Standard Waste Box (SWB)

Liner lids and packaging layers are distinguished as follows:

Layers of confinement are defined, per Section 3.8 of the CH-TRU Payload Appendices, as any boundary that restricts, but does not prohibit, the release of hydrogen gas across the boundary.

Examples of confinement layers are plastic bags (smaller inner bags or larger container liner bags) with the allowable closure methods described below and metal containers fitted with filter vents.

- Fold and tape closure
- Twist and tape closure
- Heat-seal closure or twist and tape closure with a minimum of one filter vent

NOTE

Punctured plastic bags, liner bags open at the end, pieces of plastic sheeting wrapped around the waste for handling, and metal containers with lid closures that allow free hydrogen release are not considered as confinement layers.

Obsolete

Table 3. 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) (PW)	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)	Container (e.g., 208-liter [55-gal.] drums)
Plastics (packaging materials) (PP)	Liner (e.g., 90-mil polyethylene drum liner and plastic bags)

Table 4. Waste Item Weights and Weighing Codes Page 1 of 3

ITEM	WEIGHT
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
10’ Tape Measure	0.1 kg
Channel Lock Pliers	0.3 kg
Crescent Wrench	0.2 kg
Flashlight With Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw With Blade	0.5 kg
Hammer	0.6 kg
Large Open-End Wrench	0.5 kg
Razor Knife	0.1kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder’s Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
13 oz. Aerosol Can ¼ Full	0.2 kg
17 oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2’ X 4’ Board 20" long	0.7 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Empty POC	154.2 kg
Empty SWB	290.3 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg
5-Gallon Metal Bucket	1.3 kg
Metal Can	0.2 kg
Metal Can (for salt wastes)	1.1 kg
Aluminum Sphincter Can	0.2 kg
Sand Bag ½ Full of Gravel	12.7 kg
Plastic Bag for Waste	0.6 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg
55-Gallon 10-mil Plastic Bag (each)	1.8 kg
55-Gallon 5-mil Plastic Bag (each)	0.3 kg
55-Gallon 12-mil Plastic Bag (each)	2.1 kg
O-ring Plastic Bag (e.g., sludge, organic setups)	9.0 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 2 of 3

ITEM	WEIGHT
55-Gallon Drum PVC O-ring Bag (60.96 x 213.36 cm)	22.0 kg
55-Gallon Fiberboard Disk	48.0 kg
55-Gallon Drum Round Bottom 10-mil Liner	9.0 kg
(White) 55-Gallon Drum 90-mil Rigid Liner No Lid, used at LANL	4.3 kg
55-Gallon Drum 110-mil Rigid Liner	7.6 kg
(Black) 55-Gallon Drum 125-mil Rigid Liner No Lid, used at LANL	7.6 kg
55-Gallon Drum Poly Liner (122 x 122 x 213 cm)	12.0 kg
55-Gallon Cardboard Liner (graphite mold waste)	9.0 kg
55-Gallon Fiberboard Drum Liner (122 x 122 x 213 cm)	9.0 kg
55-Gallon Lead Liner, 180 cm long, 0.16 cm thick	23.0 kg
55-Gallon Lead Liner, 180 cm long, 0.32 cm thick	46.0 kg
Fiber Pack	13.0 kg
Fiber Pack Lead-Lined	66.0 kg
HEPA Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
Lead Brick (5.1 x 10 x 20 cm)	12.0 kg
Oil-Dry	0.4 kg/liter
Vermiculite	0.1 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Setup Portland Cement	1.1 kg/liter
Uncured Portland Cement	2.9 kg/liter
Leaded Glovebox Glove	0.8 kg
Leaded Rubber Glove	2.5 kg
Leaded Rubber Glove	12.0 kg
Leaded Rubber Apron	2.4 kg
Leaded Rubber Apron	11.5 kg
Coveralls	0.9 kg
25’ Plastic Suit Hose	2.3 kg
50’ Plastic Suit Hose	5.0 kg
Plastic Suit Top and Pants	2.3 kg
55-Gallon Drum (painted – tan or white)	27.7 kg
55-Gallon Drum (painted – mustard yellow)	24.0 kg
55-Gallon Drum (painted – green)	30.0 kg
55-Gallon Drum (painted – grey)	26.3 kg
55-Gallon Drum (galvanized)	29.0 kg
85-Gallon Drum (painted)	37.2 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 3 of 3

ITEM	WEIGHT
Item Description (1 lb = 0.454 kgs) (All containers are 55-gal drums, unless otherwise noted	
110-Gallon Drum (painted)	45.0 kg
Lead-Lined Drum (1/16" thick, 28" high by 72" long)	22.7 kg
Lead-Lined Drum (1/8" thick, 28" high by 72" long) (.4 lb/in.^{3})	45.4 kg
Galvanized DOT 17C (Dull Finish) [Drum Bottom Labels 00040-00705]	31.7 kg
Galvanized (Shiny Drum and Lid Finish) [Drum Bottom Labels 01391 - 01568]	24.2 kg
Hanford Galvanized (Speckled Dull Finish - UNA1A2) [Drum Bottom Labels 00754 - 00933]	30.0 kg
Myers Galvanized (Shiny Finish - Labeled G5501) [Drum Bottom Labels 01200 - 01384]	22.7 kg
Myers Galvanized (Shiny Drum/Shiny Speckled Lid - Labeled G5501) [Drum Bottom Labels 00950 - 01150]	24.0 kg
Myers Yellow Painted	21.5 kg
Rocky Flats White Painted	27.2 kg
Black 90-mil Slip Fit Lid	7.4 kg
Black 110-mil Inner Lid	7.7 kg
Black 110-mil Beveled Top	7.4 kg
White 90-mil Slip Fit Lid	7.5 kg
125-mil Rigid Liner Lid	1.3 kg
B251 Bag - Tare Weight	0.1 kg
55-Gallon Fiberboard Liner (90 Mil)	3.7 kg
5-Gallon drum (LANL)	2.3 kg
7-Gallon drum (LANL)	2.8 kg
10-Gallon drum (LANL)	7.5 kg
30-Gallon drum (LANL)	16.4 kg

Weighing Notes and Codes			
[a] Record weights in kg out to one-tenth of a kg.			
W	Weight measured by the Operator.	E	Weight estimated by Operator

Attachment 1 – CCP Waste Visual Examination General Information Form

Batch Data Report No.:_____

☐ VE for Previously Packaged Waste ☐ VE for Newly Generated Waste	
☐ Method 1 ☐ Method 2	
Site ID:	
Examination Date:	
Procedure No.:	Revision No.:
Camera/Audio/Video Media Recording Check: ☐ N/A	☐ SAT
VE Scale Information: ☐ N/A	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Test Weight Information Test Weight Total: kg. Tray Weight: kg.	Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date:
Container Scale Information:	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Comments:	
Visual Examination Operator 1: Print Name _____ Signature _____ Date _____	
Visual Examination Operator 2: Print Name _____ Signature _____ Date _____	

Attachment 2 – CCP Waste Visual Examination Data Form Page 1 of 5

Batch Data Report No.:_____

Section 1: Output Waste Container Data		
Input Waste Container ID, as applicable:		
Output Waste Container ID:	Waste Stream ID:	
Container Type:	TRUCON Code:	Waste Matrix Code:
Audio/Video Media Recording Number: ☐ N/A		
Waste Container Weights: Tare Wt: kg.	Gross Wt: kg.	
Rigid Liner Present? ☐ NO ☐ YES Type of Liner: ☐ Lead ☐ Plastic ☐ Fiberboard ☐ Other: Thickness: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐125-mil	Rigid Liner Lid Present? ☐ NO ☐ YES Rigid Liner Lid is Vented (>0.3 in.) or Filtered? ☐ NO ☐ YES ☐ N/A ☐ Vented: Hole Size: ☐ N/A ☐ Filtered: Model No.: ☐ N/A Serial No.: ☐ N/A	
Bag Liner Present? ☐ NO ☐ YES	Volume Utilization Percentage: %	
Does the physical form of the waste match the Waste Stream Description (i.e., Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals])? ☐ NO ☐ YES		
Does the physical form of the waste match the Waste Matrix Code? ☐ NO ☐ YES		
Closure Method: Number of Layers of Confinement:		
<u>Filter Torque Wrench</u> Serial/ID No.: Calibration Due Date: Filter: Model No.: Serial No.: Torque Value:	<u>Lid Ring/Bolt Torque Wrench</u> Serial/ID No.: Calibration Due Date: Lid Ring/Bolt Torque Value:	
Is total dose rate greater than 200mrem/hr? ☐ NO ☐ YES		
NCR(s) associated with the output container? ☐ NO ☐ YES NCR No.:_____ NCR No.:_____		
Comments:		

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 2 of 5

Batch Data Report No.:_____ **Date:_____**

Section 2: Waste Package Data				
Package and Package PCI Number (as applicable)	Waste Description	WMP [Table 3]	Weight (kg) [Table 4,[a]]	Weighing Code(s) [Table 4[b]]

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date
Signatures annotate the absence of prohibited items.

Output Waste Container ID:_____

PCI Removed:_____ **PCI Applied:_____**

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

Signatures of VEO's verifying the loading of the Output Waste Container. Page ____ of _____

Obsolete

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 3 of 5

Batch Data Report No.:_____

Output Waste Container ID:_____

Section 3: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight:	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal/Alloys (IM):	
Aluminum-based Metals/Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (PW):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 4 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Questions answered "YES" will be explained in the Comments block)		
	Yes	No
Is there any observable liquid in internal containers, that is more than 60 milliliters or 3 percent by volume, whichever is greater.	☐	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☐
Is there detectable observable liquid in outermost containers with an EPA Hazardous Waste Number of U134?	☐	☐
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐
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 TRUCON Code[s])?	☐	☐
Is there an indication of wastes containing explosives or compressed gases?	☐	☐
Is there PCB liquids present?	☐	☐
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☐
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐
TRUPACT II Criteria		
Are there heat-sealed bags (unvented) **GREATER** than 4 liters and LESS than 390 square inches in the waste?	☐	☐
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐
Are there sealed containers **GREATER** than 4 liters?	☐	☐
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☐

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 5 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Continued)

(Questions answered "YES" will be explained in the Comments block)

Comments:

Section 5: Approvals

Visual Examination Operator 1:

Print Name	Signature	Date

Visual Examination Operator 2:

Print Name	Signature	Date

Obsolete

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

Batch Data Report No.:_____ Page 1 of 2

Description			
1. Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☐ YES	☐ N/A
2. Was the correct revision of operating procedure used?	☐ NO	☐ YES	☐ N/A
3. Are the waste material parameters (WMPs) entered correctly?	☐ NO	☐ YES	☐ N/A
4. Verify the hand calculations on the VE Data Form for the following:			
a. WMP weight totals	☐ NO	☐ YES	☐ N/A
b. Weight totals	☐ NO	☐ YES	☐ N/A
c. Summed volume of observable liquid, as necessary	☐ NO	☐ YES	☐ N/A
d. The total of the WMP weights is within 5% of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight.	☐ NO	☐ YES	☐ N/A
5. Is the data reported in the correct units and correct number of significant figures?	☐ NO	☐ YES	☐ N/A
6. Has the data been reviewed for transcription errors?	☐ NO	☐ YES	☐ N/A
7. Does the Testing Batch Report include VE for up to 20 containers?	☐ NO	☐ YES	☐ N/A
8. BDR contents are complete and match the CCP Waste VE Batch Data Report Table of Contents?	☐ NO	☐ YES	☐ N/A
9. Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	☐ N/A
10. Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	☐ N/A
11. All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12. Were data changes made by the individual who originally collected the data or an equally qualified individual?	☐ NO	☐ YES	☐ N/A
13. Did the physical form of the waste match the Waste Matrix Code and Waste Stream Description?	☐ NO	☐ YES	☐ N/A

Obsolete

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist (continued)

Batch Data Report No.: _____ Page 2 of 2

Description			
14. Was the waste in the Output Waste Container(s) examined for prohibited items?	☐ NO	☐ YES	☐ N/A
15. Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	☐ N/A
16. Were the scale(s) in calibration prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
17. Were the scale checks SAT prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
18. Was the audio/video media recording properly prepared and labeled for each waste container?	☐ NO	☐ YES	☐ N/A
19. Was the audio/video media recording check performed satisfactorily prior to the VE?	☐ NO	☐ YES	☐ N/A
20. Precision: Was precision maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases?	☐ NO	☐ YES	☐ N/A
21. Accuracy: Was accuracy maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification and subsequent requalification (operators on LOQI)?	☐ NO	☐ YES	☐ N/A
22. Completeness: Is there a completed VE data form for each waste container in the BDR?	☐ NO	☐ YES	☐ N/A
23. Were NCRs initiated as required?	☐ NO	☐ YES	☐ N/A
Comments:			
I have reviewed 100 percent of the container-specific and batch data in this report and find it acceptable. Independent Technical Reviewer: _____ _____ _____ Printed Name Signature Date			

Obsolete

Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

Batch Data Report No.: _____ Examination Date: _____

Table of Contents		
Item	Description	Page No.
1	CCP Waste VE Batch Data Report Cover Sheet	
2	CCP Waste VE Batch Data Report Table of Contents	
3	CCP Waste Visual Examination General Information Form	
4	CCP Waste Visual Examination Data Forms	
5	CCP Waste VE Independent Technical Reviewer Checklist	
6	Copy of NCRs (N/A, If Not Applicable)	
7	Field Records (N/A, If Not Applicable)	

Obsolete

Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

Batch Data Report No.: _____ Examination Date: _____

Waste Container ID Number:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Independent Technical Reviewer:

_____	_____	_____
Print Name	Signature	Date

Obsolete

Attachment 6 – CCP Newly Generated Waste Container Data

Batch Data Report No.: _____ Examination Date: _____

Container ID	Waste Stream ID	Generation Date	Closure Date	Vent Date	Container Type

VPM/Designee:

_____ _____ _____
Print Name Signature Date

Obsolete

CCP-TP-113

Revision 17

CCP
Standard Contact-Handled Waste Visual Examination

EFFECTIVE DATE: 06/04/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

Obsolete

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	03/26/2004	Initial Issue.
1	04/02/2004	Incorporated Facility Oversight Review Committee Comment resolutions, from Los Alamos National Laboratory, into Sections 1.0, 2.0 and 4.0.
2	07/15/2004	Revised in response to CBFO CAR #04-026. The change in this document involved addition of a note for clarification and implementation on percent fill of a drum. As such, this change is data quality affecting.
3	01/25/2005	Made corrections to procedure per LANL, to comply with the MSA review.
4	12/22/2005	Revised Table 4 to add the weight of an 85- and 110-Gallon Drum as well as a 55-Gallon 12-mil. Plastic Bag. Revised responsibility for pagination of the BDR.
5	08/28/2006	Revised to address CAR LANL-0006-06.
6	11/16/2006	Revised to implement changes to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/RH PMR.
7	03/19/2007	Revised to clarify notes and procedural steps. Revised to record Output Drum information in Section 4 of Attachment 1. Revised to record Waste Container ID on each page of Attachment 1.
8	09/04/2007	Revised to separate and clarify each Visual Examination (VE) process. Revised Attachment 1, CCP Waste Visual Examination Data Form and Attachment 2, CCP Waste VE Independent Technical Reviewer Checklist, to support the changes. Added new Section 4.11, Newly Generated Waste Container Data Submission, and Attachment 5, CCP Newly Generated Waste Container Data, to assist in container tracking. Incorporated additional editorial changes.
9	03/05/2008	Revised to add a step to Section 2.4 for use of Host site procedures for anomalous conditions. Attachment 1, Section 5, Prohibited Items revised to be consistent with Central Characterization Project (CCP) Nondestructive Examination (NDE) procedures and made additional editorial changes.

Obsolete

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
10	07/09/2008	Revised to address U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Request (CAR) Number CAR-08-021 and New Mexico Environmental Department (NMED) Observer Inquiry from Audit A-08-16. Also, revised to maintain control of internal package/items so that payload containers are surveyed at <200 millirem per hour (mrem/hr).
11	11/12/2008	Revised to incorporate concurrent use with CCP-TP-163, *CCP Standard Visual Examination of Records*.
12	12/01/2008	Minor revision to add notes for clarification of visual examination (VE) of record.
13	03/11/2009	Revised to address the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Report (CAR) Number 09-015 and Environmental Protection Agency (EPA) Issue Numbers INL-CCP-RH-VE-T1-002CR, 003CR, and 007CR.
14	06/30/2010	Revised to incorporate modifications to Hazardous Waste Facility Permit. Revised to address CBFO Corrective Action Report (CAR) 10-019. Revised to address procedural steps, to accommodate the visual examination (VE) process for newly generated waste and to make additional editorial changes.
15	12/29/2010	Revised to clarify independent technical reviewer (ITR) independence.
16	04/25/2011	Revised to remove recording location and clarify transportation packaging requirements.
17	06/04/2013	Revised to incorporate the Nuclear Waste Partnership (NWP) transition changes.

Obsolete

TABLE OF CONTENTS

1.0 PURPOSE 6
1.1 Scope 6

2.0 REQUIREMENTS 7
2.1 References 7
2.2 Training Requirements 7
2.3 Equipment List 7
2.4 Precautions and Limitations 7
2.5 Prerequisite Actions 8
2.6 Definitions 8

3.0 RESPONSIBILITIES 10
3.1 Site Project Manager (SPM) 10
3.2 Visual Examination Expert (VEE) 10
3.3 Visual Examination Operator (VEO) 10
3.4 Independent Technical Reviewer (ITR) 10
3.5 Vendor Project Manager (VPM) 10

4.0 PROCEDURE 11
4.1 General Information and Performance Checks 11
4.2 Previously Packaged Input Waste Container Preparation. 15
4.3 Output Waste Container Verification 16
4.4 Visual Examination (VE) 18
4.5 Container Lid Installation and Closure Verification 24
4.6 Batch Data Report Preparation 25
4.7 VE Independent Technical Review 26
4.8 Newly Generated Waste Container Data Submission 26

5.0 RECORDS 27

Obsolete

LIST OF TABLES

Table 1. Prohibited Items 28
Table 2. Layers of Confinement 29
Table 3. Waste Material Parameters 30
Table 4. Waste Item Weights and Weighing Codes 31

LIST OF ATTACHMENTS

Attachment 1 – CCP Waste Visual Examination General Information Form 34
Attachment 2 – CCP Waste Visual Examination Data Form 35
Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist 40
Attachment 4 – CCP Waste VE Batch Data Report Table of Contents 42
Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet 43
Attachment 6 – CCP Newly Generated Waste Container Data 44

Obsolete

1.0 PURPOSE

CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Section C-3c, requires that containers be examined to verify the physical form of the waste and to identify items that are prohibited from disposal at the Waste Isolation Pilot Plant (WIPP). This procedure establishes how to perform visual examination (VE) of contact-handled (CH) transuranic (TRU) waste containers, which may include the removal of prohibited items; and how to prepare and review Batch Data Reports (BDRs) generated from the VE process. This procedure is designed to be accomplished in conjunction with Host site facility operating procedures that address the use of those facilities for VE. All Host site requirements for health, safety, and operations in the work place will be addressed in a Host site procedure.

1.1 Scope

This procedure applies to retrievably stored and newly generated S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste streams. VE will be used when necessary to examine a waste container to verify its physical form and to detect and remediate items that are prohibited from disposal at the WIPP.

VE cannot identify prohibited items imbedded in forms, such as S3000 and S4000, when the material is not removed from the characterized container.

VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if Carlsbad Field Office (CBFO) approves the method for the specific waste form, typically from a surveillance.

There are two methods allowed for performing a VE process. Method 1 uses one VE Operator (VEO) with audio/video recording of the process, and Method 2 uses two VEOs (without audio/video recording of the process).

Full use of this procedure is **NOT** currently authorized at Los Alamos National Laboratory (LANL), in that processing of a prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at this time.

Obsolete

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*
- CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*

Referenced Documents

- 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 performing this procedure 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 Torque Wrenches

2.3.2 Certified VE Scale, as needed

2.3.3 Certified Container Scale

2.3.4 Certified Weights

2.4 Precautions and Limitations

2.4.1 Processing of prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at LANL at this time.

2.4.2 Containers with a total dose rate >200 millirem per hour (mrem/hr) at surface SHALL **NOT** be processed under this procedure.

Obsolete

2.4.3 Host site procedures may be used in conjunction with this procedure in order to handle anomalous conditions, as necessary.

2.5 Prerequisite Actions

2.5.1 Prepare containers for VE in accordance with Host site procedures.

2.5.2 Ensure **NO** hold tags that would prevent the performance of VE are on the containers before proceeding.

2.5.3 Review the radiation levels of the containers before proceeding.

2.5.4 Ensure Method 1 or Method 2 for performing the VE has been determined by the Site Project Manager (SPM).

2.5.5 Ensure Input Waste Container(s) is on the AK Tracking Spreadsheet (if applicable).

2.5.6 For Newly Generated waste processing, confirm that waste is described in an approved Acceptable Knowledge (AK) Summary Report.

2.6 Definitions

2.6.1 **Calibration Due Date** – The date recorded on a tool's or scale's sticker/label that indicates the last date the tool or scale is in calibration.

2.6.2 **Method 1** – One VEO with audio/video recording of the process created during VE.

2.6.3 **Method 2** – Two VEOs (without audio/video recording of the process) performing VE. Each VEO shall observe for themselves the waste being placed in the waste container or the contents within the examined waste container when the waste is not removed.

2.6.4 **Outermost Container** – Outer container that holds waste at time of VE.

2.6.5 **Internal Container** – A container inside the outermost container examined during visual examination. Drum liners, liner bag, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.6.6 **Observable Liquid** – Liquid that is observable by a qualified operator performing VE of the waste.

Obsolete

2.6.7 **Field Records** – Records which are generated in the field under adverse conditions (i.e., personnel are wearing Anti Cs), which need to be transcribed into a final format for legibility. Field records shall be obtained using the forms from this procedure to ensure the required information is obtained. The field record shall be signed and dated by the operator(s) performing the task. Field records that are transcribed will be included in the Batch Data Reports to ensure the absence of transcription errors.

2.6.8 **Tamper Indicating Device (TID)** – A device with a unique identifier that is used when a package is uncontrolled.

Obsolete

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Determines the use of Method 1 or Method 2 for performing a VE process.

3.2 Visual Examination Expert (VEE)

3.2.1 Responsible for the overall direction and implementation of the VE operations.

3.3 Visual Examination Operator (VEO)

3.3.1 Performs the VE.

3.3.2 Assembles, paginates, and reviews the BDR.

3.4 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be someone, other than the VEO, who is qualified to have performed the work and who was not involved in the generation or recording of the data under review.

3.4.1 Reviews the BDR.

3.5 Vendor Project Manager (VPM)

3.5.1 Ensures the safe operation of the VE process.

3.5.2 Ensures all personnel maintain proficiency and identifies any additional training that may be required.

3.5.3 Coordinates remediation of prohibited items with the Host site.

3.5.4 Facilitates container tracking and management.

Obsolete

4.0 PROCEDURE

NOTE

Weights will be recorded in kilograms (kg) out to one tenth of a kg.

A Testing Batch includes all data pertaining to VE for up to 20 waste containers without regard to waste matrix.

If, during the performance of VE, multiple Input Waste Containers are used to produce an Output Waste Container or multiple Output Waste Containers are generated from an Input Waste Container, separate data sections shall be completed for each waste container, as applicable.

N/A shall be marked in all fields of the Attachments that are not applicable.

The sections of this procedure may be performed independently and concurrently to accommodate the VE process; however, the internal steps should be performed in order. The internal steps in this procedure may only be performed in a different order than specified when required by Host site facility-specific operation procedures or as otherwise directed in that section.

For VE of Newly Generated Waste, Section 4.2 is not performed.

Remediation of prohibited items (e.g., removal, absorption, etc.) may be performed in unison with Waste Material Parameter (WMP) identification (ID).

Prohibited items are listed in Table 1, Prohibited Items, are remediated per Host site procedures, as necessary.

Any liquid in non-transparent internal containers, detected from shaking the internal container, will be handled by assuming that the internal container is filled with liquid.

Data changes and requisite approvals SHALL be made by the individual or individuals who originally collected the data, **OR** by an equally-qualified individual or individuals authorized to change data.

VEO

4.1 General Information and Performance Checks

4.1.1 Record Batch Data Report No. on Attachment 1, CCP Waste Visual Examination General Information Form, and Attachment 2, CCP Waste Visual Examination Data Form, (xxVEzzyyyy - where xx is the Site Identifier [e.g., LA for LANL], zz is the VE area identifier, and yyyy is a sequential number for that site).

Obsolete

[A] Record the following information on Attachment 1:

[A.1] Mark applicable VE process to be performed.

[A.2] Mark VE Method used.

[A.3] Site ID

[A.4] Examination Date

[A.5] Procedure No.

[A.6] Revision No.

4.1.2 Camera(s) Check (Method 1)

NOTE

If the VE continues for more than one day, a camera check will be conducted prior to continuing the VE for the new day. The results of the second camera check will be recorded on the audio/video media and noted in the Comments block on Attachment 1. The audio/video camera will be checked prior to each VE BDR to ensure proper operation of the camera. The test image segment SHALL remain intact without being erased or recorded over.

[A] **IF** audio/video recording will **NOT** be created,
THEN mark N/A on Attachment 1, **AND** GO TO step 4.1.3.

[B] Record the Date, Container ID Number(s), BDR Number, and the Audio/Video Media Recording Number on the Audio/Video Media Label.

[C] Ensure the audio/video media is at its beginning or at the point where recording was stopped the previous day.

[D] Start the camera(s).

[E] Record a test image and narrative.

[F] Review the test segment by playing the audio/video media, **AND** verify the image is in focus and the narration is clear.

Obsolete

[G] Save the test recording (i.e., stop the audio/video media at the end of the playback).

[G.1] **IF** the results are UNSAT,
THEN notify the Visual Examination Expert (VEE) and Vendor Project Manager (VPM).

(a) **WHEN** the camera/audio/video media recording system is operational,
THEN repeat steps 4.1.2[D] through 4.1.2[H].

[H] Record the results of the camera/audio/video media recording check as SAT on Attachment 1.

4.1.3 Scale Operational Check

NOTE

If the VE continues for more than one day, a scale operational check will be conducted prior to continuing the VE for the new day. The results will be recorded in the Comments block on Attachment 1.

The VEE will determine when the VE Scale or the Container Scale will not be used. This section will be performed when scales are used in the performance of the VE process.

[A] VE Scale

[A.1] **IF** VE Scale is **NOT** used,
THEN mark N/A on Attachment 1, **AND** GO TO step 4.1.3[B].

[A.2] Start the camera(s) in the record mode for the Scale Operational Check, as applicable.

[A.3] Verbally record the Scale Serial/ID Number and the Calibration Due Date on the audio/video media, if in use, **AND** record the data on Attachment 1.

[A.4] Place test weight(s) on the scale to verify the scale's operability.

(a) **IF** the reading is within the scales calibration tolerance,
THEN record as SAT on Attachment 1.

(b) **IF** the reading is **NOT** within the scales calibration tolerance,
THEN STOP WORK, **AND** notify the VPM,
AND record as UNSAT on Attachment 1.

Obsolete

[A.5] Record the following Test Weight Information data on Attachment 1:

(a) Test Weight Serial/ID Number and Calibration Due Date for each weight used.

(b) Test Weight Total placed on the scale.

(c) Tray Weight, as required.

[A.6] With the tray placed on the scale, set the Tare to zero, as required.

[B] Container Scale

[B.1] Record the Scale Serial/ID Number and the Calibration Due Date on Attachment 1.

[B.2] Perform an operational check of the scale as follows:

(a) Place a known check weight(s) on the scale, **AND** verify the scale reads within 1.0 percent of the check weight used.

(a.1) **IF** the scale reads within the operational range,
THEN record SAT on Attachment 1.

(a.2) **IF** the scale reads outside of the operational range,
THEN, SUSPEND WORK, **AND** notify the VPM **AND** record as UNSAT on Attachment 1.

4.1.4 Record the following on Attachment 1:

[A] Method 1

<u>VEO 1</u>

[A.1] Print name, sign, and date.

[A.2] Mark VEO 2 as N/A.

Obsolete

[B] Method 2

VEO 1

[B.1] Print name, sign, and date.

VEO 2

[B.2] Print name, sign, and date.

4.2 Previously Packaged Input Waste Container Preparation.

NOTE
Section 4.2 is not performed for VE of Newly Generated Waste.

4.2.1 Record the Input Waste Container ID in Section 1, Output Waste Container Data, of Attachment 2.

NOTE
When performing Method 1, audio/video media recording is created to document activities that manipulate waste during the VE. It is expected that recording will be halted whenever VE is suspended. If recording is suspended, the reason is verbally documented on the audio/video media.

4.2.2 Position the camera(s) to record the VE of the Input Waste Container and its contents, **AND** start the camera(s) (if using Method 1).

4.2.3 Record verbally the Input Waste Container ID (if using Method 1).

NOTE
The Radiological Control Technician (RCT) SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.2.4 Remove/verify removal of the input waste container lid in accordance with Host site procedures.

[A] **IF** a rigid liner lid is present, **AND** the rigid liner lid is **NOT** vented (>0.3 in.) or filtered,
SUSPEND WORK, **AND** notify the VPM

[B] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

Obsolete

NOTE

VE on large or heavy packages/items SHALL be performed as they are removed from the container.

Waste from the Input Waste Container may be segregated for VE as determined by the VEO.

4.2.5 Remove/verify removal of the waste from the Input Waste Container, as appropriate.

4.2.6 Open/verify opening of waste package/items, as appropriate.

4.3 Output Waste Container Verification

4.3.1 Record the following data for the Output Waste Container in Section 1 of Attachment 2:

[A.1] Output Waste Container ID

[A.2] Waste Stream ID

[A.3] Container Type (e.g., 55-gallon drum)

[A.4] TRUCON Code

[A.5] Waste Matrix Code

[A.6] Audio/Video Media Recording Number (if applicable)

NOTE

The RCT SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.3.2 Perform the following, **AND** record the applicable data for the Output Waste Container in Section 1 of Attachment 2:

[A] Record Output Waste Container Tare Weight.

[B] Remove the container lid in accordance with Host site procedures, as applicable.

[C] **IF** a rigid liner is **NOT** present,
THEN perform the following:

[C.1] Record NO, Rigid Liner Present?

Obsolete

[C.2] Record NO, Rigid Liner Lid Present?

[C.3] Record N/A, Rigid Liner Lid is Vented (>0.3 in.), Filtered, and Serial No.?

[C.4] GO TO step 4.3.2[G].

[D] **IF** a rigid liner is present,
THEN record YES, the Type of Liner, and Thickness.

[E] **IF** a rigid liner lid is NOT present,
THEN record NO **AND** perform the following**:**

[E.1] Record N/A, Rigid Liner Lid is Vented (>0.3 in.) or Filtered?

[E.2] GO TO step 4.3.2[G].

[F] **IF** a rigid liner lid is present,
THEN record YES, **AND** perform the following**:**

[F.1] **IF** the rigid liner lid is vented (punctured) **AND** the puncture is >0.3 inches,
THEN record Vented, **AND** measure and record the Hole Size.

[F.2] **IF** the rigid liner lid is filtered,
THEN record Filtered, **AND** the Model No. and Serial No.

[F.3] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

[G] **IF** a bag liner is used,
THEN record YES.

[H] **IF** NO bag liner is used,
THEN record NO.

Obsolete

4.4 Visual Examination (VE)

NOTE

Steps 4.4.1 through 4.4.8 may be repeated, as necessary, until loading of the Output Waste Container is complete.

Waste container(s) SHALL be closed and have a TID applied when access to the container is uncontrolled.

A new Section 2 of Attachment 2 SHALL be used each time the waste container is opened, the TID is removed, and waste is added.

Steps 4.4.1 through 4.4.5 may be performed in any order to accommodate the process.

Individual package/item(s) may be inspected and have a Section 2 of Attachment 2 completed for each, prior to bag out. A TID may be applied to these package/item(s) for verification purposes.

4.4.1 **IF** a container TID is applied to the waste container, **THEN** remove TID in accordance with Host site procedures, **AND** record Removed Container TID Number in Section 2 of Attachment 2, as required.

4.4.2 Remove lid in accordance with Host site procedures, as required.

4.4.3 Position that camera(s) to record the VE of the Output Waste Container and its contents, **AND** start the camera(s), as applicable.

4.4.4 Record verbally the Output Waste Container ID, as applicable.

NOTE

When performing Method 1, the camera(s) may require repositioning to record (audio/video) the weighing and final weight of each package from the container.

4.4.5 Examine the waste, **AND** record the applicable data in Section 2 of Attachment 2:

[A] Date.

[B] Record Package Number, as applicable.

[C] Record Package TID Number, as applicable.

Obsolete

NOTE

VEE will make determination on the disposition of waste > 200 mrem/hr at the surface.

[D] **IF** the waste is > 200 mrem/hr at the surface, **AND** is going to be placed into the Output Drum,
THEN perform the following:

(a) **WHEN** loading the waste,
THEN position as close as reasonably achievable to the side of the output container.

(b) **IF** the waste is a can with material in it,
THEN document it in the Comments block of Section 1 of Attachment 2.

[E] Record Waste Description.

[F] Determine the contents by WMP category per Table 3, **AND** document as follows:

[F.1] Ensure that there are no prohibited items present in the waste package/item.

NOTE

WMP weight and the method used to determine the weight of the WMP from Table 4, Waste Item Weights and Weighing Codes, may be recorded in Steps 4.4.5[F.2] **OR** 4.4.9 **OR** 4.4.14[A] to accommodate the process.

[F.2] Weight of each WMP and the method used to determine the weight of the WMP from Table 4, as required.

[G] Place a TID on the package/item **AND** record the number, as required

[H] Place the package/item into the Output Waste Container as needed.

Obsolete

[I] **IF** package/item(s) are not to be direct loaded,
THEN record the following in Section 2 of Attachment 2:

VEO 1

[I.1] Print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[I.2] **IF** Method 2 is being performed,
THEN print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

4.4.6 **IF** loading an Output Waste Container(s) with package/items(s) that were previously inspected,
THEN obtain appropriate Section 2(s) for items being loaded **AND** verify the information recorded on the Section 2(s) matches the package/items.

[A] **IF** package/item information recorded DOES **NOT** match the package/item,
THEN SUSPEND work and notify VPM.

4.4.7 Record Output Waste Container ID in Section 2 of Attachment 2.

4.4.8 Place the package/item into the Output Waste Container, as needed.

4.4.9 Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

4.4.10 **IF** additional waste packages/item(s) are to be added at a later time and access to the waste container is going to be left uncontrolled,
THEN perform the following:

[A] Apply the container TID to the waste container in accordance with Host site procedures, **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

VEO

4.4.11 **IF** loading an Output Waste Container(s) with package/item(s) that were previously inspected, AND the loading is completed for the day,
THEN record the following on Section 2 of Attachment 2:

VEO 1

[A.1] Print name, sign, and date to annotate loading of Output Waste Container is complete.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[A.2] **IF** Method 2 is being performed,
THEN print name, sign and date.

4.4.12 **WHEN** loading of the Output Waste Container is complete,
THEN perform the following:

[A] Paginate page(s) of Section 2 of Attachment 2.

[B] Record the data listed below for the Output Waste Container in Section 1 of Attachment 2 as follows:

NOTE

The Volume Utilization Percentage (VUP) of the 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 five percent increments (e.g., 35%, 40%, 45%).

[B.1] Estimate the VUP.

[B.2] Record NO or YES, to indicate whether the waste is consistent with the assigned Waste Stream Description and Waste Matrix Code.

(a) **IF** NO,
THEN initiate a Nonconformance Report (NCR) in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

[B.3] Record Closure Method for layers of confinement, if applicable (see Table 2, Layers of Confinement).

[B.4] Using Table 2, determine the number and record the Number of Layers of Confinement, as applicable.

[C] GO TO Section 4.5 for Output Waste Container Lid Installation and Closure Verification.

4.4.13 Apply the TID to the waste container **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

4.4.14 Record the Gross Weight by weighing the Output Waste Container after it is released to be moved to its staging area, in Section 1 of Attachment 2.

[A] Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

4.4.15 Perform the following, **AND** record the data in Section 3 of Attachment 2:

[A] Record Output container ID.

[B] Weigh or use Table 4 to estimate the weight of the Packaging Materials of the Output Waste Container, **AND** Total Packaging Weight.

[C] Weights of the WMPs by reviewing the WMPs listed in Section 2(s) of Attachment 2, **AND** combine all consistent WMPs.

[D] Total the WMPs, **AND** record the Total WMP Weight.

[E] Ensure the total of the WMP weights (Section 3, Attachment 2) is within five percent of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight (Section 1, Attachment 2).

4.4.16 Record the following information in Section 4, Prohibited Item(s) Summary, of Attachment 2:

[A] Output Waste Container ID.

Obsolete

[B] **IF** Section 2(s) of Attachment 2 were completed for individual package/items(s),
THEN verify signatures in Section 2(s) of Attachment 2, answer questions in Section 4 of Attachment 2 NO **OR** NA, as applicable.

[C] **IF** packaged/item(s) were direct loaded into Output Waste Container,
THEN answer NO, YES, or N/A appropriately, to the questions in Section 4 with all explanations annotated in the Comments block of Section 4 of Attachment 2.

[C.1] **IF** YES is marked in Section 4,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

4.4.17 Determine (e.g., via Radiological Label or Dose Rate Survey) if the total dose rate of the waste container is >200 mrem/hr at the surface, **AND** record YES or NO in Section 1 of Attachment 2.

[A] **IF** the total dose rate is >200 mrem/hr at the surface,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record NCR No. in Section 1 of Attachment 2.

4.4.18 STOP the camera(s) recording when VE is complete, as applicable.

4.4.19 Ensure YES or NO is recorded in Section 1 of Attachment 2 to indicate if any NCRs are associated with the applicable waste container.

[A] **IF** YES,
THEN ensure the appropriate NCR number(s) are recorded.

NOTE

All areas in the attachments that DO **NOT** have completed information SHALL be marked N/A.

4.4.20 Record the following in Section 5, Approvals, of Attachment 2:

[A] Method 1

<u>VEO 1</u>

(a) Print name, sign, and date to annotate that the VE process has been completed.

Obsolete

(b) Mark VEO 2 as N/A.

(c) Prepare two (2) audio/video media recordings.

[B] Method 2

VEO 1

[B.1] Print name, sign, and date to annotate that the VE process has been completed.

VEO 2

[B.2] Print name, sign, and date to annotate that the VE process has been completed.

VEO

4.4.21 Affix new CCP Container Traveler(s) (Labels) to the Output Waste Container(s) in accordance with appropriate CCP Site Container Management procedure, as necessary.

4.4.22 **WHEN** all containers for a batch are complete,
THEN GO TO Section 4.6.

4.5 Container Lid Installation and Closure Verification

NOTE

Steps 4.5.1[A], [B], [C], [D], and [E] may be performed at any time during or after, Output Waste Container setup.

4.5.1 Perform the following, **AND** record the applicable data, for the Output Waste Container, in Section 1 of Attachment 2:

[A] Verify the Filter and Lid Ring/Bolt Torque Wrenches to be used are in calibration.

[B] Filter Torque Wrench Serial/ID Number and Calibration Due Date.

[C] Container Filter Model(s) and Serial Number(s).

[D] Ensure the filter is installed in accordance with the manufacturer's instructions.

[E] Torque the filter to the manufacturer's specifications, **AND** record the Torque Value.

Obsolete

[F] Ensure the container lid is installed in accordance with the manufacturer's instructions.

[G] Lid Ring/Bolt Torque Wrench Serial/ID Number and Calibration Due Date.

[H] Torque the Container Lid Ring/Bolt(s) to the manufacturer's specifications, **AND** record the Torque Value.

4.5.2 GO TO step 4.4.13 as applicable.

VEO

4.6 Batch Data Report Preparation

4.6.1 Verify Field Records have been transcribed into the appropriate forms.

4.6.2 Assemble the following data for the BDR ensuring that the BDR number and, Examination Date, and Output Waste Container ID(s), as needed, are recorded on each Attachment:

[A] Attachment 5, CCP Waste VE Batch Data Report Cover Sheet

[B] Attachment 4, CCP Waste VE Batch Data Report Table of Contents

[C] Attachment 1, CCP Waste VE General Information Form

[D] Attachment 2, CCP Waste Visual Examination Data Form

[E] Attachment 3, CCP Waste VE Independent Technical Reviewer Checklist

[F] Copies of NCRs, if applicable

[G] Field Records, if applicable

4.6.3 Paginate the BDR.

4.6.4 Complete Attachment 4.

4.6.5 Forward the BDR package and the audio/video media, if applicable, to the ITR.

Obsolete

4.7 VE Independent Technical Review

NOTE

The independent technical review is conducted by an individual who is qualified to have performed the initial work, but who is **NOT** directly responsible for performing the work. The ITR can **NOT** review his/her own work.

If any item on Attachment 3 is marked NO and the condition **CAN NOT** be mitigated, an NCR will be initiated, per CCP-QP-005, **AND** only as a single NCR that identifies all deficiencies.

Independent Technical Reviewer (ITR)

4.7.1 Review the BDR to the criteria in Attachment 3, **AND** document.

4.7.2 Items marked NO require explanation in the Comments block, **AND** items marked NA may require explanation in the Comments block, as necessary to clarify.

4.7.3 Print, sign, and date Attachment 3 and Attachment 5.

4.7.4 Submit the BDR and the audio/video media, if applicable, to CCP Records in accordance with CCP-QP-008.

4.8 Newly Generated Waste Container Data Submission

VPM/Designee

4.8.1 Complete Attachment 6, CCP Newly Generated Waste Container Data, for newly generated waste containers generated during the performance of VE for the BDR.

4.8.2 Print name, sign, and date Attachment 6.

4.8.3 Submit the Attachment 6 to CCP records in accordance with CCP-QP-008. Transmit a copy of Attachment 6 to the cognizant Acceptable Knowledge Expert (AKE).

Obsolete

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 <u>QA/Lifetime</u>

[A] Batch Data Report (BDR)

[A.1] Attachment 1 – CCP Waste Visual Examination General Information Form

[A.2] Attachment 2 – CCP Waste Visual Examination Data Form

[A.3] Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

[A.4] Attachment 4 - CCP Waste VE Batch Data Report Table of Contents

[A.5] Attachment 5 - CCP Waste VE Batch Data Report Cover Sheet

[A.6] Copies of NCRs, if applicable

[A.7] Field Records, if applicable

[B] Attachment 6 - CCP Newly Generated Waste Container Data

5.1.2 <u>QA/Nonpermanent</u>

[A] Two (2) Audio/Video Media Recordings (VHS Tape or DVD), if applicable

Obsolete

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste is not acceptable at WIPP - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid - Overpacking the outermost container that was examined or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.
Non-Radionuclide 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)
Polychlorinated Biphenyl (PCB) Liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat-sealed bags (unvented) with a surface area <390 square inches
Sharp or heavy objects (Large, bulky dense objects with sharp and obtrusive members or components with dispersible Form 1 and 2) (e.g., steel or concrete boxes, steel plate, electric motors, steel pipe, or concrete blocks) not adequately blocked, braced, or packaged.
Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of CCP-PO-001.

Obsolete

Table 2. Layers of Confinement

Container [a]		Plastic Bags		Metal Cans	
Twist and Tape	CTT/STT	Twist and Tape	TT	Sealed	C
Fold and Tape	CFT/SFT	Fold and Tape	FT		
Other Closure	COC/SOC	Other Closure	OC		
Vented	(add) F	Vented	(add) F	Vented	(add) F

[a] Container: "C" - Container
"S" - Standard Waste Box (SWB)

Liner lids and packaging layers are distinguished as follows:

Layers of confinement are defined, per Section 3.8 of the CH-TRU Payload Appendices, as any boundary that restricts, but does not prohibit, the release of hydrogen gas across the boundary.

Examples of confinement layers are plastic bags (smaller inner bags or larger container liner bags) with the allowable closure methods described below and metal containers fitted with filter vents.

- Fold and tape closure
- Twist and tape closure
- Heat-seal closure or twist and tape closure with a minimum of one filter vent

NOTE

Punctured plastic bags, liner bags open at the end, pieces of plastic sheeting wrapped around the waste for handling, and metal containers with lid closures that allow free hydrogen release are not considered as confinement layers.

Obsolete

Table 3. 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) (PW)	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)	Container (e.g., 208-liter [55-gal.] drums)
Plastics (packaging materials) (PP)	Liner (e.g., 90-mil polyethylene drum liner and plastic bags)

Table 4. Waste Item Weights and Weighing Codes Page 1 of 3

ITEM	WEIGHT
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
10’ Tape Measure	0.1 kg
Channel Lock Pliers	0.3 kg
Crescent Wrench	0.2 kg
Flashlight With Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw With Blade	0.5 kg
Hammer	0.6 kg
Large Open-End Wrench	0.5 kg
Razor Knife	0.1kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder’s Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
13 oz. Aerosol Can ¼ Full	0.2 kg
17 oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2’ X 4’ Board 20" long	0.7 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Empty POC (Black Poly Liner)	154.2 kg
Empty POC (White Poly Liner)	145.1 kg
Empty SWB	290.3 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg
5-Gallon Metal Bucket	1.3 kg
Metal Can	0.2 kg
Metal Can (for salt wastes)	1.1 kg
Aluminum Sphincter Can	0.2 kg
Sand Bag ½ Full of Gravel	12.7 kg
Plastic Bag for Waste	0.6 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg
55-Gallon 10-mil Plastic Bag (each)	1.8 kg
55-Gallon 5-mil Plastic Bag (each)	0.3 kg
55-Gallon 12-mil Plastic Bag (each)	2.1 kg
O-ring Plastic Bag (e.g., sludge, organic setups)	9.0 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 2 of 3

ITEM	WEIGHT
55-Gallon Drum PVC O-ring Bag (60.96 x 213.36 cm)	22.0 kg
55-Gallon Fiberboard Disk	48.0 kg
55-Gallon Drum Round Bottom 10-mil Liner	9.0 kg
(White) 55-Gallon Drum 90-mil Rigid Liner No Lid, used at LANL	4.3 kg
55-Gallon Drum 110-mil Rigid Liner	7.6 kg
(Black) 55-Gallon Drum 125-mil Rigid Liner No Lid, used at LANL	7.6 kg
55-Gallon Drum Poly Liner (122 x 122 x 213 cm)	12.0 kg
55-Gallon Cardboard Liner (graphite mold waste)	9.0 kg
55-Gallon Fiberboard Drum Liner (122 x 122 x 213 cm)	9.0 kg
55-Gallon Lead Liner, 180 cm long, 0.16 cm thick	23.0 kg
55-Gallon Lead Liner, 180 cm long, 0.32 cm thick	46.0 kg
Fiber Pack	13.0 kg
Fiber Pack Lead-Lined	66.0 kg
HEPA Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
Lead Brick (5.1 x 10 x 20 cm)	12.0 kg
Oil-Dry	0.4 kg/liter
Vermiculite	0.1 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Setup Portland Cement	1.1 kg/liter
Uncured Portland Cement	2.9 kg/liter
Leaded Glovebox Glove	0.8 kg
Leaded Rubber Glove	2.5 kg
Leaded Rubber Glove	12.0 kg
Leaded Rubber Apron	2.4 kg
Leaded Rubber Apron	11.5 kg
Coveralls	0.9 kg
25’ Plastic Suit Hose	2.3 kg
50’ Plastic Suit Hose	5.0 kg
Plastic Suit Top and Pants	2.3 kg
55-Gallon Drum (painted – tan or white)	27.7 kg
55-Gallon Drum (painted – mustard yellow)	24.0 kg
55-Gallon Drum (painted – green)	30.0 kg
55-Gallon Drum (painted – grey)	26.3 kg
55-Gallon Drum (galvanized)	29.0 kg
85-Gallon Drum (painted)	37.2 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 3 of 3

ITEM	WEIGHT
Item Description (1 lb = 0.454 kgs) (All containers are 55-gal drums, unless otherwise noted	
110-Gallon Drum (painted)	45.0 kg
Lead-Lined Drum (1/16" thick, 28" high by 72" long)	22.7 kg
Lead-Lined Drum (1/8" thick, 28" high by 72" long) (.4 lb/in.^{3})	45.4 kg
Galvanized DOT 17C (Dull Finish) [Drum Bottom Labels 00040-00705]	31.7 kg
Galvanized (Shiny Drum and Lid Finish) [Drum Bottom Labels 01391 - 01568]	24.2 kg
Hanford Galvanized (Speckled Dull Finish - UNA1A2) [Drum Bottom Labels 00754 - 00933]	30.0 kg
Myers Galvanized (Shiny Finish - Labeled G5501) [Drum Bottom Labels 01200 - 01384]	22.7 kg
Myers Galvanized (Shiny Drum/Shiny Speckled Lid - Labeled G5501) [Drum Bottom Labels 00950 - 01150]	24.0 kg
Myers Yellow Painted	21.5 kg
Rocky Flats White Painted	27.2 kg
Black 90-mil Slip Fit Lid	7.4 kg
Black 110-mil Inner Lid	7.7 kg
Black 110-mil Beveled Top	7.4 kg
White 90-mil Slip Fit Lid	7.5 kg
125-mil Rigid Liner Lid	1.3 kg
B251 Bag - Tare Weight	0.1 kg
55-Gallon Fiberboard Liner (90 Mil)	3.7 kg
5-Gallon drum (LANL)	2.3 kg
7-Gallon drum (LANL)	2.8 kg
10-Gallon drum (LANL)	7.5 kg
30-Gallon drum (LANL)	16.4 kg

Weighing Notes and Codes	
[a] Record weights in kg out to one-tenth of a kg.	
[b] Method of Weighing Codes:	
E	Estimated by Operator.
W	Weight measured by the Operator.

Obsolete

Attachment 1 – CCP Waste Visual Examination General Information Form

Batch Data Report No.:_____

☐ VE for Previously Packaged Waste ☐ VE for Newly Generated Waste	
☐ Method 1 ☐ Method 2	
Site ID:	
Examination Date:	
Procedure No.:	Revision No.:
Camera/Audio/Video Media Recording Check: ☐ N/A	☐ SAT
VE Scale Information: ☐ N/A	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Test Weight Information Test Weight Total: kg. Tray Weight: kg.	Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date:
Container Scale Information:	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Comments:	
Visual Examination Operator 1: Print Name _____ Signature _____ Date _____	
Visual Examination Operator 2: Print Name _____ Signature _____ Date _____	

Attachment 2 – CCP Waste Visual Examination Data Form Page 1 of 5

Batch Data Report No.:_____

Section 1: Output Waste Container Data		
Input Waste Container ID, as applicable:		
Output Waste Container ID:	Waste Stream ID:	
Container Type:	TRUCON Code:	Waste Matrix Code:
Audio/Video Media Recording Number: ☐ N/A		
Waste Container Weights: Tare Wt: kg.	Gross Wt: kg.	
Rigid Liner Present? ☐ NO ☐ YES Type of Liner: ☐ Lead ☐ Plastic ☐ Fiberboard ☐ Other: Thickness: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐125-mil	Rigid Liner Lid Present? ☐ NO ☐ YES Rigid Liner Lid is Vented (>0.3 in.) or Filtered? ☐ NO ☐ YES ☐ N/A ☐ Vented: Hole Size: ☐ N/A ☐ Filtered: Model No.: ☐ N/A Serial No.: ☐ N/A	
Bag Liner Present? ☐ NO ☐ YES	Volume Utilization Percentage: %	
Does the physical form of the waste match the Waste Stream Description (i.e., Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals])? ☐ NO ☐ YES		
Does the physical form of the waste match the Waste Matrix Code? ☐ NO ☐ YES		
Closure Method: Number of Layers of Confinement:		
<u>Filter Torque Wrench</u> Serial/ID No.: Calibration Due Date: Filter: Model No.: Serial No.: Torque Value:	<u>Lid Ring/Bolt Torque Wrench</u> Serial/ID No.: Calibration Due Date: Lid Ring/Bolt Torque Value:	
Is total dose rate greater than 200mrem/hr? ☐ NO ☐ YES		
NCR(s) associated with the output container? ☐ NO ☐ YES NCR No.:_____ NCR No.:_____		
Comments:		

Obsolete

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 2 of 5

Batch Data Report No.:_____ **Date:_____**

Section 2: Waste Package Data				
Package and Package TID Number (as applicable)	Waste Description	WMP [Table 3]	Weight (kg) [Table 4,[a]]	Weighing Code(s) [Table 4[b]]

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

Signatures annotate the absence of prohibited items.

Output Waste Container ID:_____

TID Removed:_____ **TID Applied:_____**

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

Signatures of VEO's verifying the loading of the Output Waste Container. Page ____ of _____

Obsolete

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 3 of 5

Batch Data Report No.:_____

Output Waste Container ID:_____

Section 3: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight:	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal/Alloys (IM):	
Aluminum-based Metals/Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (PW):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Obsolete

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 4 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Questions answered "YES" will be explained in the Comments block)		
	Yes	No
Is there any observable liquid in internal containers, that is more than 60 milliliters or 3 percent by volume, whichever is greater.	☐	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☐
Is there detectable observable liquid in outermost containers with an EPA Hazardous Waste Number of U134?	☐	☐
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐
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 TRUCON Code[s])?	☐	☐
Is there an indication of wastes containing explosives or compressed gases?	☐	☐
Is there PCB liquids present?	☐	☐
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☐
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐
TRUPACT II Criteria		
Are there heat-sealed bags (unvented) **GREATER** than 4 liters and LESS than 390 square inches in the waste?	☐	☐
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐
Are there sealed containers **GREATER** than 4 liters?	☐	☐
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☐

Obsolete

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 5 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Continued)

(Questions answered "YES" will be explained in the Comments block)

Comments:

Section 5: Approvals

Visual Examination Operator 1:

Print Name	Signature	Date

Visual Examination Operator 2:

Print Name	Signature	Date

Obsolete

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

Batch Data Report No.:_____ Page 1 of 2

Description			
1. Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☐ YES	☐ N/A
2. Was the correct revision of operating procedure used?	☐ NO	☐ YES	☐ N/A
3. Are the waste material parameters (WMPs) entered correctly?	☐ NO	☐ YES	☐ N/A
4. Verify the hand calculations on the VE Data Form for the following:			
a. WMP weight totals	☐ NO	☐ YES	☐ N/A
b. Weight totals	☐ NO	☐ YES	☐ N/A
c. Summed volume of observable liquid, as necessary	☐ NO	☐ YES	☐ N/A
d. The total of the WMP weights is within 5% of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight.	☐ NO	☐ YES	☐ N/A
5. Is the data reported in the correct units and correct number of significant figures?	☐ NO	☐ YES	☐ N/A
6. Has the data been reviewed for transcription errors?	☐ NO	☐ YES	☐ N/A
7. Does the Testing Batch Report include VE for up to 20 containers?	☐ NO	☐ YES	☐ N/A
8. BDR contents are complete and match the CCP Waste VE Batch Data Report Table of Contents?	☐ NO	☐ YES	☐ N/A
9. Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	☐ N/A
10. Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	☐ N/A
11. All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12. Were data changes made by the individual who originally collected the data or an equally qualified individual?	☐ NO	☐ YES	☐ N/A
13. Did the physical form of the waste match the Waste Matrix Code and Waste Stream Description?	☐ NO	☐ YES	☐ N/A

Obsolete

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist (continued)

Batch Data Report No.: _____ Page 2 of 2

Description			
14. Was the waste in the Output Waste Container(s) examined for prohibited items?	☐ NO	☐ YES	☐ N/A
15. Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	☐ N/A
16. Were the scale(s) in calibration prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
17. Were the scale checks SAT prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
18. Was the audio/video media recording properly prepared and labeled for each waste container?	☐ NO	☐ YES	☐ N/A
19. Was the audio/video media recording check performed satisfactorily prior to the VE?	☐ NO	☐ YES	☐ N/A
20. Precision: Was precision maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases?	☐ NO	☐ YES	☐ N/A
21. Accuracy: Was accuracy maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification and subsequent requalification (operators on LOQI)?	☐ NO	☐ YES	☐ N/A
22. Completeness: Is there a completed VE data form for each waste container in the BDR?	☐ NO	☐ YES	☐ N/A
23. Were NCRs initiated as required?	☐ NO	☐ YES	☐ N/A
Comments:			
I have reviewed 100 percent of the container-specific and batch data in this report and find it acceptable. Independent Technical Reviewer: _____ _____ _____ Printed Name Signature Date			

Obsolete

Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

Batch Data Report No.: _____ Examination Date: _____

Table of Contents		
Item	Description	Page No.
1	CCP Waste VE Batch Data Report Cover Sheet	
2	CCP Waste VE Batch Data Report Table of Contents	
3	CCP Waste Visual Examination General Information Form	
4	CCP Waste Visual Examination Data Forms	
5	CCP Waste VE Independent Technical Reviewer Checklist	
6	Copy of NCRs (N/A, If Not Applicable)	
7	Field Records (N/A, If Not Applicable)	

Obsolete

Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

Batch Data Report No.: _____ Examination Date: _____

Waste Container ID Number:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Independent Technical Reviewer:

_____	_____	_____
Print Name	Signature	Date

Obsolete

Attachment 6 – CCP Newly Generated Waste Container Data

Batch Data Report No.: _____ Examination Date: _____

Container ID	Waste Stream ID	Generation Date	Closure Date	Vent Date	Container Type

VPM/Designee:

_____ _____ _____
Print Name Signature Date

Controlled
Copy

CCP-TP-113

Revision 18

CCP
Standard Contact-Handled Waste Visual Examination

EFFECTIVE DATE: 09/25/2013

Mike Ramirez

PRINTED NAME

APPROVED FOR USE

Controlled
Copy

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	03/26/2004	Initial Issue.
1	04/02/2004	Incorporated Facility Oversight Review Committee Comment resolutions, from Los Alamos National Laboratory, into Sections 1.0, 2.0 and 4.0.
2	07/15/2004	Revised in response to CBFO CAR #04-026. The change in this document involved addition of a note for clarification and implementation on percent fill of a drum. As such, this change is data quality affecting.
3	01/25/2005	Made corrections to procedure per LANL, to comply with the MSA review.
4	12/22/2005	Revised Table 4 to add the weight of an 85- and 110-Gallon Drum as well as a 55-Gallon 12-mil. Plastic Bag. Revised responsibility for pagination of the BDR.
5	08/28/2006	Revised to address CAR LANL-0006-06.
6	11/16/2006	Revised to implement changes to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/RH PMR.
7	03/19/2007	Revised to clarify notes and procedural steps. Revised to record Output Drum information in Section 4 of Attachment 1. Revised to record Waste Container ID on each page of Attachment 1.
8	09/04/2007	Revised to separate and clarify each Visual Examination (VE) process. Revised Attachment 1, CCP Waste Visual Examination Data Form and Attachment 2, CCP Waste VE Independent Technical Reviewer Checklist, to support the changes. Added new Section 4.11, Newly Generated Waste Container Data Submission, and Attachment 5, CCP Newly Generated Waste Container Data, to assist in container tracking. Incorporated additional editorial changes.
9	03/05/2008	Revised to add a step to Section 2.4 for use of Host site procedures for anomalous conditions. Attachment 1, Section 5, Prohibited Items revised to be consistent with Central Characterization Project (CCP) Nondestructive Examination (NDE) procedures and made additional editorial changes.

Controlled
Copy

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
10	07/09/2008	Revised to address U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Request (CAR) Number CAR-08-021 and New Mexico Environmental Department (NMED) Observer Inquiry from Audit A-08-16. Also, revised to maintain control of internal package/items so that payload containers are surveyed at <200 millirem per hour (mrem/hr).
11	11/12/2008	Revised to incorporate concurrent use with CCP-TP-163, *CCP Standard Visual Examination of Records*.
12	12/01/2008	Minor revision to add notes for clarification of visual examination (VE) of record.
13	03/11/2009	Revised to address the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Report (CAR) Number 09-015 and Environmental Protection Agency (EPA) Issue Numbers INL-CCP-RH-VE-T1-002CR, 003CR, and 007CR.
14	06/30/2010	Revised to incorporate modifications to Hazardous Waste Facility Permit. Revised to address CBFO Corrective Action Report (CAR) 10-019. Revised to address procedural steps, to accommodate the visual examination (VE) process for newly generated waste and to make additional editorial changes.
15	12/29/2010	Revised to clarify independent technical reviewer (ITR) independence.
16	04/25/2011	Revised to remove recording location and clarify transportation packaging requirements.
17	06/04/2013	Revised to incorporate the Nuclear Waste Partnership (NWP) transition changes.
18	09/25/2013	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 13-051.

Controlled
Copy

TABLE OF CONTENTS

1.0 PURPOSE 6
1.1 Scope 6

2.0 REQUIREMENTS 7
2.1 References 7
2.2 Training Requirements 7
2.3 Equipment List 7
2.4 Precautions and Limitations 7
2.5 Prerequisite Actions 8
2.6 Definitions 8

3.0 RESPONSIBILITIES 10
3.1 Site Project Manager (SPM) 10
3.2 Visual Examination Expert (VEE) 10
3.3 Visual Examination Operator (VEO) 10
3.4 Independent Technical Reviewer (ITR) 10
3.5 Vendor Project Manager (VPM) 10

4.0 PROCEDURE 11
4.1 General Information and Performance Checks 11
4.2 Previously Packaged Input Waste Container Preparation. 15
4.3 Output Waste Container Verification 16
4.4 Visual Examination (VE) 18
4.5 Container Lid Installation and Closure Verification 25
4.6 Batch Data Report Preparation 26
4.7 VE Independent Technical Review 27
4.8 Newly Generated Waste Container Data Submission 27

5.0 RECORDS 28

Controlled
Copy

LIST OF TABLES

Table 1. Prohibited Items 29
Table 2. Layers of Confinement 30
Table 3. Waste Material Parameters 31
Table 4. Waste Item Weights and Weighing Codes 32

LIST OF ATTACHMENTS

Attachment 1 – CCP Waste Visual Examination General Information Form 35
Attachment 2 – CCP Waste Visual Examination Data Form 36
Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist 41
Attachment 4 – CCP Waste VE Batch Data Report Table of Contents 43
Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet 44
Attachment 6 – CCP Newly Generated Waste Container Data 45

Controlled
Copy

1.0 PURPOSE

CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Section C-3c, requires that containers be examined to verify the physical form of the waste and to identify items that are prohibited from disposal at the Waste Isolation Pilot Plant (WIPP). This procedure establishes how to perform visual examination (VE) of contact-handled (CH) transuranic (TRU) waste containers, which may include the removal of prohibited items; and how to prepare and review Batch Data Reports (BDRs) generated from the VE process. This procedure is designed to be accomplished in conjunction with Host site facility operating procedures that address the use of those facilities for VE. All Host site requirements for health, safety, and operations in the work place will be addressed in a Host site procedure.

1.1 Scope

This procedure applies to retrievably stored and newly generated S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste streams. VE will be used when necessary to examine a waste container to verify its physical form and to detect and remediate items that are prohibited from disposal at the WIPP.

VE cannot identify prohibited items imbedded in forms, such as S3000 and S4000, when the material is not removed from the characterized container.

VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if Carlsbad Field Office (CBFO) approves the method for the specific waste form, typically from a surveillance.

There are two methods allowed for performing a VE process. Method 1 uses one VE Operator (VEO) with audio/video recording of the process, and Method 2 uses two VEOs (without audio/video recording of the process).

Full use of this procedure is **NOT** currently authorized at Los Alamos National Laboratory (LANL), in that processing of a prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at this time.

Controlled
Copy

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- 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 performing this procedure 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 Torque Wrenches

2.3.2 Certified VE Scale, as needed

2.3.3 Certified Container Scale

2.3.4 Certified Weights

2.4 Precautions and Limitations

2.4.1 Processing of prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at LANL at this time.

2.4.2 Containers with a total dose rate >200 millirem per hour (mrem/hr) at surface SHALL **NOT** be processed under this procedure.

Controlled
Copy

2.4.3 Host site procedures may be used in conjunction with this procedure in order to handle anomalous conditions, as necessary.

2.5 Prerequisite Actions

2.5.1 Prepare containers for VE in accordance with Host site procedures.

2.5.2 Ensure **NO** hold tags that would prevent the performance of VE are on the containers before proceeding.

2.5.3 Review the radiation levels of the containers before proceeding.

2.5.4 Ensure Method 1 or Method 2 for performing the VE has been determined by the Site Project Manager (SPM).

2.5.5 Ensure Input Waste Container(s) is on the Acceptable Knowledge (AK) Tracking Spreadsheet (if applicable).

2.5.6 For Newly Generated waste processing, confirm that waste is described in an approved AK Summary Report.

2.6 Definitions

2.6.1 **Calibration Due Date** – The date recorded on a tool's or scale's sticker/label that indicates the last date the tool or scale is in calibration.

2.6.2 **Method 1** – One VEO with audio/video recording of the process created during VE.

2.6.3 **Method 2** – Two VEOs (without audio/video recording of the process) performing VE. Each VEO shall observe for themselves the waste being placed in the waste container or the contents within the examined waste container when the waste is not removed.

2.6.4 **Outermost Container** – Outer container that holds waste at time of VE.

2.6.5 **Internal Container** – A container inside the outermost container examined during visual examination. Drum liners, liner bag, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.6.6 **Observable Liquid** – Liquid that is observable by a qualified operator performing VE of the waste.

Controlled
Copy

2.6.7 **Field Records** – Records which are generated in the field under adverse conditions (i.e., personnel are wearing Anti Cs), which need to be transcribed into a final format for legibility. Field records shall be obtained using the forms from this procedure to ensure the required information is obtained. The field record shall be signed and dated by the operator(s) performing the task. Field records that are transcribed will be included in the BDRs to ensure the absence of transcription errors.

2.6.8 **Tamper Indicating Device (TID)** – A device with a unique identifier that is used when a package is uncontrolled.

Controlled
Copy

3.0 RESPONSIBILITIES

3.1 Site Project Manager (SPM)

3.1.1 Determines the use of Method 1 or Method 2 for performing a VE process.

3.2 Visual Examination Expert (VEE)

3.2.1 Responsible for the overall direction and implementation of the VE operations.

3.3 Visual Examination Operator (VEO)

3.3.1 Performs the VE.

3.3.2 Assembles, paginates, and reviews the BDR.

3.4 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be someone, other than the VEO, who is qualified to have performed the work and who was not involved in the generation or recording of the data under review.

3.4.1 Reviews the BDR.

3.5 Vendor Project Manager (VPM)

3.5.1 Ensures the safe operation of the VE process.

3.5.2 Ensures all personnel maintain proficiency and identifies any additional training that may be required.

3.5.3 Coordinates remediation of prohibited items with the Host site.

3.5.4 Facilitates container tracking and management.

Controlled
Copy

4.0 PROCEDURE

NOTE

Weights will be recorded in kilograms (kg) out to one tenth of a kg.

A Testing Batch includes all data pertaining to VE for up to 20 waste containers without regard to waste matrix.

If, during the performance of VE, multiple Input Waste Containers are used to produce an Output Waste Container or multiple Output Waste Containers are generated from an Input Waste Container, separate data sections shall be completed for each waste container, as applicable.

N/A shall be marked in all fields of the Attachments that are not applicable.

The sections of this procedure may be performed independently and concurrently to accommodate the VE process; however, the internal steps should be performed in order. The internal steps in this procedure may only be performed in a different order than specified when required by Host site facility-specific operation procedures or as otherwise directed in that section.

For VE of Newly Generated Waste, Section 4.2 is not performed.

Remediation of prohibited items (e.g., removal, absorption, etc.) may be performed in unison with Waste Material Parameter (WMP) identification (ID).

Prohibited items are listed in Table 1, Prohibited Items, are remediated per Host site procedures, as necessary.

Any liquid in non-transparent internal containers, detected from shaking the internal container, will be handled by assuming that the internal container is filled with liquid.

Data changes and requisite approvals SHALL be made by the individual or individuals who originally collected the data, **OR** by an equally-qualified individual or individuals authorized to change data.

VEO

4.1 General Information and Performance Checks

4.1.1 Record Batch Data Report No. on Attachment 1, CCP Waste Visual Examination General Information Form, and Attachment 2, CCP Waste Visual Examination Data Form, (xxVEzzyyyy - where xx is the Site Identifier [e.g., LA for LANL], zz is the VE area identifier, and yyyy is a sequential number for that site).

Controlled
Copy

[A] Record the following information on Attachment 1:

[A.1] Mark applicable VE process to be performed.

[A.2] Mark VE Method used.

[A.3] Site ID

[A.4] Examination Date

[A.5] Procedure No.

[A.6] Revision No.

4.1.2 Camera(s) Check (Method 1)

NOTE

If the VE continues for more than one day, a camera check will be conducted prior to continuing the VE for the new day. The results of the second camera check will be recorded on the audio/video media and noted in the Comments block on Attachment 1. The audio/video camera will be checked prior to each VE BDR to ensure proper operation of the camera. The test image segment SHALL remain intact without being erased or recorded over.

[A] **IF** audio/video recording will **NOT** be created, **THEN** mark N/A on Attachment 1, **AND** GO TO step 4.1.3.

[B] Record the Date, Container ID Number(s), BDR Number, and the Audio/Video Media Recording Number on the Audio/Video Media Label.

[C] Ensure the audio/video media is at its beginning or at the point where recording was stopped the previous day.

[D] Start the camera(s).

[E] Record a test image and narrative.

[F] Review the test segment by playing the audio/video media, **AND** verify the image is in focus and the narration is clear.

Controlled
Copy

[G] Save the test recording (i.e., stop the audio/video media at the end of the playback).

[G.1] **IF** the results are UNSAT,
THEN notify the Visual Examination Expert (VEE) and Vendor Project Manager (VPM).

(a) **WHEN** the camera/audio/video media recording system is operational,
THEN repeat steps 4.1.2[D] through 4.1.2[H].

[H] Record the results of the camera/audio/video media recording check as SAT on Attachment 1.

4.1.3 Scale Operational Check

NOTE

If the VE continues for more than one day, a scale operational check will be conducted prior to continuing the VE for the new day. The results will be recorded in the Comments block on Attachment 1.

The VEE will determine when the VE Scale or the Container Scale will not be used. This section will be performed when scales are used in the performance of the VE process.

[A] VE Scale

[A.1] **IF** VE Scale is **NOT** used,
THEN mark N/A on Attachment 1, **AND** GO TO step 4.1.3[B].

[A.2] Start the camera(s) in the record mode for the Scale Operational Check, as applicable.

[A.3] Verbally record the Scale Serial/ID Number and the Calibration Due Date on the audio/video media, if in use, **AND** record the data on Attachment 1.

[A.4] Place test weight(s) on the scale to verify the scale's operability.

(a) **IF** the reading is within the scales calibration tolerance,
THEN record as SAT on Attachment 1.

(b) **IF** the reading is **NOT** within the scales calibration tolerance,
THEN STOP WORK, **AND** notify the VPM,
AND record as UNSAT on Attachment 1.

Controlled
Copy

[A.5] Record the following Test Weight Information data on Attachment 1:

(a) Test Weight Serial/ID Number and Calibration Due Date for each weight used.

(b) Test Weight Total placed on the scale.

(c) Tray Weight, as required.

[A.6] With the tray placed on the scale, set the Tare to zero, as required.

[B] Container Scale

[B.1] Record the Scale Serial/ID Number and the Calibration Due Date on Attachment 1.

[B.2] Perform an operational check of the scale as follows:

(a) Place a known check weight(s) on the scale, **AND** verify the scale reads within 1.0 percent of the check weight used.

(a.1) **IF** the scale reads within the operational range,
THEN record SAT on Attachment 1.

(a.2) **IF** the scale reads outside of the operational range,
THEN, SUSPEND WORK, **AND** notify the VPM **AND** record as UNSAT on Attachment 1.

4.1.4 Record the following on Attachment 1:

[A] Method 1

<u>VEO 1</u>

[A.1] Print name, sign, and date.

[A.2] Mark VEO 2 as N/A.

Controlled
Copy

[B] Method 2

VEO 1

[B.1] Print name, sign, and date.

VEO 2

[B.2] Print name, sign, and date.

4.2 Previously Packaged Input Waste Container Preparation.

NOTE
Section 4.2 is not performed for VE of Newly Generated Waste.

4.2.1 Record the Input Waste Container ID in Section 1, Output Waste Container Data, of Attachment 2.

NOTE
When performing Method 1, audio/video media recording is created to document activities that manipulate waste during the VE. It is expected that recording will be halted whenever VE is suspended. If recording is suspended, the reason is verbally documented on the audio/video media.

4.2.2 Position the camera(s) to record the VE of the Input Waste Container and its contents, **AND** start the camera(s) (if using Method 1).

4.2.3 Record verbally the Input Waste Container ID (if using Method 1).

NOTE
The Radiological Control Technician (RCT) SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.2.4 Remove/verify removal of the input waste container lid in accordance with Host site procedures.

[A] **IF** a rigid liner lid is present, **AND** the rigid liner lid is **NOT** vented (>0.3 in.) or filtered,
SUSPEND WORK, **AND** notify the VPM

[B] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

Controlled
Copy

NOTE

VE on large or heavy packages/items SHALL be performed as they are removed from the container.

Waste from the Input Waste Container may be segregated for VE as determined by the VEO.

4.2.5 Remove/verify removal of the waste from the Input Waste Container, as appropriate.

4.2.6 Open/verify opening of waste package/items, as appropriate.

4.3 Output Waste Container Verification

4.3.1 Record the following data for the Output Waste Container in Section 1 of Attachment 2:

[A] Output Waste Container ID

[B] Waste Stream ID

[C] Container Type (e.g., 55-gallon drum)

[D] TRUCON Code

[E] Waste Matrix Code

[F] Audio/Video Media Recording Number (if applicable)

NOTE

The RCT SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.3.2 Perform the following, **AND** record the applicable data for the Output Waste Container in Section 1 of Attachment 2:

[A] Record Output Waste Container Tare Weight.

[B] Remove the container lid in accordance with Host site procedures, as applicable.

[C] **IF** a rigid liner is **NOT** present,
THEN perform the following:

[C.1] Record NO, Rigid Liner Present?

Controlled
Copy

[C.2] Record NO, Rigid Liner Lid Present?

[C.3] Record N/A, Rigid Liner Lid is Vented (>0.3 in.), Filtered, and Serial No.?

[C.4] GO TO step 4.3.2[G].

[D] **IF** a rigid liner is present,
THEN record YES, the Type of Liner, and Thickness.

[E] **IF** a rigid liner lid is NOT present,
THEN record NO **AND** perform the following**:**

[E.1] Record N/A, Rigid Liner Lid is Vented (>0.3 in.) or Filtered?

[E.2] GO TO step 4.3.2[G].

[F] **IF** a rigid liner lid is present,
THEN record YES, **AND** perform the following**:**

[F.1] **IF** the rigid liner lid is vented (punctured) **AND** the puncture is >0.3 inches,
THEN record Vented, **AND** measure and record the Hole Size.

[F.2] **IF** the rigid liner lid is filtered,
THEN record Filtered, **AND** the Model No. and Serial No.

[F.3] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

[G] **IF** a bag liner is used,
THEN record YES.

[H] **IF** NO bag liner is used,
THEN record NO.

Controlled
Copy

4.4 Visual Examination (VE)

NOTE

Steps 4.4.1 through 4.4.8 may be repeated, as necessary, until loading of the Output Waste Container is complete.

Waste container(s) SHALL be closed and have a TID applied when access to the container is uncontrolled.

A new Section 2 of Attachment 2 SHALL be used each time the waste container is opened, the TID is removed, and waste is added.

Steps 4.4.1 through 4.4.5 may be performed in any order to accommodate the process.

Individual package/item(s) may be inspected and have a Section 2 of Attachment 2 completed for each, prior to bag out. A TID may be applied to these package/item(s) for verification purposes.

4.4.1 **IF** a container TID is applied to the waste container, **THEN** remove TID in accordance with Host site procedures, **AND** record Removed Container TID Number in Section 2 of Attachment 2, as required.

4.4.2 Remove lid in accordance with Host site procedures, as required.

4.4.3 Position that camera(s) to record the VE of the Output Waste Container and its contents, **AND** start the camera(s), as applicable.

4.4.4 Record verbally the Output Waste Container ID, as applicable.

NOTE

When performing Method 1, the camera(s) may require repositioning to record (audio/video) the weighing and final weight of each package from the container.

Controlled
Copy

NOTE

Potential hazardous wastes identified by visual examination include:

- Batteries
- Circuit Boards (may be contained in electrical equipment)
- Cathode Ray Tube (CRT)-based computer monitors or televisions
- Lead
- Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)
- Light Bulbs (both incandescent and fluorescent)

4.4.5 Examine the waste, **AND** record the applicable data in Section 2 of Attachment 2:

[A] Date.

[B] Record Package Number, as applicable.

[C] Record Package TID Number, as applicable.

NOTE

VEE will make determination on the disposition of waste > 200 mrem/hr at the surface.

[D] **IF** the waste is > 200 mrem/hr at the surface, **AND** is going to be placed into the Output Drum,
THEN perform the following:

(a) **WHEN** loading the waste,
THEN position as close as reasonably achievable to the side of the output container.

(b) **IF** the waste is a can with material in it,
THEN document it in the Comments block of Section 1 of Attachment 2.

[E] Record Waste Description.

Controlled
Copy

[F] Determine the contents by WMP category per Table 3, **AND** document as follows:

[F.1] Ensure that there are no prohibited items present in the waste package/item.

NOTE

WMP weight and the method used to determine the weight of the WMP from Table 4, Waste Item Weights and Weighing Codes, may be recorded in Steps 4.4.5[F.2] **OR** 4.4.9 **OR** 4.4.14[A] to accommodate the process.

[F.2] Weight of each WMP and the method used to determine the weight of the WMP from Table 4, as required.

[G] Place a TID on the package/item **AND** record the number, as required

[H] Place the package/item into the Output Waste Container as needed.

[I]

IF package/item(s) are not to be direct loaded,
THEN record the following in Section 2 of Attachment 2:

VEO 1

[I.1] Print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[I.2] **IF** Method 2 is being performed,
THEN print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

Controlled
Copy

4.4.6 **IF** loading an Output Waste Container(s) with package/items(s) that were previously inspected,
THEN obtain appropriate Section 2(s) for items being loaded **AND** verify the information recorded on the Section 2(s) matches the package/items.

[A] **IF** package/item information recorded DOES **NOT** match the package/item,
THEN SUSPEND work and notify VPM.

4.4.7 Record Output Waste Container ID in Section 2 of Attachment 2.

4.4.8 Place the package/item into the Output Waste Container, as needed.

4.4.9 Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

4.4.10 **IF** additional waste packages/item(s) are to be added at a later time and access to the waste container is going to be left uncontrolled,
THEN perform the following:

[A] Apply the container TID to the waste container in accordance with Host site procedures, **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

VEO

4.4.11 **IF** loading an Output Waste Container(s) with package/item(s) that were previously inspected, AND the loading is completed for the day,
THEN record the following on Section 2 of Attachment 2:

VEO 1

[A.1] Print name, sign, and date to annotate loading of Output Waste Container is complete.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[A.2] **IF** Method 2 is being performed,
THEN print name, sign and date.

Controlled
Copy

4.4.12 **WHEN** loading of the Output Waste Container is complete, **THEN** perform the following:

[A] Paginate page(s) of Section 2 of Attachment 2.

[B] Record the data listed below for the Output Waste Container in Section 1 of Attachment 2 as follows:

NOTE

The Volume Utilization Percentage (VUP) of the 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 five percent increments (e.g., 35%, 40%, 45%).

[B.1] Estimate the VUP.

[B.2] Record NO or YES, to indicate whether the waste is consistent with the assigned Waste Stream Description and Waste Matrix Code.

(a) **IF** NO,
THEN initiate a Nonconformance Report (NCR) in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

[B.3] Record Closure Method for layers of confinement, if applicable (see Table 2, Layers of Confinement).

[B.4] Using Table 2, determine the number and record the Number of Layers of Confinement, as applicable.

[C] GO TO Section 4.5 for Output Waste Container Lid Installation and Closure Verification.

4.4.13 Apply the TID to the waste container **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

4.4.14 Record the Gross Weight by weighing the Output Waste Container after it is released to be moved to its staging area, in Section 1 of Attachment 2.

[A] Record the weight of each WMP and the method used to determine the weight of the WMP from Table 4 in Section 2 of Attachment 2, as required.

Controlled
Copy

4.4.15 Perform the following, **AND** record the data in Section 3 of Attachment 2:

[A] Record Output container ID.

[B] Weigh or use Table 4 to estimate the weight of the Packaging Materials of the Output Waste Container, **AND** Total Packaging Weight.

[C] Weights of the WMPs by reviewing the WMPs listed in Section 2(s) of Attachment 2, **AND** combine all consistent WMPs.

[D] Total the WMPs, **AND** record the Total WMP Weight.

[E] Ensure the total of the WMP weights (Section 3, Attachment 2) is within five percent of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight (Section 1, Attachment 2).

4.4.16 Record the following information in Section 4, Prohibited Item(s) Summary, of Attachment 2:

[A] Output Waste Container ID.

[B] **IF** Section 2(s) of Attachment 2 were completed for individual package/items(s),
THEN verify signatures in Section 2(s) of Attachment 2, answer questions in Section 4 of Attachment 2 NO **OR** NA, as applicable.

[C] **IF** packaged/item(s) were direct loaded into Output Waste Container,
THEN answer NO, YES, or N/A appropriately, to the questions in Section 4 with all explanations annotated in the Comments block of Section 4 of Attachment 2.

[C.1] **IF** YES is marked in Section 4,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

Controlled
Copy

4.4.17 Determine (e.g., via Radiological Label or Dose Rate Survey) if the total dose rate of the waste container is >200 mrem/hr at the surface, **AND** record YES or NO in Section 1 of Attachment 2.

[A] **IF** the total dose rate is >200 mrem/hr at the surface, **THEN** initiate an NCR in accordance with CCP-QP-005, **AND** record NCR No. in Section 1 of Attachment 2.

4.4.18 STOP the camera(s) recording when VE is complete, as applicable.

4.4.19 Ensure YES or NO is recorded in Section 1 of Attachment 2 to indicate if any NCRs are associated with the applicable waste container.

[A] **IF** YES,
THEN ensure the appropriate NCR number(s) are recorded.

NOTE

All areas in the attachments that DO **NOT** have completed information SHALL be marked N/A.

4.4.20 Record the following in Section 5, Approvals, of Attachment 2:

[A] Method 1

<u>VEO 1</u>

[A.1] Print name, sign, and date to annotate that the VE process has been completed.

[A.2] Mark VEO 2 as N/A.

[A.3] Prepare two (2) audio/video media recordings.

[B] Method 2

<u>VEO 1</u>

[B.1] Print name, sign, and date to annotate that the VE process has been completed.

<u>VEO 2</u>

[B.2] Print name, sign, and date to annotate that the VE process has been completed.

Controlled
Copy

VEO

4.4.21 Affix new CCP Container Traveler(s) (Labels) to the Output Waste Container(s) in accordance with appropriate CCP Site Container Management procedure, as necessary.

4.4.22 **WHEN** all containers for a batch are complete, **THEN** GO TO Section 4.6.

4.5 Container Lid Installation and Closure Verification

NOTE

Steps 4.5.1[A], [B], [C], [D], and [E] may be performed at any time during or after, Output Waste Container setup.

4.5.1 Perform the following, **AND** record the applicable data, for the Output Waste Container, in Section 1 of Attachment 2:

[A] Verify the Filter and Lid Ring/Bolt Torque Wrenches to be used are in calibration.

[B] Filter Torque Wrench Serial/ID Number and Calibration Due Date.

[C] Container Filter Model(s) and Serial Number(s).

[D] Ensure the filter is installed in accordance with the manufacturer's instructions.

[E] Torque the filter to the manufacturer's specifications, **AND** record the Torque Value.

[F] Ensure the container lid is installed in accordance with the manufacturer's instructions.

[G] Lid Ring/Bolt Torque Wrench Serial/ID Number and Calibration Due Date.

[H] Torque the Container Lid Ring/Bolt(s) to the manufacturer's specifications, **AND** record the Torque Value.

4.5.2 GO TO step 4.4.13 as applicable.

Controlled
Copy

VEO

4.6 Batch Data Report Preparation

4.6.1 Verify Field Records have been transcribed into the appropriate forms.

4.6.2 Assemble the following data for the BDR ensuring that the BDR number and, Examination Date, and Output Waste Container ID(s), as needed, are recorded on each Attachment:

[A] Attachment 5, CCP Waste VE Batch Data Report Cover Sheet

[B] Attachment 4, CCP Waste VE Batch Data Report Table of Contents

[C] Attachment 1, CCP Waste VE General Information Form

[D] Attachment 2, CCP Waste Visual Examination Data Form

[E] Attachment 3, CCP Waste VE Independent Technical Reviewer Checklist

[F] Copies of NCRs, if applicable

[G] Field Records, if applicable

4.6.3 Paginate the BDR.

4.6.4 Complete Attachment 4.

4.6.5 Forward the BDR package and the audio/video media, if applicable, to the ITR.

Controlled
Copy

4.7 VE Independent Technical Review

NOTE

The independent technical review is conducted by an individual who is qualified to have performed the initial work, but who is **NOT** directly responsible for performing the work. The ITR can **NOT** review his/her own work.

If any item on Attachment 3 is marked NO and the condition **CAN NOT** be mitigated, an NCR will be initiated, per CCP-QP-005, **AND** only as a single NCR that identifies all deficiencies.

Independent Technical Reviewer (ITR)

4.7.1 Review the BDR to the criteria in Attachment 3, **AND** document.

4.7.2 Items marked NO require explanation in the Comments block, **AND** items marked NA may require explanation in the Comments block, as necessary to clarify.

4.7.3 Print, sign, and date Attachment 3 and Attachment 5.

4.7.4 Submit the BDR and the audio/video media, if applicable, to CCP Records in accordance with CCP-QP-008, *CCP Records Management*.

4.8 Newly Generated Waste Container Data Submission

VPM/Designee

4.8.1 Complete Attachment 6, CCP Newly Generated Waste Container Data, for newly generated waste containers generated during the performance of VE for the BDR.

4.8.2 Print name, sign, and date Attachment 6.

4.8.3 Submit the Attachment 6 to CCP records in accordance with CCP-QP-008. Transmit a copy of Attachment 6 to the cognizant Acceptable Knowledge Expert (AKE).

Controlled
Copy

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 <u>QA/Lifetime</u>

[A] Batch Data Report (BDR)

[A.1] Attachment 1 – CCP Waste Visual Examination General Information Form

[A.2] Attachment 2 – CCP Waste Visual Examination Data Form

[A.3] Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

[A.4] Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

[A.5] Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

[A.6] Copies of NCRs, if applicable

[A.7] Field Records, if applicable

[B] Attachment 6 – CCP Newly Generated Waste Container Data

5.1.2 <u>QA/Nonpermanent</u>

[A] Two (2) Audio/Video Media Recordings (VHS Tape or DVD), if applicable

Controlled
Copy

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste is not acceptable at WIPP - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid. - Overpacking the outermost container that was examined or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.
Non-Radionuclide 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)
Polychlorinated Biphenyl (PCB) Liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat-sealed bags (unvented) with a surface area <390 square inches
Sharp or heavy objects (Large, bulky dense objects with sharp and obtrusive members or components with dispersible Form 1 and 2) (e.g., steel or concrete boxes, steel plate, electric motors, steel pipe, or concrete blocks) not adequately blocked, braced, or packaged.
Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-8 of CCP-PO-001.

Controlled
Copy

Table 2. Layers of Confinement

Container [a]		Plastic Bags		Metal Cans	
Twist and Tape	CTT/STT	Twist and Tape	TT	Sealed	C
Fold and Tape	CFT/SFT	Fold and Tape	FT		
Other Closure	COC/SOC	Other Closure	OC		
Vented	(add) F	Vented	(add) F	Vented	(add) F

[a] Container: "C" - Container
"S" - Standard Waste Box (SWB)

Liner lids and packaging layers are distinguished as follows:

Layers of confinement are defined, per Section 3.8 of the CH-TRU Payload Appendices, as any boundary that restricts, but does not prohibit, the release of hydrogen gas across the boundary.

Examples of confinement layers are plastic bags (smaller inner bags or larger container liner bags) with the allowable closure methods described below and metal containers fitted with filter vents.

- Fold and tape closure
- Twist and tape closure
- Heat-seal closure or twist and tape closure with a minimum of one filter vent

NOTE

Punctured plastic bags, liner bags open at the end, pieces of plastic sheeting wrapped around the waste for handling, and metal containers with lid closures that allow free hydrogen release are not considered as confinement layers.

Controlled
Copy

Table 3. 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) (PW)	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)	Container (e.g., 208-liter [55-gal.] drums)
Plastics (packaging materials) (PP)	Liner (e.g., 90-mil polyethylene drum liner and plastic bags)

Table 4. Waste Item Weights and Weighing Codes Page 1 of 3

ITEM	WEIGHT
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
10’ Tape Measure	0.1 kg
Channel Lock Pliers	0.3 kg
Crescent Wrench	0.2 kg
Flashlight With Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw With Blade	0.5 kg
Hammer	0.6 kg
Large Open-End Wrench	0.5 kg
Razor Knife	0.1kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder’s Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
13 oz. Aerosol Can ¼ Full	0.2 kg
17 oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2’ X 4’ Board 20" long	0.7 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Empty POC (Black Poly Liner)	154.2 kg
Empty POC (White Poly Liner)	145.1 kg
Empty SWB	290.3 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg
5-Gallon Metal Bucket	1.3 kg
Metal Can	0.2 kg
Metal Can (for salt wastes)	1.1 kg
Aluminum Sphincter Can	0.2 kg
Sand Bag ½ Full of Gravel	12.7 kg
Plastic Bag for Waste	0.6 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg
55-Gallon 10-mil Plastic Bag (each)	1.8 kg
55-Gallon 5-mil Plastic Bag (each)	0.3 kg
55-Gallon 12-mil Plastic Bag (each)	2.1 kg
O-ring Plastic Bag (e.g., sludge, organic setups)	9.0 kg

Controlled
Copy

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 2 of 3

ITEM	WEIGHT
55-Gallon Drum PVC O-ring Bag (60.96 x 213.36 cm)	22.0 kg
55-Gallon Fiberboard Disk	48.0 kg
55-Gallon Drum Round Bottom 10-mil Liner	9.0 kg
(White) 55-Gallon Drum 90-mil Rigid Liner No Lid, used at LANL	4.3 kg
55-Gallon Drum 110-mil Rigid Liner	7.6 kg
(Black) 55-Gallon Drum 125-mil Rigid Liner No Lid, used at LANL	7.6 kg
55-Gallon Drum Poly Liner (122 x 122 x 213 cm)	12.0 kg
55-Gallon Cardboard Liner (graphite mold waste)	9.0 kg
55-Gallon Fiberboard Drum Liner (122 x 122 x 213 cm)	9.0 kg
55-Gallon Lead Liner, 180 cm long, 0.16 cm thick	23.0 kg
55-Gallon Lead Liner, 180 cm long, 0.32 cm thick	46.0 kg
Fiber Pack	13.0 kg
Fiber Pack Lead-Lined	66.0 kg
HEPA Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
Lead Brick (5.1 x 10 x 20 cm)	12.0 kg
Oil-Dry	0.4 kg/liter
Vermiculite	0.1 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Setup Portland Cement	1.1 kg/liter
Uncured Portland Cement	2.9 kg/liter
Leaded Glovebox Glove	0.8 kg
Leaded Rubber Glove	2.5 kg
Leaded Rubber Glove	12.0 kg
Leaded Rubber Apron	2.4 kg
Leaded Rubber Apron	11.5 kg
Coveralls	0.9 kg
25’ Plastic Suit Hose	2.3 kg
50’ Plastic Suit Hose	5.0 kg
Plastic Suit Top and Pants	2.3 kg
55-Gallon Drum (painted – tan or white)	27.7 kg
55-Gallon Drum (painted – mustard yellow)	24.0 kg
55-Gallon Drum (painted – green)	30.0 kg
55-Gallon Drum (painted – grey)	26.3 kg
55-Gallon Drum (galvanized)	29.0 kg
85-Gallon Drum (painted)	37.2 kg

Controlled
Copy

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 3 of 3

ITEM	WEIGHT
Item Description (1 lb = 0.454 kgs) (All containers are 55-gal drums, unless otherwise noted	
110-Gallon Drum (painted)	45.0 kg
Lead-Lined Drum (1/16" thick, 28" high by 72" long)	22.7 kg
Lead-Lined Drum (1/8" thick, 28" high by 72" long) (.4 lb/in.^{3})	45.4 kg
Galvanized DOT 17C (Dull Finish) [Drum Bottom Labels 00040-00705]	31.7 kg
Galvanized (Shiny Drum and Lid Finish) [Drum Bottom Labels 01391 - 01568]	24.2 kg
Hanford Galvanized (Speckled Dull Finish - UNA1A2) [Drum Bottom Labels 00754 - 00933]	30.0 kg
Myers Galvanized (Shiny Finish - Labeled G5501) [Drum Bottom Labels 01200 - 01384]	22.7 kg
Myers Galvanized (Shiny Drum/Shiny Speckled Lid - Labeled G5501) [Drum Bottom Labels 00950 - 01150]	24.0 kg
Myers Yellow Painted	21.5 kg
Rocky Flats White Painted	27.2 kg
Black 90-mil Slip Fit Lid	7.4 kg
Black 110-mil Inner Lid	7.7 kg
Black 110-mil Beveled Top	7.4 kg
White 90-mil Slip Fit Lid	7.5 kg
125-mil Rigid Liner Lid	1.3 kg
B251 Bag - Tare Weight	0.1 kg
55-Gallon Fiberboard Liner (90 Mil)	3.7 kg
5-Gallon drum (LANL)	2.3 kg
7-Gallon drum (LANL)	2.8 kg
10-Gallon drum (LANL)	7.5 kg
30-Gallon drum (LANL)	16.4 kg

Weighing Notes and Codes	
[a] Record weights in kg out to one-tenth of a kg.	
[b] Method of Weighing Codes:	
E	Estimated by Operator.
W	Weight measured by the Operator.

Controlled
Copy

Attachment 1 – CCP Waste Visual Examination General Information Form

Batch Data Report No.:_____

☐ VE for Previously Packaged Waste ☐ VE for Newly Generated Waste	
☐ Method 1 ☐ Method 2	
Site ID:	
Examination Date:	
Procedure No.:	Revision No.:
Camera/Audio/Video Media Recording Check: ☐ N/A	☐ SAT
VE Scale Information: ☐ N/A	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Test Weight Information Test Weight Total: kg. Tray Weight: kg.	Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date:
Container Scale Information:	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Comments:	
Visual Examination Operator 1: Print Name _____ Signature _____ Date _____	
Visual Examination Operator 2: Print Name _____ Signature _____ Date _____	

Attachment 2 – CCP Waste Visual Examination Data Form Page 1 of 5

Batch Data Report No.:_____

Section 1: Output Waste Container Data		
Input Waste Container ID, as applicable:		
Output Waste Container ID:	Waste Stream ID:	
Container Type:	TRUCON Code:	Waste Matrix Code:
Audio/Video Media Recording Number: ☐ N/A		
Waste Container Weights: Tare Wt: kg.	Gross Wt: kg.	
Rigid Liner Present? ☐ NO ☐ YES Type of Liner: ☐ Lead ☐ Plastic ☐ Fiberboard ☐ Other: Thickness: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐125-mil	Rigid Liner Lid Present? ☐ NO ☐ YES Rigid Liner Lid is Vented (>0.3 in.) or Filtered? ☐ NO ☐ YES ☐ N/A ☐ Vented: Hole Size: ☐ N/A ☐ Filtered: Model No.: ☐ N/A Serial No.: ☐ N/A	
Bag Liner Present? ☐ NO ☐ YES	Volume Utilization Percentage: %	
Does the physical form of the waste match the Waste Stream Description (i.e., Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals])? ☐ NO ☐ YES		
Does the physical form of the waste match the Waste Matrix Code? ☐ NO ☐ YES		
Closure Method: Number of Layers of Confinement:		
<u>Filter Torque Wrench</u> Serial/ID No.: Calibration Due Date: Filter: Model No.: Serial No.: Torque Value:	<u>Lid Ring/Bolt Torque Wrench</u> Serial/ID No.: Calibration Due Date: Lid Ring/Bolt Torque Value:	
Is total dose rate greater than 200mrem/hr? ☐ NO ☐ YES		
NCR(s) associated with the output container? ☐ NO ☐ YES NCR No.:_____ NCR No.:_____		
Comments:		

Controlled
Copy

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 2 of 5

Batch Data Report No.:_____ **Date:_____**

Section 2: Waste Package Data				
Package and Package TID Number (as applicable)	Waste Description	WMP [Table 3]	Weight (kg) [Table 4,[a]]	Weighing Code(s) [Table 4[b]]

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

Signatures annotate the absence of prohibited items.

Output Waste Container ID:_____

TID Removed:_____ **TID Applied:_____**

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

Signatures of VEO's verifying the loading of the Output Waste Container. Page ____ of _____

Controlled
Copy

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 3 of 5

Batch Data Report No.:_____

Output Waste Container ID:_____

Section 3: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Others:	
Total Packaging Weight:	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal/Alloys (IM):	
Aluminum-based Metals/Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (PW):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 4 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Questions answered "YES" will be explained in the Comments block)		
	Yes	No
Is there any observable liquid in internal containers, that is more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☐
Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☐
Is there detectable observable liquid in outermost containers with an EPA Hazardous Waste Number of U134?	☐	☐
Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐
Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐
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 TRUCON Code[s])?	☐	☐
Is there an indication of wastes containing explosives or compressed gases?	☐	☐
Is there PCB liquids present?	☐	☐
Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☐
Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐
TRUPACT II Criteria		
Are there heat-sealed bags (unvented) **GREATER** than 4 liters and LESS than 390 square inches in the waste?	☐	☐
Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐
Are there sealed containers **GREATER** than 4 liters?	☐	☐
Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☐

Controlled
Copy

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 5 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Continued) (Questions answered "YES" will be explained in the Comments block)
Comments:
Section 5: Approvals
Visual Examination Operator 1: _____ _____ _____ Print Name Signature Date Visual Examination Operator 2: _____ _____ _____ Print Name Signature Date

Controlled
Copy

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

Batch Data Report No.:_____ Page 1 of 2

Description			
1. Data generation and reduction were conducted in a technically correct manner in accordance with the methods used?	☐ NO	☐ YES	☐ N/A
2. Was the correct revision of operating procedure used?	☐ NO	☐ YES	☐ N/A
3. Are the waste material parameters (WMPs) entered correctly?	☐ NO	☐ YES	☐ N/A
4. Verify the hand calculations on the VE Data Form for the following:			
a. WMP weight totals	☐ NO	☐ YES	☐ N/A
b. Weight totals	☐ NO	☐ YES	☐ N/A
c. Summed volume of observable liquid, as necessary	☐ NO	☐ YES	☐ N/A
d. The total of the WMP weights is within 5% of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight.	☐ NO	☐ YES	☐ N/A
5. Is the data reported in the correct units and correct number of significant figures?	☐ NO	☐ YES	☐ N/A
6. Has the data been reviewed for transcription errors?	☐ NO	☐ YES	☐ N/A
7. Does the Testing Batch Report include VE for up to 20 containers?	☐ NO	☐ YES	☐ N/A
8. BDR contents are complete and match the CCP Waste VE Batch Data Report Table of Contents?	☐ NO	☐ YES	☐ N/A
9. Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	☐ N/A
10. Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	☐ N/A
11. All changes to original data lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	☐ N/A
12. Were data changes made by the individual who originally collected the data or an equally qualified individual?	☐ NO	☐ YES	☐ N/A
13. Did the physical form of the waste match the Waste Matrix Code and Waste Stream Description?	☐ NO	☐ YES	☐ N/A

Controlled
Copy

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist (continued)

Batch Data Report No.: _____ Page 2 of 2

Description			
14. Was the waste in the Output Waste Container(s) examined for prohibited items?	☐ NO	☐ YES	☐ N/A
15. Is there an adequate written description of the contents of each item?	☐ NO	☐ YES	☐ N/A
16. Were the scale(s) in calibration prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
17. Were the scale checks SAT prior to the VE and documented correctly?	☐ NO	☐ YES	☐ N/A
18. Was the audio/video media recording properly prepared and labeled for each waste container?	☐ NO	☐ YES	☐ N/A
19. Was the audio/video media recording check performed satisfactorily prior to the VE?	☐ NO	☐ YES	☐ N/A
20. Precision: Was precision maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases?	☐ NO	☐ YES	☐ N/A
21. Accuracy: Was accuracy maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification and subsequent requalification (operators on LOQI)?	☐ NO	☐ YES	☐ N/A
22. Completeness: Is there a completed VE data form for each waste container in the BDR?	☐ NO	☐ YES	☐ N/A
23. Were NCRs initiated as required?	☐ NO	☐ YES	☐ N/A
Comments:			
I have reviewed 100 percent of the container-specific and batch data in this report and find it acceptable. Independent Technical Reviewer: _____ _____ _____ Printed Name Signature Date			

Controlled
Copy

Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

Batch Data Report No.: _____ Examination Date: _____

Table of Contents		
Item	Description	Page No.
1	CCP Waste VE Batch Data Report Cover Sheet	
2	CCP Waste VE Batch Data Report Table of Contents	
3	CCP Waste Visual Examination General Information Form	
4	CCP Waste Visual Examination Data Forms	
5	CCP Waste VE Independent Technical Reviewer Checklist	
6	Copy of NCRs (N/A, If Not Applicable)	
7	Field Records (N/A, If Not Applicable)	

Controlled
Copy

Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

Batch Data Report No.: _____ Examination Date: _____

Waste Container ID Number:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Independent Technical Reviewer:

_____	_____	_____
Print Name	Signature	Date

Controlled
Copy

Attachment 6 – CCP Newly Generated Waste Container Data

Batch Data Report No.: _____ Examination Date: _____

Container ID	Waste Stream ID	Generation Date	Closure Date	Vent Date	Container Type

VPM/Designee:

_____ _____ _____
Print Name Signature Date

Draft

CCP-TP-113

Revision 19, Draft I

CCP
Standard Contact-Handled Waste Visual Examination

EFFECTIVE DATE: XX/XX/2014

PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	03/26/2004	Initial Issue.
1	04/02/2004	Incorporated Facility Oversight Review Committee Comment resolutions, from Los Alamos National Laboratory, into Sections 1.0, 2.0 and 4.0.
2	07/15/2004	Revised in response to CBFO CAR #04-026. The change in this document involved addition of a note for clarification and implementation on percent fill of a drum. As such, this change is data quality affecting.
3	01/25/2005	Made corrections to procedure per LANL, to comply with the MSA review.
4	12/22/2005	Revised Table 4 to add the weight of an 85- and 110-Gallon Drum as well as a 55-Gallon 12-mil. Plastic Bag. Revised responsibility for pagination of the BDR.
5	08/28/2006	Revised to address CAR LANL-0006-06.
6	11/16/2006	Revised to implement changes to the Waste Isolation Pilot Plant Hazardous Waste Facility Permit requirements resulting from the Section 311/RH PMR.
7	03/19/2007	Revised to clarify notes and procedural steps. Revised to record Output Drum information in Section 4 of Attachment 1. Revised to record Waste Container ID on each page of Attachment 1.
8	09/04/2007	Revised to separate and clarify each Visual Examination (VE) process. Revised Attachment 1, CCP Waste Visual Examination Data Form and Attachment 2, CCP Waste VE Independent Technical Reviewer Checklist, to support the changes. Added new Section 4.11, Newly Generated Waste Container Data Submission, and Attachment 5, CCP Newly Generated Waste Container Data, to assist in container tracking. Incorporated additional editorial changes.
9	03/05/2008	Revised to add a step to Section 2.4 for use of Host site procedures for anomalous conditions. Attachment 1, Section 5, Prohibited Items revised to be consistent with Central Characterization Project (CCP) Nondestructive Examination (NDE) procedures and made additional editorial changes.

RECORD OF REVISION (Continued)

Revision Number	Date Approved	Description of Revision
10	07/09/2008	Revised to address U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Request (CAR) Number CAR-08-021 and New Mexico Environmental Department (NMED) Observer Inquiry from Audit A-08-16. Also, revised to maintain control of internal package/items so that payload containers are surveyed at <200 millirem per hour (mrem/hr).
11	11/12/2008	Revised to incorporate concurrent use with CCP-TP-163, *CCP Standard Visual Examination of Records*.
12	12/01/2008	Minor revision to add notes for clarification of visual examination (VE) of record.
13	03/11/2009	Revised to address the U.S. Department of Energy (DOE) Carlsbad Field Office (CBFO) Corrective Action Report (CAR) Number 09-015 and Environmental Protection Agency (EPA) Issue Numbers INL-CCP-RH-VE-T1-002CR, 003CR, and 007CR.
14	06/30/2010	Revised to incorporate modifications to Hazardous Waste Facility Permit. Revised to address CBFO Corrective Action Report (CAR) 10-019. Revised to address procedural steps, to accommodate the visual examination (VE) process for newly generated waste and to make additional editorial changes.
15	12/29/2010	Revised to clarify independent technical reviewer (ITR) independence.
16	04/25/2011	Revised to remove recording location and clarify transportation packaging requirements.
17	06/04/2013	Revised to incorporate the Nuclear Waste Partnership (NWP) transition changes.
18	09/25/2013	Revised to address Carlsbad Field Office (CBFO) Corrective Action Report (CAR) 13-051.
19	XX/XX/2014	Revised to incorporate information from standing order CCP-SO-35 and to clarify independent technical reviewer (ITR) questions related to Quality Assurance Objectives (QAOs).

TABLE OF CONTENTS

1.0 PURPOSE 6
1.1 Scope 6

2.0 REQUIREMENTS 7
2.1 References 7
2.2 Training Requirements 7
2.3 Equipment List 7
2.4 Precautions and Limitations 7
2.5 Prerequisite Actions 8
2.6 Definitions 8

3.0 RESPONSIBILITIES 10
3.1 Visual Examination Expert (VEE) 10
3.2 Visual Examination Operator (VEO) 10
3.3 Independent Technical Reviewer (ITR) 10
3.4 Vendor Project Manager (VPM) 10

4.0 PROCEDURE 11
4.1 General Information and Performance Checks 12
4.2 Previously Packaged Input Waste Container Preparation. 15
4.3 Output Waste Container Verification 16
4.4 Visual Examination (VE) 19
4.5 Container Lid Installation and Closure Verification 26
4.6 Batch Data Report Preparation 27
4.7 VE Independent Technical Review 28
4.8 Newly Generated Waste Container Data Submission 28

5.0 RECORDS 29

LIST OF TABLES

Table 1. Prohibited Items 30
Table 2. Layers of Confinement 31
Table 3. Waste Material Parameters 32
Table 4. Waste Item Weights and Weighing Codes 33

LIST OF ATTACHMENTS

Attachment 1 – CCP Waste Visual Examination General Information Form 36
Attachment 2 – CCP Waste Visual Examination Data Form 37
Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist 42
Attachment 4 – CCP Waste VE Batch Data Report Table of Contents 45
Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet 46
Attachment 6 – CCP Newly Generated Waste Container Data 47

1.0 PURPOSE

CCP-PO-001, *CCP Transuranic Waste Characterization Quality Assurance Project Plan*, Section C-3c, requires that containers be examined to verify the physical form of the waste and to identify items that are prohibited from disposal at the Waste Isolation Pilot Plant (WIPP). This procedure establishes how to perform visual examination (VE) of contact-handled (CH) transuranic (TRU) waste containers, which may include the removal of prohibited items; and how to prepare and review Batch Data Reports (BDRs) generated from the VE process. This procedure is designed to be accomplished in conjunction with Host site facility operating procedures that address the use of those facilities for VE. All Host site requirements for health, safety, and operations in the work place will be addressed in a Host site procedure.

1.1 Scope

This procedure applies to retrievably stored and newly generated S3000 homogeneous solids, S4000 soils/gravel, and S5000 debris waste streams. VE will be used when necessary to examine a waste container to verify its physical form and to detect and remediate items that are prohibited from disposal at the WIPP.

~~VE cannot identify prohibited items imbedded in forms, such as S3000 and S4000, when the material is not removed from the characterized container.~~

~~VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if Carlsbad Field Office (CBFO) approves the method for the specific waste form, typically from a surveillance.~~

There are two methods allowed for performing a VE process.
Method 1 uses one VE Operator (VEO) with audio/video recording of the process, and Method 2 uses two VEOs (without audio/video recording of the process).

~~Full use of this procedure is **NOT** currently authorized at Los Alamos National Laboratory (LANL), in that processing of a prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at atthis time.~~

VE will not be used as the Nondestructive Examination (NDE) process for certification of S3000 Retrievably Stored waste unless a surveillance on the process has been performed by Carlsbad Field Office (CBFO) identifying why VE is the preferred method over real-time radiography (RTR)

2.0 REQUIREMENTS

2.1 References

Baseline Documents

- CCP-PO-002, *CCP Transuranic Waste Certification Plan*
- CCP-PO-003, *CCP Transuranic Authorized Methods for Payload Control (CCP CH-TRAMPAC)*

Referenced Documents

- 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 performing this procedure 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 Torque Wrenches

2.3.2 Certified VE Scale, as needed

2.3.3 Certified Container Scale

2.3.4 Certified Weights

2.4 Precautions and Limitations

~~2.4.1 Processing of prohibited item(s) found during VE of homogeneous solid waste containers is **NOT** authorized at LANL at this time.~~

~~2.4.2~~2.4.1 Containers with a total dose rate >200 millirem per hour (mrem/hr) at surface SHALL **NOT** be processed under this procedure.

2.4.2 VE cannot identify prohibited items imbedded in forms, such as S3000 and S4000, when the material is not removed from the characterized container, therefore, VE may be performed on S3000 or S4000 when the material is not removed from the characterized container if CBFO approves the method for the specific waste form, typically from a surveillance. ~~Host site procedures may be used in conjunction with this procedure in order to handle anomalous conditions, as necessary.~~

2.4.3 VE of homogeneous solid waste containers is NOT authorized at Los Alamos National Laboratory (LANL) at this time.

2.5 Prerequisite Actions

2.5.1 Prepare containers for VE in accordance with Host site procedures.

2.5.2 Ensure **NO** hold tags that would prevent the performance of VE are on the containers before proceeding.

2.5.3 Review the radiation levels of the containers before proceeding.

2.5.4 Ensure Method 1 or Method 2 for performing the VE has been determined by the Site Project Manager (SPM).

2.5.5 Ensure Input Waste Container(s) is on the Acceptable Knowledge (AK) Tracking Spreadsheet (if applicable).

2.5.6 For Newly Generated waste processing, confirm that the waste stream is described in an approved AK Summary Report.

~~2.5.6~~2.5.7 Ensure Certified Torque Wrenches, Certified Container Scale, Certified Weights, and Certified VE Scale are on the current and approved M&TE list (as applicable).

2.6 Definitions

2.6.1 **Calibration Due Date** – The date recorded on a tool's or scale's sticker/label that indicates the last date the tool or scale is in calibration.

2.6.2 **Method 1** – One VEO with audio/video recording of the process created during VE.

2.6.3 **Method 2** – Two VEOs (without audio/video recording of the process) performing VE. Each VEO shall observe for themselves the waste being placed in the waste container or the contents within the examined waste container when the waste is not removed.

2.6.4 **Outermost Container** – Outer container that holds waste at time of VE.

2.6.5 **Internal Container** – A container inside the outermost container examined during visual examination. Drum liners, liner bag, plastic bags used for contamination control, capillary-type labware, and debris not designed to hold liquid at the time of original waste packaging are not internal containers.

2.6.6 **Observable Liquid** – Liquid that is observable by a qualified operator performing VE of the waste.

2.6.7 **Field Records** – Records which are generated in the field under adverse conditions (i.e., personnel are wearing Anti Cs), which need to be transcribed into a final format for legibility. Field records shall be obtained using the forms from this procedure to ensure the required information is obtained. The field record shall be signed and dated by the operator(s) performing the task. Field records that are transcribed will be included in the BDRs to ensure the absence of transcription errors.

2.6.8 **Tamper Indicating Device (TID)** – A device with a unique identifier that is used when a package is not under control of a qualified VE Operator~~uncontrolled~~.

~~2.6.8~~2.6.9 **Indirect Load** – Any package, item or material to be placed in an output container that has previously undergone the VE process and was controlled by the use of a tamper indicating device (TID) or other administrative control prior to being loaded into the output container.

3.0 RESPONSIBILITIES

~~3.1 Site Project Manager (SPM)~~

~~3.1.1 Determines the use of Method 1 or Method 2 for performing a VE process.~~

~~3.2~~3.1 Visual Examination Expert (VEE)

~~3.2.1~~3.1.1 Responsible for the overall direction and implementation of the VE operations.

~~3.3~~3.2 Visual Examination Operator (VEO)

~~3.3.1~~3.2.1 Performs the VE.

~~3.3.2~~3.2.2 Assembles, paginates, and reviews the BDR.

~~3.4~~3.3 Independent Technical Reviewer (ITR)

NOTE

The Independent Technical Reviewer (ITR) will be someone, other than the VEO, who is qualified to have performed the work and who was not involved in the generation or recording of the data under review.

~~3.4.1~~3.3.1 Reviews the BDR.

~~3.5~~3.4 Vendor Project Manager (VPM)

~~3.5.1~~3.4.1 Ensures the safe operation of the VE process.

~~3.5.2~~3.4.2 Ensures all personnel maintain proficiency and identifies any additional training that may be required.

~~3.5.3~~3.4.3 Coordinates remediation of prohibited items with the Host site.

~~3.5.4~~3.4.4 Facilitates container tracking and management.

4.0 PROCEDURE

NOTE

~~Weights will be recorded in kilograms (kg) out to one tenth of a kg.~~

A Testing Batch includes all data pertaining to VE for up to 20 waste containers without regard to waste matrix.

If, during the performance of VE, multiple Input Waste Containers are used to produce an Output Waste Container or multiple Output Waste Containers are generated from an Input Waste Container, separate data sections shall be completed for each waste container, as applicable.

N/A shall be marked in all fields of the Attachments that are not applicable, unless the document's intent is clear with some blanks.

The sections of this procedure may be performed independently and concurrently to accommodate the VE process.~~; however, the internal steps should be performed in order. The internal steps in this procedure may only be performed in a different order than specified when required by Host site facility-specific operation procedures or as otherwise directed in that section~~.

~~For VE of Newly Generated Waste, Section 4.2 is not performed.~~

Remediation of prohibited items (e.g., removal, absorption, etc.) may be performed in unison with Waste Material Parameter (WMP) identification (ID).

Prohibited items are listed in Table 1, Prohibited Items, are remediated per Host site procedures, as necessary.

Any liquid in non-transparent internal containers, detected from shaking the internal container, will be handled by assuming that the internal container is filled with liquid.

Data changes and requisite approvals SHALL be made by the individual or individuals who originally collected the data, **OR** by an equally-qualified individual or individuals authorized to change data.

Host site operators and procedures may be used to handle anomalous conditions, as necessary.

VEO

4.1 General Information and Performance Checks

NOTE
The steps in 4.1.1 may be performed in any order.

4.1.1 Record Batch Data Report No. on Attachment 1, CCP Waste Visual Examination General Information Form, and Attachment 2, CCP Waste Visual Examination Data Form, (xxVEzzyyyy - where xx is the Site Identifier [e.g., LA for LANL], zz is the VE area identifier, and yyyy is a sequential number for that site).

[A] Record the following information on Attachment 1:

[A.1] Mark applicable VE process to be performed.

[A.2] Mark VE Method used.

[A.3] Site ID.

[A.4] Examination Date.

[A.5] Procedure No.

[A.6] Revision No.

4.1.2 Camera(s) Check (Method 1)

NOTE
If the VE continues for more than one day, a camera check will be conducted prior to continuing the VE for the new day. The results of the second camera check will be recorded on the audio/video media and noted in the Comments block on Attachment 1. The audio/video camera will be checked prior to each VE BDR to ensure proper operation of the camera. The test image segment SHALL remain intact without being erased or recorded over.

[A] **IF** audio/video recording will **NOT** be created, **THEN** mark N/A on Attachment 1, **AND** GO TO section~~step~~ 4.1.3.

[B] Record the Date, Container ID Number(s), BDR Number, and the Audio/Video Media Recording Number on the Audio/Video Media Label.

[C] Ensure the audio/video media is at its beginning or at the point where recording was stopped the previous day.

[D] Start the camera(s).

[E] Record a test image and narrative.

[F] Review the test segment by playing the audio/video media, **AND** verify the image is in focus and the narration is clear.

[G] Save the test recording (i.e., stop the audio/video media at the end of the playback).

[G.1] **IF** the results are UNSAT,
THEN notify the Visual Examination Expert (VEE) and Vendor Project Manager (VPM).

(a) **WHEN** the camera/audio/video media recording system is operational,
THEN repeat steps 4.1.2[D] through 4.1.2[H].

[H] Record the results of the camera/audio/video media recording check as SAT on Attachment 1.

NOTE

When VE is being performed, a Scale Operational Check and an Attachment 1 must be done daily.

4.1.3 Scale Operational Check

NOTE

~~If the VE continues for more than one day, a scale operational check will be conducted prior to continuing the VE for the new day. The results will be recorded in the Comments block on Attachment 1.~~

The VEE will determine when ~~the~~ VE Scales or ~~the~~ Container Scales will ~~not~~ be used. ~~This section will be performed when scales are used in the performance of the VE process.~~

Weights will be recorded in kilograms (kg) out to one tenth of a kg.

[A] VE Scale

[A.1] **IF** VE Scale is **NOT** used, as determined by VEE,
THEN mark N/A on Attachment 1, **AND** GO TO step 4.1.3[B].

~~[A.2] Start the camera(s) in the record mode for the Scale Operational Check, as applicable.~~

~~[A.3]~~[A.2] ~~Verbally r~~Record the Scale Serial/ID Number and the Calibration Due Date on ~~the audio/video media, if in use, **AND** record the data on~~ Attachment 1.

~~[A.4]~~[A.3] Place test weight(s) on the scale to verify the scale's operability.

(a) **IF** the reading is within the scales calibration tolerance,
THEN record as SAT on Attachment 1.

(b) **IF** the reading is **NOT** within the scales calibration tolerance,
THEN STOP WORK, **AND** notify the VPM,
AND record as UNSAT on Attachment 1.

~~[A.5]~~[A.4] Record the following Test Weight Information data on Attachment 1:

(a) Test Weight Serial/ID Number and Calibration Due Date for each weight used.

(b) Test Weight Total placed on the scale.

(c) Tray Weight, as required.

~~[A.6]~~[A.5] With the tray placed on the scale, set the Tare to zero, as required.

[B] Container Scale

[B.1] Record the Scale Serial/ID Number and the Calibration Due Date on Attachment 1.

[B.2] Perform an operational check of the scale as follows:

(a) Place a known check weight(s) on the scale, **AND** verify the scale reads within 1.0 percent of the check weight used.

(a.1) **IF** the scale reads within the operational range,
THEN record SAT on Attachment 1.

(a.2) **IF** the scale reads outside of the operational range,
THEN, SUSPEND WORK, **AND** notify the VPM ~~**AND** record as UNSAT on Attachment 1~~.

[C] **IF** a substitute scale is to be used,
THEN ensure substitute scale is on the current M&TE list,
AND repeat 4.1.3 [A.2-A.3] through 4.1.3 [B.1-B.2].

4.1.4 Record the following on Attachment 1:

[A] Method 1

VEO 1

[A.1] Print name, sign, and date.

[A.2] Mark VEO 2 as N/A.

[B] Method 2

VEO 1

[B.1] Print name, sign, and date.

VEO 2

[B.2] Print name, sign, and date.

4.2 Previously Packaged Input Waste Container Preparation.

NOTE
Section 4.2 is not performed for VE of Newly Generated Waste.

4.2.1 Record the Input Waste Container ID in Section 1, Output Waste Container Data, of Attachment 2.

NOTE
When performing Method 1, audio/video media recording is created to document activities that manipulate waste during the VE. It is expected that recording will be halted whenever VE is suspended. If recording is suspended, the reason is verbally documented on the audio/video media.

4.2.2 Position the camera(s) to record the VE of the Input Waste Container and its contents, **AND** start the camera(s) (if using

Method 1).

4.2.3 Record verbally the Input Waste Container ID (if using Method 1).

NOTE

The Radiological Control Technician (RCT) SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

4.2.4 Ensure~~Remove/verify~~ removal of the input waste container lid in accordance with Host site procedures.

[A] **IF** a rigid liner lid is present, **AND** the rigid liner lid is **NOT** vented (>0.3 inches [in.]) or filtered,
THEN SUSPEND WORK, **AND** notify the VPM.

[B] Ensure ~~R~~removal~~e~~ of the rigid liner lid, if applicable, in accordance with Host site procedures.

NOTE

VE on large or heavy packages/items SHALL be performed as they are removed from the container.

Waste from the Input Waste Container may be segregated for VE as determined by the VEO.

4.2.5 Remove/verify removal of the waste from the Input Waste Container, as appropriate.

4.2.6 Open/verify opening of waste package/items, as appropriate.

4.3 Output Waste Container Verification

4.3.1 Ensure the container is empty of waste, **AND** record on Section 1 of Attachment 2.

[A] **IF** the container is not empty,
THEN stop work and notify the VEE.

NOTE

Step 4.3.2 may be performed at any time during the VE process.

~~4.3.1~~4.3.2 Record the following data for the Output Waste Container in Section 1 of Attachment 2:

~~[A]~~• Output Waste Container ID

~~[B]~~• Waste Stream ID

~~[C]~~• Container Type (e.g., 55-gallon drum)

~~[D]~~• TRUCON Code

~~[E]~~• Waste Matrix Code

~~[F]~~• Audio/Video Media Recording Number (if applicable)

NOTE

The RCT SHALL be present to conduct radiological surveys in accordance with the Host site Interface Document and Host site procedures.

~~4.3.2~~4.3.3 Perform the following, **AND** record the applicable data for the Output Waste Container in Section 1 of Attachment 2:

[A] Record Output Waste Container Tare Weight.

[B] Ensure~~Remove~~ the container lid is removed in accordance with Host site procedures, as applicable.

[C] **IF** a rigid liner is **NOT** present,
THEN perform the following:

[C.1] Record NO, Rigid Liner Present?

[C.2] Record NO, Rigid Liner Lid Present?

[C.3] Record N/A, Rigid Liner Lid is Vented (>0.3 in.), Filtered, and Serial No.?

[C.4] GO TO step 4.3.3[G].

[D] **IF** a rigid liner is present,
THEN record YES, the Type of Liner, and Thickness (Thickness only required for plastic liner).

[E] **IF** a rigid liner lid is NOT present,
THEN record NO **AND** perform the following**:**

[E.1] Record N/A, Rigid Liner Lid is Vented (>0.3 in.) or Filtered?

[E.2] GO TO step 4.3.3[G].

[F] **IF** a rigid liner lid is present,
THEN record YES, **AND** perform the following**:**

[F.1] **IF** the rigid liner lid is vented (punctured) **AND** the puncture is >0.3 in.,
THEN record Vented, **AND** measure and record the Hole Size.

[F.2] **IF** the rigid liner lid is filtered,
THEN record Filtered, **AND** the Model No. and Serial No.

[F.3] Remove the rigid liner lid, if applicable, in accordance with Host site procedures.

[G] **IF** a bag liner is used,
THEN record YES.

[H] **IF** NO bag liner is used,
THEN record NO.

4.4 Visual Examination (VE)

NOTE

Steps 4.4.1 through 4.4.8 may be repeated, as necessary, until loading of the Output Waste Container is complete.

Steps 4.4.1 through 4.4.5 may be performed in any order to accommodate the process.

Waste container(s) SHALL be administratively controlled by CCP VEO when unattended~~closed and have a TID applied when access to the container is uncontrolled~~. This may be accomplished thru application of a TID or other method.

A new Section 2 of Attachment 2 SHALL be used each time the waste container is opened, the TID is removed, and waste is added.

~~Steps 4.4.1 through 4.4.5 may be performed in any order to accommodate the process.~~

Individual package/item(s) may be inspected and have a Section 2 of Attachment 2 completed for each, prior to bag out. A TID may be applied to these package/item(s) for verification purposes.

4.4.1 **IF** a container TID is applied to the output waste container, **THEN** remove TID in accordance with Host site procedures, **AND** record Removed Container TID Number in Section 2 of Attachment 2, as required.

4.4.2 Ensure ~~R~~removal~~e~~ of output container lid in accordance with Host site procedures, as required.

4.4.3 Position the~~at~~ camera(s) to record the VE of the Output Waste Container and its contents, **AND** start the camera(s), as applicable.

4.4.4 Record verbally the Output Waste Container ID, as applicable.

NOTE

When performing Method 1, the camera(s) may require repositioning to record (audio/video) the weighing and final weight of each package from the container.

~~**NOTE**~~

~~Potential hazardous wastes identified by visual examination include:~~

- ~~Batteries~~
- ~~Circuit Boards (may be contained in electrical equipment)~~
- ~~Cathode Ray Tube (CRT)-based computer monitors or televisions~~
- ~~Lead~~
- ~~Mercury, mercury containing equipment (e.g., barometers, switches, thermometers, thermostats)~~
- ~~Light Bulbs (both incandescent and fluorescent)~~

4.4.5 Examine the waste, **AND** record the following~~applicable~~ data in Section 2 of Attachment 2:

~~[A]~~• Date.

~~[B]~~• Record Package Number, as applicable.

~~[C]~~• Record Package TID Number, as applicable.

NOTE

VEE will make determination on the disposition of waste > 200 mrem/hr at the surface.

~~[D]~~[A] **IF** the waste is > 200 mrem/hr at the surface, **AND** is going to be placed into the Output Drum,
THEN perform the following:

~~(a)~~[A.1] **WHEN** loading the waste,
THEN position as close as reasonably achievable to the side of the output container.

~~(b)~~[A.2] **IF** the waste is a can with material in it,
THEN document it in the Comments block of Section 1 of Attachment 2.

~~[E]~~[B] Record Waste Description.

~~[F]~~[C] Determine the contents by WMP category per Table 3, **AND** document on Attachment 2 as follows:

~~[F.1]~~[C.1] Ensure that there are no prohibited items present in the waste package/item.

NOTE

WMP weight and the method used to determine the weight of the WMP from Table 4, Waste Item Weights and Weighing Codes, may be recorded when performing~~in~~ Steps 4.4.5[C.2] **OR** 4.4.9 **OR** 4.4.14[A] to accommodate the process.

~~[F.2]~~[C.2] Weight of each WMP and the method used to determine the weight of the WMP from Table 4, as required.

[D] **IF** no indirect load items,
Then record N/A in the VEO 1 and 2 signature lines, **AND** proceed to 4.4.7.

NOTE

Use of Admin. Control in lieu of TID SHALL be as directed by the VPM and recorded in the operational logbook.

[E] For indirect Load Items

~~[G]~~[F] Place a TID on the package/item **AND** record the number on Attachment 2, as required.

~~[H]~~[G] Place the package/item into the Output Waste Container as needed.

~~[I] **IF** package/item(s) are not to be direct loaded,~~
~~**THEN** record the following in Section 2 of Attachment 2:~~

<u>VEO 1</u>

~~[I.1]~~[G.1] Print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

~~[I.2]~~[G.2] **IF** Method 2 is being performed on indirect loaded items,
THEN print name, sign, and date to annotate VE of package/item(s) is complete, **AND** NO Prohibited Items, listed in Table 1, are present.

4.4.6 **IF** loading ~~an~~ Output Waste Container(s) with package/items(s) that were previously inspected,
THEN obtain appropriate Section 2(s) for items being loaded **AND** verify the information recorded on the Section 2(s) matches the package/items.

[A] **IF** package/item information recorded DOES **NOT** match the package/item,
THEN SUSPEND work and notify VPM.

NOTE
The following applies to direct and indirect load containers.

4.4.7 Record Output Waste Container ID in Section 2 of Attachment 2.

4.4.8 Place the package/item into the Output Waste Container, as needed.

4.4.9 Record the weight of each WMP and the method used to determine the weight of the WMP using~~from~~ Table 4 as a guide in Section 2 of Attachment 2, as required.

4.4.10 **IF** additional waste packages/item(s) are to be added at a later time and ~~access to~~ the waste container is not visually controlled by CCP VEOs~~going to be left uncontrolled~~,
THEN perform the following:

[A] Apply a~~the container~~ TID ~~to the waste container~~ in accordance with Host site procedures, **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

VEO

4.4.11 **IF** loading of~~an~~ Output Waste Container(s) with package/item(s) that were previously inspected, AND the loading is completed for the day,
THEN record the following on Section 2 of Attachment 2:

VEO 1

[A.1] Print name, sign, and date to annotate loading of Output Waste Container is complete.

(a) **IF** Method 1 is being performed,
THEN mark VEO 2 as N/A.

VEO 2

[A.2] **IF** Method 2 is being performed,
THEN print name, sign and date.

4.4.12 **WHEN** loading of the Output Waste Container is complete,
THEN perform the following:

[A] Paginate page(s) of Section 2 of Attachment 2.

[B] Record the data listed below for the Output Waste Container in Section 1 of Attachment 2 as follows:

NOTE

The Volume Utilization Percentage (VUP) of the 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 five percent increments (e.g., 35%, 40%, 45%).

[B.1] Estimate the VUP.

[B.2] Record NO or YES, to indicate whether the waste is consistent with the assigned Waste Stream Description and Waste Matrix Code.

(a) **IF** NO,
THEN initiate a Nonconformance Report (NCR) in accordance with CCP-QP-005, *CCP TRU Noncomforming Item Reporting and Control*, **AND** record the NCR No. in Section 1 of Attachment 2.

[B.3] Record Closure Method for layers of confinement, if applicable (see Table 2, Layers of Confinement).

[B.4] ~~Using Table 2, d~~Determine the number of layers of confinement and record, using Table 2 ~~the Number of Layers of Confinement,~~ as applicable.

[C] **IF** container lid installation and closure verification is to be performed at the time,
THEN GO TO Section 4.5 for Output Waste Container Lid Installation and Closure Verification.

4.4.13 Apply the TID to the waste container **AND** record the applied TID Number on Section 2 of Attachment 2, as required.

4.4.14 Record the Gross Weight by weighing the Output Waste Container after it is released to be moved to its staging area, in Section 1 of Attachment 2.

[A] Record the weight of each WMP and the method used to determine the weight of the WMP, using~~from~~ Table 4 as a guide, in Section 2 of Attachment 2, as required.

4.4.15 Perform the following, **AND** record the data in Section 3 of Attachment 2:

[A] Record Output container ID.

[B] Weigh or use Table 4 as a guide to estimate the weight of the Packaging Materials of the Output Waste Container, **AND** Total Packaging Weight.

[C] ~~Weights of the WMPs by r~~Review~~ing~~ the WMPs listed in Section 2(s) of Attachment 2, **AND** verify/record the total weight for each WMP.~~combine all consistent WMPs.~~

[D] Sum~~Total~~ the WMP~~s~~ weights, **AND** record the Total WMP Weight.

[E] Ensure the total of the WMP weights (Section 3, Attachment 2) is within five percent of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight (Section 1, Attachment 2).

4.4.16 Record the following information in Section 4, Prohibited Item(s) Summary, of Attachment 2:

[A] Output Waste Container ID.

[B] **IF** Section 2(s) of Attachment 2 were completed for individual package/items(s),
THEN verify signatures in Section 2(s) of Attachment 2, answer questions in Section 4 of Attachment 2~~ NO **OR** NA,~~

~~as applicable~~.

[C] **IF** packaged/item(s) were direct loaded into Output Waste Container,
THEN answer ~~NO, YES, or N/A appropriately, to~~ the questions in Section 4 with all explanations (as needed) annotated in the Comments block of Section 4 of Attachment 2.

[C.1] **IF** YES is marked in Section 4,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record the NCR No. in Section 1 of Attachment 2.

4.4.17 Determine (e.g., via Radiological Label or Dose Rate Survey) if the total dose rate of the waste container is >200 mrem/hr at the surface, **AND** record YES or NO in Section 1 of Attachment 2.

[A] **IF** the total dose rate is >200 mrem/hr at the surface,
THEN initiate an NCR in accordance with CCP-QP-005, **AND** record NCR No. in Section 1 of Attachment 2.

4.4.18 STOP the camera(s) recording when VE is complete, as applicable.

4.4.19 Ensure YES or NO is recorded in Section 1 of Attachment 2 to indicate if any NCRs are associated with the applicable waste container.

[A] **IF** YES,
THEN ensure the appropriate NCR number(s) are recorded.

NOTE

All areas in the attachments that DO **NOT** have completed information SHALL be marked N/A.

4.4.20 Record the following in Section 5, Approvals, of Attachment 2:

[A] Method 1

<u>VEO 1</u>

[A.1] Print name, sign, and date to annotate that the VE process has been completed.

[A.2] Mark VEO 2 as N/A.

[A.3] Prepare two (2) audio/video media recordings.

[B] Method 2

VEO 1

[B.1] Print name, sign, and date to annotate that the VE process has been completed.

VEO 2

[B.2] Print name, sign, and date to annotate that the VE process has been completed.

VEO

4.4.21 Affix new CCP Container Traveler(s) (Labels) to the Output Waste Container(s) in accordance with appropriate CCP Site Container Management procedure, as necessary.

4.4.22 **WHEN** all containers for a batch are complete, **THEN** GO TO Section 4.6.

4.5 Container Lid Installation and Closure Verification

NOTE

Steps 4.5.1[A], [B], [C], [D], and [E] may be performed at any time during or after, Output Waste Container setup.

4.5.1 Perform the following, **AND** record the applicable data, for the Output Waste Container, in Section 1 of Attachment 2:

[A] Verify the Filter and Lid Ring/Bolt Torque Wrenches to be used are in calibration.

[B] Filter Torque Wrench Serial/ID Number and Calibration Due Date.

[C] Container Filter Model(s) and Serial Number(s).

[D] Ensure the filter is installed in accordance with the manufacturer's instructions.

[E] Ensure the filters are ~~T~~torqued ~~the filter~~ to the manufacturer's specifications, **AND** record the Torque Value.

[F] Ensure the container lid is installed in accordance with the manufacturer's instructions.

[G] Lid Ring/Bolt Torque Wrench Serial/ID Number and Calibration Due Date.

[H] Ensure~~Torque~~ the Container Lid Ring/Bolt(s) is torqued to the manufacturer's specifications, **AND** record the Torque Value.

4.5.2 GO TO step 4.4.13 as applicable.

VEO

4.6 Batch Data Report Preparation

4.6.1 Verify Field Records have been accurately transcribed into the appropriate forms.

4.6.2 Assemble the following data for the BDR ensuring that the BDR number and, Examination Date, and Output Waste Container ID(s), as needed, are recorded on each Attachment:

[A] Attachment 5, CCP Waste VE Batch Data Report Cover Sheet

[B] Attachment 4, CCP Waste VE Batch Data Report Table of Contents

[C] Attachment 1, CCP Waste VE General Information Form

[D] Attachment 2, CCP Waste Visual Examination Data Form

[E] Attachment 3, CCP Waste VE Independent Technical Reviewer Checklist

[F] Copies of NCRs, if applicable

[G] Field Records, if applicable

4.6.3 Paginate the BDR.

4.6.4 Complete Attachment 4.

4.6.5 Forward the BDR package and the audio/video media, if applicable, to the ITR.

4.7 VE Independent Technical Review

NOTE

The independent technical review is conducted by an individual who is qualified to have performed the initial work, but who is **NOT** directly responsible for performing the work. The ITR can **NOT** review his/her own work.

~~If any item on Attachment 3 is marked NO and the condition **CAN NOT** be mitigated, an NCR will be initiated, per CCP-QP-005, **AND** only as a single NCR that identifies all deficiencies.~~

Independent Technical Reviewer (ITR)

4.7.1 Review the BDR to the criteria in Attachment 3, **AND** document the answers appropriately.

4.7.2 Items marked NO may require explanation in the Comments block~~, **AND** items marked NA may require explanation in the Comments block, as necessary to clarify~~.

4.7.3 Print, sign, and date Attachment 3 and Attachment 5.

4.7.4 Submit the BDR and the audio/video media, if applicable, to CCP Records in accordance with CCP-QP-008, *CCP Records Management*.

4.8 Newly Generated Waste Container Data Submission

VPM/Designee

4.8.1 Complete Attachment 6, CCP Newly Generated Waste Container Data, for newly generated waste containers generated during the performance of VE for the BDR.

4.8.2 Print name, sign, and date Attachment 6.

4.8.3 Submit the Attachment 6 to CCP records in accordance with CCP-QP-008. ~~Transmit a copy of Attachment 6 to the cognizant Acceptable Knowledge Expert (AKE).~~

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 <u>QA/Lifetime</u>

[A] Batch Data Report (BDR)

[A.1] Attachment 1 – CCP Waste Visual Examination General Information Form

[A.2] Attachment 2 – CCP Waste Visual Examination Data Form

[A.3] Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

[A.4] Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

[A.5] Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

[A.6] Copies of NCRs, if applicable

[A.7] Field Records, if applicable

[B] Attachment 6 – CCP Newly Generated Waste Container Data

5.1.2 <u>QA/Nonpermanent</u>

[A] Two (2) Audio/Video Media Recordings (VHS Tape or DVD), if applicable

Table 1. Prohibited Items

LIST OF PROHIBITED ITEMS
Liquid waste is not acceptable at WIPP - Observable liquid shall be no more than 1 percent by volume of the outermost container. - Internal containers with more than 60 milliliters or 3 percent by volume observable liquid, whichever is greater, are prohibited. - Containers with Hazardous Waste Number U134 assigned shall have no observable liquid. - Overpacking the outermost container that was examined or redistributing untreated liquid within the container shall not be used to meet the liquid volume limits.
Non-Radionuclide 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)
Polychlorinated Biphenyl (PCB) Liquids
Ignitables
Corrosives
Reactive waste
Sealed containers greater than 4 liters
Heat-sealed bags (unvented) with a surface area <390 square inches
Sharp or heavy objects (Large, bulky dense objects with sharp and obtrusive members or components with dispersible Form 1 and 2) (e.g., steel or concrete boxes, steel plate, electric motors, steel pipe, or concrete blocks) not adequately blocked, braced, or packaged.
Waste that has ever been managed as high-level waste and waste from tanks specified in Table C-4~~8~~ of CCP-PO-001.

Table 2. Layers of Confinement

Container [a]		Plastic Bags		Metal Cans	
Twist and Tape	CTT/STT	Twist and Tape	TT	Sealed	C
Fold and Tape	CFT/SFT	Fold and Tape	FT		
Other Closure	COC/SOC	Other Closure	OC		
Vented	(add) F	Vented	(add) F	Vented	(add) F

[a] Container: "C" - Container
"S" - Standard Waste Box (SWB)

Liner lids and packaging layers are distinguished as follows:

Layers of confinement are defined, per Section 3.8 of the CH-TRU Payload Appendices, as any boundary that restricts, but does not prohibit, the release of hydrogen gas across the boundary.

Examples of confinement layers are plastic bags (smaller inner bags or larger container liner bags) with the allowable closure methods described below and metal containers fitted with filter vents.

- Fold and tape closure
- Twist and tape closure
- Heat-seal closure or twist and tape closure with a minimum of one filter vent

NOTE

Punctured plastic bags, liner bags open at the end, pieces of plastic sheeting wrapped around the waste for handling, and metal containers with lid closures that allow free hydrogen release are not considered as confinement layers.

Table 3. 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) (PW)	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)	Container (e.g., 208-liter [55-gal.] drums)
Plastics (packaging materials) (PP)	Liner (e.g., 90-mil polyethylene drum liner and plastic bags)

Table 4. Waste Item Weights and Weighing Codes Page 1 of 3

ITEM	WEIGHT
3" Roll of Duct Tape	0.7 kg
3" Roll of Masking Tape	0.4 kg
10’ Tape Measure	0.1 kg
Channel Lock Pliers	0.3 kg
Crescent Wrench	0.2 kg
Flashlight With Batteries	0.5 kg
Flashlight Without Batteries	0.1 kg
Flat File	0.4 kg
Hacksaw With Blade	0.5 kg
Hammer	0.6 kg
Large Open-End Wrench	0.5 kg
Razor Knife	0.1kg
Scissors	0.2 kg
Vice Grip Pliers	0.5 kg
Welder’s Chipping Hammer	0.4 kg
Wire Brush	0.1 kg
Wooden Folding Ruler	0.2 kg
Wooden Wedge	0.2 kg
13 oz. Aerosol Can ¼ Full	0.2 kg
17 oz. Aerosol Can Full of Liquid	0.5 kg
17" Section of 1" Electrical Conduit	0.5 kg
17" Section of 1" Sch 40 S/s Pipe	1.1 kg
2’ X 4’ Board 20" long	0.7 kg
Empty 2-Gallon Car-boy	0.7 kg
Empty 6-Gallon Car-boy	2.0 kg
Empty POC (Black Poly Liner)	154.2 kg
Empty POC (White Poly Liner)	145.1 kg
Empty SWB	290.3 kg
2-Gallon Car-boy ½ Full of Water	5.8 kg
6-Gallon Car-boy ½ Full of Water	14.0 kg
5-Gallon Metal Bucket	1.3 kg
Metal Can	0.2 kg
Metal Can (for salt wastes)	1.1 kg
Aluminum Sphincter Can	0.2 kg
Sand Bag ½ Full of Gravel	12.7 kg
Plastic Bag for Waste	0.6 kg
Liner Bags – Large	0.5 kg
Rad Bags – Medium and Small	0.1 kg
55-Gallon 10-mil Plastic Bag (each)	1.8 kg
55-Gallon 5-mil Plastic Bag (each)	0.3 kg
55-Gallon 12-mil Plastic Bag (each)	2.1 kg
O-ring Plastic Bag (e.g., sludge, organic setups)	9.0 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 2 of 3

ITEM	WEIGHT
55-Gallon Drum PVC O-ring Bag (60.96 x 213.36 cm)	22.0 kg
55-Gallon Fiberboard Disk	48.0 kg
55-Gallon Drum Round Bottom 10-mil Liner	9.0 kg
(White) 55-Gallon Drum 90-mil Rigid Liner No Lid, used at LANL	4.3 kg
55-Gallon Drum 110-mil Rigid Liner	7.6 kg
(Black) 55-Gallon Drum 125-mil Rigid Liner No Lid, used at LANL	7.6 kg
55-Gallon Drum Poly Liner (122 x 122 x 213 cm)	12.0 kg
55-Gallon Cardboard Liner (graphite mold waste)	9.0 kg
55-Gallon Fiberboard Drum Liner (122 x 122 x 213 cm)	9.0 kg
55-Gallon Lead Liner, 180 cm long, 0.16 cm thick	23.0 kg
55-Gallon Lead Liner, 180 cm long, 0.32 cm thick	46.0 kg
Fiber Pack	13.0 kg
Fiber Pack Lead-Lined	66.0 kg
HEPA Filter (8 x 8 3-1/16)	1.0 kg
HEPA Filter (8 x 8 x 5-7/8)	1.9 kg
HEPA Filter (12 x 12 x 5-7/8)	2.5 kg
Lead Brick (5.1 x 10 x 20 cm)	12.0 kg
Oil-Dry	0.4 kg/liter
Vermiculite	0.1 kg/liter
Poly Bottles (1 gallon)	2.2 kg
Poly Bottles (1 liter)	0.5 kg
Setup Portland Cement	1.1 kg/liter
Uncured Portland Cement	2.9 kg/liter
Leaded Glovebox Glove	0.8 kg
Leaded Rubber Glove	2.5 kg
Leaded Rubber Glove	12.0 kg
Leaded Rubber Apron	2.4 kg
Leaded Rubber Apron	11.5 kg
Coveralls	0.9 kg
25’ Plastic Suit Hose	2.3 kg
50’ Plastic Suit Hose	5.0 kg
Plastic Suit Top and Pants	2.3 kg
55-Gallon Drum (painted – tan or white)	27.7 kg
55-Gallon Drum (painted – mustard yellow)	24.0 kg
55-Gallon Drum (painted – green)	30.0 kg
55-Gallon Drum (painted – grey)	26.3 kg
55-Gallon Drum (galvanized)	29.0 kg
85-Gallon Drum (painted)	37.2 kg

Table 4. Waste Item Weights and Weighing Codes (Continued) Page 3 of 3

ITEM	WEIGHT
Item Description (1 lb = 0.454 kgs) (All containers are 55-gal drums, unless otherwise noted)	
110-Gallon Drum (painted)	45.0 kg
Lead-Lined Drum (1/16" thick, 28" high by 72" long)	22.7 kg
Lead-Lined Drum (1/8" thick, 28" high by 72" long) (.4 lb/in.^{3})	45.4 kg
Galvanized DOT 17C (Dull Finish) [Drum Bottom Labels 00040-00705]	31.7 kg
Galvanized (Shiny Drum and Lid Finish) [Drum Bottom Labels 01391 - 01568]	24.2 kg
Hanford Galvanized (Speckled Dull Finish - UNA1A2) [Drum Bottom Labels 00754 - 00933]	30.0 kg
Myers Galvanized (Shiny Finish - Labeled G5501) [Drum Bottom Labels 01200 - 01384]	22.7 kg
Myers Galvanized (Shiny Drum/Shiny Speckled Lid - Labeled G5501) [Drum Bottom Labels 00950 - 01150]	24.0 kg
Myers Yellow Painted	21.5 kg
Rocky Flats White Painted	27.2 kg
Black 90-mil Slip Fit Lid	7.4 kg
Black 110-mil Inner Lid	7.7 kg
Black 110-mil Beveled Top	7.4 kg
White 90-mil Slip Fit Lid	7.5 kg
125-mil Rigid Liner Lid	1.3 kg
B251 Bag - Tare Weight	0.1 kg
55-Gallon Fiberboard Liner (90 Mil)	3.7 kg
5-Gallon drum (LANL)	2.3 kg
7-Gallon drum (LANL)	2.8 kg
10-Gallon drum (LANL)	7.5 kg
30-Gallon drum (LANL)	16.4 kg

Weighing Notes and Codes	
[a] Record weights in kg out to one-tenth of a kg.	
[b] Method of Weighing Codes:	
E	Estimated by Operator.
W	Weight measured by the Operator.

Attachment 1 – CCP Waste Visual Examination General Information Form

Batch Data Report No.:_____

☐ VE for Previously Packaged Waste ☐ VE for Newly Generated Waste	
☐ Method 1 ☐ Method 2	
Site ID:	
Examination Date:	
Procedure No.:	Revision No.:
Camera/Audio/Video Media Recording Check: ☐ N/A	☐ SAT
VE Scale Information: ☐ N/A	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Test Weight Information Test Weight Total: kg. Tray Weight: kg.	Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date: Serial/ID Number: Calibration Due Date:
Container Scale Information:	Serial/ID Number: Calibration Due Date: Operational Check: ☐ SAT ☐ UNSAT
Comments:	
Visual Examination Operator 1: Print Name _____ Signature _____ Date _____	
Visual Examination Operator 2: Print Name _____ Signature _____ Date _____	

Attachment 2 – CCP Waste Visual Examination Data Form Page 1 of 5

Batch Data Report No.:_____

Section 1: Output Waste Container Data		
Input Waste Container ID, as applicable:		
Output Waste Container ID:	Waste Stream ID:	
Container Type:	TRUCON Code:	Waste Matrix Code:
Audio/Video Media Recording Number: ☐ N/A	Output Container verified empty ☐ NO ☐YES	
Waste Container Weights: Tare Wt: kg.	Gross Wt: kg.	
Rigid Liner Present? ☐ NO ☐ YES Type of Liner: ☐ Lead ☐ Plastic ☐ Fiberboard ☐ Other: Thickness: ☐ 30-mil ☐ 90-mil ☐ 110-mil ☐125-mil	Rigid Liner Lid Present? ☐ NO ☐ YES Rigid Liner Lid is Vented (>0.3 in.) or Filtered? ☐ NO ☐ YES ☐ N/A ☐ Vented: Hole Size: ☐ N/A ☐ Filtered: Model No.: ☐ N/A Serial No.: ☐ N/A	
Bag Liner Present? ☐ NO ☐ YES	Volume Utilization Percentage: %	
Does the physical form of the waste match the Waste Stream Description (i.e., Homogeneous Solids, Soil/Gravel, or Debris Waste [including uncategorized metals])? ☐ NO ☐ YES		
Does the physical form of the waste match the Waste Matrix Code? ☐ NO ☐ YES		
Closure Method: Number of Layers of Confinement:		
<u>Filter Torque Wrench</u> Serial/ID No.: Calibration Due Date: Filter: Model No.: Serial No.: Torque Value:	<u>Lid Ring/Bolt Torque Wrench</u> Serial/ID No.: Calibration Due Date: Lid Ring/Bolt Torque Value:	
Is total dose rate greater than 200mrem/hr? ☐ NO ☐ YES		
NCR(s) associated with the output container? ☐ NO ☐ YES NCR No.:_____ NCR No.:_____		
Comments:		

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 2 of 5

Batch Data Report No.:_____ **Date:**_____

Section 2: Waste Package Data				
Package and Package TID Number (as applicable)	Waste Description	WMP [Table 3]	Weight (kg) [Table 4,[a]]	Weighing Code(s) [Table 4[b]]

Are there any indirect load containers associated with this BDR? Yes ☐ No☐

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

VEO's ~~S~~signatures verify~~annotate~~ the absence of prohibited items in indirect load containers.

Output Waste Container ID:_____

TID Removed:_____ **TID Applied:**_____

_____ _____ _____
VEO 1: Print Name Signature Date

_____ _____ _____
VEO 2: Print Name Signature Date

VEO's signatures verify the loading of the indirect load container(s) into the output waste container.
~~Signatures of VEO's verifying the loading of the Output Waste Container.~~

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 3 of 5

Batch Data Report No.:_____

Output Waste Container ID:_____

Section 3: Packaging Material and Waste Material Parameters	
Packaging Material:	Estimated Weight (kg)
Steel (ST):	
Plastics (PP):	
Cellulosic (C):	
Others:	
Total Packaging Weight:	
Waste Material Parameter:	Estimated Weight (kg)
Iron-based Metal/Alloys (IM):	
Aluminum-based Metals/Alloys (AM):	
Other Metals (OM):	
Other Inorganic Materials (OI):	
Cellulosics (C):	
Rubber (R):	
Plastics (waste materials) (PW):	
Organic Matrix (OR):	
Inorganic Matrix (IN):	
Soils (S):	
Total WMP Weight:	

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 4 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Questions answered "YES" will be explained in the Comments block)		
	Yes	No
1. Is there any observable liquid present? If no, proceed to question 5	☐	☐
2. Is there any observable liquid in internal containers, that is more than 60 milliliters or 3 percent by volume, whichever is greater?	☐	☐
3. Is the total volume of observable liquid in the outermost container **GREATER** than 1% of the container?	☐	☐
4. Is there detectable observable liquid in outermost containers with an EPA Hazardous Waste Number of U134?	☐	☐
5. Is there an indication of non-radionuclide pyrophoric materials, such as elemental potassium?	☐	☐
6. Is there an indication of hazardous wastes not occurring as co-contaminants with TRU mixed wastes (non-mixed hazardous wastes)?	☐	☐
7. 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 TRUCON Code[s])?	☐	☐
8. Is there an indication of wastes containing explosives or compressed gases?	☐	☐
9. Is there PCB liquids present?	☐	☐
10. Is there an indication of the waste exhibiting the characteristic of ignitability, corrosivity, or reactivity (EPA Hazardous Waste Numbers of D001, D002, or D003)?	☐	☐
11. Is the physical form of the waste inconsistent with the Waste Stream Description or the Waste Matrix Code?	☐	☐
TRUPACT II Criteria		
12. Are there heat-sealed bags (unvented) **GREATER** than 4 liters and LESS than 390 square inches in the waste?	☐	☐
13. Were there Non-approved Closure Methods used on liner bags or inner bags greater than 4 liters?	☐	☐
14. Are there sealed containers **GREATER** than 4 liters?	☐	☐
15. Are there indications of inadequate protection (blocked or braced) for heavy and/or sharp objects?	☐	☐

Attachment 2 – CCP Waste Visual Examination Data Form (continued) Page 5 of 5

Batch Data Report No.:_____Output Waste Container ID:_____

Section 4: Prohibited Item(s) Summary (Continued) (Questions answered "YES" will be explained in the Comments block)
Comments:
Section 5: Approvals
Visual Examination Operator 1: _____ _____ _____ Print Name Signature Date Visual Examination Operator 2: _____ _____ _____ Print Name Signature Date

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist

Batch Data Report No.:_____ Page 1 of 3

Description			
1. Were ~~D~~data generation and reduction ~~were~~ conducted in a technically correct manner in accordance with the methods used?	☐ NO	☐ YES	~~☐ N/A~~
2. Was the correct revision of operating procedure used?	☐ NO	☐ YES	~~☐ N/A~~
3. Are the waste material parameters (WMPs) entered correctly?	☐ NO	☐ YES	~~☐ N/A~~
4. Have the calculations on the VE Data Form been verified? ~~for the following:Verify the hand calculations on the VE Data Form for the following:~~ ~~a. WMP weight totals~~ ~~b. Weight totals~~ ~~c. Summed volume of observable liquid, as necessary~~ ~~d. The total of the WMP weights is within 5% of the net weight of waste of the Output Waste Container obtained from subtracting the tare weight from the gross weight.~~	☐ NO ~~☐ NO~~ ~~☐ NO~~ ~~☐ NO~~	☐ YES ~~☐ YES~~ ~~☐ YES~~ ~~☐ YES~~	~~☐ N/A~~ ~~☐ N/A~~ ~~☐ N/A~~ ~~☐ N/A~~
5. Is the data reported in the correct units and correct number of significant figures?	☐ NO	☐ YES	~~☐ N/A~~
6. Has the data been reviewed for ~~transcription~~ errors?	☐ NO	☐ YES	~~☐ N/A~~
7. Does the Testing Batch Report include VE for up to 20 containers?	☐ NO	☐ YES	~~☐ N/A~~
8. Are BDR contents ~~are~~ complete and do they match ~~the~~ CCP Waste VE Batch Data Report Table of Contents?	☐ NO	☐ YES	~~☐ N/A~~
9. Is all the data signed and dated in reproducible ink and by the individual(s) generating it?	☐ NO	☐ YES	~~☐ N/A~~
10. Is all data recorded clearly, legibly, and accurately?	☐ NO	☐ YES	~~☐ N/A~~
11. Were changes made to original data? If NO, proceed to question 14.	☐ NO	☐ YES	
1~~1~~2. Have all changes to original data been lined out, initialed and dated by the individual making the changes?	☐ NO	☐ YES	~~☐ N/A~~
1~~2~~3. Were the data changes made by the individual who originally collected the data or by an equally qualified individual?	☐ NO	☐ YES	~~☐ N/A~~
1~~3~~4. Did the physical form of the waste match the Waste Matrix Code and Waste Stream Description?	☐ NO	☐ YES	~~☐ N/A~~

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist (continued)

Batch Data Report No.: _____ Page 2 of 3

Description			
1~~4~~5. Has each container in this BDR been evaluated for the presence of prohibited items?~~Was the waste in the Output Waste Container(s) examined for prohibited items?~~	☐ NO	☐ YES	~~☐ N/A~~
1~~5~~6. Is there an adequate written description of the contents of each container~~ item~~?	☐ NO	☐ YES	~~☐ N/A~~
17. Was a scale(s) used? If NO, proceed to question 20~~19~~.	☐ NO	☐ YES	
1~~7~~8. Were the scale(s) in calibration prior to the VE and documented correctly?	☐ NO	☐ YES	~~☐ N/A~~
1~~8~~9. Were the scale(s) checks SAT prior to the VE and documented correctly?	☐ NO	☐ YES	~~☐ N/A~~
20. Was VE of each container performed by at least two qualified VEO's or was an Audio/Video recording properly prepared for each container? If NO, proceed to question 23.	☐ NO	☐ YES	
~~192. Was the audio/video media recording properly prepared and labeled for each waste container?~~	☐ NO	☐ YES	~~☐ N/A~~
~~20. Was the audio/video media recording check performed satisfactorily prior to the VE?~~	☐ NO	☐ YES	~~☐ N/A~~
21. Was an NCR required at the data generation level? If NO, proceed to question 23.	☐ NO	☐ YES	
22. Is a copy of the NCR included in the BDR?	☐ NO	☐ YES	
2~~1~~3. Were the QAO's (precision, accuracy, completeness, comparability) met?~~Precision: Was precision maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF WAC limits, and compressed gases?~~	☐ NO	☐ YES	~~☐ N/A~~

Attachment 3 – CCP Waste VE Independent Technical Reviewer Checklist (continued)

Batch Data Report No.: _____ Page 3 of 3

Precision – Precision is maintained by reconciling any discrepancies between the operator and the independent technical reviewer with regard to identification of waste matrix code, liquids in excess of TSDF-WAC limits, and compressed gases. Accuracy – Accuracy is maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification. VE operators shall be re-qualified every two years. Completeness – A validated VE data form will be obtained for 100 percent of the waste containers subject to VE. Comparability – The comparability of VE data from different operators shall be enhanced by using standardized VE procedures and operator qualifications.			
~~22. Accuracy: Was accuracy maintained by requiring operators to pass a comprehensive examination and demonstrate satisfactory performance in the presence of the VE expert during their initial qualification and subsequent requalification (operators on LOQI)?~~	~~☐ NO~~	~~☐ YES~~	~~☐ N/A~~
~~23. Completeness: Is there a completed VE data form for each waste container in the BDR?~~	~~☐ NO~~	~~☐ YES~~	~~☐ N/A~~
~~253. Were NCRs initiated as required at DGL?~~	~~☐ NO~~	~~☐ YES~~	~~☐ N/A~~
Comments:			

I have reviewed 100 percent of the container-specific and batch data in this report and find it acceptable.

Independent Technical Reviewer:

Printed Name	Signature	Date

Attachment 4 – CCP Waste VE Batch Data Report Table of Contents

Batch Data Report No.: _____ Examination Date: _____

Table of Contents		
Item	Description	Page No.
1	CCP Waste VE Batch Data Report Cover Sheet	
2	CCP Waste VE Batch Data Report Table of Contents	
3	CCP Waste Visual Examination General Information Form	
4	CCP Waste Visual Examination Data Forms	
5	CCP Waste VE Independent Technical Reviewer Checklist	
6	Copy of NCRs (N/A, If Not Applicable)	
7	Field Records (N/A, If Not Applicable)	

Attachment 5 – CCP Waste VE Batch Data Report Cover Sheet

Batch Data Report No.: _____ Examination Date: _____

Waste Container ID Number:	
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	

Independent Technical Reviewer:

_____	_____	_____
Print Name	Signature	Date

Attachment 6 – CCP Newly Generated Waste Container Data

Batch Data Report No.: _____ Examination Date: _____

Container ID	Waste Stream ID	Generation Date	Closure Date	Vent Date	Container Type

VPM/Designee:

_____ _____ _____
Print Name Signature Date