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CP3-ES-2709 FRev. 0	**TITLE**: Chain-of-Custody Forms, Sample Labels, and Custody Seals	Page 1 of 13

DOCUMENT CATEGORY:	Administrative
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FUNCTIONAL AREA: Sample Management Office **SUBJECT MATTER AREA:** Sample Management Office	**SUBJECT MATTER EXPERT**: Jaime Morrow, Sample Management Office Manager
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REVISION/CHANGE LOG

Revision/Change Letter	Description of Changes	Pages Affected	Date of Revision/Change
FR0	To update procedure title and update manager/SME, titles, and general information. CP3-ES-2708 will be superseded by CP3-ES-2709.	All	10/31/2024

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1.0 PURPOSE AND SCOPE

1.1 Purpose

The purpose of this procedure is to describe the use of chain-of-custody (COC) forms to track samples and ensure the integrity of those samples by documenting possession of transfers from the time of collection to acceptance by the designated laboratory. It includes requirements for the generation, use, and completion of COC forms, sample labels, and custody seals.

1.2 Scope

This procedure applies to all sampling and analysis activities performed by the Paducah Gaseous Diffusion Plant Deactivation and Remediation (PGDP D&R) personnel and subcontractors at the U.S. Department of Energy (DOE)-owned Paducah site.

Additionally, the on-site analytical laboratory may generate chains of custody, receive and process special samples and document tests performed according to CP4-ES-0104, *Sample Handling and Chain of Custody Guidelines* for those samples and tests performed on-site.

Independent samples for on-site laboratory processes are obtained and processed according to CP4-ES-0012, *Independent Sampling and Analysis.*

2.0 REFERENCES

2.1 Use References

- CP3-ES-1034, *Nuclear Criticality Safety Requirements for Sample Labeling, Handling, and Assay Smears*
- CP3-ES-2700, *Sample and Miscellaneous Data Forms*
- CP4-ES-0012, *Independent Sampling and Analysis*
- CP4-ES-0104, *Sample Handling and Chain of Custody Guidelines*

2.2 Source References

- U.S. Environmental Protection Agency, November 2001. *Environmental Investigations Standard Operating Procedures and Quality Assurance Manual*, Section 3.5, Region 4, Environmental Compliance Branch, Athens, GA

3.0 COMMITMENTS

None

4.0 RESPONSIBILITIES

4.1 Sample Management Office (SMO)

Generates COC forms and sample labels.

4.2 Sampler

4.2.1 Records required information on the COC form and sample label.

4.2.2 Ensures special labels are used if required.

4.2.3 Ensures positive control of samples and COC forms are maintained from the time of collection until transfer to another custodian (i.e., laboratory).

4.3 Laboratory Scientist/Laboratory Sample Custodian

4.3.1 Verifies sample container integrity and completeness of COC form.

4.3.2 Records required information on the COC form.

4.3.3 Forwards completed COC form with analytical results to the SMO.

5.0 GENERAL INFORMATION

5.1 Record entries on the COC form **and** sample labels using black indelible ink.

5.2 Do **NOT** erase, alter, or render illegible entry errors on the COC form and sample label.

5.3 Do **NOT** use correction tape or white-out to correct entry errors.

5.4 Draw a single line through the entry to void entry error.

5.5 Initial **and** date the correction.

6.0 INSTRUCTIONS

6.1 Chain-of-Custody Form Generation

SMO

NOTE:
A separate COC form is used for each laboratory that will perform sample analysis.

6.1.1 Generate COC forms from the Paducah Project Environmental Measurements System (PEMS).

6.1.2 **If** PEMS is **NOT** accessible, **then** generate COC number and form CP3-ES-2709-F01, *Sample Chain-of-Custody Record*.

6.2 Chain-of-Custody Form Completion

Sampler

6.2.1 Record date **and** time of sample collection using military time.

6.2.2 Record sampler's initials.

6.2.3 **If** required, **then** record volume of sample collected.

6.2.4 **If** necessary, **then** record any relevant comments.

6.2.5 **If** an unplanned sample is collected in the field, **then** record required information on CP3-ES-2709-F01, *Sample Chain-of-Custody Record* form **and** on a data form according to CP3-ES-2700, *Sample and Miscellaneous Data Forms*.

6.2.6 **If** samples are **NOT** collected, **then** draw a "Z" line through the PEMS-generated COC form.

A. Initial **and** date the "Z" line.

NOTES:

Explanation for uncollected sample must be more descriptive than "not collected" or "not needed" or "could not collect."

Acceptable explanations must state why the sample was **NOT** collected, why the sample was **NOT** needed, or why the sample could **NOT** be collected.

Examples of acceptable explanations are as follows:

- **NOT** collected due to poor recovery from the boring.
- Could **NOT** be collected because the well was dry.

B. Record explanation for why sample was **NOT** collected.

6.3 Sample Label Generation

NOTES:

Sample labels are required to provide identification of samples collected for analysis at laboratories.

When *in situ* measurements are taken, **then** data should be recorded directly on a sample data form at the time of sample collection, along with any identifying information and field observations.

SMO

6.3.1 Generate sample labels from PEMS.

6.3.2 **If** PEMS is **NOT** accessible, **then** obtain a preprinted sample label provided with the bottle or a blank label **and** record required information.

6.4 Sample Label Completion

Sampler

NOTE:

If feasible, **then** sample containers should be labeled prior to collection of the sample.

6.4.1 Apply sample label to sample container.

NOTE:

All entries on sample labels should be made using black indelible ink.

6.4.2 Record following information on the sample label at the time of sample collection:

- Sampler's initials.
- Date **and** time (military time) of sample collection.

6.4.3 **If** an unplanned sample is collected in the field, **then** record all of the required information on a preprinted or blank sample label.

6.5 Special Sample Labels Required

Sampler

NOTES:

Waste Management should be contacted for guidance regarding any samples that may require special labeling.

Appropriate labels are applied based on process knowledge, source, or waste container labeling.

6.5.1 **If** samples to be collected contain material that exhibit any characteristic of hazardous waste such as ignitability, corrosivity, reactivity, toxicity, or are from a known or suspected asbestos or polychlorinated biphenyl source, **then** contact Waste Management for guidance for special labeling.

NOTE:

The SMO should be contacted for guidance if it is unknown whether samples are potentially fissile (PF) or Nuclear Criticality Safety Exempt.

6.5.2 **If** samples to be collected are PF, **then** label, handle, store, and transport according to CP3-ES-1034, *Nuclear Criticality Safety Requirements for Sample Labeling, Handling and Assay Smears.*

6.6 Positive Control

NOTES:

"Positive control" requires one or more of the following:

- Physical possession
- Visual control/oversight
- Secured storage (i.e., lock and key) that only personnel authorized to handle the samples and COC forms can obtain keys to access, which includes sample vehicles and sample storage (i.e., refrigerators, coolers) in secure areas such as the C-730 building.

6.6.1 Ensure "positive control" of samples and COC forms is kept from the time of collection until transfer to another custodian (i.e., laboratory).

6.7 Custody Seals

NOTES:

Custody seals include tape-like seals, tamper-indicating tape, and tamper-indicating devices that must be broken or removed to open the container after they are applied.

Custody seals are used to guard against tampering and as a means to observe visually if tampering has occurred.

Custody seals are **NOT** required for samples that are kept under positive control.

6.7.1 **If** an automatic composite sampler is used, **then** ensure sampler is secured with a custody seal or padlock to control access to the sample during collection.

6.7.2 **If** the samples are going to be shipped or cannot be kept under positive control, **then** apply custody seal.

- **If** an adhesive backed custody seal is used, **then** sign **and** date the custody seal.
- **If** a zip tie style (or similar) band tamper-indicating device is used, **then** record the unique identification number(s) on the COC **and** on the sample data form.

NOTE:

Custody seal should be attached so that the seal must be broken or removed to open the container.

6.7.3 Attach the seal or tamper-indicating device to the container across the opening(s).

6.7.4 **If** a sample or shipping container must be opened as part of the sampling or shipping process (e.g., filtering a sample, adding additional ice to a composite sampler, adding additional materials to a shipping container), **then** apply a new custody seal.

6.7.5 Record the action on the COC form and on the sample data form.

6.8 Custody Transfer

Sampler

6.8.1 **If** relinquishing custody of a sample, **then** ensure completeness of COC form.

6.8.2 Sign the COC form as "relinquished by" **and** enter date and time.

NOTES:

Transfer of samples between field personnel in the same work group (i.e., personnel assigned to the same sampling event, personnel responsible for sample delivery/shipment) does **NOT** need to be documented on the COC form.

Transfer of samples outside the same work group or where positive control is **NOT** maintained is documented on the COC form.

Laboratory Scientist/Laboratory Sample Custodian

6.8.3 **If** receiving sample, **then** verify sample container integrity **and** completeness of the COC form.

NOTES:

If the samples are shipped off-site, **then** the date/time will **NOT** be the same for the relinquished **and** received signatures.

If custody is transferred directly to another person, **then** the date/time will be the same for both the relinquished and received signatures.

6.8.4 Sign the COC form as "received by" **and** enter date and time of receipt.

6.9 On-site Laboratory Analysis

Sampler

NOTES:

When samples are delivered to an on-site laboratory for analysis, **then** the COC form is signed by the laboratory scientist or laboratory sample custodian upon receipt at the laboratory.

Completed COC form will be forwarded with analytical results to the SMO.

6.9.1 Transfer the samples and the original COC forms to the laboratory.

6.10 Off-site Laboratory Analysis

Sampler

NOTES:

Common carriers (e.g., FedEx or UPS) are **NOT** required to sign the COC form.

When samples are shipped to an off-site laboratory for analysis, **then** the COC form is signed by the laboratory scientist or laboratory sample custodian upon receipt at the laboratory.

Completed COC forms will be forwarded with analytical results to the SMO.

6.10.1 **If** the samples require off-site shipment, **then** place the original COC forms in a water-tight bag **and** secure the bag inside the shipping container.

6.10.2 Ensure the custody seals are applied to the containers.

6.10.3 Process the off-site shipment according to the applicable U.S. Department of Transportation regulations.

7.0 RECORDS

7.1 Records Generated

The following records may be generated by this procedure.

- PEMS-Generated Sample Chain-of-Custody Record
- CP3-ES-2709-F01, *Sample Chain-of-Custody Record*

Forms are to be completed according to CP3-OP-0024, *Forms Control*.

7.2 Records Disposition

The records are to be maintained according to CP3-RD-0010, *Records Management Process*.

Appendix A—Acronyms/Definitions

ACRONYMS

BOA–Basic Ordering Agreement

COC–Chain-of-Custody

DOE–U.S. Department of Energy

PEMS–Project Environmental Measurements System

PGDP D&R–Paducah Gaseous Diffusion Plant Deactivation and Remediation

PF–Potentially Fissile

SMO–Sample Management Office

TAT–Turnaround Time

TOR–Task Order Release

DEFINITIONS

Chain-of-Custody–A process used to document the transfer of custody of samples from one individual to another from the time of collection until final disposition.

Custody–That process of assuring positive control of a sample's integrity from the time of collection to receipt by the laboratory that will analyze the sample and sometimes until the sample is disposed. Documentation of custody is accomplished by using a COC form.

Custody Seals–A tape-like seal, tamper-indicating tape, or tamper-indicating device that must be broken or removed to open the container after it has been affixed. Custody seals are used to guard against tampering and as a means to observe visually if tampering has occurred.

In-Situ Measurements–Field measurements of sample characteristics taken and recorded at the time of sampling. Examples of *in-situ* measurements include pH, temperature, dissolved oxygen, conductivity, and flow measurement.

Appendix B—PEMS-Generated Sample Chain-of-Custody Record Example

FOUR RIVERS NUCLEAR PARTNERSHIP **Sample Chain of Custody Record** *Page 2 of 16*

KPDES Outfalls ERPP (July)

Project ID: KPERPP24-10 **Sample ID:** K001ERPP7-24

Date/Time Sampled: _____ **Sampler:** _____

Station: K001ERPP **LAB COC NO.:** KPERPP24-10 **TAT:** 28 Day

Lab Code: GEL **Charge Code:** C21S&A **LAB Data Deliverable:** Level IV

Potential Hazards: **Sample Location:** Near K001

Material Description: Monthly ERPP Outfall K001

Sample Relinquished By	_____	Date/Time	_____
Received By	_____	Date/Time	_____
Sample Relinquished By	_____	Date/Time	_____
Received By	_____	Date/Time	_____
Sample Relinquished By	_____	Date/Time	_____
Received By	_____	Date/Time	_____

ERPP_RAD-GEL **Matrix:** WS **Bottle:** 1L Poly **Pres:** HNO3 to pH<2 **Qty:** 3 **SOW#:** KPERPP24-01 **BOA-TOR#:** PO-0000173 TOR-105

1475-00 M	Neptunium-237		
Am-05-RC M	Americium-241		
Pu-11-RC M	Plutonium-238	Plutonium-239/240	
Tc-02-RC M	Technetium-99		
Th-01-RC M	Thorium-230		
U-02-RC M	Uranium-234	Uranium-235	Uranium-238

GAB-GEL **Matrix:** WS **Bottle:** 500mL Poly **Pres:** HNO3 to pH<2 **Qty:** 1 **SOW#:** KPERPP24-01 **BOA-TOR#:** PO-0000173 TOR-105

9310	Alpha activity	Beta activity

Miscellaneous: _____

Appendix C–CP3-ES-2709-F01–Sample Chain-of-Custody Record

CP3-ES-2709-F01—Sample Chain-of-Custody Record *Page __ of __*

Project ID: ____ **Sample ID:** ____
Date/Time Sampled: ____ **Sampler:** ____
Station: ____ **LAB COC NO.:** ____ **TAT:** ____
Lab Code: ____ **Charge Code:** ____ **LAB Data Deliverable:** Level IV
Potential Hazards: ____ **Sample Location:** ____
Material Description: ____

Sample Relinquished By ____ Date/Time ____
Received By ____ Date/Time ____
Sample Relinquished By ____ Date/Time ____
Received By ____ Date/Time ____
Sample Relinquished By ____ Date/Time ____
Received By ____ Date/Time ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Parameter Group: ____ Matrix: ____
Bottle: ____ Preservative: ____ Qty: ____
SOW Number: ____ BOA-TOR#: ____
Parameters: ____

Miscellaneous: ____

CP3-ES-2709-F01

Appendix D—Directions for Completing a Blank Chain-of-Custody Form

Most of the information needed below can be obtained from the SMO if it is **NOT** already known.

Project ID – Enter the Project ID for the sample (e.g., DD24-ASBDR).

Sample ID – Enter the unique sample ID number (e.g., DD24ASBDR-001).

Date/Time Sampled – Enter the date and time that the sample was collected (e.g., 07/06/2024 / 1245).

Sampler – Enter the initials of the person who collected the sample.

Station – Enter the identifying location/station number (e.g., AHV14, MW389, WASTE, etc.).

Lab COC No. – Enter the Lab COC number (e.g., DD24-ASBDR).

TAT – Enter the turnaround time for the sample analysis (e.g., 24 hours, 14 days, 28 days, etc.). Days should be entered as calendar days.

Lab Code – Enter lab code for the laboratory that will analyze the sample (e.g., GEL, TALMO, ALSO, etc.).

Charge Code – Enter the charge code to be used for the analytical costs.

Potential Hazards – Enter any potential hazards associated with the sample (e.g., PF, Asbestos, TCE, etc.).

Sample Location – Enter location where the sample was collected (e.g., C-333, C-752-A, etc.).

Material Description – Describe what is being sampled (e.g., asbestos sampling for doors in tank farm area).

Parameter Group – Enter parameter group name that corresponds with bottle/preservative being collected (e.g., Asbestos-ALS, COUPON-GEL, etc.).

Matrix – Enter the matrix code for the material being sampled from the list below.

MATRIX	DESCRIPTION
AIR	Air
FILTER	Filter
GAS	Identifiable non-air gas, or unidentifiable gas
LIQUID	Identifiable non-water liquid, or unidentifiable liquid
OIL	Oil
SE	Sediment
SLUDGE	Sludge
SOIL	Soil
SOLID	Identifiable non-soil solid, or unidentifiable solid
WATER	Water (QC)
WG	Groundwater
WIPE	Wipe
WS	Surface Water
WW	Waste Water

Appendix D—Directions for Completing a Blank Chain-of-Custody Form (Continued)

Bottle – Enter the size and type of bottle that will be used for the sample (e.g., 125ml WM glass, 1L Poly, etc.).

Preservative – Enter the type of preservative used for the sample (e.g., None, HCl pH<2, ≤ 6°C, etc.).

Qty – Enter the number of bottles that will be collected (e.g., 3).

SOW Number – Enter the SOW number for the sample (e.g., DD06-39, etc.).

BOA-TOR# – Enter the BOA and TOR number for the sample if known (e.g., PO-0000173 TOR-105, etc.)

Parameters – Enter the analytical parameters requested. Include analytical method if specified (e.g., 8260D Trichlorethene, SM 2540D Suspended Solids, etc.).

Miscellaneous – Enter any other important information or comments regarding the sample.