



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4**

Science and Ecosystem Support Division
Enforcement and Investigations Branch
980 College Station Road
Athens, Georgia 30605-2720

July 8, 2011

4SESD-EIB

MEMORANDUM:

SUBJECT: Transmittal: Report on the Yadkin River Sediment Sampling
From High Rock Lake to Lake Tillery, North Carolina
SESD Project No: 11-0321
D.A.R.T. Id.: 11-0321

FROM: Jonathan Vail, Environmental Scientist
Superfund and Air Section

J Vail

THRU: Laura Ackerman, Chief
Superfund and Air Section

LA

TO: Kenneth Rhame, OSC
Superfund Division

Please find attached, the Report on the Yadkin River Sediment Sampling for the sites located from High Rock Lake to Lake Tillery, North Carolina. If you have any questions or comments, please do not hesitate to contact me at 706 355-8611.

Attachment

United States Environmental Protection Agency

Region 4

Science and Ecosystem Support Division
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Report on the Yadkin River Sediment Sampling

Yadkin River from High Rock Lake to Lake Tillery located in Rowan,
Davidson, Stanly and Montgomery County, North Carolina
Conducted April, 2011

SESD Project Identification Number: 11-0321

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Title and Approval Sheet

Title: Report on the Yadkin River Sediment Sampling

Approving Official:



07/15/11

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Date

SESD Project Leader:



7/8/2011

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Date

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1.0 INTRODUCTION

On April 18, 19 and 20, 2011, the United States Environmental Protection Agency (EPA), Region 4, Science and Ecosystem Support Division (SESD), conducted sediment sampling on the Yadkin River located in Rowan, Davidson, Stanly and Montgomery County, North Carolina. This site assessment investigation was a joint project with the North Carolina Department of Environment and Natural Resources (NCDENR) and the EPA focusing on Polychlorinated Biphenyl Aroclors (PCBAs) in sediment in the Yadkin River. NCDENR has detected PCBAs in fish from Baden Lake, one of four reservoirs on the Yadkin. There is a state park downstream and several boat ramps up and down the Yadkin River. This assessment focused on locations where direct contact is likely to occur (beach and boat ramps) as well as depositional areas. The objective is to determine whether there is human health risk from exposure to sediments at swimming locations and boat ramps. The sampling was requested by Ken Rhame, On Scene Coordinator (OSC) of the Superfund Division, EPA.

2.0 BACKGROUND

The Yadkin River Sediment Sampling is the first of a two part project to investigate PCBs in sediment and fish tissue. This report presents the sediment sampling results of the project. The sediment sampling locations were selected by EPA and NCDENR and are shown in Figure 1 and the access point (by boat or boat ramp), and the description of the sediment sample is listed in Table 2 accompanying this report.

The second part of this project is the collection of fish samples to determine the risks associated with ingestion and will be conducted by NCDENR. EPA will conduct the laboratory analysis. The fish collection and analysis part of this project will take place about mid 2011.

3.0 SUMMARY

Two PCBAs were detected in two of the twenty-one sediment station locations. PCB-1254 (Aroclor 1254) was detected in sediment sample YRSD013S at a concentration of 500 µg/kg and PCB-1232 (Aroclor 1232) was detected in YRSD020SD at a concentration of 100 µg/kg. Table 1 lists the analytical data summary for the sediment samples. As can be seen from Table 2, the sediment sample descriptions range from brown, orange to green sand, sandy silt, pudding to pebbles. Figure 1 is the Station Location Map which presents the station identification, sample identification, and geographic coordinates of the 21 sediment samples plus two duplicates. Appendix A presents the PCBA Analytical Data Report.

**Table 1. Analytical Data Summary of PCBs in Sediment Samples - April, 2011
Yadkin River Sediment Sampling, North Carolina**

	Station ID:	SD020		SD013
	Sample ID:	YRSD020SD		YRSD013SD
	Date:	4/18/2011		4/19/2011
	Time:	16:00		10:00
PCB Aroclors (PCBA)	Units			
PCB-1232 (Aroclor 1232)	µg/kg	100	J, I-5	U
PCB-1254 (Aroclor 1254)	µg/kg		U	500

Data Qualifier Definitions:

U: The analyte was not detected at or above the reporting limit.

J: The identification of the analyte is acceptable; the reported value is an estimate.

I-5: Mixture of Aroclors in sample; predominant Aroclors reported.

**Table 2. Sediment Sample Descriptions - April, 2011
Yadkin River Sediment Sampling, North Carolina**

STATION ID	DESCRIPTION
SD001	Outfall area of electric plant. Brown, sandy, some mica.
SD101	Variability duplicate of YRSD001SD from station SD001.
SD002	Right side of concrete culvert for rail yard. Dark brown sandy silt.
SD003	Unable to get to north side of bridge, collected from south side. Green silt
SD004	NC Wildlife Dutch Second Creek Boat Access. Orange brown coarse sand, some silt and mica.
SD005	Southmont Abbotts Creek Boat and Fishing Access. Orange brown coarse sand, mica and detritus.
SD006	Near west side of river ~500 feet from dam. Green silt.
SD007	Boat ramp downstream from High Rock Dam. Left ramp area. Brown to green fine sand, some mica.
SD008	NC Wildlife Flat Creek Boat Access (active). Right of dock. Greenish brown sandy silt, some mica.
SD009	Water intake upstream from Tuckertown Dam @ City of Albemarle WTP right side of intake area. Green fine silt some mica.
SD010	Original station hit refusal, not able to get sample. Drive to Old Whitney Picnic Area. Active, 4 boats fishing access, left side of ramp. Greenish brown sand and pebbles, some mica.
SD011	Lakemont Boating Access, 241 Lakemont Road. Green sandy silt, shells and pebbles.
SD012	Swimming area, orange sandy silt, gravelly beach. Orange silty sand and pebbles.
SD013	Active boat ramp, boater coming in when we drove up. Grayish gray fine sand, some mica, some detritus.
SD014	Morrow Mt. State Park, left side of ramp. Gray fine sand, some mica. (Boat ramp closed due to repairs of dock.
SD015	Sediment from left dock outside ramp. Greenish yellow sandy silt, some pebble. Active boat ramp, 3 boats put in on trailers while sampling.
SD016	Sediment from both sides of dock. Brown sandy silt with shells and pebbles. Stoney Point launch ramp, John Cook Marine (not active at this time).
SD017	Left side of dock. Yellow brown sandy silt with shells and pebbles. Sample from marina that is active - one person launches boat.
SD018	Upstream from Norwood Dam ~500 feet west of east shore inlet. Greenish brown silt; pudding.
SD019	Lilly's Bridge Boating Access, 1097 Lilly's Bridge Road. Brown sandy silt, pebbles, mica.
SD020	Stop on east side of river off 731, take trail to river sample from under bridge. Brown silty sand with slate, pebbles and pieces; some quartz, glass fine ground up mica.
SD021	Boat ramp north and west of 29/70 and I-85, furthest upstream point. Green silt pudding.

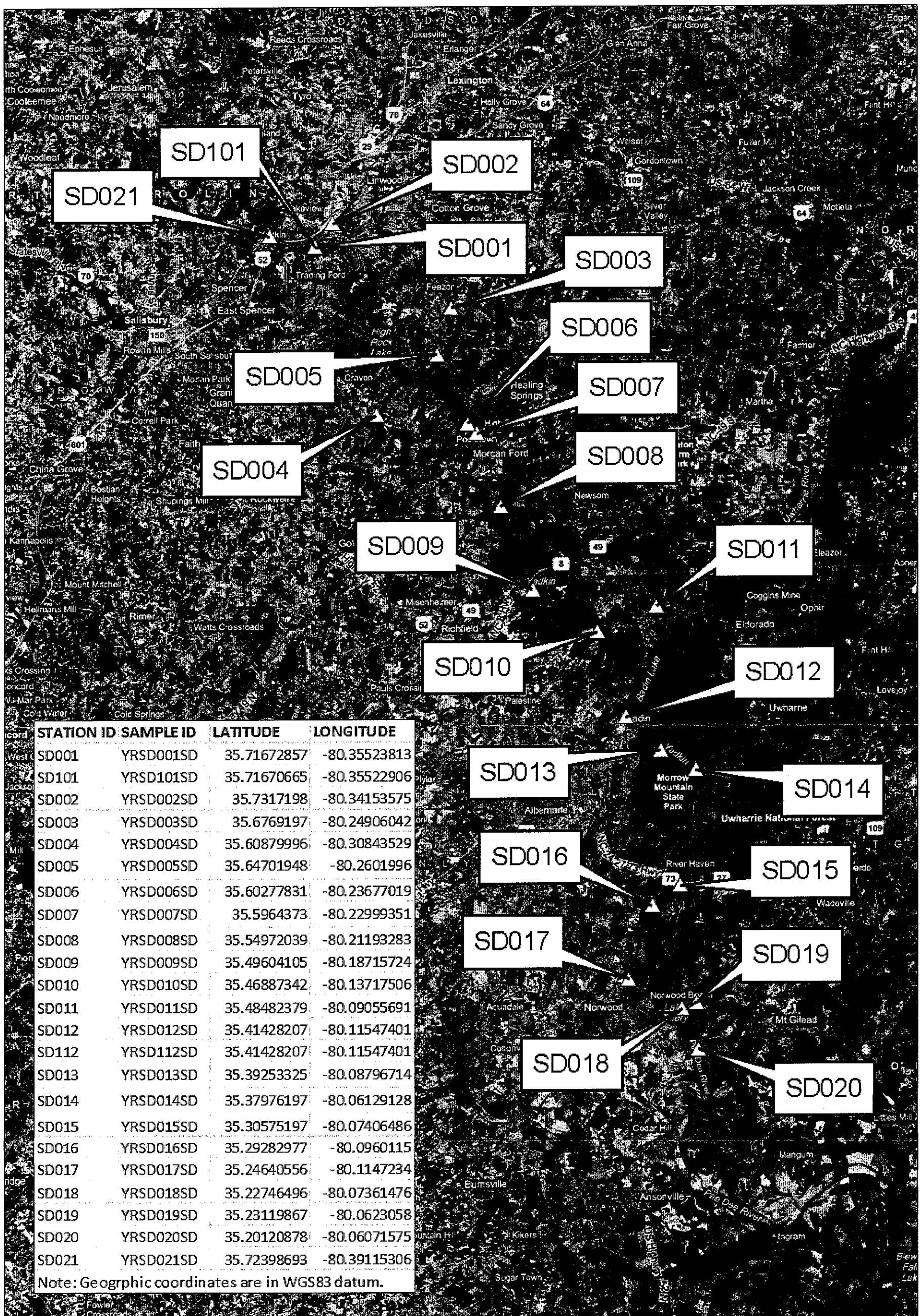
4.0 RESULTS OF FIELD QUALITY CONTROL SAMPLES

Two duplicate sediment samples were collected and analyzed with the other samples. No PCB Aroclors were detected in sediment sample YRSD001SD and its variability duplicate YRSD101SD or sediment sample YRSD012SD and its split duplicate YRSD112SD.

5.0 METHODOLOGY

All sampling was conducted in accordance with the Yadkin River Sediment Sampling Quality Assurance Project Plan, May 2010 and the requirements and procedures specified in the EPA, Region 4, SESD, Field Branches Quality System and Technical Procedures, (February 11, 2008). Each sediment sample was collected with a stainless steel scoop or a ponar dredge, mixed thoroughly and contained in an 8 ounce glass jar. Specific field procedures used included: Global Positioning System (SESDPROC-110-R2), Sediment Sampling (SESDPROC-200-R2), Field Equipment Cleaning and Decontamination (SESDPROC-205-R1), Management of Investigation Derived Waste (SESDPROC-202-R1), and Packing, Marking, Labeling and Shipping of Environmental and Waste Samples (SESDPROC-209-R1). Samples were prepped by method 3545A and analyzed by method 8082A for PCB Aroclors in accordance with the EPA, Region 4, SESD, Analytical Support Branch's (ASB) Laboratory Operations and Quality Assurance Manual (ASB LOQAM). Specific laboratory procedures are stated on the analytical report found in Appendix A.

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0 5 10 20 Miles

**Figure 1. Station Location Map
Yadkin River Sediment Sampling, North Carolina**

