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)
Sediment Collection, Falls Reservoir
Stanly and Montgomery Counties, NC

Dear Mr. Rhame:

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

Methodologies in this amended QAPP are identical to those of the 2011sediment QAPP; however, the sediment QAPP was implemented by EPA and this sediment QAPP will be implemented by NC DENR. 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 sediment plus two duplicates are planned for this event.

The 2011 Sediment QAPP is attached for reference. Under a different QAPP, fish tissue 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

Quality Assurance Project Plan

Section A: Planning Elements		
A1. Title (Project Name):	Yadkin River Sediment Sampling – Phase 3 – 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: 07/02/2012
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)*
NCDENR Staff	NC DENR	*Boat Driver*
Stuart Parker	NC DENR	*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 further determine and characterize PCB concentrations in sediments in the Falls Reservoir. A separate study is planned for collection of fish tissue samples 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 and sediment in Badin Lake, one of four reservoirs on the Yadkin River Basin. One sediment sample was collected in Falls Reservoir during the earlier study and PCBs were detected. The purpose of this study is to determine if PCB contamination is more widespread in Falls Reservoir or if it is only in the cove near the boat ramp. This study will focus on possible human exposure areas (boat ramps, etc.), depositional areas from Baden Lake, and deep sediments in the lake.
A6. Project Description	This study has two purposes: (1) document any potential contamination of sediment, and (2) protection of human health. This project will include collection of approximately 15 sediment samples for analysis (plus 2 field duplicates) collected in late July or early August 2012. The sample date(s) may vary depending on weather and boat / sampler availability. Once lab space and boat crew availability is established, a more firm date will be determined. As for the sample location(s), Falls Reservoir sediment will be sampled in areas where wading likely occurs, near fishing areas, near the spillway from Badin Lake, and along shorelines. Attempts to acquire deep sediment samples will be made; however, the depth of the lake and an anticipated rocky bottom may prevent collection of deep sediment samples. A map of the lake is attached. Samples for analysis will be numbered FR101SD; FR102SD, and so forth. Duplicate samples will be indicated in the following manner (for example) FR101SDD. GPS coordinates will be collected at each sediment sample location; however, location may not be precise for deep sediment samples due to boat drift during sample collection. All sediment samples will be shipped to the US EPA Region 4 or CLP laboratory on ice, where they will be stored until analyzed for PCBs per their SOP.

	NC DWQ will provide boat, captain/crew, life jackets, etc. NC DENR Superfund will provide sample collection personnel and equipment. NC Superfund personnel will collect GPS coordinates at sample points, book samples with a laboratory prior to sample collection, 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, NC DHHS will make a decision as to whether further action is needed regarding any human health concerns.
Applicable regulatory information, action levels, etc.	Data will be compared with regulatory benchmarks, including NC DHHS Div. of Public Health benchmarks , US EPA Region 4 Ecological Benchmarks for freshwater sediment (http://www.epa.gov/reg3hwmd/risk/eco/index.htm), and the NOAA Screening Quick Reference Tables for Organics – Sediment lists the PCBs (sum) threshold effects level (TEL) at 34.1 ppb and the probable effects level (PEL) at 277 ppb.
Field Study Date:	The week of August 6, 2012 is tentatively scheduled for sample collection
Projected Lab Completion Date:	Nov 30, 2012
Final Report Completion Date:	Feb. 28, 2013
A7. Quality Objectives and Criteria:	This study has two purposes: (1) document any potential contamination of sediment with PCBs, and (2) protection of human health. 1. State the problem: One sediment sample was collected in Falls Reservoir during Phase I of this study, in 2011. This sediment sample contained PCBs 2. Identify the goal of study: This study will determine if PCB sediment contamination is more extensive in this reservoir of if it is isolated in that one area. In addition, data will be evaluated by NC DHHS, compared to the appropriate benchmark(s), and a decision will be made regarding any human health concerns. 3. Identify the inputs: Sediment samples will be collected near shorelines, any docks and boat ramps where human exposure is most likely and near the spillway from Badin Lake. Attempts will be made to collect deep sediments, but anticipated depths and rocky bottoms may prevent collection of deep sediment samples 4. Define boundaries of study: Targets are fisherman and other recreational users of the lake. Any potential PCB-contaminated sediment may serve as a source for potential fish tissue contamination in this lake. Fish tissue is being collected from Falls Reservoir under a different study. Sediment samples are

	planned for Falls Reservoir only. Standard turnaround times will be requested. 5. Develop analytical approach: Either a CLP lab or the Region 4 SESD lab will analyze sediment samples for PCBs via methodology discuss in section B4 below 6. Plan for attaining data: Samples will be shipped to a designated laboratory. Upon receipt of data, NC DHHS will review data per discussion in A6 above.
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 sediment at these locations is to determine the extent of sediment contamination as well as to determine if there are any areas of sediment contamination that may be sources of potential fish tissue contamination. 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* • Packing, Marking, Labeling and Shipping of Environmental and Waste Samples, April 20, 2011 • Field Equipment Cleaning and Decontamination, December 20, 2011 • Logbooks, October 8, 2010 • Global Positioning System, April 20, 2011 • Sediment Sampling, September 8, 2010 • Sample and Evidence Management, November 1, 2007 • Field Sampling and Measurement Procedures and Procedure Validation, December 18, 2009 • Field Sampling Quality Control, October 15, 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
CLP:	Analytical methods for organic samples are in accordance with: *CLP Multi-Media, Multi-Concentration Organics Analysis, SOM01.1* Analytical methods for inorganic samples are in accordance with: *CLP Multi-Media, Multi-Concentration Inorganic Analysis, ILM05.3/ILM05.4*
SESD:	Analytical methods for organic samples are in accordance with: *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual, Chapter 8, specifically,* Samples will be prepped by method 3545A and analyzed by method 8082A for PCB Aroclors by the Athens SESD laboratory in accordance with the *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual*, January 2010. Analytical methods for inorganic samples are in accordance with: *SESD Analytical Support Branch Laboratory Operations and Quality Assurance Manual, Chapter 9*
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. • A blank of the DI waster system maintained and utilized by the NC DWM for decontamination of sampling equipment is collected on a quarterly basis. • A minimum of one duplicate sample per twenty samples will be collected • Section 3.5 of the NC generic QAPP
Laboratory:	• A minimum of one MS/MSD sample per twenty samples per media will be collected. • 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-R5. http://www.epa.gov/region4/sesd/fbqstp/Control-of-Records.pdf *SESD Operating Procedures for Logbooks*, SESDPROC-010-R4. http://www.epa.gov/region4/sesd/fbqstp/Logbooks.pdf
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-R2 http://www.epa.gov/region4/sesd/fbqstp/Project-Planning.pdf 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: USEPA Contract Laboratory Program national Functional guidelines for Superfund Organic Methods Data Review, EPA 540-R-08-01, June 2008 (http://www.epa.gov/superfund/programs/clp/download/somnfg.pdf) Review of data is evaluated by the Project Manager using the following guidelines: USEPA Using Qualified Data to Document and Observed Release and Observed Contamination, EPA 540-F-94-028, Exhibit 3 and Tables 1-4 (http://www.epa.gov/superfund/sites/npl/hrsres/fact/docoroc.pdf) Section 3.2 of the NC generic QAPP