

Standard Operating Procedure
Sample Control and Management

Commonwealth of Kentucky
 Energy and Environment Cabinet
 Department for Environmental Protection
 Division of Water

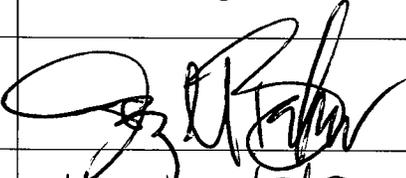
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Document Revision History

This table tracks revisions and changes made over time to this SOP.

Date of Revision	Page(s) Revised	Revision Explanation
06/02/09	3, 5-10, 12-13	Content for evidentiary conditions to be met, hazardous material definition, general edits
05/06/09	3-12	Editorial and content revisions due to drinking water program comments.
03/13/09	7, 8, 9, 11	Content revised to ensure agreement with other SOPs within the DOW.
01/23/09	Entire Document	Replaces in part, the Kentucky Ambient/Watershed Water Quality Monitoring SOP Manual

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Table of Contents

1. Purpose and Scope	5
2. Summary of Method	5
3. Definitions and Acronyms	5
4. Health and Safety	6
5. Cautions and Interferences.....	7
6. Personnel Qualifications and Responsibilities.....	7
7. Equipment.....	8
Table 7-1 Sample Handling Items/Checklist	8
8. General Handling Procedure.....	8
8.1 Sample Labeling	8
8.2 Sample Documentation.....	9
8.3 Sample Handling.....	9
9. Chain-of-Custody Procedures.....	11
9.1 Introduction.....	11
9.2 Custody Procedure.....	11
9.3 Chain-of-Custody Documentation	12
10. Troubleshooting	13
11. Quality Assurance.....	13
12. References.....	13

List of Attachments

Attachment A – Environmental Services Lab Sample Requirements

Attachment B – Example Chain-of-Custody – Division of Water – Fish Tissue Monitoring

Attachment C – Example Chain-of-Custody – Division of Water – Groundwater Monitoring

Attachment D - Example Chain-of-Custody – Division of Water – TMDL Monitoring

Attachment E - Example Chain-of-Custody – Division of Water – Non Point Source Program Monitoring

Attachment F – Example Chain-of-Custody – Environmental Protection Agency

Note: References made in this document to brand names or products is in no way an endorsement or recommendation of those items. Examples of product names are used for clarification to the procedure only.

1. Purpose and Scope

This document describes the methods and procedures established by the Kentucky Division of Water to ensure the handling and documentation of environmental samples is conducted in a standardized, defensible manner. This Standard Operating Procedure (SOP) falls under and meets the requirements set out in the Department of Environmental Protection (DEP) Quality Management Plan (QMP).

Following this (SOP) must be done in order to meet standards of legal defensibility in environmental sampling. If evidentiary requirements are deemed not necessary by the project manager, these standard procedures may be modified according to the specific quality assurance project plan (QAPP).

Use of this SOP is by all personnel that collect samples for the Kentucky Division of Water. If persons outside the division use this manual, additional review measures may be required that would be covered under a quality assurance project plan, or other quality planning document.

This SOP may be referenced in environmental sampling project plans as well as any other document that discusses the management and documentation of environmental samples. Adherence to this SOP is one of the foundation principles in field activities of the Kentucky quality assurance program.

2. Summary of Method

This procedure describes the method of handling and managing environmental samples; the method details sample handling and management after collection, during storage and during transport to the analysis laboratory. The chain of custody process is defined, and examples of documentation for custody tracking are included as attachments to this document. All sample collection methodologies should have a separate SOP within the specific programs in DOW.

3. Definitions and Acronyms

CFR – Code of Federal Regulations

COC – Chain of Custody [forms]

CD – Compact disc

CPR – Cardio-pulmonary resuscitation

CTAB – Compliance and Technical Assistance Branch

DEP – Department of Environmental Protection

DEPS – Division of Environmental Program and Support

DOW – Division of Water

DVD – Digital Versatile Disc or Digital Video Disc

EPA – Environmental Protection Agency

ERT – Emergency Response Team

ESB – Environmental Services Branch [Laboratory]

HDPE – High Density Polyethylene [Bottle]

LDPE – Low Density Polyethylene [Bottle]

NPS – Nonpoint Source [Program]
QAPP – Quality Assurance Project Plan
QMP – Quality Management Plan
SOP – Standard Operating Procedures
TMDL – Total Maximum Daily Load
VOC – Volatile Organic Compound
WMB – Watershed Management Branch
WQB – Water Quality Branch

Possessor – Any individual that currently possesses or may possess a sample.

Sample Custodian – Any individual designated to whom samples are entrusted until proper Chain-of-Custody transfer protocols are enacted. Custodian also responsible for security and appropriate sample transfer conditions.

Sampler – Any trained individual that collects and handles environmental samples, using established procedures.

Equipment and Supply Manager – Any individual that orders, tracks and manages supplies before the sample collection occurs.

4. Health and Safety

All samples handled under this SOP should be non-hazardous and fall under the category of general environmental samples.

If a material is suspected of being contaminated, it may be necessary to treat it as ‘hazardous material’ as defined in 49 CFR, Part 105, Subpart A, and discussed in 49 CFR Part 171.1. Samples containing levels of contamination suspected of the potential to cause adverse health effects to humans, or harm to the environment should be shipped as Environmental Hazardous, Class 9, or by the correct shipping name of the contaminant (if known). Trained hazardous materials responders should be consulted for the appropriate shipping and handling of hazardous materials, and/or refer to Barbalace (2009). Any shipping or handling of known or suspected hazardous materials should be coordinated through the division safety officer (Karen Edwards, karen.edwards@ky.gov phone 502-564-3410).

All sample bottles should remain sealed. Glass containers should be handled with extreme care; drying hands and bottles before handling may minimize the slippage and breakage potential.

Samplers should undergo basic first aid and cardiopulmonary resuscitation (CPR) training before performing field tasks. For scheduled sampling events, sample plans and QAPPs should identify support health care facilities in the vicinity of the project for emergency situations. Unplanned sampling events are addressed using the protocols established in the emergency response team (ERT) and/or compliance and technical assistance branch. (CTAB) of the Division of Water (DOW).

5. Cautions and Interferences

Sample handling can be a source of contamination within a sampling program. Sample bottles can be handled improperly, environmental conditions may introduce source contamination or transport conditions may breach sample integrity. All sample containers should be handled a minimum amount of time it takes to collect a representative sample of the appropriate media – surface water, groundwater, biological, sediment, soil. To minimize contamination during the handling phase of environmental sampling, the following precautions must be taken:

- Wear new, clean, non-talc, latex (or equivalent) gloves when handling samples and sampling equipment.
- Decontaminate equipment between sites.
- Use individual bagging of sample bottles per analyte, per site.
- Use bags to transport all bottles within coolers (or other transport containers).
- Never allow sample bottles to come into contact with the exposed ground – use a tarp or equivalent plastic cover.

The following should be general practice when handling samples:

- Use labels to record site and sample information on the bottles. Use of direct inscription onto bottles may introduce contaminants through inks or dyes. Direct writing on bottles may be done in the office or field if volatile organics are not being sampled, or if VOC bottles are not present in the work area.
- All sampling containers should be free of dust and dirt, and capped whenever not in use. Pre-cleaned bottles, or bottles certified as EPA Type I or Type II may be used for certain analysis or programs requiring stringent levels of cleanliness.
- All caps should be firmly applied.
- All transport containers (e.g., coolers) should be clean and sturdy, and free of defect or obvious degradation.
- Hands should be reasonably free of dirt and debris that may cause interferences – a ‘clean hands dirty hands’ procedure can be implemented to minimize contamination. See Section 8.3 for details on the ‘clean hands dirty hands’ method (EPA 1996).

6. Personnel Qualifications and Responsibilities

All personnel should be trained in sample collection methodology and sample handling procedures, using this SOP and all relevant program guidance. Additional sampling method SOPs and individual project QAPPs may include minimum specifications for personnel training and/or experience (KDOW 2009a). When in the field, all new samplers will be accompanied by an experienced sampler, and checks and audits performed until competency is achieved by all project samplers. Training records should be completed and kept in the project and/or personnel files.

All persons signing for responsibility of samples using the Chain of Custody (COC) must meet the minimum requirements for training and for project objectives, and be certain that samples remained under their direct control or supervision.

7. Equipment

All equipment and supplies will be managed by the equipment and supply manager(s) for each environmental collection project. All specific equipment and supplies for specific projects will be outlined and described in the project QAPP, and in applicable SOPs.

Attachment A is a table prepared by the Environmental Services Branch (ESB) Laboratory of the Division of Environmental Program Support, of the Commonwealth of Kentucky that outlines sample container requirements and preservation methods. Outside laboratories utilized by Division of Water sampling projects will submit their own versions of Attachment A for sample handling and management.

Sample handling equipment includes sample documentation items and transportation vessels.. Table 7-1 is a list of items used in environmental sampling to handle and document samples.

Table 7-1 Sample Handling Items/Checklist

<i>Item – Sample Transport</i>	<i>Item – Sample Documentation</i>
Coolers or shipping vessels	Sample Labels
Ice/Ice packs	Permanent black or blue pens/markers
Plastic Bags - 1 gallon, 20 gallon	COCs
Bubble wrap or equivalent packing materials	COC seals
Shipping Labels	Camera
	Clear Tape

8. General Handling Procedure

8.1 Sample Labeling

Whenever possible during field preparation while in the office, sample bottles should be labeled to prevent information omission. Bottles can be labeled in the field, as long as QAPP requirements for labeling are followed.

All bottles should have the following information recorded either on a sample tag or label affixed to the container, or written directly on the bottle, jar, or lid:

- Sample Identification, or Unique Identifier (location, unique site ID number)
- Date of Collection (formatted 01/01/09)
- Time of Collection (formatted in military time)
- County of Collection (full name or clear abbreviation)
- Sample Collectors (first initial and last initial – full names to be used in project documentation)
- Type of Analysis Requested, and Specific method, if required (E. coli -SM 1603, Nutrients-Total Phosphorus, etc.)
- Type of Sample (grab, composite, pore)

- Media (wastewater, surface water, drinking water, sediment, biological-macroinvertebrates, fish tissue, etc.)
- Preservative (ice, acidification, etc.)

Depending on the laboratory requirements, additional information may be necessary such as:

- Site Description Information
- Project Number
- Funding/Program Codes

Each project QAPP will outline specific requirements for labeling sample containers.

Information on sample labels or bottles shall be written in waterproof, black or blue, non-erasable ink.

8.2 Sample Documentation

During collection, sample information should be recorded in bound logbooks and/or on field data sheets. The original information is recorded, then transcribed onto the COC. Although not currently used by DOW, laptop notebooks or electronic media may be utilized in the future. Standards for recording data in electronic medias will be outlined in the QAPP, or in a revised SOP.

Any descriptive information relevant to the sample collection should be documented. Sample information will include all materials collected at a site, such as in-situ field measurements, grab or composite samples, narrative site information, and photos or video documentation of the sample site or environmental conditions. Additional measures may be required for more stringent documentation during environmental spills and recovery processes and should be outlined in the monitoring plan or QAPP for those activities.

Sample documentation can include photographs of site conditions or the context of the sample. All photographs must be logged on data sheets or in the logbook. After returning to the office, all photos should immediately be transferred to electronic media such as a compact disc (CD) or digital video disc (DVD) to retain the original format and content. A photo log must be created in a document format to assign relevant information to each photo. Downloaded photos may then be stored in project-specific electronic files. The site name or number and date should be recorded on all electronic copies of photos or video.

Corrections made to written information must not be obliterated. Use a single line to cross out erroneous information, and initial and date as the individual making the correction. If transcription to a secondary record is necessary due to illegibility of the original (due to unforeseen circumstances such as weather conditions), the original record must be retained and attached to the legible copy.

8.3 Sample Handling

To maximize sample integrity, once the sample has been collected and preserved, field samplers place the sample container in an individual bag to prevent contamination from cooler or ice. The bag is then placed in a cooler (or stored in other sturdy container)

surrounded by wet ice (or whatever condition is outlined by analytical method or laboratory requirements for sample handling).

Any quality control samples necessary for the project are also handled in the same manner as 'regular' environmental samples. Trip blanks are often required by data quality objectives for certain types of sampling (VOCs or low-level trace contaminants). Temperature blanks are often required by EPA programs. All QC samples should be thoroughly discussed and justified in the QAPP.

After all samples are stored in proper materials, coolers are then delivered to the analytical laboratory within the necessary holding times.

If samples are to be shipped to the lab, follow the procedure outlined below (items 1 – 5 are applicable to all delivery methods):

1. Ensure all caps are secured on sample containers.
2. Check that all containers are labeled correctly, and the label is affixed with clear tape. If writing directly on bottle, use clear tape to prevent smearing of ink.
3. Seal each sample bottle in a plastic bag – use 'self-sealing' (Glad ® brand or equivalent), or tape or tie bag opening.
4. Fill a bottom layer of cooler with wet ice; place bagged sample bottles on ice, surround bottles with wet ice. Sample containers should not touch sides of coolers. Fill cooler to top with wet ice.
5. If QA samples were taken, ensure all samples are included in the cooler.
6. Include a temperature blank in all coolers.
7. Record date and time on COC using permanent black or blue ink; the last person in custody of the samples should sign and date their name on a 'relinquished by' blank line. When received, the lab will sign and date on a 'received by' blank space.
8. Before shipping, copy the COC after signing and dating, and file in project file.
9. Place original COC in clear plastic bag, and attach to the inside lid of one of the coolers to be shipped.
10. Using COC sealing tape, or a heavy grade mailer tape (such as Scotch ® Brand "898" 3M or equivalent), tape around the entire cooler, covering the cooler opening. The tape should begin and end on the top or bottom of the cooler, not at the junction of the lid.
11. Sign, not print, your name in permanent black or blue marker across the junction of the lid and main body of the cooler, on the tape - or affix and sign using custody seals.
12. For security during shipping, tape over and around the cooler hinges, surrounding entire cooler.
13. Label coolers 'This End Up', arrow pointing towards the cooler lid.
14. Drain all water out of coolers immediately before shipping. Ensure the cooler spouts or 'plugs' are sealed or completely closed.
15. Depending on sample holding time, shipping overnight, and/or express may be required.
16. It is recommended to ship all coolers certified, to ensure samples are received within required holding time periods.

17. Notify the lab by email, telephone, etc. that the COCs are inside one of the taped coolers.

Samples are delivered by individuals or through the mail to the laboratory performing the analysis. Once samples are received at the lab, sample custodians sign the COC as received. Sample condition, temperature and pH are logged; any breakage or leakage is reported immediately to the project manager and/or to the field samplers. Laboratory receipt and custody procedures are outlined in the *Standard Operating Procedure for Sample Receiving and Custody* (DEPS 2004).

After receipt procedures are completed, samples are transferred within the lab for the analysis phase. Once analysis is completed by the lab, either a portion of each sample is retained for re-analysis as required by specific methods, or entire sample is disposed of in appropriate manner. Final lab reports should dictate final disposition of the sample.

'Clean Hands Dirty Hands' Procedure

This method follows the outline of EPA number 1669, 'Sampling Ambient Water for Trace Metals at EPA Water Quality Criteria Levels' (1996). This method is commonly used for low-level trace analytes such as mercury, but the method can be employed for any operation that wishes to minimize contamination.

When a sampling team consists of two or more persons, each has specific steps for the collection and handling of samples. One member of the team is designated 'clean hands' and handles the sample bottle, from collection method to the bottling of the sample. 'Dirty hands' handles the coolers, prepares the sampling device, operates any machinery or equipment, and any other steps that do not involve the sample media itself.

9. Chain-of-Custody Procedures

9.1 Introduction

Chain-of-custody forms are used to maintain a documented history of all sample activity and possession by individuals. The COC is a legal document. An accurate record must be developed and followed for each sample or set of samples to assure samples or other project elements are traceable from beginning of sampling to completion of analysis. Each sample ID, distinct sample location or sample type will be itemized on a separate line of a COC, or on a separate sheet of a COC. Refer to attachments B–F for examples of COCs.

9.2 Custody Procedure

A COC must be used for every sample collected by each branch of the Division of Water.

Samples or other sample elements are in custody by the following definitions (EPA 2007):

- If sample is in actual physical possession of an individual(s).
- If samples are in view of individuals after being in possession.
- Samples were in possession of an individual, and then samples were secured to prevent tampering.

- Samples are placed in a secure area.

The following processes are used to maintain an appropriate, acceptable chain-of-custody:

Sample identification – a label, tag, or information written directly on sample container identifying the contents and the person(s) collecting the sample.

Sample seals – all samples have the potential to be used in legal proceedings. Individual sample seals may be used for each individual sample (except when sampling VOCs, then individual seals should never be used), or custody seals may be used for each storage and transport container (e.g., coolers). Individual QAPPs must outline specific procedures for sample management.

Sample Collector – person(s) responsible for collecting the sample in the field or the facility.

Sample Custodians – designated person in laboratory that receives the samples from the field collector.

Chain-of-Custody Record – a specific form or process designated as the legal record of custody/possession, from time of sample collection to time and disposition after analysis. The Division of Water operates under several different formats of COC records, but all have the same, basic necessary requirements, as outlined below – several example COCs are included as Attachments B-E.

- Sample ID
- Date and Time of Sample Collection
- Site description/location descriptor (e.g., county, etc.)
- Purpose of Sample (e.g., compliance, complaint, general monitoring, etc.)
- Program Code
- Media of sample
- Collection Type (e.g., grab, composite, automated, etc.)
- Analysis Requested
- Number of Containers
- Preservation
- Batch/Lot Number of Preservative
- Signature Blocks - sample custody identification and signature blocks, date and time blocks for relinquishment of samples.

A COC will be maintained for every sample until sample is shipped or delivered. When shipping samples, COCs are properly filled out and included with each shipment.

9.3 Chain-of-Custody Documentation

COCs will be filled out in permanent, black or blue waterproof ink. Mistakes are to be crossed out with a single line, initialed and dated. The proper information will be filled in above or below the crossed-out line.

COCs must be signed at the moment of custody change, with the date and time of transfer. Signatures must be legible, with printed names and contact information supplied for future correspondence.

All original , or official copies of COCs for each completed project will be maintained in individual project files, and retained according to the DEP State Agency Records Retention Schedule (2006).

Copies of signed and dated COCs must be obtained from the laboratory when samples are delivered, or a multiple-page form may be used as a COC, to ensure a proven route of exchange occurred prior to analysis reporting, and as a record of sample receipt. Original COCs should be returned from the analysis laboratory at a determined time during the project.

A separate COC must be utilized for every laboratory directly involved in the project.

10. Troubleshooting

Following this SOP will ensure proper chain-of-custody for project samples. All deviations to this SOP will be outlined in detail in the QAPP; management or a legal representative for the Division will determine if custody has been compromised, and/or the data must be qualified.

If sample custody is compromised, documentation will be included regarding COC forms explaining the exact circumstances. Samples will not be considered in compliance with this SOP if custody procedures are broken. Management or legal representative of the Division will determine the outcome of samples under a broken custody procedures.

11. Quality Assurance

During the project period, audit procedures will determine a percentage of records to verify as accurate; this record set will include COCs and the verification of sample handling. The percentage determined will depend on project objectives and will be outlined in the QAPP.

12. References

Barbalace, Kenneth USDOT Hazardous Materials Table 49CFR 172.101 - Class 9 Miscellaneous. EnvironmentalChemistry.com. 1995 - 2009. Accessed on-line: 6/2/2009 <http://EnvironmentalChemistry.com/yogi/hazmat/placards/class9-chemicals.html>

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ATTACHMENT A – Environmental Services Lab Sample Requirements

MATRIX: WATER

Parameter	Minimum Volume Required	Container *	Preservative	Holding Times
Acidity	100 ml	plastic or glass	ice	14 days
Acid/Base/Neutral (see Note 1)	1000 ml	glass only	ice	7 day extraction/40 day analysis
Alkalinity	100 ml	plastic or glass	ice	14 days
Ammonia	100 ml	plastic or glass	H ₂ SO ₄ , ice	28 days
BOD—Do not collect on Monday/Tuesday	500 ml	plastic or glass	ice	48 hours
Bromide	100 ml	plastic or glass	ice	28 days
Caffeine	1000 ml	glass only	none	7 days extraction/28 days analysis
Carbamates (see Note 1)	125 ml	glass only	ice; chloro-acetic acid	28 days
Chloride	100 ml	plastic or glass	ice	28 days
Color	100 ml	plastic or glass	ice	48 hours
Conductivity	100 ml	plastic or glass	ice	28 days
Cyanide (Amenable) (see Note 2)	2000 ml	plastic or glass	NaOH, ice	14 days
Cyanide (Total)	2000 ml	plastic or glass	NaOH, ice	14 days
Diquat/Paraquat (see Note 2)	500 ml	amber plastic	ice	7 days extraction/14 days analysis
EDB & DBCP (see Note 4)	40 ml	3 VOA vials	3 mg sodium thiosulfate per vial, ice	14 days
Flashpoint	500 ml	glass only	none	none defined
Fluoride	100 ml	plastic or glass	ice	28 days
Glyphosate (see Note 1)	1000 ml	glass only	ice	if frozen, 18 months analysis
Hardness	100 ml	plastic or glass	HNO ₃ , ice	28 days
Haloacetic Acid (see Note 6)	80 ml	4 VOA vials	Ammonium chloride, ice	14 days extraction/14 days analysis
Herbicides, chlorophenoxy (see Note 1)	1000 ml	glass only	ice	7 days extraction/40 days analysis
Hex-Chromium (see Note 1)	1000 ml	plastic or glass	ice	24 hours

Parameter	Minimum Volume Required	Container *	Preservative	Holding Times
3)		glass		
Ignitability	4 oz	glass only	none	none defined
MBAS (see Note 3)	250 ml	plastic or glass	ice	48 hours
Low-level Mercury	250 ml	glass only	HCl	28 days
Mercury	500 ml	plastic or glass	HNO ₃	28 days
Metals	500 ml	plastic or glass	HNO ₃	6 months
Metals, Dissolved	500 ml	plastic or glass	HNO ₃	6 months
Nitrate	100 ml	plastic or glass	ice	48 hours
Nitrate-Nitrite	100 ml	plastic or glass	H ₂ SO ₄ , ice	28 days
Nitrite	100 ml	plastic or glass	ice	48 hours
Nitrogen/Phosphorus Pesticides (see Note 1)	1000 ml	glass only	ice	7 days extraction/40 days analysis
Oil and Grease	1000 ml	glass only	H ₂ SO ₄ , ice	28 days
Ortho-phosphate	50 ml, filter on site	plastic only	ice	48 hours
PCBs (see Note 1)	1000 ml	glass only	ice	7 days extraction/40 days analysis
Pesticides/PCBs (see Note 1)	1000 ml	glass only	ice	7 days extraction/40 days analysis
pH	100 ml	plastic or glass	ice	analyze immediately
Residual Chlorine	100 ml	plastic or glass	none	analyze immediately
Sulfate	100 ml	plastic or glass	ice	28 days
Sulfide	100 ml	call for container	call for preservative	7 days
Sulfonyl Urea Herbicides (see Note 1)	1000 ml	glass only	ice	7 days extraction/40 days analysis
Total Dissolved Phosphorus	50 ml, filter on site	plastic or glass	H ₂ SO ₄ , ice	28 days
Total Dissolved Solids	100 ml	plastic or glass	ice	7 days
Total Kjeldahl Nitrogen	100 ml	plastic or glass	H ₂ SO ₄ , ice	28 days
Total Organic Carbon (non-drinking water)	50 ml	plastic or glass	H ₂ SO ₄ , ice	28 days
Total Organic Carbon (drinking water)	50 ml	glass only	H ₂ SO ₄ , ice	28 days
Total Phenols	500 ml	glass only	H ₂ SO ₄ , ice	28 days

Parameter	Minimum Volume Required	Container *	Preservative	Holding Times
Total Phosphorus	50 ml	plastic or glass	H ₂ SO ₄ , ice	28 days
Total Settleable Solids	1000 ml	plastic or glass	ice	48 hours
Total Solids	100 ml	plastic or glass	ice	7 days
Total Suspended Solids	100 ml	plastic or glass	ice	7 days
Total Volatile Solids	100 ml	plastic or glass	ice	7 days
Total Volatile Suspended Solids	100 ml	plastic or glass	ice	7 days
Turbidity	100 ml	plastic or glass	ice	48 hours
Volatile Organics (see Notes 4 & 5)	40 ml	3 VOA vials	ice, HCl	14 days

- **glass refers to amber glass bottles**

Note 1: Add 80 mg sodium thiosulfate if chlorinated.

Note 2: Add 0.6 g ascorbic acid if chlorinated.

Note 3: Contact laboratory prior to collection of this sample.

Note 4: Field blank (only one) required.

Note 5: Add 25 mg ascorbic acid if chlorinated per vial.

Note 6: Add 65 mg ammonium chloride per vial

MATRIX: SEDIMENT, SOIL, OR CHEMICAL WASTE

Parameter	Volume Required	Container	Preservative	Holding Times
Metals	100 g	glass only	ice	6 months
Pesticides/PCBs	100 g	glass only	ice	14 days extraction/40 days analysis
TCLP Metals	500 g	glass only	ice	6 months extraction/6 months analysis
TCLP Semi-volatiles	250 g	glass only	ice	14 & 7 days extractions/40 days analysis
TCLP Volatiles	250 g	glass only	ice	14 days extraction/14 days analysis
Oil & Grease	100 g	glass only	ice	28 days
Flashpoint	500 ml	glass only	ice	none
Acid/Base/Neutral	100 g	glass only	ice	14 days extraction/40 days analysis
Volatile Organics	100 g	glass only	ice	14 days

MATRIX: FISH TISSUE

Parameter	Volume Req	Container	Preservative	Holding Times
Metals	50 g	glass	frozen	none defined
% Lipids	50 g	glass	frozen	none defined
Pesticides/PCBs	50 g	glass	frozen	none defined

ATTACHMENT B – Example Chain of Custody – Division of Water

Chain of Custody Record
 Program: Fish Tissue Monitoring
 Coordinator:

Matrix: Water Sediment

Sample Type: Grab Composite Other _____

Collectors:

Date	Time	Sample Identification	Sample Parameter and Preservative						Notes:
			Bulk Variables Ice	Alkalinity Ice	Nutrients Ice, H ₂ SO ₄	Metals Ice, HNO ₃	Low Level HG Ice, 5 ml HCL	HG Blank Ice, 5 ml HCL	
									Sample #
									Report #
									Sample #
									Report #
									Sample #
									Report #
									Sample #
									Report #

Relinquished by:	Date/Time:	Received by:
Relinquished by:	Date/Time:	Received by:

ATTACHMENT C – Example Chain of Custody – Division of Water

ENERGY and ENVIRONMENT CABINET

DIVISION OF WATER - WATERSHED MANAGEMENT BRANCH - GROUNDWATER – WPC0603Z

<p>Site Identification</p> <p><input type="checkbox"/> – Complaint/1x Sample Site</p> <p>Location: _____</p> <p>County: _____</p> <p>AKGWA #: _____</p>	<p>Collection Date/Time</p> <p>Date: _____</p> <p>Time: _____</p>	<p>Field Measurements</p> <p>pH: _____ Conductivity: _____ μmhos</p> <p>Temp: _____ °C Spring flow: _____</p>
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Sampler ID: _____

Division for Environmental Services Samples			
Analysis Requested	Container Size, Type	Preservation Method	Parameters
	1000 ml Plastic Boston Round	Cool to 4°C	Bulk Parameters Chloride, Conductivity, Fluoride, Nitrate-N, Nitrite-N, pH, Sulfate, TSS, TDS, Ortho-P
	1000 ml Plastic Boston Round	H ₂ SO ₄ Cool to 4°C	Nutrients NH ₃ / TKN / TOC/Total Phosphorous
	1000 ml Plastic Boston Round	Filtered HNO ₃ Cool to 4°C	Dissolved Metals by ICP Plus: Arsenic, Lead, Mercury, Selenium
	1000 ml Amber Glass	Cool to 4°C	NP Pesticides Pesticides/PCBs Methods 507/508
	1000 ml Amber Glass	5ml HCl Cool to 4°C	Herbicides/Caffeine
	250 ml HDPE Wide Mouth	Cool to 4°C NO HEAD SPACE	Alkalinity
	Three 40ml Amber Glass	50% HCl Cool to 4°C	VOCs (Trip Blank Required)
	125ml Amber Glass	Cool to 4° C	Glyphosate
	Two - 1000 ml Amber Glass	5ml HCl Cool to 4°C	Duplicate (only collect if requested)
<p>Signatures:</p> <p>Relinquished by: _____ Date: _____ Time: _____</p> <p>Received by: _____</p> <p>Relinquished by: _____ Date: _____ Time: _____</p>			
<p>Sample #: _____ Report #: _____</p> <p>DISCARD SAMPLES UPON COMPLETION</p> <p>Comments: H₂SO₄ _____ (Expiration Date) HNO₃ _____ (Expiration Date) HCl (1:1) _____ (Expiration Date) Revised 11/8/08</p>			

ATTACHMENT D – Example Chain of Custody – Division of Water

TMDL DEVELOPMENT MONITORING CHAIN OF CUSTODY DIVISION OF WATER Report Code A 44

Site Identification

Collection Date/Time

Site ID #: _____

Date: _____

Location: _____

Time: _____

Sample Collected By: _____

County: _____

Sample Team: _____

Matrix Water Sediment	Container Size, Type	Preservation Method	Variables
	1 liter, HDPE	Cool to 4° C	Bulk Variables: TSS , TDS, Anion Scan, cBOD5
	1 liter, HDPE	H2SO4, Lot # Cool to 4° C	Nutrients: Total Organic Carbon Ammonia (as N) Nitrate/Nitrite (as N) Total Phosphorus (as P) Total Kjeldahl Nitrogen
	1 liter, HDPE	H2NO3 Lot# Cool to 4° C	Metals: Standard Metals List
	500ml, HDPE	Cool to 4° C	Alkalinity: Bicarbonate as CaCO3 Carbonate as CaCO3 Total as CaCO3
	30ml, HDPE	Filter, Cool to 4° C	Ortho-phosphate

Signatures:

Samples relinquished by: _____ Date : _____
Time _____

Samples received by: _____ Date : _____
Time _____

Sample # : _____ Report # : _____

Discard Samples Upon Completion

ATTACHMENT E – Example Chain-of-Custody – Division of Water

County	Field ID	Sample Identification	Date\Time	Container/Preservation				
				1 Metals HNO ₃ Cool to 4°C	2 Nutrients H ₂ SO ₄ Cool to 4°C	3 Acidity/Alk Cool to 4° C	4 Bulk Cool to 4°C	5 Ortho-P Cool to 4°C
Letcher	DOW01032006	DOW01032006 - Elkhorn Creek under US23/119/KY805 Jct		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032006				LAB Report #				
Letcher	DOW01032007	DOW01032007 - Elkhorn Creek at Joe's Branch Road		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032007				LAB Report #				
Pike	DOW01032008	DOW01032008 - Marshall's Branch ~100m above mouth		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032008				LAB Report #				
Pike	DOW01032009	DOW01032009 - Elkhorn Creek ~100m upstream KY805/197 Jct.		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032009				LAB Report #				
Pike	DOW01032010	DOW01032010 - Elkhorn Creek at Rob Ratliff Cemetery		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032010				LAB Report #				
Pike	DOW01032003	DOW01032003 - Upper Pigeon upstream of KY 197		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COMPASS ID: DOW01032003				LAB Report #				
Pike	DOW01032011	DOW01032011 - Elkhorn Creek downstream of Silver Spur Road		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
COMPASS ID: DOW01032011				LAB Report #				
Pike	DOW01032012	DOW01032012 - Lower Pigeon upstream of Potter's Groc. Road		<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
COMPASS ID: DOW01032012				LAB Report #				

Analysis Requested: Program Code A29

Container 1: Hardness and Total Recoverable Metals

Container 2: TSS, TDS

Container 3: Nutrients

Samples Collected By: Name and Initials

Signatures:

Relinquished by: _____ Date: _____ Received by: _____ Date: _____

Representing: Kentucky Div. of Water Time: _____ Representing: _____ Time: _____

