

CCP-TP-180

Revision 2

CCP Analytical Sample Management

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PRINTED NAME

APPROVED FOR USE

RECORD OF REVISION

Revision Number	Date Approved	Description of Revision
0	05/02/2007	Initial Issue.
1	08/24/2009	The Laboratory is moving to a new facility and the sample receiving and handling is being changed to reflect the new facility. Also some editorial and responsibility name changes.
2	12/29/2010	Minor revision to update references to the <i>Waste Isolation Pilot Plant Hazardous Waste Facility Permit</i> .

1. PURPOSE

This Central Characterization Project (CCP) procedure provides instruction for managing *transuranic waste characterization samples* (see def.) submitted to the Idaho Cleanup Project (ICP) Analytical Laboratory (formerly known as the Analytical Laboratories Department [ALD]). Instructions are included for receiving, logging, storing, tracking, and dispositioning samples. It also gives direction for maintaining *chain-of-custody* (COC) (see def.).

2. SCOPE

Instructions are provided for maintaining transuranic waste characterization sample custody from sample receipt through disposal/return using proper receiving, handling, storage, and documentation practices. This procedure implements the sample handling and custody requirements of the Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan (WAP).

Instructions are also provided for certain sample collection support activities, such as trip blank (TB) container preparation, performed as needed for waste generator site clients.

This procedure functions as an ICP Use Type 3 document for performing operations within the ICP Analytical Laboratory.

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.

3. RESPONSIBILITIES/PREREQUISITES**3.1 Responsibilities**

Performer	Responsibilities
Laboratory Manager	<p>Provide personnel and facility resources for proper management and custody control of samples.</p> <p>Ensure that <i>sample custodians</i> (see def.) authorized to receive samples are trained and qualified.</p> <p>Provide <i>custody areas</i> (see def.) and <i>controlled temperature cabinets</i> (CTCs) (see def.).</p> <p>Designate sample storage areas within the laboratory.</p> <p>Perform pre-sample receipt planning.</p> <p>Ensure that the total radiological inventory in the laboratory does not exceed the facility limit.</p>
Laboratory Quality Assurance (QA) Officer	<p>Verify that sample receiving documentation is complete and accurate.</p>

Performer	Responsibilities
Sample Custodians	Receive samples and inspect and document physical condition of samples. Maintain custody. Ensure that sampling documentation received is complete and accurate. Log samples into the Analytical Computer System (ACS). Store samples in custody areas per preservation requirements. Monitor refrigerated storage temperatures. Ensure unaltered samples are properly disposed and disposal documented. Perform sampling support activities as needed for waste generator site clients.
Laboratory Personnel	Check out samples for analysis. Properly store samples that are checked out for analysis. Monitor refrigerated storage temperatures. Return any unused samples to custody areas after analysis is complete.
Independent Verifiers	Verify that sample container kits are properly assembled.

3.2 Prerequisites

- 3.2.1 Laboratory Manager: Ensure that all sample custodians are trained and qualified per CCP-QP-002.
- 3.2.2 Provide custody areas and CTCs as necessary to properly store samples.
- 3.2.3 Provide physically secure laboratory work areas.

NOTE: *The Laboratory is maintained as a secure area by controlling and limiting laboratory access with a cipher lock (or equivalent).*

- 3.2.4 Designate sample storage areas within the laboratory work area.

4. INSTRUCTIONS

4.1 Safety Precautions

- 4.1.1 Laboratory Personnel: Handle samples according to Radiological Work Permit (RWP) (see MCP-7, "Radiological Work Permit") requirements.
- 4.1.2 Use proper lifting techniques when moving or lifting heavy sample containers or shipping containers.
- 4.1.3 Be aware of potential cutting and pinch points when opening shipping containers and removing samples.
- 4.1.4 Handle all sample spills per ACLP-0.24, "Laboratory Spill Cleanup."
- 4.1.5 Observe the following precautions when using laser barcode scanners to read barcode labels:
 - 4.1.5.1 Ensure that the scanner has a label(s) identifying the Laser Class and stating "Laser Light [Radiation] – Do Not Stare Into Beam."
 - 4.1.5.2 Avoid staring directly into the light beam.
 - 4.1.5.3 Exercise caution to avoid aiming the light beam at another person's face.

NOTE: *Class 2 laser scanners emit light in the visible portion of the spectrum (0.4 – 0.7 μm). Eye protection is normally afforded by the normal human aversion response to bright radiant light sources. Class 2 lasers may present a potential eye hazard if viewed directly for extended periods of time. Momentary exposure to a Class 2 laser is not known to be harmful. MCP-2717, "Laser Safety Program," provides additional information about Class 2 lasers.*

4.2 Sample Collection Support

NOTE: *Sample collection support activities are performed by the analytical laboratory only when prearranged with a particular waste generator site client and when the client cannot reasonably perform such activities in the sampling facilities.*

- 4.2.1 Sample Custodians: IF trip blank containers need to be prepared, THEN perform the steps defined in Appendix A, Instructions for Preparing Trip Blank (TB) Containers.

- 4.2.2 IF sample containers need to be pre-weighed by the laboratory and assembled into kits for field sampler use, THEN perform the steps defined in Appendix B, Instructions for Pre-weighing and Packaging Sample Containers.

4.3 Pre-Sample Receipt Planning

- 4.3.1 Laboratory Manager: Obtain an estimate of the sample radioactivity level from the sample requestor.
- 4.3.2 Evaluate the estimated sample activity level to verify that facility radionuclide inventory limits will NOT be exceeded by receipt of the samples, per ACLP-0.21, "RWMC Analytical Laboratory Facility Radionuclide Inventory Control."
- 4.3.2.1 IF the sample CAN NOT be received within the facility inventory limits, THEN contact the sample requestor.
- 4.3.2.2 IF the sample contains ≥ 15 grams of fissile material, THEN notify the sample requestor that special handling provisions will be required.
- 4.3.2.3 IF sample radioactivity levels exceed 100 mR/hr gamma or 750 mR/hr corrected beta (or as allowed by RWP), THEN notify the sample requestor that special handling provisions will be required.

NOTE: *Samples exceeding these activity levels may require a special RWP or require special arrangements for receipt in a facility having higher levels of radiological containment (e.g., the Remote Analytical Laboratory [RAL] facility at the Idaho Nuclear Technology and Engineering Center [INTEC]).*

- 4.3.3 Evaluate any available process knowledge or acceptable knowledge (AK) to ensure that any non-radiological hazards associated with the sample can be properly mitigated using current procedures.
- 4.3.4 Ensure that all sample and waste disposal documentation required by ACLP-0.40, "Analytical Laboratory Waste Management," is available.
- 4.3.4.1 IF there is NOT an approved disposal route/waste stream for the unaltered sample and all analysis-derived residue, THEN notify the sample requestor that the sample CAN NOT be received until such documentation is in place.

- 4.3.5 WHEN pre-receipt planning is completed and any identified issues resolved,
THEN authorize sample custodians to accept the samples.

4.4 Sample Delivery

- 4.4.1 Sample Custodian: IF authorization is received from the Laboratory Manager,
THEN accept delivery of samples into a laboratory custody area within a radiological buffer area (RBA).
- 4.4.2 Ensure that all sample shipment containers are surveyed for beta/gamma activity, and smeared for alpha contamination before they are accepted.
- 4.4.3 IF samples requiring COC are hand-delivered
AND the *COC form* (see def.) is NOT sealed inside the shipping container,
THEN request that the person delivering the samples remain until Step 4.5.6 is completed and custody is transferred.

4.5 Sample Inspection

- 4.5.1 Sample Custodian: Inspect the shipping container for the presence of a custody seal or tamper-indicating device.
- 4.5.1.1 IF custody seals or tamper-indicating devices are broken, not present, or placed such that the shipping container could have been opened without destroying the seal,
THEN document the discrepancy per Step 4.6.5.
- 4.5.2 Open the shipping container per RWP requirements.
- 4.5.2.1 Keep hands and fingers out of the way when cutting seals or tamper-indicating devices.
- 4.5.2.2 Use proper tools when opening drums or buckets with rings.
- 4.5.3 Ensure proper shipping temperature was maintained.
- 4.5.3.1 Inspect any blue ice (or equivalent) cooling material and verify that it is still cold.
- 4.5.3.2 IF samples are received at room temperature,
THEN document the discrepancy per Step 4.6.5.
- 4.5.4 Remove samples from the shipping container per RWP requirements.

- 4.5.5 Verify that a COC form(s) is present for all samples in the shipping container.
- 4.5.5.1 IF samples arrive at the laboratory without the COC form, THEN halt the sample receiving process and contact the sample requestor immediately for instructions.
- 4.5.6 Enter the verified time of sample receipt (VTSR) (date/time) as the date/time the samples were accessed (shipping container custody seal broken), and sign the COC form accepting custody of the samples.
- 4.5.7 Inspect each sample container for the presence of a custody seal or tamper-resistant device.
- 4.5.7.1 IF custody seals or tamper-indicating devices are broken, not present, or placed such that the sample container could have been opened without destroying the seal, THEN document the discrepancy per Step 4.6.5.
- 4.5.8 Verify that all sample containers are intact and have NOT leaked.
- 4.5.8.1 IF samples have leaked or been broken AND chemical exposure or radiological contamination is possible, THEN STOP WORK, and notify laboratory management to develop a recovery plan.
- 4.5.8.2 IF broken or leaking containers are identified, THEN document the discrepancy per Step 4.6.5.
- 4.5.9 IF sample containers were pre-weighed in the laboratory before sample collection, AND the sample weight was NOT determined during sample collection, THEN weigh the sample containers and determine sample weight per steps in Appendix C, Instructions for Determining Sample Weights Post-Collection.

4.6 Sampling Documentation Inspection

- 4.6.1 Sample Custodian: Verify that all samples listed on the COC form are present in the delivery and that the delivery does NOT contain samples not listed on the COC form.
- 4.6.2 Verify that the following minimum information is recorded on the COC form:
- A. Sampler(s) signatures (includes signature of individual initiating custody)

- B. Field Sample IDs
- C. Date and time of sample collection for all samples (date/time of custody initiation)
- D. Signatures of persons relinquishing and accepting custody with date and time of transfers.
- E. Requested analyses
- F. Preservatives (if applicable)
- G. Sampling batch number
- H. Sampling location
- I. Sample matrix
- J. Sample amount (if weight is determined at collection)
- K. Type/number of containers for each sample
- L. Receiving Laboratory
- M. Waste Container ID number, as appropriate.

4.6.3 Ensure transfers of custody are complete and documented in chronological order.

4.6.4 Inspect the sample labels to ensure they include the sample identification (ID) number, the date and time of sample collection, sampler initials and organization, sample description, and a quality control (QC) designation (if applicable).

NOTE: *Radiation readings should also be included on the sample label or in the documentation received with the sample.*

4.6.5 Document any discrepancies or deficiencies noted during sample inspection and sampling documentation verification on the COC form or on a sample receiving checklist (see example in Appendix D, Example Sample Receiving and Custody Review Checklist).

4.6.6 Notify the sample requestor of any discrepancies or deficiencies found, and document resolution of the issues.

4.6.6.1 IF sample integrity is compromised or documentation discrepancies CAN NOT be reconciled with the sample requestor, THEN ensure that a Nonconformance Report (NCR) is issued in accordance with CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*.

4.7 Logging and Labeling Samples

4.7.1 Sample Custodian: Log samples into the ACS.

4.7.2 Enter the following minimum information into ACS for each group of samples delivered:

- A. Project name
- B. Valid charge number
- C. *Log type* (see def.)
- D. Sample requestor/customer name
- E. Customer phone number
- F. Field Sample ID numbers
- G. Container size
- H. Sample matrix
- I. Storage location
- J. Requested analysis/method numbers.

4.7.3 Enter any additional information helpful for the analysis (e.g., special hazards) into the Comments field.

NOTE 1: *The ACS generates a unique log number for the group of samples delivered. This log number follows the format of "YYMMDDN," where YYMMDD is the date of sample receipt and N is a sequential number beginning with one (1) assigned to logs received within a calendar day (e.g., 0901011, 0901012).*

NOTE 2: *The ACS also generates unique lab sample ID numbers for each sample within the log. This lab sample ID number follows the format of "YNNNN," where Y is the last number of the calendar year and NNNN is a sequentially-assigned alphanumeric character consisting of 2 alpha characters followed by 2 numerals (e.g., 9AA01...9AA99, 9AB01...9ZZ99). The number of containers per sample is indicated on the container labels (e.g., 1 of 1, 2 of 3).*

4.7.4 Prepare labels for each sample container with the following minimum information: log number and lab sample ID number.

4.7.4.1 IF practicable due to container size, THEN also include the Project Name and bottle number (when applicable) on the label.

4.7.4.2 Clean exterior surfaces of sample containers per Radiological Control Technician (RCT) instruction.

4.7.4.3 Place the labels on the sample containers after the containers have been released by the RCT for removal from the hood.

4.7.5 Label each sample container per requirements of MCP-3635, "Chemical Hygiene Plan," as necessary to indicate any identified hazards.

4.7.6 Enter the analytical log information in the Sample Tracking Logbook.

4.7.7 Laboratory QA Officer or Designee: Review all COC forms and checklists for completeness and accuracy as soon as possible after receipt and before any analytical reports are generated.

4.8 Sample Storage

4.8.1 Sample Custodian: Store samples in designated custody areas within a RBA after log-in and when not checked out for analysis.

4.8.1.1 Ensure that all samples are double contained with contamination-free outside containment.

4.8.1.2 Store samples for volatile organic compound (VOC) analysis (purgeable VOC or nonhalogenated volatile organic compound [NHVOC], formaldehyde, or hydrazine) in separate CTCs.

4.8.2 Laboratory Personnel: Store in-process samples (unaltered samples checked out from custody areas for analysis and prepared sample aliquots) in designated storage areas within the laboratory.

4.8.2.1 IF radioactively-contaminated samples or prepared sample aliquots are stored outside of a contamination control area (i.e., hood or glove box), THEN ensure that all sample containers are contained with contamination-free outside containment.

4.8.2.2 Store samples and standards in separate refrigerators.

4.8.2.3 IF prepared samples contain solvents that are required target analytes for unaltered samples, THEN store the prepared samples and unaltered samples in separate CTCs.

4.8.3 Sample Custodians/Laboratory Personnel: Maintain temperature control of samples and standards during storage.

4.8.3.1 Set up a controlled temperature logbook for each CTC per CCP-QP-011, *CCP Notebooks and Logbooks*.

- 4.8.3.2 Place a National Institute of Standards and Technology (NIST)-traceable thermometer with current calibration in each CTC compartment in use.
- 4.8.3.3 Record the thermometer identifier in the logbook, ensuring that the thermometer identification is updated whenever the thermometer is changed.
- 4.8.3.4 Check the temperature of each CTC at least once per working day, and record the date, time, temperature ($^{\circ}\text{C}$), and any applicable comments or actions taken in the logbook, and sign or initial the entry.

NOTE 1: *Acceptable storage temperature range is 4 ± 2 $^{\circ}\text{C}$ for refrigerators and ≤ -10 $^{\circ}\text{C}$ for freezers.*

NOTE 2: *CTC temperature may be monitored and recorded electronically using an automated system.*

- 4.8.3.5 IF the temperature is out of the acceptable range, THEN perform the following actions:
 - 4.8.3.5.1 Correct the problem, if possible (e.g., door open, loss of power), or adjust temperature control knob, and document actions taken in the logbook.
 - 4.8.3.5.2 Notify the Laboratory Manager and the Laboratory QA Officer of the temperature deviation.
 - 4.8.3.5.3 Check and record the temperature every two hours, making necessary adjustments, until satisfactory temperature is obtained for two consecutive checks.
 - 4.8.3.5.4 Ensure that an NCR is initiated per CCP-QP-005.
- 4.8.3.6 IF satisfactory temperature can NOT be obtained within six hours, OR the problem CAN NOT be corrected per Step 4.8.3.5.1 above, THEN perform the following steps:
 - 4.8.3.6.1 Move all affected samples to another refrigerator/freezer.

4.8.3.6.2 Make an inventory of all affected samples in the refrigerator/freezer.

4.8.3.6.3 Provide a copy of the page from the logbook containing the corrective actions and the inventory to the Laboratory Manager and the Laboratory QA Officer.

4.8.3.7 Laboratory Manager/Laboratory QA Officer: IF notified of a temperature deviation, THEN ensure that the sample requestors for all affected samples are immediately notified of the storage requirement deviation.

4.9 Sample Tracking and Handling

4.9.1 Sample Custodian: Check samples out from the custody area to laboratory personnel for analysis.

4.9.1.1 Document check-out of the samples to the analyst in the Sample Tracking Logbook, ensuring that the following minimum information is recorded:

- A. Analytical log number
- B. Laboratory Sample IDs
- C. Signature/initials of analyst removing samples from the custody area
- D. Date/time of sample check-out
- E. Analytical method(s)
- F. Signature/initials of sample custodian checking-out the samples.

4.9.2 Laboratory Personnel: Return samples to the custody area when they are no longer needed in the work area.

4.9.3 Sample Custodian: Document the return of the samples to a custody area in the Sample Tracking Logbook.

4.9.3.1 Record the date/time of sample return in the logbook.

4.9.3.2 IF a sample is expended/consumed during analysis, THEN document this in the Comments section of the logbook.

4.9.3.3 Obtain the signature/initials of the person returning the samples.

4.9.3.4 Sign/initial for return of the samples into the custody area.

4.10 Sample Disposal

- 4.10.1 Sample Custodian: Maintain unaltered samples in custody areas until notification is received from the responsible Site Project Manager that the sample can be released from custody controls for disposal.
- 4.10.2 Relinquish custody of the samples on the COC form.
- 4.10.3 Dispose of released samples per ACLP-0.40.
 - 4.10.3.1 Record disposal of samples in the ACS and on the COC form.
 - 4.10.3.2 Return the original COC forms documenting sample disposition to CCP Records.

5. RECORDS

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

QA/Lifetime

- Completed Original COC Form

QA/Nonpermanent

- Controlled Temperature Logbook
- Sample Tracking Logbook

The following records generated during the performance of this procedure will be compiled into the Batch Data Report, in accordance with CCP-TP-188, *CCP Analytical Data Recording, Review, and Reporting*.

QA/Lifetime

- In-process copy of the COC Form
- Sample Receiving and Custody Review Checklist
- ACS Sample Container Weight Information printout
- Cleanliness certificates for sample containers

6. DEFINITIONS

Chain of Custody (COC). The set of actions taken to ensure that physical sample integrity and sample data integrity are maintained. A sample is considered to be in someone's custody if it meets one of the following conditions:

- It is in one's possession
- It is in one's view after being in possession
- Was in possession and is now locked up
- Is secured (such as, sealed with tamper indicating device) by responsible individual so no tampering can occur
- Is in a designated secured area.

Chain of Custody Form (COC form). A form used to document all transfers of sample custody from collection to disposal. The form contains, at a minimum, the sample numbers, the date and times of transfers, and the signatures of the relinquishing and accepting parties.

Controlled Temperature Cabinet (CTC). A refrigerator or freezer used to store samples or standards at controlled and monitored temperatures.

Custody Area. An area/room designated for receiving and storing samples in accordance with radiological, regulatory, and customer requirements. Unescorted access to Custody Areas is limited to the Sample Custodians.

Log Type. A designator in the Analytical Computer System that groups samples by commonly-received types or major projects. Commonly-used log types are listed below. Additional types may be defined if required.

AMWTP	Advanced Mixed Waste Treatment Project samples received for transuranic waste characterization analyses
CCP	Transuranic waste characterization programmatic samples received from CCP

Sample Custodians. Laboratory personnel who are trained and qualified to receive, store, and distribute samples.

Transuranic waste characterization samples. Samples received for purposes of implementing the characterization requirements of the Waste Isolation Pilot Plant (WIPP) Waste Analysis Plan (WAP). Such samples are received from AMWTP and CCP.

7. REFERENCES

ASTM D 4840-99, *Standard Guide for Sampling Chain-of-Custody Procedures.*

EPA SW-846, *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, 3rd Edition.

EPA No. NM489019088, *Waste Isolation Pilot Plant Hazardous Waste Facility Permit, Attachments C-C6, Waste Analysis Plan (WIPP-WAP)*

ACLP-0.21, "RWMC Analytical Laboratory Facility Radionuclide Inventory Control"

ACLP-0.24, "Laboratory Spill Cleanup"

ACLP-0.40, "Analytical Laboratory Waste Management"

CCP-QP-002, *CCP Training and Qualification Plan*

CCP-QP-005, *CCP TRU Nonconforming Item Reporting and Control*

CCP-QP-008, *CCP Records Management*

CCP-QP-011, *CCP Notebooks and Logbooks*

CCP-TP-184, *CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry*

CCP-TP-186, *CCP Determination of Nonhalogenated Volatile Organics by Gas Chromatography*

CCP-TP-188, *CCP Analytical Data Recording, Review, and Reporting*

MCP-7, "Radiological Work Permit"

MCP-2717, "Laser Safety Program"

MCP-3635, "Chemical Hygiene Plan"

8. APPENDIXES

Appendix A. Instructions for Preparing Trip Blank (TB) Containers

Appendix B. Instructions for Pre-weighing and Packaging Sample Containers.

Appendix C. Instructions for Determining Sample Weights Post-Collection.

Appendix D. Example Sample Receiving and Custody Review Checklist

APPENDIX A**Instructions for Preparing Trip Blank (TB) Containers****A1. Assemble Materials and Equipment**

- A1.1 Bar Code Scanner, Symbol LS 2200 Series, or similar, Class 2 laser device (optional).
- A1.2 Nitrile or latex gloves, powder-free.
- A1.3 20-mL septa vials, clear borosilicate glass, open-top lids with Teflon-lined septa, precleaned and certified for VOC analysis, labeled with production and container number, I-Chem #326-0020 (Series 300, cleanliness certificate provided), or equivalent.
- A1.4 Analytical balance, top-loader, minimum 400-g capacity, 0.01 g readability, calibrated by the Idaho National Laboratory (INL) Standards & Calibration Laboratory (S&CL), equipped with RS232 port (optional), or equivalent.
- A1.5 NIST-traceable weights, calibrated by the INL S&CL, for balance calibration verification.
- A1.6 Reagent sand, prepared per instruction in CCP-TP-184, *CCP Volatile Organic Compounds by Gas Chromatography/Mass Spectrometry*, or CCP-TP-186, *CCP Determination of Nonhalogenated Volatile Organics by Gas Chromatography*.
- A1.7 Spatula, stainless-steel

A2. Prepare Solid Sample TB Containers

Perform the following steps for each required TB container in a radiologically clean area (not in an RBA).

Wear gloves when handling TB containers.

- A2.1 Sample Custodian: Use the weights to verify balance calibration each day before use, and record results of the verification in the balance logbook.
- A2.2 Record the production number and container number of a 20-mL precleaned septa vial (A1.3) in ACS.
- A2.3 Remove the cap and place the vial on the balance pan.
- A2.4 Tare the balance.

APPENDIX A (Continued)

Instructions for Preparing Trip Blank (TB) Containers

- A2.5 Use a spatula to place 3 grams (± 0.05 g) of reagent sand (A1.6) in the container.
- A2.6 Record the net weight to two decimal places, balance ID, and the sand lot number in ACS.
- A2.7 Cap the vial tightly and store in a secure area free from organic contamination sources until needed.

APPENDIX B**Instructions for Pre-Weighing and Packaging Sample Containers****B1. Assemble Materials and Equipment**

- B1.1 20-mL septa vials, clear borosilicate glass, open-top lids with Teflon-lined septa, precleaned and certified for VOC analysis, labeled with production and container number, I-Chem #326-0020 (Series 300, cleanliness certificate provided), or equivalent.
- B1.2 250-mL jars, squat wide-mouth, clear borosilicate glass, with Teflon-lined lids, precleaned and certified for semivolatile organic compound (SVOC) and metals analysis, labeled with production and container number, I-Chem #320-0250 (Series 300, cleanliness certificate provided), or equivalent.
- B1.3 "Dunnage" vials: 20-mL septa vials, borosilicate glass (amber glass recommended to differentiate them from sample containers).
- B1.4 "Overpack" Jars: 250-mL jars, squat wide-mouth, clear borosilicate glass.
- B1.5 Solid Sample Trip Blank Containers, prepared per Appendix A.
- B1.6 Sample Container Labels, water-proof, preprinted per project requirements.
- B1.7 Analytical balance, top-loader, minimum 400-g capacity, 0.01 g readability, calibrated by the INL S&CL, equipped with RS232 port (optional), or equivalent.
- B1.8 NIST-traceable weights, calibrated by the INL S&CL, for balance calibration verification
- B1.9 Zipper bags, various sizes
- B1.10 Bar Code Scanner, Symbol LS 2200 Series, or similar, Class 2 laser device (optional).
- B1.11 Heat-sealer, American International Electric, Inc., Impulse Sealer Model AIE-305HIM, or similar.
- B1.12 Heat-seal plastic sleeves, various sizes
- B1.13 Vinyl pockets, 8.5" × 11"
- B1.14 Nitrile or latex gloves, powder-free.

APPENDIX B (Continued)**Instructions for Pre-Weighing and Packaging Sample Containers****B2. Sample Container Kit Assembly**

Perform the following steps for each required Sample Container Kit in a radiologically clean area (not in a Radiological Buffer Area [RBA]).

Wear gloves when handling sample containers.

Perform steps for only one Sample Container Kit at a time.

- B2.1 Sample Custodian: Use the weights to verify balance calibration each day before use, and record results of the verification in the balance logbook.
- B2.2 IF preparing a “primary” sample container kit, THEN obtain four pre-cleaned 20-mL septa vials (B1.1) and one precleaned 250-mL jar (B1.2)
- B2.3 IF preparing a “collocated” sample container kit, THEN obtain eight pre-cleaned 20-mL septa vials (B1.1) and one precleaned 250-mL jar (B1.2)
- B2.4 Apply the “Field Sample ID” labels (approximately 5/8” × 1.5”) to each of the 20-mL vials for VOC and NHVOC, and the “full” sample label (approximately 2” × 2-5/8”) to the 250-mL precleaned jar for SVOC/metals.
- B2.4.1 When applying the labels, DO NOT obscure the production number and container number barcodes.
- B2.5 Enter the Field sample ID, production number, and container number in ACS.
- B2.6 Weigh each labeled container and record the weight to two decimal places and the balance ID in ACS.
- B2.7 Obtain four assembled Solid Sample TB containers (see Appendix A).
- B2.8 Apply “Field Sample ID” labels to the TB containers.
- B2.8.1 When applying the labels, DO NOT obscure the production number and container number barcodes.
- B2.9 Record the field sample ID, production number, and container number in the Sample in ACS.
- B2.10 Obtain Overpack Jars (B1.4) and label “A,” “B,” and “C” for primary samples, “A,” “B,” “C,” and “D” for collocated samples.

APPENDIX B (Continued)**Instructions for Pre-Weighing and Packaging Sample Containers**

B2.11 Place the 20-mL vials upside down in the overpack jars per Table B-1, Overpack Jar Packing Configuration, and place the “full” sample label (approximately 2” × 2-5/8”) for each of the 20-mL vials (VOC and NHVOC) on the outside of the Overpack Jar.

B2.11.1 IF a dunnage vial (B1.3) is required, THEN label the vial “Dunnage” before placing it in the Overpack Jar.

B2.12 Generate COC forms, using a blank COC form template, preprinted with field sample ID and analysis requests, and place in protective vinyl sleeve(s).

B2.13 Place all Overpack Jars, the SVOC/Metals sample container, and the COC forms into a zip bag.

B2.14 Place a label containing the common Sample ID (first eight digits of the sample IDs) on the sealed bag.

B2.15 Independent Verifier: Verify the following:

- A. The correct number of sample containers are present.
- B. All sample containers are correctly labeled.
- C. The preprinted COC forms correspond to the sample container labels.

B2.16 Independent Verifier: Record verification in ACS.

B2.17 Independent Verifier: Place the sealed bag inside a heat-seal sleeve and heat-seal the sleeve.

Table B-1. Overpack Jar Packing Configuration

Overpack Jar #	Regular Sample	Colocated Sample
A	VOC, VOC spare, VOC TB	VOC, VOC spare, VOC TB
B	NHVOC, NHVOC spare, NHVOC TB	NHVOC, NHVOC spare, NHVOC TB
C	VOC TB spare, NHVOC TB spare, dunnage vial	VOC MS, VOC MSD, VOC TB spare
D	N/A	NHVOC MS, NHVOC MSD, NHVOC TB Spare

APPENDIX C

Instructions for Determining Sample Weights Post-Collection

C1. Materials and Equipment

- C1.1 Analytical balance, top-loader, minimum 400-g capacity, 0.01 g readability, calibrated by the INL S&CL, equipped with RS232 port (optional), or equivalent.
- C1.2 NIST-traceable weights, calibrated by the INL S&CL, for balance calibration verification
- C1.3 Bar Code Scanner, Symbol LS 2200 Series, or similar, Class 2 laser device (optional).

C2. Weighing Sample Containers and Determining Sample Weights

- C2.1 Sample Custodian: Use the weights to verify balance calibration each day before use, and record results of the verification in the balance logbook.
- C2.2 Weigh all sample containers (excluding TBs) and record the gross weight to two decimal places and the balance ID in ACS.

NOTE: *Net sample weight calculations are performed in ACS.*

- C2.3 Provide copies of the ASC Sample Container Weight Information printout for inclusion in the analytical batch data report.

APPENDIX D

Example Sample Receiving & Custody Review Checklist

CCP SAMPLE RECEIVING & CUSTODY REVIEW CHECKLIST
ICP ANALYTICAL LABORATORY

Log Number:	Waste Stream ID #:	NCR Initiation Required? <input type="checkbox"/> Yes <input type="checkbox"/> No
COC #(s):		If Yes NCR Number: _____
Reviewer: _____ / _____ <small>Printed Name/Signature Date</small>		Procedure Number: CCP-TP-180 Rev _____

Instructions:
Complete one checklist per log. Enter appropriate response for each question. No comment is required for a "Yes" response. Each "No" response requires explanation. A "No" response to a question may require initiation of an NCR.

Requirement	Yes	No	Comments
1. FIELD CHAIN-OF-CUSTODY (COC)			
a. Was a COC form received with each shipping container?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Did the content of each shipping container match that listed on the associated COC form?	<input type="checkbox"/>	<input type="checkbox"/>	
c. Were all custody transfers completely documented by signatures of relinquishers and receivers, with date and time of transfer?	<input type="checkbox"/>	<input type="checkbox"/>	
d. Does all sample information (e.g., sample ID, sampling date and time, sampling batch) listed on the COC form corresponds with the information on the sample labels?	<input type="checkbox"/>	<input type="checkbox"/>	
e. Is the correct analysis requested for each sample?	<input type="checkbox"/>	<input type="checkbox"/>	
f. Were any corrections on the COC appropriately made (a single line through the incorrect entry and correct data written in [not overwritten], initialed and dated)?	<input type="checkbox"/>	<input type="checkbox"/>	
2. SAMPLE LABELS			
a. Was each sample received with a completed sample label?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Do the field IDs on the sample labels correspond to those on the field COC form?	<input type="checkbox"/>	<input type="checkbox"/>	
c. Were the sampling batch number, sampling date, time and requested analysis recorded on each sample label, and they correspond with those recorded on the COC?	<input type="checkbox"/>	<input type="checkbox"/>	
d. Are the sampler initials, organization and sample description recorded on each sample label?	<input type="checkbox"/>	<input type="checkbox"/>	
e. Are any corrections on the sample labels appropriately made (a single line through the incorrect entry and correct data written in [not overwritten], initialed and dated)?	<input type="checkbox"/>	<input type="checkbox"/>	
3. SAMPLE INTEGRITY			
a. Were custody seals used on the shipping container?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Were custody seals used on each individual sample container?	<input type="checkbox"/>	<input type="checkbox"/>	
c. Were all custody seals intact and undamaged upon receipt at the laboratory?	<input type="checkbox"/>	<input type="checkbox"/>	
d. Were all custody seals placed such that the container could not be opened without damaging the seal?	<input type="checkbox"/>	<input type="checkbox"/>	
e. Has the physical integrity of all samples been maintained (i.e., no cracks)?	<input type="checkbox"/>	<input type="checkbox"/>	
f. Were all samples preserved during shipment with "Blue Ice" or equivalent cooling mechanism?	<input type="checkbox"/>	<input type="checkbox"/>	
g. Were all samples placed in refrigerated storage (4° ± 2° °C) after login?	<input type="checkbox"/>	<input type="checkbox"/>	
4. INTERNAL SAMPLE TRACKING			
a. Were all samples logged into the Analytical Computer System?	<input type="checkbox"/>	<input type="checkbox"/>	
b. Was all sample information correctly transcribed from the field documentation into the ACS?	<input type="checkbox"/>	<input type="checkbox"/>	
c. Were all sample bottles labeled with the ACS log number and the laboratory sample ID?	<input type="checkbox"/>	<input type="checkbox"/>	

Contact the sampling organization if any discrepancies are found in the field COC and sample label documentation. Document the name of the person contacting the sampling organization, the name of the person contacted, the date and time of the contact, and the resolution of the problem.