North Carolina Department of Environment and Natural Resources

Beverly Eaves Perdue
Governor

Dee Freeman
Secretary

June 25, 2012

Mr. Ken Rhame, OSC,
Superfund Division,
US EPA Region IV Waste Division
61 Forsyth Street, 11th Floor
Atlanta, GA 30303-3104

Subject: Amended Quality Assurance Project Plan (QAPP)
Fish Tissue Collection, Falls Reservoir
Stanly and Montgomery Counties, NC

Dear Mr. Rhame:

Enclosed is the Falls Reservoir fish tissue collection QAPP. Falls Reservoir is along the Yadkin River, downstream of the Narrows Dam and Badin Lake, and upstream of Falls Dam. In 2011, fish tissue samples were collected in High Rock and Tillery Lakes, upstream and downstream of Falls Reservoir.

Methodologies in this amended QAPP are identical to those of the 2011fish tissue QAPP. Sample descriptions have been changed to reflect Falls Reservoir; cited sampling methods and general procedures have been updated to reflect any changes in guidance documents. A total of fifteen fish tissue plus three duplicates are planned for this event. The sampler has been given a goal of five samples and one duplicate for each trophic layer; however, the sampler is given more discretion than in the 2011 QAPP in selecting the number of samples for each trophic layer, given the nature of Falls Reservoir.

The 2011 Fish Tissue QAPP is attached for reference. Under a different QAPP, more extensive sediment sampling is planned for Falls Reservoir. Please contact Jim Bateson at (919) 707-8329 or <James.Bateson@ncdenr.gov> if you have any questions.

Sincerely,

Jeanette Stanley, Environmental Chemist
Site Evaluation and Removal Branch
NC Superfund Section

cc: Scott Ross, file

1601 Mail Service Center, Raleigh, North Carolina 27699-1601
Phone: 919-707-8600 \ Internet: www.ncdenr.gov

Quality Assurance Project Plan

Section A: Planning Elements		
A1. Title (Project Name):	Yadkin River Fish Tissue Sample Event – Falls Reservoir	
EPA ID#:		
Project Location:	Falls Reservoir – between Narrows & Falls Dam, along the border between Stanley and Montgomery Counties, North Carolina	
Project Requestor and Organization:	Ken Rhame, OSC, Superfund Division, 61 Forsyth St. S. W., Atlanta, GA 30303-8960	
Project Manager's Name, Position, and Organization:	Sandy Mort, Health Assessor, NC DHHS, 1912 MSC, Raleigh, NC 27609 Jeanette Stanley, Environmental Chemist, NC Superfund Section, 401 Oberlin Rd., Raleigh, NC 27605	
Project Manager's Signature:	Jim Bateson	Date: 7/02/2012
Technical Reviewer's Name and Position:	Jim Bateson, Head, Site Evaluation and Removal Branch, NC Superfund	
Technical Reviewer's Signature:	Jack Butler	Date: 7-2-12
QA Reviewer's Name and Position:	Jack Butler, Section Chief, NC Superfund	
QA Reviewer's Signature:		Date:
DAO's Name, Position, and Organization:	Ken Rhame, US EPA	
DAO's Signature:		Date:
A2. Table of Contents	• Page i of the NC generic QAPP • Section No. TOC of NC Superfund Section Health and Safety SOP Manual (http://www.wastenotnc.org/SAFETY/WebSite/SFSafety.HTM) • Sampling Plan including Table 1, Figures 1 - 3	
A3. Distribution List	Ken Rhame, US EPA Jim Bateson, NC Superfund Sandy Mort, NC DHHS Archie Lee, US EPA SESD {Need correct contact} Scott Ross (File Room), NC Superfund Jeanette Stanley, NC Superfund Section	

A4. Project Personnel	**Organization**	**Responsibilities**
Jeanette Stanley, Chemist	NC Superfund	*Project Lead/ Sample Management*
Melanie Bartlett, Engineer	NC Superfund	*Sample Management (backup)*
Jeff DeBerardinis	ESS/DWQ	*Boat Driver*
Jeff DeBerardinis	ESS/DWQ	*Sample Collection and Preparation*
Sandy Mort	NC DHHS Public Health	*Health Assessor*

Comments: The NC Superfund Section organizational chart and delegation of duties can be found in Section 3.1 and Appendix A of the NC generic QAPP.

A5. Background:	This investigation is a joint project with the North Carolina Department of Environment and Natural Resources (NCDENR), the North Carolina Department of Health and Human Services (NC DHHS) and the US EPA. This is the third phase of a site assessment, the first of which was collection and analysis of sediments for PCBs and the second was collection of fish samples in High Rock Lake and Lake Tillery. This phase of the study will determine and characterize PCB congener concentrations in fish tissue samples collected in the Falls Reservoir. Falls Reservoir is a relatively small and deep lake, approximately 204 acres in size with 6 miles of shoreline. NCDHHS has detected PCBs in fish on Badin Lake, one of four reservoirs on the Yadkin River Basin. The purpose of this study is to determine if there is fish tissue contamination in Falls Reservoir.
A6. Project Description	This study has two purposes: (1) document any potential contamination of fish tissue with any of the 209 PCB congeners, and (2) protection of human health. This project will include collection of approximately 15 fish tissue samples for analysis (plus 3 field duplicates) collected after mid-July 2012, tentatively scheduled for either the week of July 30 or August 6. The sample date(s) may vary depending on weather and boat / sampler availability. The holding time on frozen fish tissue is one year; therefore, sample collection, shipment, and analysis dates can be somewhat flexible and still meet holding time requirements. A late summer date is anticipated to maximize characterization of potentially elevated PCB concentrations in fish tissue. Fish samples will include fillets. As for the sample location(s), Falls Reservoir will be sampled in areas fished by local fishermen. Samplers will coordinate with local fishermen to identify these area(s). A map of the lake is attached. Target fish species include: Top predators (largemouth bass and flathead catfish; mid trophic species (redbreast sunfish, bluegill sunfish, and black crappie; and bottom feeders (blue catfish and channel catfish). Fish will be collected from each of the 3 trophic levels, with the goal of 5 samples per trophic level. An additional 3 blind duplicates QC samples will be prepared, with a goal of 1 per trophic level. The samples used for the duplicates will be at the discretion of the sampler. Fish from each trophic level will be those commonly consumed by anglers (listed above), or a suitable surrogate species if the desired species is not available during the sampling effort. If adequate fish from individual trophic levels cannot be collected, additional samples may be submitted from either of the 2 other trophic levels to make up the 15 total

	samples. Fish tissue samples for analysis will be tissue fillets prepared from individual fish or composites of fillet tissue from 2-5 fish of same species & similar size as prescribed in NC DWQ fish collection SOP. NC DWQ will prepare the fillets, record data on the individual fish as appropriate *(fish species, length, weight, etc.) and prepare a spreadsheet of the fillet information.* Sample preparation & shipment to USEPA will be completed by NC DWQ/ESS and NC Superfund as per the 2011 fish tissue sample collection/preparation specifications. Fillet samples will be wrapped in foil, placed in plastic bags, and stored frozen in NC DWQ's -20°C freezer prior to shipment. Samples for analysis will be numbered FR101Top; FR102Top (indicating two top trophic samples); FR101Mid; FR101Bot; etc. and so forth, indicating the sample number and the respective trophic level. *Duplicate samples will be indicated in the following manner (for example) FR101DTop.* Due to mobility of fish, one coordinate from the lake center will be used to indicate the general location of the fish tissue samples. All frozen fish tissue samples will be shipped to the US EPA Region 4 laboratory on dry ice, where they will be stored until analysis. The US EPA Regional lab will perform fillet grinding using the dry ice procedure. The EPA Region 4 laboratory will collect the appropriate number of equipment rinse blanks of their fish grinding equipment which will be analyzed for PCB congeners per their SOP. NC DWQ representatives will coordinate boat(s), captain/crew, and fish tissue collection equipment for fish tissue collection, as well as foil and plastic bags for the fish fillets NC DENR Superfund will provide coolers, ice for shipment, and shipment costs. NC Superfund will not provide fish tissue storage or freezer space. NC Superfund personnel will provide physical assistance for shipping as needed, NC Superfund personnel will prepare sample labels and chain-of custody forms using the Scribe program and EPA-assigned project number(s). NC DENR Superfund will submit electronic chains of custody to the laboratory. NC DHHS will receive the data and generate any Health Risk Assessment, as appropriate.
Decision(s) to be made based on data:	Based on findings, a decision will be made as to whether further action is needed. In addition, data will be used to determine if any fish tissue is contaminated such that a fish consumption advisory is appropriate for any segment of the Yadkin River basin as determined by NC DHHS

Applicable regulatory information, action levels, etc.	Data will be compared with regulatory benchmarks, including NC DHHS Div. of Public Health fish consumption advisory action level tables.
Field Study Date:	The week of either July 30 or August 6 is tentatively scheduled for sample collection.
Projected Lab Completion Date:	October 30, 2012
Final Report Completion Date:	January 30, 2013
A7. Quality Objectives and Criteria:	This study has two purposes: (1) document any potential contamination of fish tissue with PCB congeners, and (2) protection of human health.
A8. Special Training/ Certifications:	• Section 3.3 of the NC generic QAPP. • Section 2.1 and Appendix A of NC Superfund Section Health and Safety SOP Manual (http://www.wastenotnc.org/SAFETY/WebSite/SFSafety.HTM)
A9. Documents and Records:	Section 3.4 of the NC generic QAPP.
Section B: Data Generation and Acquisition	
B1. Sampling Design	An authoritative sampling design was chosen based on the data quality objectives of the study. Sample IDs and locations can be found in the attached Table and Figures in the attached letter. The rationale for collecting fish at these locations is to determine the extent of fish contamination as well as to document potential contamination at locations from which fish is removed and consumed. Volume, Holding time, and Preservation requirements are in accordance with: *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual, Figure 3-1*
B2. Sampling Methods, General Procedures:	*SESD Field Branches Quality System and Technical Procedures;* • *Found at http://www.epa.gov/region4/sesd/fbqstp/index.html*Fish Field Sampling, April 14, 2011 • *Standard Operating Procedures Fish Tissue Assessments, Environmental Sciences Section, NC Department of Environment and Natural Resources, Division of Water Quality, December 2011.* http://h2o.enr.state.nc.us/esb/BAUwww/FinalNewSOPv2.pdf • Packing, Marking, Labeling and Shipping of Environmental and Waste Samples, April 20, 2011 • Field Equipment Cleaning and Decontamination, November 1, 2007 • Logbooks, October 8, 2010
B3. Sampling Handling and Custody:	All samples will be handled and custody maintained in accordance with *SESD Operating Procedures for Sample Evidence Management*, SESDPROC-005-R1.

B4. Analytical Methods:	Sample analyses will be assigned to Region 4 SESD laboratories
SESD:	Analytical methods for *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual, July 2011 Chapter 9. Method 1668a and % lipids.* *Taken from SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual, July 2011 Chapter 7,* *The PCB (as Congeners) Method Reporting Limit (MRL) for Method 1668 for Water is 500 pg/L, Soil/Sed 17 ng/Kg, and Tissue 50 ng/Kg.* *A lower reporting limit for most congeners is desirable if achievable, and SESD will go as low as they can for the MRLs, depending on the QC study results.*
B5. Quality Control:	
Field:	• Rinsate blanks are collected on a quarterly basis on equipment used for sampling during that calendar quarter. • Rinsate blanks are collected on a quarterly basis on gloves utilized for sampling during that calendar quarter. • Section 3.5 of the NC generic QAPP
Laboratory:	• A minimum of one MS/MSD sample per twenty samples per media will be collected, if appropriate for fish tissue. • Section 3.5 of the NC generic QAPP
B6. Instrument/Equipment Testing, Inspection and Maintenance:	• Section 3.4 and Appendix B of the NC generic QAPP • Section 6 of NC Superfund Section Health and Safety SOP Manual (http://www.wastenotnc.org/SAFETY/WebSite/SFSafety.HTM)
B7. Instrument/Equipment Calibration and Frequency:	All monitoring equipment and instruments are calibrated a minimum of once daily, at the start of the day, when field activities requiring use of the equipment occur. Serial numbers and calibration records are maintained in the field logbook for the project. Any inconsistencies and errors during calibration are also to be noted in the field logbook. Equipment to be used for this project and requiring calibration includes: Global Positioning System, April 20, 2011.
B8. Inspection/Acceptance for Supplies and Consumables:	All critical supplies and consumables for this field investigation are inspected and maintained by the QAO and designated staff, as discussed in Section 3.2 of the NC generic QAPP. A list of these supplies is included in Appendix B of the NC generic QAPP.
B9. Non-direct Measurements:	Not applicable.
B10. Data Management:	The project manager will be responsible for ensuring that all requirements for data management are met. All data generated for this field investigation, whether hand-recorded or obtained using an electronic data logger, will be recorded, stored, and managed according to the following procedures: *SESD Operating Procedure for Control of Records*, SESDPROC-002-R3.

	SESD Operating Procedures for Logbooks, SESDPROC-010-R3.
Section C: Assessment/Oversight	
C1. Assessments and Response Actions:	Assessments will be conducted during the field investigation according to *SESD Operating Procedure for Project Planning*, SESDPROC-0916-R1 to ensure the QAPP is being implemented as approved. The Project Manager is responsible for all corrective actions while in the field. Section 3.2.4 of the NC generic QAPP.
C2. Reports to Management:	The Project Manager will report to their immediate supervisor if any circumstances arise during the field investigation that may adversely impact the quality of the data collected. The Project Manager and/or their immediate supervisor will also be responsible for notifying the EPA Project Manager if any circumstances arise during the field investigation that may adversely impact the quality of the data collected. Section 3.2.4 of the NC generic QAPP
Section D: Data Validation and Usability	
D1. Data Review, Verification, and Validation:	Section 3.2.4 of the NC generic QAPP.
D2. Verification and Validation Methods:	Section 3.2.4 of the NC generic QAPP.
D3. Reconciliation with User Requirements:	Review of data is evaluated by the Project Manager using the following guidelines: Section 3.2 of the NC generic QAPP