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CP3-ES-2708 FRev. 0A	**TITLE**: Chain-of-Custody Forms, Field Sample Logs, Sample Labels, and Custody Seals	Page 1 of 14

DOCUMENT CATEGORY:	Administrative
LEVEL OF USE:	Information Level
FUNCTIONAL AREA: Sample Management Office **SUBJECT MATTER AREA:** Sample Management Office	**SUBJECT MATTER EXPERT**: Lisa Crabtree, Sample Management Office Manager
NUCLEAR SAFETY REVIEW DOCUMENTATION: FRNP-22-0101-D	**APPROVED BY/DATE** (Signature on file): Lisa Crabtree, Sample Management Office Manager 10/4/2022
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REVISION/CHANGE LOG

Revision/Change Letter	Description of Changes	Pages Affected	Date of Revision/Change
FR0	Revision- Procedure was initially CP4-ES-2708 but is used by multiple functional areas so is being revised to a CP3 procedure. Updated steps toclarify the Chain-of-Custody process in response to comment provided by State. Corrected template to reflect Administrative Procedure and updated example of PEMS-Generated Chain-of-Custody Form to a FRNP chain in Appendix B to complete issues found during periodic review.	ALL	2/8/2022
FR0A	Periodic Review has been completed with no changes identified in procedure technical content. Nonintent change to FA, SMA, SME, Approver and dates has been incorporated per CP3-NS-2001. Date for review cycle has been reset.	All	10/4/2022

TABLE OF CONTENTS

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.

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*
- CP4-ES-0012, *Independent Sampling and Analysis*
- CP4-ES-2700, *Logbooks and Data Forms*

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** Paducah PEMS database is not accessible, **then** generate COC number and form CP3-ES-2708-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 ad hoc sample is collected in the field, **then** record required information on CP3-ES-2708-F01, *Sample Chain-of-Custody Record* form **and** on a data form **or** in field logbook according to CP4-ES-2700, *Logbooks and Data Forms*.

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

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

NOTE:

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.
- **NOT** needed because sample is a matrix spike.
- Could **NOT** be collected because the well was dry.

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

6.3 Sample Label Generation

NOTE:

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 **or** in field log book at the time of sample collection, along with any identifying information and field observations.

SMO

6.3.1 Generate sample labels from the Paducah PEMS database.

6.3.2 **If** Paducah PEMS database is **NOT** accessible, **then** obtain a preprinted sample label provided with the bottle **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:

- Name or sampler's initials.
- Date **and** time (military time) of sample collection.

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

6.5 Special Sample Labels Required

Sampler

NOTE:

Waste Management Group 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 PCB source, **then** contact Waste Management for guidance for special labeling.

NOTE:

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

NOTE:

"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

NOTE:

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 or in the logbook.

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 and on the sample data form or in the logbook.

6.8 Custody Transfer

Sampler

6.8.1 **If** relinquishing sample, **then** ensure completeness of COC records.

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

NOTE:

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 relinquished and 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.

NOTE:

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

NOTE:

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

Completed COC will be forwarded with analytical results to the Sample Management Office (SMO).

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

6.10 Off-site Laboratory Analysis

Sampler

NOTE:

Common carriers (e.g., Federal Express) 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 Sample Custodian upon receipt at the laboratory.

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

6.10.1 **If** the samples require off-site shipment, **then** place the original COC form in a watertight 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 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-2708-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

COC – Chain-of-Custody

DOE – United States Department of Energy

NCS – Nuclear Criticality Safety

PEMS – Project Environmental Measurements System

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

PF – Potentially Fissile

SMO – Sample Management Office

DEFINITIONS

Ad Hoc Sample – Unplanned sample.

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 COC 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, LLC

Sample Chain of Custody Record

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K002/K013/K017/K019 Monthly ERPP

Sample ID: FBK019ERPP12-21

Date/Time Sampled:

Project ID: KPERPP22-03 Sampler:_____

Station: QC **LAB COC NO.:** KPERPP22-03

Charge Code: C11S&A **Turnaround** 28 Day

LAB Data Deliverable Level IV GEL

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	

Potential Hazards: Sample Location:

Material Description: Field Blank (Outfall 019)

GAB-GEL Matrix: WATER

Bottle: 500mL Poly Pres: HNO3 1

SOW Numbers: KPERPP22-03 BOA-WorkRelease#: PO-0000173 TOR-105

9310	Alpha activity	Beta activity

Miscellaneous:_____

Appendix C – CP3-ES-2708-F01 – Sample Chain-of-Custody Record

CP3-ES-2708-F01- Sample Chain of Custody Record *Page ___ of ___*

Department of Energy Sampling
Sample ID: _____
Date/Time Sampled: _____
Project ID: _____
Station: _____
COC NO.: _____
Lab Code: _____

Chain of Custody

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: _____

COC Relinquished By: _____ Date/Time: _____
Received By: _____ Date/Time: _____

Bottle: _____ **Bottle:** _____

Parameters: _____ **Parameters:** _____

Bottle: _____ **Bottle:** _____

Parameters: _____ **Parameters:** _____

Bottle: _____ **Bottle:** _____

Parameters: _____ **Parameters:** _____

CP3-ES-2708-F01, FRev.0

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.

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

Sample ID – Enter the unique sample ID number (e.g., DD06ASBDR-001D).

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

Project ID – Enter the Project ID for the sample (e.g., DD06-ASBDR).

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

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

Laboratory – Enter the Laboratory that will analyze the sample (e.g., PGDP, GEL, TALMO, etc.)

Lab COC No. – Enter the Lab COC No. (e.g., DD06-ASBDR).

Turnaround – Enter the turn-around time for the sample analysis (e.g., 14 days, 28 days, etc.).

Analysis Requested – Enter the analysis paragroup ID for the analysis that the lab will perform (e.g., DD-ASBESTOS, NEW-TC-99-PGDP, etc.).

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

MATRIX CODE	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
TISSUE	Tissue
WATER	Water (QC)
WG	Groundwater
WIPE	Wipe
WS	Surface Water
WW	Waste Water

Bottle Type – Enter the type of bottle that will be used for the sample (e.g., wide-mouth glass).

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

Bottle Size – Enter the size of bottle that will be used for the sample (e.g., 2 ounce).

No. of Bottles – Enter the number of bottle that will be collected (e.g., 3).

SOW No. - Enter the SOW number for the sample (e.g., DD06-39).

Preservatives – Enter the type of preservative used for the sample (e.g., None, HCL pH<2, 4°C, etc.).

Sample Type – Enter the sample type for the sample from the list below.

SAMPLE TYPE	DESCRIPTION
FB	Field Blank - a sample that is prepared in the field to evaluate the potential for contamination of a sample by site contaminants from a source not associated with the sample collected.
FR	Field Duplicate - two or more samples collected at the same sampling location either side-by-side or one immediately following the other.
FTB	Filter Blank - analyte-free water passed through a filter and collected in a sample container.
REG	Regular - primary sample collected for analysis.
RB	Refrigerator Blank - analyte-free water that is used to detect any cross-contamination of samples stored in the laboratory refrigerator.
RI	QC Equipment Rinsate/Decontamination - a sample collected using analyte-free water which has been run over/through sample collection equipment used to determine if contaminants have been introduced by contact of the sample medium with sampling equipment.
TB	Trip Blank - a sample which is prepared prior to the sampling event and is stored with the investigative samples throughout the sampling event used to determine if samples were contaminated during storage and/or transportation to the laboratory.

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