



# Project Management Plan

**Project Title:**

**Project No.: 113008 CWIS: No. 010605**

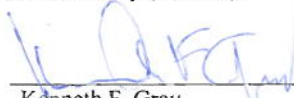
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**Savannah River Basin Comprehensive Study  
PMP Approval**

This is to certify that the undersigned have reviewed and approved the attached schedule and resource plan for the Savannah River Basin Comprehensive Study (SRBCS).



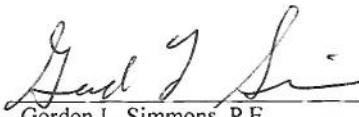
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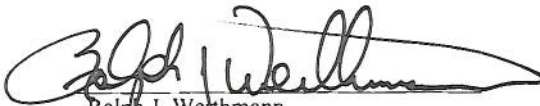
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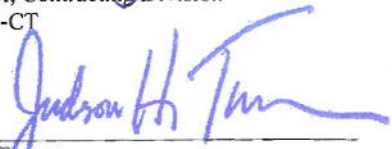
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## Project Map



## **Executive Summary**

This Project Management Plan (PMP) has been prepared in accordance with the Water Resources Development Act of 1996, Section 414 (Public Law 104-303) for the Savannah River Basin Comprehensive Study (SRBCS). The Act provides the Secretary of the Army authority to address current and future needs for flood damage prevention and reduction, as well as water supply and other related water resources needs under the SRBCS authority. The U.S. Army Corps of Engineers (Corps) is conducting a Drought Contingency Plan (DCP) update as a second interim study under a comprehensive water resources study of the Savannah River Basin (SRB). The PMP is being prepared in accordance with Engineering Regulation (ER) 1105-2-100 and the Project Management Business Process (PMBP) Manual, Version 1.

The Corps, in partnership with the non-Federal sponsors, the Georgia Department of Natural Resources (GADNR), the South Carolina Department of Natural Resources (SCDNR), and The Nature Conservancy (TNC), will perform the tasks outlined in this PMP. The study initiation date for the PMP was September 18, 2013, the date of Feasibility Cost Share Agreement (FCSA) signage.

This PMP describes the feasibility phase of the DCP update of the SRBCS. The DCP update is the second interim study under the SRBCS and the intent of the effort is to re-evaluate the DCP that was developed in 2006 in order to determine if modifications are warranted to better preserve conservation storage. The updated DCP will provide the necessary detailed information to determine how much flow is needed during severe and prolonged drought conditions to meet areas affected by drought operations. Two questions will be answered in the second interim study: 1.) How low can reservoir releases be? 2.) How long can releases be kept at the lowest recommended level? The additional studies that will be needed to address the comprehensive study authority are described in Appendix 11 of this PMP.

The first interim study was completed in 2006 which yielded a DCP, models, and pertinent data needed for the SRBCS. The second interim study will incorporate an Unimpaired Flow (UIF) data set originally developed by GADNR, Environmental Protection Division (EPD). The original UIF data set contained flow data from 1939 to 2007. It has been extended to include the year 2008, and will be extended again in this study to include the hydrologic data of years 2009 through 2012. The purpose of this PMP is to detail the project scope, schedule, budget, and customer expectations for the planning and implementation of the DCP. The responsibilities and requirements of each of the parties involved in the execution of this project will also be clearly established. Appropriate criteria are provided to allow the progress of the project to be continually monitored and measured. The PMP is a living document that will be updated by the Project Manager (PM) and sent to the Project Delivery Team (PDT) to reflect changing requirements and conditions. This will insure the successful execution of the project, on time and within budget.



# **The Project Management Plan**

## **1.0 SAVANNAH RIVER BASIN COMPREHENSIVE STUDY**

### **1.1 Study Authority: *Water Resources Development Act of 1996, Section 414 (Public Law 104-303).***

#### **SEC. 414. SAVANNAH RIVER BASIN COMPREHENSIVE WATER RESOURCES STUDY.**

(a) In General.—The Secretary shall conduct a comprehensive study to address the current and future needs for flood damage prevention and reduction, water supply, and other related water resources needs in the Savannah River Basin.

(b) Scope.—The scope of the study shall be limited to an analysis of water resources issues that fall within the traditional civil works mission of the Corps of Engineers.

(c) Coordination.—Notwithstanding subsection (b), the secretary shall ensure that the study is coordinated with the Environmental Protection Agency and the ongoing watershed study of the Savannah River Basin by the Agency.

### **1.2 Introduction:**

The Corps reservoirs in the Savannah River Basin (SRB) are authorized and managed to support multiple project purposes including flood risk reduction, hydropower, fish and wildlife, water supply, water quality, recreation, and navigation. The Corps has a water control plan that details how the reservoir system is operated to meet these purposes for a range of hydrologic conditions. The Drought Contingency Plan (DCP) is an appendix of the water control plan that details reservoir operation during drought conditions.

### **1.3 Project Location:**

The project area consists of the main stem of the SRB which includes all or portions of the 44 counties within Georgia, South Carolina, and North Carolina. The surface area of the basin is comprised of approximately 10,577 square miles, of which approximately 5,821 are in Georgia; 4,581 square miles are in South Carolina; and 175 square miles are in North Carolina.

### **1.4 Problem Statement:**

The SRB has an aged water allocation strategy. Two of the three Federal reservoirs were constructed 50 years ago. The water storage allocation has not been re-examined

in a number of years, and the public believes that a different allocation would better serve the present needs of the basin.

### 1.5 Project Description:

Because of the breadth and complexity of the basin-wide reassessment, the study will be completed through multiple interim studies, with each interim study yielding a stand-alone product. The first interim study was completed in 2006. The recent 2007-2009 drought presented conditions that were more adverse than the previous droughts, and thus the need to update the DCP to best protect the basin against such adverse conditions. The scope of work for the second interim study is described in this PMP. During the course of the next study effort, preparation for subsequent interim studies will be identified to address the comprehensive study authority.

**Interim 1** derived basin inflows, developed an updated reservoir simulation model, modeled drought plan update alternatives, and conducted initial modeling of preliminary reallocation scenarios for future consideration. A water supply use survey was conducted to identify water needs in the basin. A DCP update was prepared and implemented (August 2006 Environmental Assessment).

**Interim 2** will employ UIF data developed and extended by GADNR EPD and other entities for basin-wide modeling purpose and will examine the minimum discharges that are needed to meet project needs, needs of downstream users, and maintain environmental resources during drought conditions. This issue was identified by the non-Federal sponsors as their highest priority for the SRBCS at this time. Six alternative reservoir releases would be examined in detail with engineering model runs, an economic analysis and an examination of environmental impacts. The potential effects on water users (both in the reservoirs and downstream) will be quantified using the available data and tools to reach an accurate result. The alternatives will be evaluated using the most recent drought of record that occurred from 2007-2010. The scope of work does not include all the activities required to obtain Congressional reauthorization but it is based on funding available.

## 2.0 SCOPE OF WORK

### 2.1 Project Requirements Statement

#### Project Goal:

The DCP will answer questions of basin stakeholders:

1. How low can Thurmond reservoir releases go during drought conditions?
2. How long can a minimum flow be sustained?



### Methods and Procedures:

Decisions will be made at PDT meetings as required. Decisions made by appropriate technical personnel during the study will be reported to the PM for documentation and future reporting. Conflicts or major changes will be brought to the attention of the team immediately, or higher authority as required. All the methods and procedures as outlined in the Corps PMBP will be adhered to.

### Communications:

A quarterly report on progress and expenditures will be provided to the non-Federal cost sharing partner as well as at the monthly Corps Civil Project Review Board (PRB) meetings held at the Savannah District. Quarterly PDT meetings will include sponsor representation. Monthly PDT meetings will be held between the Corps internal team to ensure that the project is on track. If it is determined that sponsor attendance is required at these meetings, then the sponsors will be invited to attend these meetings. Monthly updates or meeting minutes will be distributed to Federal and non-Federal PDT members. Current technology will be utilized by the PDT to conduct meetings and update files. This may include teleconferences, e-mail, and other automated information systems to facilitate information sharing amongst the PDT.

## 2.2 Scope Management Plan

Changes in scope will be coordinated by the PM with the sponsors, to define the requirements and priorities prior to coordination with the Savannah District PDT. The risks for each requirement will be identified and the sponsor's approval will be obtained. The prioritized requirements will then be scheduled as deliverables and the PMP amended accordingly.

## 3.0 PROJECT DELIVERY TEAM

<b>Organization</b>	<b>Resource Title</b>
CESAS-PM-C	Project Manager
CESAS-OP-T	Operation Manager(s)
CESAS-OC	Office of Counsel
CESAS-PD	Plan Formulator
CESAS-PD	Biologist
CESAS-PD	Economist
CESAS-PD	Cultural Resources
CESAS-RE	Real Estate
CESAS-EN-H	EN Hydraulics & Hydrology
CESAC-EN	Cost Estimating
Georgia DNR	Non-Federal Sponsor
South Carolina DNR and DHEC	Non-Federal Sponsor
The Nature Conservancy	Non-Federal Sponsor

## 4.0 CRITICAL ASSUMPTIONS AND CONSTRAINTS

### 4.1 Critical Assumptions

The sponsors' portion of the cost share contribution will consist of work-in-kind (WIK) services as agreed upon in the cost share spreadsheet in Appendix 3.

The SCDNR and GADNR have provided the required cash to balance Interim Study No.1 of the cost share and they are aware of the need to balance the Second Interim phase costs to date..

### 4.2 Constraints

The USACE, GADNR, SCDNR and TNC are facing budget constraints. Due to the complexity of the study and the limited funding and resources available, the project will be conducted in incremental studies each yielding useful products under the comprehensive study authority.

## 5.0 WORK BREAKDOWN STRUCTURE

The Work Breakdown Structure can be found in Appendix 2. Cost associated with each task can be found in Appendix 3.

## 6.0 RESOURCE MANAGEMENT PLAN

### 6.1 Funding Requirements - Investigation Cost Data:

Investigation feasibility studies are cost shared between the Corps and the non-Federal study sponsor on a 50/50 percent basis. The non-Federal sponsor has the option to provide 100 percent of their cost share in the form of in-kind services and efforts for any work executed after December 11, 2000. Federal Investigation funds in the amount of \$493K were appropriated in fiscal year 2010. The current estimated cost the DCP update is \$907,990. The FCSA, executed in June 2000, can be found in Appendix 5 along with the amendment to the FCSA, executed March 21, 2011, and Amendment No. 2 executed on September 18, 2013. Guidance on cost sharing can be found in Appendix E of ER 1105-2-100.

The cost share balance for Interim Study No. 1, for work executed between calendar years 2000 to 2006, was reconciled and closed out on January 29, 2014, with the receipt of funding in the amount of \$83,439.1313 (\$80,684.46 - GADNR and \$2,754.67-SCDNR).



## 7.0 SCHEDULE

### 7.1 Network Analysis

A complete current copy of the project schedule is shown as Appendix 4.

7.2 Milestones: significant points in the project's development displayed in the project schedule.

<b>Milestone</b>	<b>Projected Date</b>
Start Study	18 September 2013
No Action Alternative	20 November 2013
Evaluation of Alternatives Complete	21 August 2014
Determine Recommended Plan	12 September 2014
Complete Reviews of Draft Report	14 May 2015
Submit Final Report and EA for SAD Review and Approval	23 July 2015
<b>FONSI Signed by SAS</b>	<b>10 September 2015</b>
<b>Drought Contingency Plan Approved by SAD</b>	<b>19 November 2015</b>

## 8.0 PROJECT QUALITY CONTROL PLAN AND OBJECTIVES:

### 8.1 Customer Objectives and Project Objectives:

It is anticipated that successful completion of this project will produce a better understanding of the downstream needs of the SRB during drought conditions as well as the necessary steps of water reallocation that will be needed in order to accommodate future demands and needs of the basin.

### 8.2 Quality Management Plan (QMP):

The QMP documents project specific quality assurance and quality control procedures appropriate to the size, complexity, and nature of the project. In addition to quality management objectives developed as part of PMPs for projects, the system for Quality Management is managed at both the District level and at a District/Center/Major Subordinate Command level (see Appendix 9). Project specific Quality Management objectives accompanying each PMP shall be consistent with the organization QMP unless documented (as prescribed by ER 1110-1-12).

A fundamental objective is to provide a quality product as tasked. Project quality must be assured throughout the development of the deliverables, not simply at the final test or review prior to delivery. The project will be implemented to meet all applicable quality standards (ER 1105-2-100 and ER 1165-2-1 will be adhered to).

## 9.0 ACQUISITION PLAN

The contracting strategy for construction has not been determined at this time, as the project is currently in the planning/study phase. An acquisition strategy will be developed in accordance with PROC2050 of the Project Management Business Process Manual posted on the Corps web site if it is determined that this will be needed during the course of the study.

## 10.0 RISK ANALYSIS

Refer to Risk Management Plan, REF8007G of the Project Management Business Process Manual posted on the Corps web site.

Risk identification will be accomplished by both identifying causes and effects (what actions could happen and what are the results of these actions) and by identifying effects and causes (what outcomes are to be avoided or encouraged and how each might occur). There will be sources of risk and risk events that the PM and the PDT team will consciously decide to avoid, mitigate, accept, or ignore. Common sources of risk include changes in requirements, errors, omissions, and misunderstandings, poorly defined or understood roles and responsibilities, poor estimates, or insufficient resources. One such risk is that the schedule may be negatively impacted due to a change in priorities by either the Corps or the non-Federal sponsor. Another risk could be a loss of funds by either the Federal government or the non-Federal sponsor. The PDT will endeavor to identify them and prepare for them in advance wherever possible. See Appendix 6.

## 11.0 SAFETY AND OCCUPATIONAL HEALTH PLAN

Refer to Safety and Occupational Health Plan, REF8016G of the Project Management Business Process Manual posted on the Corps web site.

All work conducted by the Corps shall be subject to safety considerations. The Corps is committed to take all reasonable precautions to protect the safety and health of its employees, contractor personnel and members of the public. The Corps Safety Manual, EM 385-1-1, is the governing document. See also Appendix 10.

The project does not appear to involve nor is it located within a site containing data of a sensitive or classified nature. Any changes in the status of the project security classification will be coordinated with the Corps, Savannah District's Security Officer.

## 12.0 CHANGE MANAGEMENT

Refer to Change Management Plan, PROC 3010 of the Project Management Business Process Manual posted on the Corps web site.



Change control will be executed by the PDT using the revision of scope and cost estimates. If concurrence is reached with the PDT, Corps labor, contract cost and schedule changes will be documented by the application of ER-5-1-11(Management - Corps Business Process), with the use of coordinated Schedule and Cost Change Requests (SACCR). Each SACCR outlines the potential change, and the impacts of that change. The Chief of Civil Works Programs and Project Management will monitor the review and approval of the SACCR by the Corps, South Atlantic Division (SAD) programs staff.

Schedule changes and supporting justification after approval by the PDT will be submitted to the PRB. Potential changes will be forecasted by the PDT through the project schedule as early as possible. If the total project cost is scheduled to exceed the current baseline estimate or if the change results in a delay in the project completion date, the SACCR will require the approval of the Director of Civil Works, SAD. Construction costs will be under the direct control of the contracting officer, in coordination with the PM. Modifications may not be negotiated and awarded by the resident engineer without prior approval of the PM except for emergency situations involving property damage, potential claims, or threat to safety of life, human or wildlife. See Appendix 8.

### 13.0 COMMUNICATIONS

Communications occur in two major arenas; internal to the PDT and external to the PDT. The following paragraphs describe our approach to communications.

#### 13.1 Internal Team Communications:

Bi-weekly meetings to include Corps PDT members and the project sponsors will be held. For those not immediately available a conference phone line will be used. Team meetings may be called at other times if necessitated by current developments. Day to day business may be conducted by E-mail.

Formal minutes of review meetings shall be published to all attendees. Action items shall be identified and their status tracked to completion. At the conclusion of each meeting, the schedule, as updated during the meeting, shall be summarized and revisions will be distributed to all involved parties and personnel for reference at the next meeting.

Cost and status reporting shall be conducted on a quarterly basis. The Corps PM will send out a cost status report to ensure that project tasks are being performed according to the project schedule and to ensure that the cost share balance is agreed upon. If the necessity arises unique reporting formats shall be developed and provided by the PM to GADNR, SCDNR, and TNC representatives.

The schedule and the PMP will be used to manage and gauge the progress of the work through project completion. It may be modified to meet the project requirements. All reporting of progress, status, cost, budgets, milestone events, future key events, resource utilization will utilize the schedule and PMP as the source documents.

### 13.2 External Communications:

All inquiries related to public and legislative affairs will be referred to and coordinated through the Corporate Communications Office (CCO). All scheduled Corps' activities related to public and legislative affairs will be processed through the CCO.

All external communications will be approved by the Corps Public Affairs office in compliance with ER 360-1-1. Contact at: [cesas-cco@usace.army.mil](mailto:cesas-cco@usace.army.mil)

## 14.0 VALUE ENGINEERING (VE) MANAGEMENT

Current USACE policy requires VE studies on all projects with a programmed cost of \$2 million or more, when cost effective. In addition, for Civil Works projects over \$10 million, EC 1110-2- 25 requires a cost effectiveness review, accomplished under the direction of the VE officer, using VE methodology and a certificate of cost effectiveness. (ER 1110-2-1150)

The need for VE for this project is to be determined.

## 15.0 CLOSEOUT PLAN

Upon completion of the project, the project will be reviewed by the Corps and sponsors to assure quality and completeness. The PDT will author a closeout document that will evaluate the work completed under this PMP and render conclusions on the minimum discharges that are needed to meet project needs, needs of downstream users, and maintain environmental resources. In addition, the closeout document will summarize the Federal and non-Federal expenditures by task and year to include expenditures from Interim Study I and Interim Study II. The cost share will be balanced with 50 percent Federal, 50 percent non-Federal funds and/or WIK at the completion of Interim Study II.

## 16.0 DATA MANAGEMENT PLAN

This project will employ multiple automated information systems to manage all the data associated with this project. All data and technical tools, including computer models, will be shared with the sponsors in electronic format. The final project report, complete with all appendices will be provided to the sponsor in Adobe PDF format.



# APPENDIX 1

## Project Cost Estimate Worksheet

(Feasibility)

### Study Expenditures to Date

YEAR	TOTAL EXPENDITURE	TOTAL NON-FED	NON-FED %	NON-FED CASH	NON-FED WIK	FEDERAL	FEDERAL %
FY 00	\$88,496.85	\$52,607	0%	-	\$52,607	\$35,890	41%
FY 01	\$181,785.72	\$24,574	5%	\$9,963	\$14,610	\$157,212	86%
FY02	\$270,239.50	\$83,325	22%	\$59,930	\$23,395	\$186,915	69%
FY 03	\$408,963.02	\$158,092	21%	\$86,547	\$71,544	\$250,871	61%
FY 04	\$368,066.64	\$165,762	33%	\$122,766	\$42,995	\$202,305	55%
FY 05	\$224,784.34	\$76,260	34%	\$76,260		\$148,524	66%
FY 06	\$32,456.46	\$32,456	100%	\$32,456		\$0	0%
FY 10	\$220,000.00	\$220,000	0%	\$0	\$220,000		
14-Jan	\$0.00	\$84,321		\$84,321		(\$84,321)	
TO TAL INTERIM I	\$1,794,793	\$897,396		\$472,245	\$425,151	\$897,396	50%
FY 07	\$0	\$0	0%	\$0	\$0	\$0	
FY 08	\$0	\$0	0%	\$0	\$0	\$0	
FY 09	\$0	\$0	0%	\$0	\$0	\$0	
FY 10	\$10,806	\$0	0%	\$0	\$0	\$10,806	100%
FY 11	\$29,821	\$0	0%	\$0	\$0	\$29,821	100%
FY 12	\$0	\$0	0%	\$0	\$0	\$0	
FY 13	\$54,613	\$0	0%	\$0	\$0	\$54,613	100%
TO TAL INTERIM II	\$95,240	\$0	0%	\$0	\$0	\$95,240	100%

### Estimated Costs by Study Effort

Product	Cost
Interim Study I	\$ 1,794,793
Interim Study II	\$ 917,631
<b>Total Study Cost</b>	<b>\$ 2,712,424</b>

## **APPENDIX 2**

### **Work Breakdown Structure**



## **4.0 SAVANNAH RIVER BASIN COMPREHENSIVE STUDY: DROUGHT CONTINGENCY PLAN UPDATE**

### ***4.1 Review of Unimpaired Flow (UIF) Data through 2011.***

### ***4.2 Extension of UIF data through 2012***

*The most recent drought was first observed and its impact felt in early 2006. The peak of the drought was in 2007-2008 timeframe, when storage reservoirs had record low elevation and storage. This drought was not over until the spring of 2010, when above normal precipitation resumed and reservoirs recovered consequently. In many aspects, this drought was felt to be the drought of record. It is very important to have a full record of the critical drought in order to test if provisions of a Drought Contingency Plan are enough to protect the reservoir and downstream interests and to help the projects recover. (GA DNR)*

*2009-2010 input to cover the drought recovery period in the simulations will need to be sent to USACE in order to begin work for task 4.2*

### ***4.3 Develop Comparison Methodology – (Statistical Calculator)***

*This task will involve selection of points of concern along the river and in the reservoirs (determining where to look), determination of hydrological variables for assessments (what to check), suggesting thresholds for assessment (determining what to check against, e.g. flows used in determining waste load allocation by Georgia and South Carolina), suggesting societal or ecological values that are attached to the variables and thresholds (determining what are we protecting). (GA DNR, SC DNR, TNC, USACE)*

*Parameters to be compared should include:*

- *Pool Elevation*
- *Outflow*
- *Inflow (Should be the same for all alternatives)*
- *System Energy Generated (total of all three projects)*
- *Project Generation (incremental of each project)*
- *System Energy Shortage*
- *% Conservation Storage Remaining (Local and System)*
- *Water Quality*
- *Drinking water intakes*
- *Flow over shoals*

*Basic Statistics – Maximum, Minimum, Average, Sum*

*Frequency Analysis*

*1%, 2%, 5%, 10%, 15%, 20%, 25%, 30%, 35%, 40%, 45%, 50%, 55%, 60%, 65%, 70%, 75%, 80%, 85%, 90%, 95%, 98%*

*Duration/ Low flow Frequency Analysis*

*7Q10*

30Q10

*Ecosystem Functions Model (EFM) (with existing or updated flow recommendations)*

#### **4.1.4 Extend Savannah River Water Quality Model from Augusta Diversion Dam to Thurmond Dam**

*The Savannah River Water Quality Model developed and maintained by the GAEPD will be extended approximately fourteen miles upstream from the existing upstream boundary of the Augusta Diversion Dam to the tailrace of Thurmond Dam. The purpose of the river model extension is to allow for direct input of model-simulated Thurmond Dam releases resulting from various reservoir operation scenarios into the Savannah River water quality model. The work to be done for this task includes:*

- *Creation of two new model branches corresponding to the river reaches from Thurmond Dam to Stevens Creek Dam and from Stevens Creek Dam to the Augusta Diversion Dam.*
- *Development of the necessary cross sections and bathymetry required by the river model based upon available data.*
- *Development and application of methods for estimating inflows and water quality for the watershed between Thurmond Dam and the Augusta Diversion Dam.*
- *Model stream flow calibration using historical stream flow data to assess model performance.*
- *Development of model upstream boundary water quality data based on measured historical Thurmond Dam release data.*

*The revised model will be capable of simulating a 10-year period. (GA DNR)*

#### **4.1.5 Hold Ecosystem Function Workshop/Update Ecosystem Flow Recommendation (TNC)**

*There have been several controlled pulse experiments and a new drought of record since the 2003 workshop that produced a set of ecosystem flow recommendations for the shoals, floodplain, and estuary. TNC will host and facilitate another ecosystem flow workshop to update the recommendations to incorporate information that has become available since 2003. This workshop will allow inclusion of the latest information available to better identify effects on biological resources from alternate flow scenarios, and identify remaining data gaps to assess responses of aquatic biological resources to real-time monitoring data on water quality and quantity at representative locations in the Savannah River Basin. (TNC)*

#### **4.1.6 Update Ecosystem Function Model (HEC-EFM)**

*The Ecosystems Functions Model was used by Savannah District as a tool to evaluate ecosystem effects to hydrologic regimes from several drought management alternatives in the EA for the 2006 Drought Contingency Plan Update. TNC will incorporate the latest flow relationships*



*from the Ecosystem Flow Workshop to update the EFM model. This will allow Savannah District to use EFM to evaluate relative biological effects of flow regimes from future drought plan updates and reallocation scenarios considered during the SRBC study. (TNC)*

#### **4.1.7 Begin Coordination with Environmental Agencies (USACE)**

### **4.2 NO ACTION ALTERNATIVE (Reservoir-Simulation): Model Validation/Calibration**

#### **4.2.1 Build No Action Alternative with Unimpaired Flow (Reservoir-Simulation)**

*This involves the buildup of a Reservoir Simulation model using the best representation of the existing rules from the 2012 Environmental Assessment. Two instances will be set up, one using the GA EPD UIF inflows and one using the USACE observed inflows. The USACE inflows have already accounted for evaporation; therefore, the evaporation rules must be deactivated.*

#### **4.2.2 Run No Action Alternative with Unimpaired Flow (Reservoir-Simulation)**

*The two instances can only be compared for periods where both datasets exist. Compare pool elevation. Override outflows or reservoir elevations in both instances with observed or reservoir elevations outflows. Compare pool elevations and outflow volumes over the simulation periods. Adjust evaporation coefficients in GA DNR-EPD instance if needed to get pool elevations output from both instances to match. (USACE)*

#### **4.2.3 Compare Inflows to Outflows**

*Enable Evaporation Effects*

*Override outflows – Use Observed Outflows*

*Compare observed pool elevation (A) to modeled pool elevation (B) (USACE)*

#### **4.2.4 Evaluate No Action**

*The sponsors will review the base case model developed by USACE. (GA DNR, SC DNR, TNC)*

#### **4.2.5 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

#### **4.2.6 Savannah Harbor Water Quality Modeling, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

#### **4.2.7 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*

#### **EVALUATE ALTERNATIVE**

*The evaluation of appropriate drought release levels for the second interim study of the SRBCS will be based on a consideration of a variety of metrics to include: municipal, industrial, and agricultural water intakes, flow needs for assimilative capacity, water quality protection in the Savannah River and Harbor, ecological flows necessary for biological communities and the Augusta Shoals, recreational uses of the reservoirs, and associated economic impacts.*

*Results from the Corps Final Environmental Assessment and Finding of No Significant Impact for the Drought Plan Revision of the Savannah River Basin, dated July 2012, will be used as the **no action alternative**. The table below shows the alternatives that were evaluated in the July 2012 EA. The selected alternative (alternative 2) will be evaluated using the long-term record of the extended UIF data as the no action alternative.*



## July 2012 Approved Environmental Assessment Drought Plan Alternatives

Level	NAA	Alt 1	Alt 2	Alt 3	Alt 4
1	4200	4200 >10% Qin	4200 >10% Qin	4200 >10% Qin	4200 >10% Qin
	4000	4000 <=10% Qin	4000 <=10% Qin	4000 <=10% Qin	4000 <=10% Qin
2	4000	4000 >10% Qin	4000 >10% Qin	4000 >10% Qin	4000 > 10% Qin
			3800 <=10% Qin	3800 <=10% Qin	
	3800	3800 <=10% Qin	3600 Nov-Jan	3600 Nov-Jan	3600 <= 10% Qin
3	3800	3800	3800 > 10% Qin	3600	3600
			3600 <= 10% Qin		
			3100 Nov-Jan	3100 Nov-Jan	3100 Nov-Jan
4	3600	3600	3600	3600	3600
	3100 Nov-Jan	3100 Nov-Jan	3100 Nov-Jan	3100 Nov-Jan	3100 Nov-Jan

10% Qin is defined as the 10th percentile flow at the Broad River near Bell piedmont  
reference streamgage for reservoir inflow

\*Alternative 2 was selected

*Once the flow evaluations have been completed according to this PMP, an EA will be drafted proposing an appropriate revision to the current drought contingency plan (if needed) based on a comprehensive final evaluation of all of the above release scenarios. **It is important to note that some of the alternatives being evaluated under the DCP update may significantly alter the ability of the project to provide their authorized project purpose. If it is determined that an alternative has a significant impact on a project purpose, then congressional authorization will be required and will be pursued under a separate interim study of the SRBCS.***

*Below is a chart that shows the alternatives that will be evaluated under the SRBCS DCP update. The alternatives were derived by the Corps based on the sponsor's desire to answer the two questions of: 1. How low can reservoir releases be? 2. How long can releases be kept at the lowest recommended level? The alternatives are described in further detail under this table.*

Savannah River Basin Comprehensive Study Interim Study II Alternatives							
	No Action Alternative	Alternative 1	Alternative 2	Alternative 3	Alternative 4	Alternative 5	Alternative 6
<b>Drought Level 1</b>	4200 >10% Qin  4000 <=10% Qin	3800 Feb-Apr  3500 May-Jan	4000 at 326	Drought Ecosystem Flow Prescription	3600 at Level 1  3100 Nov-Jan	TBD by Sponsors	Alternate Refill/ Flow Scenarios
<b>Drought Level 2</b>	4000 >10% Qin 3800 <=10% Qin  3600 Nov-Jan	2800 Feb-Apr  2500 May-Jan	3800 at 324  3600 Nov-Jan	Drought Ecosystem Flow Prescription	3600  3100 Nov-Jan		
<b>Drought Level 3</b>	3800  3100 Nov-Jan	1800 Feb-Apr  1500 May-Jan	3600 at 322  3100 Nov- Jan	Drought Ecosystem Flow Prescription	3600  3100 Nov-Jan		
<b>Drought Level 4</b>	3600  3100 Nov-Jan	1500	3600  3100 Nov-Jan	3600  3100 Nov-Jan	3600  3100 Nov-Jan		

10% Qin is defined as the 10th percentile flow at the Broad River near Bell piedmont reference stream gage for reservoir inflow.



### **4.3 ALTERNATIVE No.1: EXTREME DROPS**

#### **4.3.1 Build Alternative No. 1**

*At Drought Trigger Level 1, the Thurmond daily average release target would equal 3800 cfs February through April and 3500 cfs May through January. This alternative will address the infrastructure and environmental reasons of why we cannot operate at such low flows.*

*This alternative targets the agreed upon aquatic base flows for the Augusta Shoals that meet minimum in stream flow needs for that resource during extreme drought. No additional flow is considered for the canal in this scenario.*

#### **4.3.2 Run Alternative No. 1**

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

#### **4.3.3 Evaluate Alternative No. 1- Sponsor Model Review**

*The sponsors will have an opportunity to view the results of the model runs performed by USACE. (GA DNR, SC DNR, TNC).*

#### **4.3.4 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

#### **4.3.5 Savannah Harbor Water Quality, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

#### **4.3.6 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*

#### **4.4 ALTERNATIVE No. 2: HIGHER DROUGHT LEVEL ELEVATION**

##### **4.4.1 Build Alternative No. 2**

*Implement Level 3 Trigger at 2 ft below Level 2. This alternative focused on raising Level 3 at Hartwell and Thurmond from 646 or 316 to 2 feet below Trigger Level 2 respectively. It maintains the existing wintertime flow windows, (Nov 1 – Jan 31), to 3600 cfs in level 2 and 3100 cfs in level 3.*

##### **4.4.2 Run Alternative No. 2**

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

##### **4.4.3 Evaluate Alternative No. 2- Sponsor Model Review**

*The sponsors will review the base case model developed by USACE. (GA DNR, SC DNR, TNC)*

##### **4.4.4 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

##### **4.4.5 Savannah Harbor Water Quality, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

##### **4.4.6 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*



## **4.5 ALTERNATIVE No. 3: RELEASE BASE ON ENVIRON. FLOW PRESCRIPTION**

### **4.5.1 Build Alternative No. 3**

*Release based on the Environmental Flow Prescription for drought.*

*The Savannah River Ecosystem flow prescription done in 2003 for the Savannah River was done for wet, dry, and average hydrologic conditions. A subset of these flow recommendations will be derived for drought in the update workshop as part of the Comp study. This alternative will evaluate setting Thurmond release to the unified flow prescription for drought to evaluate the effects on project purposes and aquatic resources in the Savannah River Basin.*

### **4.5.2 Run Alternative No. 3**

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

### **4.5.3 Evaluate Alternative No. 3- Sponsor Model Review**

*The sponsors will have an opportunity to view the results of the model runs performed by USACE. (GA DNR, SC DNR, TNC).*

### **4.5.4 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

### **4.5.5 Savannah Harbor Water Quality, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

### **4.5.6 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*

#### **4.6 ALTERNATIVE No. 4: EXTREME DROPS**

##### ***4.6.1 Build Alternative No. 4***

*This alternative implements a flow target of 3600 cfs as soon as the pools decline to Drought trigger level 1. The alternative also implements a wintertime flow reduction to 3100 cfs between November and February any time the system is in drought level 1 or below.*

##### ***4.6.2 Run Alternative No. 4***

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

##### ***4.6.3 Evaluate Alternative No. 4- Sponsor Model Review***

*The sponsors will have an opportunity to view the results of the model runs performed by USACE. (GA DNR, SC DNR, TNC).*

##### ***4.6.4 Water Quality Modeling, Results Analysis, Documentation***

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

##### ***4.6.5 Savannah Harbor Water Quality, Results Analysis, Documentation***

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

##### ***4.6.6 Run Ecosystem Function Model***

*Run the Ecosystem Model (USACE)*

#### **4.7 COORDINATE WITH SPONSORS (Quarterly PDT Meeting)**

##### ***4.7.1 Coordinate with Sponsors (Quarterly PDT Meeting)***



#### **4.8 ALTERNATIVE No. 5: TBD**

##### **4.8.1 Build Alternative No. 5**

*This alternative will be a combination of the best features of alternatives 1-4 and the no action alternative.*

##### **4.8.2 Run Alternative No. 5**

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

##### **4.8.3 Evaluate Alternative No. 5- Sponsor Model Review**

*The sponsors will have an opportunity to view the results of the model runs performed by USACE. (GA DNR, SC DNR, TNC).*

##### **4.8.4 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

##### **4.8.5 Savannah Harbor Water Quality, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

##### **4.8.6 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*

#### **4.9 ALTERNATIVE No. 6: RATE OF RISE ON RECOMMEND**

##### **4.9.1 Build Alternative No. 6**

*This alternative will retain the minimum release rates of the lowest trigger level reached until the Hartwell and Thurmond pools reach two feet above level 1.*

##### **4.9.2 Run Alternative No. 6**

*The Alternative will be run and reviewed by USACE Engineers (USACE).*

#### **4.9.3 Evaluate Alternative No. 6- Sponsor Model Review**

*The sponsors will have an opportunity to view the results of the model runs performed by USACE. (GA DNR, SC DNR, TNC).*

#### **4.9.4 Water Quality Modeling, Results Analysis, Documentation**

*The GA DNR-EPD Savannah River Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for a selected 10 year period. Reservoir modeling results consisting of Thurmond Dam release flow rates for up to 6 reservoir operation alternatives will be used by the river model to assess their effects on dissolved oxygen and other water quality parameters. Water quality model results will be analyzed and presented for use in the Environmental Assessment of alternatives. (GA DNR)*

#### **4.9.5 Savannah Harbor Water Quality, Results Analysis, Documentation**

*The Savannah Harbor Water Quality Model will be used to evaluate the water quality effects of various reservoir operation alternatives for the same selected 10 year period. This will occur after the task of water quality modeling in the Savannah River. Operation of the federal reservoirs in the Savannah Basin has significant implications to water quality in the Savannah Harbor. Any proposed action would have to be supported by an assessment with water quality modeling showing no significant and negative impacts to the harbor. The modeling will use the authorized depth of the navigation project. (SC DNR)*

#### **4.9.6 Run Ecosystem Function Model**

*Run the Ecosystem Model (USACE)*

### **4.10 ECONOMIC ANALYSIS**

#### **4.10.1 Economic Analysis**

*The effects of the Alternatives on recreation, water supply, and hydropower will be assessed and documented in the Environmental Assessment. (USACE)*

### **4.11 PREPARE ENVIRONMENTAL ASSESSMENT**

*Environmental studies will be performed in accordance with the National Environmental Policy Act (NEPA), ER 1105-2-100, and other applicable laws, Statutes, Executive Orders, and regulations. NEPA documentation will be coordinated with state and Federal environmental agencies and the public. This task will include the preparation of a NEPA document in accordance with the National Environmental Policy Act of 1969, as amended (PL 91-190) and*



*the Council on Environmental Quality (CEQ) NEPA regulations (40 CFR Parts 1500-1508), and water quality certification from the States of Georgia and South Carolina. If deemed appropriate, a public meeting/hearing or information session will be conducted.*

#### ***4.11.1 Review Impacts of the Previous Flow Reductions***

*The impact of the 3,100 cfs reduced release from Thurmond Dam during the November 2008-January 2009 drought months is expected to be evaluated. Georgia DNR will be responsible for compiling data on flow, dissolved oxygen in the harbor, salinity, and chloride data for the City of Savannah intake. GADNR will perform a review of the observed data and will document findings in a written report. USACE will perform Quality and Assurance oversight and review. (USACE, GADNR).*

#### ***4.11.2 Prepare Affected Environmental of Draft Environmental Assessment***

*This task will include a review of the environment in the study area, and preparation of a biological assessment to address potential impacts to the environment. (USACE)*

#### ***4.11.3 Determine Environmental Impacts of Draft Environmental Assessment***

*A review of impacts for Alternatives will be prepared for Alternatives 1-4. Determination will be made as to whether the proposed project may affect any environmental resources identified. (USACE)*

#### ***4.11.4 Fish and Wildlife Coordination Act Report***

*USACE will prepare a scope of work and will provide funds to the USFWS to review the pertinent literature; to perform any fieldwork needed to evaluate the impacts of the considered action and alternatives on fish and wildlife resources, and to prepare a Fish and Wildlife Coordination Act Report.*

*The U.S. Fish and Wildlife Service (USFWS) will perform this task pursuant to the Fish and Wildlife Coordination Act (FWCA) of 1958, as amended (PL 85-624). This report will assist the USACE in assessing project impacts, identify appropriate fish and wildlife habitat mitigation measures, and will meet the coordination requirements of the FWCA. (USACE)*

#### ***4.11.5 Compare Impacts of Alternative***

*The impacts developed will be evaluated and compared. The work under this task also includes the development and completion of the draft EA. (USACE, GA DNR, SC DNR, TNC)*

#### ***4.11.6 DCQ Draft Environmental Assessment***

*Planning Review of Draft EA (USACE)*

#### ***4.11.7 Incorporate Comments***

*Incorporate comments of review (USACE)*

#### **4.11.8 Determine Recommended Plan**

*The PDT will determine a plan that will be the recommendation based on the alternatives that have been analyzed and the environmental findings. (USACE, GA DNR, SC DNR, TNC)*

#### **4.11.9 Final Environmental Assessment (EA) Complete**

*The final EA will be complete after the South Atlantic Division's Review of the Final EA and Drought Contingency Plan is complete.*

### **4.12: DRAFT REPORT AND ENVIRONMENTAL ASSESSMENT**

*This task involves the report writing, required reviews that are outlined in the Review Plan located in Appendix 12, and incorporation of comments from the reviews.*

#### **4.12.1 Report Writing**

*The report is expected to include the Evaluation of Alternatives which will outline the benefits, environmental impacts and effects on recreation, water supply, and hydropower that were studied. A Plan Selection section will be included which will outline the identification of the NED Plan and the identification of a tentatively recommended plan. The report will also include a section on public involvement and coordination.*

#### **4.12.2 Draft Report Preparation and Consolidation**

*This task involves labor hours that will be allocated to the coordination and preparation of the report writing. (USACE)*

#### **4.12.3 District Quality Control (DQC) of Draft Report Package**

*This review is internal to USACE. See Appendix 12. (USACE)*

#### **4.12.4 Preliminary Review by Sponsors**

*The sponsors will review the draft report after review by USACE and provide comments to USACE. (GA DNR, SC DNR, TNC)*

#### **4.12.5 Agency Technical Review (ATR) of Draft Report**

*This review is performed by technical experts outside by the ECO-PCX external to the Savannah District. See Appendix 12. (USACE)*



#### **4.12.6 SAS Legal Review**

*Legal Review by USACE Office of Counsel (USACE)*

#### **4.12.7 Incorporate Comments from Legal Review (USACE)**

*Comments incorporation from Legal Review*

#### **4.12.8 South Atlantic Division (SAD) Legal Review**

*Legal Review by SAD Office of Counsel (SAD)*

#### **4.12.9 Incorporate Comments and Back Checks from Legal Review**

*Comment Incorporation, Back check into Draft Drought Contingency Plan and EA (USACE, GA DNR, SC DNR, TNC)*

### **4.13: PUBLIC & AGENCY REVIEW OF THE DRAFT EA & REPORT**

#### **4.13.1- Prepare Agency Coordination Letters**

*This task will include writing and sending out coordination letters to agencies interested in the review of the draft EA. (USACE)*

#### **4.13.2- Publish NOA**

*This task is the public announcement that lets the public and agencies know that the draft EA is available for review. (USACE)*

#### **4.13.1- Public Notice/Comments Period – Workshop**

*A public workshop will be held in Augusta, Georgia 10 days after the release of the Draft report and EA. This task includes the cost of the required USACE PDT members preparing for and attending the workshop. (USACE, GA DNR, SC DNR, TNC)*

#### **4.13.2- Incorporate Comments & Back Checks**

*Comments Incorporation, Back Checks into Draft Drought Contingency Plan and EA*

### **4.14: COORDINATE WITH SPONSORS (Quarterly PDT Meeting)**

#### **4.14.1- Coordination meeting with Sponsors**

*Quarterly PDT meeting will be held in Augusta, Georgia to discuss the project and finalize any open issues.*

## **4.15 FINAL REPORT & ENVIRONMENTAL ASSESSMENT**

### ***4.15.1 Final Report Preparation and Consolidation***

*The plan formulator will coordinate and consolidate all sections of the final drought contingency plan and environmental assessment. (USACE)*

### ***4.15.2 Sponsors Review of the Final Report***

*GADNR, SCDNR & TNC review and provide comments on the final report*

### ***4.15.3 ATR Final Report Package***

*Review performed by USACE outside of Savannah District. See Appendix 12. (USACE)*

### ***4.15.4 Incorporate Comments and Back Checks***

*Responses/Incorporate comments/Back check/Certification on Final Package (USACE)*

### ***4.15.5 District Prepares Final Report Package/Reprographics***

### ***4.15.6 SAS Submits Final EA and Drought Contingency Plan for SAD Review***

### ***4.15.7 SAS Submits Signed FONSI to SAD***

*The Finding of No Significant Impact decision point by SAS District Engineer. (USACE)*

### ***4.15.8 SAD Review of Final Environmental Assessment & Drought Contingency Plan***

## **4.16 DROUGHT CONTINGENCY PLAN APPROVED BY SAD**

*USACE Division Office to approve Drought Contingency Plan*

## **4.17 ADMINISTRATIVE**

### ***4.17.1 Project Management***

*This work includes work to be performed by the project manager. Work includes coordination of internal monthly meetings and quarterly meetings with the sponsor. The project manager is responsible for updating the PMP when the PDT determines a change in scope of work or budget and keeping track of the schedule and budget identified in this PMP. The project manager will report the monthly progress of the study to the Project Review Board. (USACE)*



#### **4.17.2 Sponsor Project Management**

*This work includes work to be performed by the sponsor project managers. Work includes communication with the USACE project manager on changes in budget and schedule. The sponsor project managers will work with the USACE project manager on logistics for quarterly meetings. The sponsor project managers will work with the USACE project manager to ensure that the project stays within budget and on schedule. (GA DNR, SC DNR, TNC)*

#### **4.17.3 Bi-monthly PDT Meeting (Tele-conference)**

*The Bi-weekly PDT meetings to ensure that the project is progressing as planned will be held. The sponsors will join these biweekly meetings via conference line. (USACE, GA DNR, SC DNR, TNC)*

#### **4.17.4 Quarterly PDT Meetings (1per Quarter)**

This task includes the labor and travel costs for USACE associated with Quarterly meetings that will be held in person with the sponsor. Some of the items of discussion will include project status, project schedule, USACE will have financial information available on current expenditures to ensure that we are on track, any problems or new information will be brought up. (USACE, GA DNR, SC DNR, TNC)

#### **4.17.5 Sponsor submit WIK credit request**

*Every quarter the sponsors will submit formal letter request requesting credit for work-in-kind that was performed since the last request. This should match the schedule and expenses described in the Work Breakdown Structure and Cost Share Spreadsheet as closely as possible. The letter should include labor rates and hours worked and a description of the task or product that was developed as outlined in the sample request letter that the USACE PM has provided to the sponsors.*

#### **4.17.6 C Respond with Creditable Work (30 Days after Request)**

*The Corps will provide a response to the sponsors 30 days after receipt of the letter explaining what work-in-kind services will receive credit for the month. The USACE PM has provided a template letter to the sponsors*

## APPENDIX 3

### Cost Share Breakdown

Once the flow evaluations have been completed according to this PMP, an EA will be drafted proposing an appropriate revision to the current drought contingency plan (if needed) based on a comprehensive final evaluation of all of the above release scenarios. **It is important to note that some of the alternatives being evaluated under the DCP update may significantly alter the ability of the project to provide their authorized project purpose. If it is determined that an alternative has a significant impact on a project purpose, then congressional authorization will be required and will be pursued under a separate interim study of the SRBCS.**

Below is a chart that shows the alternatives that will be evaluated under the SRBCS DCP update. The alternatives were derived by the Corps based on the sponsor's desire to answer the two questions of: 1. How low can reservoir releases be? 2. How long can releases be kept at the lowest recommended level? The alternatives are described in further detail under this table.



**Savannah River Basin Comprehensive Study**  
**Drought Contingency Plan Report Update and Environmental Assessment**  
**Federal Funds Available: \$453,944.76**

WBS	Task Name	Task Cost	Federal	Non-Federal	GA-DNR	TNC	SC-DNR
<b>DROUGHT CONTINGENCY PLAN REPORT UPDATE &amp; EA</b>		<b>\$175,421.45</b>	<b>\$2,000.00</b>	<b>\$173,421.45</b>	<b>\$50,378.00</b>	<b>\$120,000.00</b>	<b>\$3,043.45</b>
4.1	Review of Unimpaired Flow (UIF) Data through 2011	-	-	-	-	-	-
4.1.2	Extension of Unimpaired Flow (UIF) through 2012	\$35,956.00	-	\$35,956.00	\$35,956.00	-	-
4.1.3	Develop Comparison Methodology	\$8,893.45	-	\$8,893.45	\$5,850.00	-	\$3,043.45
4.1.4	Extend Savannah River Quality Model from Augusta Diversion Dam to JST Dam	\$8,572.00	-	\$8,572.00	\$8,572.00	-	-
4.1.5	Hold Ecosystem Flow Workshop / Update Ecosystem Flow Recommendation (TNC)	\$60,000.00	-	\$60,000.00	-	\$60,000.00	-
4.1.6	Update Ecosystem Function Model (EFM)	\$60,000.00	-	\$60,000.00	-	\$60,000.00	-
4.1.7	Begin Coordination with Environmental Agencies	\$2,000.00	\$2,000.00	-	-	-	-
4.2	<b>NO ACTION ALTERNATIVE (Reservoir-Simulation): Model Validation/Calibration</b>	<b>\$26,497.42</b>	<b>\$12,000.00</b>	<b>\$14,497.42</b>	<b>\$4,532.86</b>	<b>\$2,000.00</b>	<b>\$7,964.56</b>
4.2.1	Build No Action Alternative with Unimpaired Flow (Reservoir-Simulation)	\$4,000.00	\$4,000.00	-	-	-	-
4.2.2	Run No Action Alternative with Unimpaired Flow (Reservoir-Simulation)	\$4,000.00	\$4,000.00	-	-	-	-
4.2.3	Comparison of Inflows to Outflows	\$4,000.00	\$4,000.00	-	-	-	-
4.2.4	Evaluate No Action	\$7,527.39	-	\$7,527.39	\$1,920.00	\$2,000.00	\$3,607.39
4.2.5	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.86	\$2,612.86	-	-
4.2.6	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.2.7	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
<b>EVALUATE ALTERNATIVES</b>							
4.3	<b>ALTERNATIVE No. 1: EXTREME DROPS</b>	<b>\$22,338.79</b>	<b>\$8,000.00</b>	<b>\$14,338.79</b>	<b>\$4,914.86</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.3.1	Build Alternative No.1	\$4,000.00	\$4,000.00	-	-	-	-
4.3.2	Run Alternative No.1	\$4,000.00	\$4,000.00	-	-	-	-
4.3.3	Evaluation Alternative No.1 - Sponsor Model Review	\$7,368.76	-	\$7,368.76	\$2,302.00	\$3,000.00	\$2,066.76
4.3.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.86	\$2,612.86	-	-
4.3.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.3.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.4	<b>ALTERNATIVE No. 2: HIGHER DROUGHT LEVEL ELEVATION</b>	<b>\$22,338.79</b>	<b>\$8,000.00</b>	<b>\$14,338.79</b>	<b>\$4,914.86</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.4.1	Build Alternative No.2	\$4,000.00	\$4,000.00	-	-	-	-
4.4.2	Run Alternative No.2	\$4,000.00	\$4,000.00	-	-	-	-
4.4.3	Evaluation Alternative No.2 - Sponsor Model Review	\$7,368.76	-	\$7,368.76	\$2,302.00	\$3,000.00	\$2,066.76
4.4.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.86	\$2,612.86	-	-
4.4.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.4.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.5	<b>ALTERNATIVE No. 3: RELEASE BASE ON ENVIRONMENTAL FLOW PRESCRIPTION</b>	<b>\$22,338.79</b>	<b>\$8,000.00</b>	<b>\$14,338.79</b>	<b>\$4,914.86</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.5.1	Build Alternative No.3	\$4,000.00	\$4,000.00	-	-	-	-
4.5.2	Run Alternative No.3	\$4,000.00	\$4,000.00	-	-	-	-
4.5.3	Evaluation Alternative No.3 - Sponsor Model Review	\$7,368.76	-	\$7,368.76	\$2,302.00	\$3,000.00	\$2,066.76
4.5.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.86	\$2,612.86	-	-
4.5.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.5.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.6	<b>ALTERNATIVE No. 4: 3600 CONSTANT</b>	<b>\$21,833.79</b>	<b>\$7,495.00</b>	<b>\$14,338.79</b>	<b>\$4,914.86</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.6.1	Build Alternative No.4	\$3,747.50	\$3,747.50	-	-	-	-
4.6.2	Run Alternative No.4	\$3,747.50	\$3,747.50	-	-	-	-
4.6.3	Evaluation Alternative No.4 - Sponsor Model Review	\$7,368.76	-	\$7,368.76	\$2,302.00	\$3,000.00	\$2,066.76
4.6.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.85	\$2,612.86	-	-
4.6.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.6.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.7	<b>ALTERNATIVE No. 5: TBD</b>	<b>\$22,293.92</b>	<b>\$7,948.80</b>	<b>\$14,345.11</b>	<b>\$4,921.19</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.7.1	Build Alternative No.5	\$3,974.40	\$3,974.40	-	-	-	-
4.7.2	Run Alternative No.5	\$3,974.40	\$3,974.40	-	-	-	-
4.7.3	Evaluation Alternative No.5 - Sponsor Model Review	\$7,375.09	-	\$7,375.09	\$2,308.33	\$3,000.00	\$2,066.76
4.7.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.85	\$2,612.86	-	-
4.7.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.7.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.8	<b>ALTERNATIVE No. 6: RATE OF RISE ON RECOMMENDED PLAN</b>	<b>\$17,345.12</b>	<b>\$3,000.00</b>	<b>\$14,345.11</b>	<b>\$4,921.19</b>	<b>\$3,000.00</b>	<b>\$6,423.93</b>
4.8.1	Build Alternative No.6	\$1,500.00	\$1,500.00	-	-	-	-
4.8.2	Run Alternative No.6	\$1,500.00	\$1,500.00	-	-	-	-
4.8.3	Evaluation Alternative No.6 - Sponsor Model Review	\$7,375.09	-	\$7,375.09	\$2,308.33	\$3,000.00	\$2,066.76
4.8.4	Water Quality Modeling, Result Analysis, Documentation	\$2,612.86	-	\$2,612.85	\$2,612.86	-	-
4.8.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	\$4,357.17	-	\$4,357.17	-	-	\$4,357.17
4.8.6	Run Ecosystem Function Model (EFM)	-	-	-	-	-	-
4.10	<b>ECONOMIC ANALYSIS</b>	<b>\$25,500.00</b>	<b>\$25,500.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>	<b>\$0.00</b>
4.10.1	Economic Analysis	\$25,500.00	\$25,500.00	-	-	-	-
<b>ENVIRONMENTAL ASSESSMENT</b>							
4.11	<b>PREPARE ENVIRONMENTAL ASSESSMENT (EA)</b>	<b>\$108,683.79</b>	<b>\$85,000.00</b>	<b>\$23,683.79</b>	<b>\$17,350.00</b>	<b>\$3,000.00</b>	<b>\$3,333.79</b>
4.11.1	Review Impacts of Previous Flow Flow reductions	\$20,130.00	\$8,000.00	\$12,130.00	\$12,130.00	-	-
4.11.2	Prepare Affected Environmental Impacts of Draft Environmental Assessment	\$5,000.00	\$5,000.00	-	-	-	-
4.11.3	Determine Environmental Impacts of Draft Environmental Assessment	\$20,000.00	\$20,000.00	-	-	-	-
4.11.4	Prepare FWCS Report	\$27,000.00	\$27,000.00	-	-	-	-
4.11.5	Compare Impact of Alternatives	\$31,553.79	\$20,000.00	\$11,553.79	\$5,220.00	\$3,000.00	\$3,333.79
4.11.6	DQC Draft Environmental Assessment	\$3,000.00	\$3,000.00	-	-	-	-
4.11.7	Incorporate Comments	\$2,000.00	\$2,000.00	-	-	-	-
4.11.8	Determine Recommended Plan	-	-	-	-	-	-
4.11.9	Final Environmental Assessment (EA) Complete	-	-	-	-	-	-
4.12	<b>DRAFT REPORT AND ENVIRONMENTAL ASSESSMENT</b>	<b>\$138,583.63</b>	<b>\$110,000.00</b>	<b>\$28,583.63</b>	<b>\$11,640.00</b>	<b>\$6,000.00</b>	<b>\$10,943.63</b>
4.12.1	<b>Report Writing</b>	<b>\$20,000.00</b>	<b>\$20,000.00</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
4.12.1.1	Describe Alternatives	\$5,000.00	\$5,000.00	-	-	-	-
4.12.1.2	Describe Comparison Methodology	\$5,000.00	\$5,000.00	-	-	-	-
4.12.1.3	Describe Alternatives	\$5,000.00	\$5,000.00	-	-	-	-
4.12.1.4	Complete Feasibility	\$5,000.00	\$5,000.00	-	-	-	-
4.12.2	Draft Report Preparation and Consolidation	\$10,000.00	\$10,000.00	-	-	-	-
4.12.3	District Quality Control (DQC)	\$5,000.00	\$5,000.00	-	-	-	-

4.12.4	Incorporate Comments	\$10,000.00	\$10,000.00	-	-	-	-
4.12.5	Preliminary Review by Sponsors	\$14,614.45	-	\$14,614.45	\$5,820.00	\$2,000.00	\$6,794.45
4.12.6	Agency Technical Review (ATR) / Draft EA	\$20,000.00	\$20,000.00	-	-	-	-
4.12.7	Incorporate Comments, Certification of ATR Comments into Draft Drought Contingency Plan & EA	\$27,229.30	\$20,000.00	\$7,229.30	\$2,910.00	\$2,000.00	\$2,319.30
4.12.8	SAS Prepare Draft Report Package / Reprographics	\$5,000.00	\$5,000.00	-	-	-	-
4.12.9	SAS Legal Review	-	-	-	-	-	-
4.12.10	Incorporate SAS Comments from Legal Review	\$5,000.00	\$5,000.00	-	-	-	-
4.12.11	South Atlantic Division (SAD) Review	-	-	-	-	-	-
4.12.12	Incorporate SAD comments into Draft Report	\$16,739.88	\$10,000.00	\$6,739.88	\$2,910.00	\$2,000.00	\$1,829.88
4.12.13	Prepare Agency Coordination Letter	\$2,500.00	\$2,500.00	-	-	-	-
4.12.14	Public NOA	\$2,500.00	\$2,500.00	-	-	-	-
4.13	<b>PUBLIC &amp; AGENCY REVIEW OF THE DRAFT EA &amp; REPORT</b>	<b>\$58,085.14</b>	<b>\$40,000.00</b>	<b>\$18,085.14</b>	<b>\$7,610.00</b>	<b>\$6,000.00</b>	<b>\$4,475.14</b>
4.13.1	Public Notice / Comment Period	-	-	-	-	-	-
4.13.2	Public Workshop - Augusta	\$30,855.84	\$20,000.00	\$10,855.84	\$4,700.00	\$4,000.00	\$2,155.84
4.13.3	Comments Incorporate, Back Check	\$27,229.30	\$20,000.00	\$7,229.30	\$2,910.00	\$2,000.00	\$2,319.30
4.14	<b>FINAL REPORT &amp; ENVIRONMENTAL ASSESSMENT</b>	<b>\$61,131.69</b>	<b>\$47,000.00</b>	<b>\$14,131.69</b>	<b>\$5,820.00</b>	<b>\$4,000.00</b>	<b>\$4,311.69</b>
4.14.1	Final Report Preparation and Consolidation	\$5,000.00	\$5,000.00	-	-	-	-
4.14.2	District QA/QC on Final Report Package	\$10,000.00	\$10,000.00	-	-	-	-
4.14.2	Sponsor's Review of the Final Report	\$14,131.69	-	\$14,131.69	\$5,820.00	\$4,000.00	\$4,311.69
4.14.3	ATR Final Report Package	10,000.00	10,000.00	-	-	-	-
4.14.4	Incorporate Comments and Back Checks	10,000.00	10,000.00	-	-	-	-
4.14.5	District Prepares Final Report Package / Reprographics	10,000.00	10,000.00	-	-	-	-
4.14.6	SAS Submits Final EA and Drought Contingency Plan for SAD Review	2,000.00	2,000.00	-	-	-	-
4.14.7	SAD Review of Final Environmental Assessment and Drought Contingency Plan	-	-	-	-	-	-
4.15	<b>FONSI SIGNED BY SAS</b>	-	-	-	-	-	-
4.16	<b>DROUGHT CONTINGENCY PLAN APPROVED BY SAD</b>	-	-	-	-	-	-
<b>ADMINISTRATIVE</b>		<b>Task Cost</b>	<b>Federal</b>	<b>Non-Federal</b>	<b>GA-DNR</b>	<b>TNC</b>	<b>SC-DNR</b>
4.17	Project Management	\$55,000.00	\$55,000.00	-	-	-	-
4.18	Sponsor Project Management (Cost Include initial PMP Work)	\$17,111.18	-	\$17,111.18	\$7,580.00	\$4,000.00	\$5,531.18
4.19	Bi-Monthly PDT Meeting (Tele-conference)	\$34,986.98	\$20,000.00	\$14,986.98	\$4,995.66	\$4,995.66	\$4,995.66
4.20	Quarter PDT Meeting (In-Person)	\$53,028.34	\$15,001.00	\$38,027.34	\$19,696.00	\$5,000.00	\$13,331.34
4.21	Sponsors Project Management Plan and Coordination	\$35,112.73	-	\$35,112.78	\$16,613.00	-	\$18,499.78
4.22	Corps respond with creditable Work (30 Days after Request)	-	-	-	-	-	-
<b>INTERIM STUDY No. II</b>		<b>\$917,631.55</b>	<b>\$453,944.80</b>	<b>\$463,686.77</b>	<b>\$175,717.34</b>	<b>\$172,995.66</b>	<b>\$114,973.80</b>
4.23	<b>INTERIM STUDY No. I</b>	<b>\$1,794,792.53</b>	<b>\$897,396.27</b>	<b>\$897,396.26</b>	<b>\$448,698.13</b>	<b>\$0.00</b>	<b>\$448,698.13</b>
4.23.1	Cash Received GADNR/SCDNR	\$388,806.00	-	\$388,806.00	\$140,000.00	-	\$248,806.00
4.23.2	Add Cash Received GADNR/SCDNR	\$83,439.13	-	\$83,439.13	\$80,684.46	-	\$2,754.67
4.23.3	Work-In-Kind Credit	\$425,151.13	-	\$425,151.13	\$228,013.67	-	\$197,137.46
4.24	<b>INTERIM STUDY No. II</b>	<b>\$9,694.52</b>	-	<b>\$19,694.52</b>	<b>\$9,694.52</b>	-	<b>\$9,694.52</b>
4.24.1	Receive Cash or/and WIK from GADNR/SCDNR (With approved Amendment No III)	\$9,694.52	-	\$9,694.52	\$9,694.52	-	\$9,694.52



# **APPENDIX 4**

## **Project Schedule**

The schedule was developed taking into account work required to complete each task and availability of funding. Available Federal funding is \$453,945. The total study cost of Interim Study II is estimated to cost \$907,990. The schedule shows the timing and duration of major phases and tasks, and the scheduled major project milestones, the inter-relationships between tasks, key decision points, and project review periods.

### **Task Dependencies and Timeline for Work Activities**

Task dependencies and the timeline proposed for each task are contained in the following Gantt chart. The first tasks to be conducted are included in the Development of the Project Management Plan, followed by the update of the DCP and completion of an Environmental Assessment. The draft report preparation, draft report review, final report preparation, final report review, and final report preparation will occur in sequential order.

ID	WBS	Task Name	Duration	Start	End	Forecast	5/16	6/13	7/11	8/8	9/5	10/3	10/24	11/20	12/18	1/15	2/12	3/10	4/7	5/4
1	1	FCSA Amendment No. 2 HQ Approval	1 day	Fri 6/7/13	Tue 6/18/13															
2	2	Savannah River Project Management Plan (PMP)	1 day	Tue 6/18/13	Wed 6/19/13															
3	3	FCSA Signing Ceremony (Start Initiated)	1 day	Wed 6/19/13	Thu 6/20/13															
4	4	SAVANNAH RIVER BASIN COMPREHENSIVE STUDY: INTERIM REPORT	287 days	Wed 6/19/13	Thu 11/14/14															
5	4.1	Review of Unimpacted Flow (UFI) Data through 2011	30 days	Fri 11/15/13	Fri 12/26/13															
6	4.1.1	Extension of Unimpacted Flow (UFI) through 2012	15 days	Mon 12/2/14	Fri 12/26/14															
7	4.1.2	Develop Comparison Methodology	15 days	Mon 12/2/14	Fri 12/26/14															
8	4.1.3	Extend Savannah River Water Quality Model from Augusta Diversion Dam to JBT Dam	25 days	Fri 12/26/14	Mon 1/20/15															
9	4.1.4	Hold Ecosystem Flow Workshop/Update Ecosystem Flow Recommendation (TRC)	87 days	Fri 12/26/14	Mon 8/30/15															
10	4.1.5	Update Ecosystem Function Model (EFM)	10 days	Tue 7/1/14	Mon 7/14/14															
11	4.1.6	Begin coordination with Environmental Agencies	2 days	Mon 7/1/14	Tue 7/15/14															
12	4.2	NO ACTION ALTERNATIVE (Reservoir Simulation): Model Validation/Calibration	17 days	Wed 11/20/13	Thu 12/12/13															
13	4.2.1	Build No Action Alternative with Unimpacted Flow/Reservoir Simulation	10 days	Wed 11/20/13	Tue 12/3/13															
14	4.2.2	Run No Action Alternative with Unimpacted Flow/Reservoir Simulation	5 days	Mon 3/3/14	Fri 3/7/14															
15	4.2.3	Comparison of Inflow to Outflow	5 days	Mon 3/3/14	Fri 3/7/14															
16	4.2.4	Evaluate No Action - Sponsor Model Review	10 days	Mon 3/10/14	Fri 3/21/14															
17	4.2.5	Water Quality Modeling, Results Analysis, Documentation	30 days	Mon 3/24/14	Fri 5/2/14															
18	4.2.6	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Mon 3/24/14	Fri 5/2/14															
19	4.2.7	Run Ecosystem Function Model (EFM)	30 days	Mon 3/24/14	Fri 5/2/14															
20	4.3	EVALUATE ALTERNATIVES	20 days	Tue 7/15/14	Mon 8/11/14															
21	4.3.1	ALTERNATIVE No. 1: EXTREME DROPS	20 days	Tue 7/15/14	Mon 8/11/14															
22	4.3.1	Build Alternative No. 1	10 days	Wed 11/20/13	Tue 12/3/13															
23	4.3.2	Run Alternative No. 1 - Sponsor Model Review	5 days	Mon 3/10/14	Fri 3/14/14															
24	4.3.3	Water Quality Modeling, Results Analysis, Documentation	30 days	Mon 3/10/14	Fri 3/14/14															
25	4.3.4	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Mon 3/10/14	Fri 3/14/14															
26	4.3.5	Run Ecosystem Function Model (EFM)	30 days	Tue 7/15/14	Mon 8/11/14															
27	4.3.6	Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 8/11/14															
28	4.4	ALTERNATIVE No. 2: HIGHER DROUGHT LEVEL, ELEVATION	20 days	Tue 8/12/14	Mon 8/18/14															
29	4.4.1	Build Alternative No. 2	10 days	Wed 11/20/13	Tue 12/3/13															
30	4.4.2	Run Alternative No. 2	5 days	Mon 3/17/14	Fri 3/21/14															
31	4.4.3	Evaluate Alternative No. 2 - Sponsor Model Review	10 days	Tue 7/15/14	Mon 7/14/14															
32	4.4.4	Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
33	4.4.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
34	4.4.6	Run Ecosystem Function Model (EFM)	30 days	Tue 7/15/14	Mon 7/14/14															
35	4.5	ALTERNATIVE No. 3: RELEASE BASED ON ENVIRONMENTAL FLOW PRESCRIPTION	249 days	Wed 11/20/13	Mon 11/24/14															
36	4.5.1	Build Alternative No. 3	10 days	Wed 11/20/13	Tue 12/3/13															
37	4.5.2	Run Alternative No. 3	5 days	Mon 3/24/14	Fri 3/27/14															
38	4.5.3	Evaluate Alternative No. 3 - Sponsor Model Review	10 days	Tue 7/15/14	Mon 7/14/14															
39	4.5.4	Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
40	4.5.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
41	4.5.6	Run Ecosystem Function Model (EFM)	30 days	Tue 7/15/14	Mon 7/14/14															
42	4.6	ALTERNATIVE No. 4: 2000 CONSTANT	209 days	Wed 11/20/13	Mon 11/24/14															
43	4.6.1	Build Alternative No. 4	10 days	Wed 11/20/13	Tue 12/3/13															
44	4.6.2	Run Alternative No. 4	5 days	Mon 3/17/14	Fri 3/21/14															
45	4.6.3	Evaluate Alternative No. 4 - Sponsor Model Review	10 days	Tue 7/15/14	Mon 7/14/14															
46	4.6.4	Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
47	4.6.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
48	4.6.6	Run Ecosystem Function Model (EFM)	30 days	Tue 7/15/14	Mon 7/14/14															
49	4.7	COORDINATE WITH SPONSORS (Quarterly POC Meeting)	7 days	Tue 11/26/14	Wed 12/10/14															
50	4.7.1	Coordinate with Sponsors (Quarterly POC Meeting)	7 days	Tue 11/26/14	Wed 12/10/14															
51	4.8	ALTERNATIVE No. 5: TED	105 days	Wed 11/20/13	Mon 11/24/14															
52	4.8.1	Build Alternative No. 5	10 days	Wed 11/20/13	Tue 12/3/13															
53	4.8.2	Run Alternative No. 5	5 days	Mon 3/17/14	Fri 3/21/14															
54	4.8.3	Evaluate Alternative No. 5 - Sponsor Model Review	10 days	Tue 7/15/14	Mon 7/14/14															
55	4.8.4	Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															
56	4.8.5	Savannah Harbor Water Quality Modeling, Results Analysis, Documentation	30 days	Tue 7/15/14	Mon 7/14/14															



ID	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
97	Run Ecosystem Function Model (EFM)	20 days	\$0.00	Thu 5/6/15	Wed 5/6/15											
98	ALTERNATIVE No. 5 RATE OF RISE ON RECOMMENDED PLAN	132 days	\$22,100.75	Thu 5/6/15	Mon 6/8/15											
99	Build Alternative No. 5	10 days	\$4,000.00	Tue 12/21/14	Mon 12/15/14											
100	Run Alternative No. 6	5 days	\$4,000.00	Tue 12/21/14	Mon 12/22/14											
101	Evaluate Alternative No. 6 - Sponsor Model Review	10 days	\$7,300.75	Tue 12/22/14	Mon 1/5/15											
102	Water Quality Modeling Results Analysis, Documentation	30 days	\$2,612.85	Tue 1/5/15	Mon 1/19/15											
103	Savannah Harbor Water Quality Modeling Results Analysis Documentation	30 days	\$4,357.14	Tue 1/19/15	Mon 2/9/15											
104	Run Ecosystem Function Model (EFM)	20 days	\$0.00	Thu 2/11/15	Wed 2/18/15											
105	ECONOMIC ANALYSIS	60 days	\$21,000.00	Thu 2/11/15	Wed 2/18/15											
106	Economic Analysis	60 days	\$21,000.00	Thu 2/11/15	Wed 2/18/15											
107	PREPARE ENVIRONMENTAL ASSESSMENT	180 days	\$123,683.29	Thu 2/11/15	Wed 2/18/15											
108	Review Impacts of the Previous Plan Reductions	80 days	\$25,120.00	Mon 2/16/14	Mon 2/16/14											
109	Prepare Mitigated Environmental of Draft Environmental Assessment	80 days	\$7,000.00	Mon 2/16/14	Mon 2/16/14											
110	Determine Environmental Impacts of Draft Environmental Assessment	30 days	\$20,000.00	Mon 2/16/14	Mon 2/16/14											
111	Prepare FRCA Report	270 days	\$25,000.00	Mon 2/16/14	Mon 2/16/14											
112	Compare Impact of Alternatives	15 days	\$31,583.75	Thu 2/18/15	Thu 2/18/15											
113	DOE Draft Environmental Assessment (EA)	15 days	\$15,000.00	Thu 2/18/15	Thu 2/18/15											
114	Incorporate Comments	5 days	\$5,000.00	Fri 2/19/15	Thu 2/19/15											
115	Determine Recommended Plan	1 day	\$0.00	Thu 2/19/15	Thu 2/19/15											
116	Final Environmental Assessment (EA) Complete	1 day	\$0.00	Fri 2/20/15	Fri 2/20/15											
117	DRAFT REPORT AND ENVIRONMENTAL ASSESSMENT	250 days	\$173,824.19	Thu 2/19/15	Wed 2/26/15											
118	REPORT WRITING	20 days	\$2,000.00	Thu 2/19/15	Wed 2/26/15											
119	Quarantine Alternatives	20 days	\$2,000.00	Thu 2/19/15	Wed 2/26/15											
120	Quarantine Methodology	20 days	\$2,000.00	Thu 2/19/15	Wed 2/26/15											
121	Describe Alternatives	20 days	\$2,000.00	Thu 2/19/15	Wed 2/26/15											
122	Complete 1st Draft of Feasibility Report	10 days	\$10,000.00	Thu 2/19/15	Wed 2/26/15											
123	Draft Report Preparation and Consolidation	20 days	\$15,000.00	Thu 2/19/15	Wed 2/26/15											
124	Draft Quality Control (DQC)	20 days	\$0.00	Thu 2/19/15	Wed 2/26/15											
125	Preliminary Review by Sponsors	20 days	\$47,000.00	Thu 2/19/15	Wed 2/26/15											
126	Agency Technical Review (ATR)	20 days	\$47,000.00	Thu 2/19/15	Wed 2/26/15											
127	SAS Legal Review	20 days	\$16,728.08	Thu 2/19/15	Wed 2/26/15											
128	Comments Incept, Back Check	10 days	\$10,000.00	Thu 2/19/15	Wed 2/26/15											
129	Public Agency Coordination Letters	7 days	\$2,500.00	Thu 2/19/15	Wed 2/26/15											
130	Public Notice / Comment Period Workshop	7 days	\$2,500.00	Thu 2/19/15	Wed 2/26/15											
131	Comments Incept, Back Check	15 days	\$27,229.30	Mon 3/9/15	Fri 3/20/15											
132	COORDINATE WITH SPONSORS Quarterly POT Meeting	7 days	\$0.00	Mon 3/9/15	Tue 3/10/15											
133	Coordinate with Sponsors Quarterly POT Meeting	7 days	\$0.00	Mon 3/9/15	Tue 3/10/15											
134	FINAL REPORT & ENVIRONMENTAL ASSESSMENT	111 days	\$67,871.87	Wed 3/10/15	Wed 3/10/15											
135	Final Report Preparation and Consolidation	10 days	\$14,131.00	Thu 3/10/15	Wed 3/10/15											
136	Sponsor's Review of the Final Report	10 days	\$10,000.00	Thu 3/10/15	Wed 3/10/15											
137	ATR Final Report Package	10 days	\$10,000.00	Thu 3/10/15	Wed 3/10/15											
138	Incorporate Comments and Backcheck	10 days	\$10,000.00	Thu 3/10/15	Wed 3/10/15											
139	Draft Prepares Final Report Package (Regulatory)	10 days	\$10,000.00	Thu 3/10/15	Wed 3/10/15											
140	SAS Submit Final EA and Drought Contingency Plan for SAS Review	10 days	\$2,000.00	Thu 3/10/15	Wed 3/10/15											
141	SAS Submit Signed FONSI to SAS	10 days	\$0.00	Thu 3/10/15	Wed 3/10/15											
142	SAS Review of Final Environmental Assessment and Drought Contingency Plan	40 days	\$16,728.08	Thu 3/10/15	Wed 3/10/15											
143	DROUGHT CONTINGENCY PLAN APPROVED BY SAS	1 day	\$0.00	Thu 3/10/15	Thu 3/10/15											
144	ADMINISTRATIVE	1405 days	\$195,229.20	Thu 3/10/15	Thu 3/10/15											
145	Project Management	1405 days	\$195,229.20	Thu 3/10/15	Thu 3/10/15											
146	Sponsor Project Management (Cost includes Indirect Work)	1405 days	\$52,223.96	Thu 3/10/15	Thu 3/10/15											
147	Bi-monthly POT Meeting (Total conference)	567 days	\$24,666.66	Wed 3/10/15	Thu 3/10/15											
148	Quarter POT Meetings (In Person)	567 days	\$53,024.34	Wed 3/10/15	Thu 3/10/15											
149	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
150	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
151	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
152	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
153	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
154	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
155	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
156	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
157	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
158	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
159	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
160	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
161	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
162	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
163	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
164	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
165	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
166	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
167	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
168	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
169	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
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171	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
172	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
173	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
174	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
175	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
176	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
177	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
178	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
179	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
180	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
181	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
182	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
183	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
184	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
185	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
186	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
187	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
188	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
189	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	5/25
190	Task Name	Duration	Cost	Start	Finish	5/15	5/16	5/17	5/18	5/19	5/20	5/21	5/22	5/23	5/24	





## **APPENDIX 5**

### **Feasibility Cost Sharing Agreements**

AMENDMENT NO. 2  
TO  
AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATES OF GEORGIA AND SOUTH CAROLINA  
FOR THE  
SAVANNAH RIVER BASIN COMPREHENSIVE STUDY

THIS AMENDMENT NO. 2 is entered into this 18th day of September, 2013, by and between the Department of the Army (hereinafter the "Government"), represented by the U.S. Army Engineer, Savannah District (hereinafter the "District Engineer"), the State of Georgia, represented by the Commissioner, Georgia Department of Natural Resources, the State of South Carolina, represented by the Director, South Carolina Department of Natural Resources, and The Nature Conservancy (hereinafter "TNC"), represented by the Interim Executive Director, Georgia Chapter (the State of Georgia, the State of South Carolina and TNC hereinafter collectively the "Sponsors").

WITNESSETH, THAT:

WHEREAS, on June 30, 2000, the Government, State of Georgia, and State of South Carolina entered into an agreement (hereinafter the "Agreement") to conduct a comprehensive study of the current and future needs for flood damage prevention and reduction, water supply, and other related water resources needs in the Savannah River Basin (hereinafter the "Study");

WHEREAS, on March 21, 2011, the Government, State of Georgia, and State of South Carolina entered into Amendment No. 1, amending the Agreement to allow the State of Georgia and State of South Carolina to provide their entire share of Study Costs through the provision of in-kind services pursuant to Section 225 of the Water Resources Development Act of 2000, Public Law 106-541;

WHEREAS, on December 14, 2000, the Army Corps of Engineers and TNC entered into a Memorandum of Understanding to facilitate effective and efficient management of important biological resources within the context of the Army Corps of Engineers' civil works and regulatory missions and to meet specified objectives;

WHEREAS, TNC desires to be added as a sponsor for the Study pursuant to Section 221(b) of the Flood Control Act of 1970, as amended by Section 2003 of the Water Resources Development Act of 2007;

WHEREAS, The Nature Conservancy is an organization that is incorporated under the applicable laws of the District of Columbia as a non-profit organization, exempt from paying Federal income taxes under Section 501 of the Internal Revenue Code (26 U.S.C. 501);



WHEREAS, by letters dated April 4, 2011 and August 2, 2011, the State of South Carolina and State of Georgia, the affected local governments have consented to The Nature Conservancy, serving as a sponsor for the Study; and

WHEREAS, the Government, the State of Georgia, the State of South Carolina and TNC desire to amend the Agreement to include TNC as a sponsor.

NOW, THEREFORE, the Government and the Sponsors agree to further amend the Agreement as follows:

1. The Agreement Title is amended by striking the current title and replacing it with the following:

"AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATE OF GEORGIA  
AND  
THE STATE OF SOUTH CAROLINA  
AND  
THE NATURE CONSERVANCY  
FOR THE  
SAVANNAH RIVER BASIN COMPREHENSIVE STUDY".

2. The second WHEREAS clause of the Agreement is amended by striking "(hereinafter the 'Study')"
- and replacing it with "(hereinafter the 'Study', as defined in Article I.A. of this Agreement)".

3. The following five clauses are added after the third WHEREAS clause of the Agreement:

"WHEREAS, The Nature Conservancy is an organization that is incorporated under the applicable laws of the District of Columbia as a non-profit organization, exempt from paying Federal income taxes under Section 501 of the Internal Revenue Code (26 U.S.C. 501);

WHEREAS, by letters dated April 4, 2011 and August 2, 2011, the State of South Carolina and State of Georgia, the affected local governments have consented to The Nature Conservancy, serving as a sponsor for the Study;

WHEREAS, the Government, the State of Georgia, the State of South Carolina, and The Nature Conservancy (hereinafter "TNC") (the State of Georgia, the State of South Carolina, and TNC hereinafter collectively the "Sponsors") entered into Amendment No. 2 to the Agreement to include TNC as a sponsor for the Study;

WHEREAS, the Sponsors desire to provide in-kind services (hereinafter the "in-kind contributions", as defined in Article I.I. of this Agreement) that are necessary for performance of

the Study and to receive credit for such contributions toward the amount of its required contribution for the Study;

WHEREAS, the Sponsors may provide up to 100 percent of their required contribution for the Study as in-kind contributions;"

4. Throughout the Agreement, unless otherwise specified below, all uses of the term "Sponsor" are replaced with "Sponsors" and all uses of the singular possessive "Sponsor's" are replaced with the plural possessive "Sponsors". In addition, all necessary grammatical changes following the new term "Sponsors" (e.g., "its" to "their", "has" to "have", "furnishes" to "furnish", "is" to "are", and "fails" to "fail") are hereby made.

5. Articles I.A. through I.G. are relettered as Articles I.B. through I.H.

6. The following is inserted as Article I.A.:

"A. The term "Study" shall mean a comprehensive study to address the current and future needs for flood damage prevention and reduction, water supply and other related water resources needs in the Savannah River Basin. The activities of the Study shall be described in the PMP."

7. Article I.F. (formerly Article I.E.) is amended by striking the current paragraph and replacing it with the following:

"F. The term "PMP" shall mean the Project Management Plan, which is attached to this Agreement and which shall not be considered binding on any party and is subject to change by the Government, in consultation with the Sponsors."

8. Article I.G. (formerly Article I.F.) is amended by striking the current paragraph and replacing it with the following:

"G. The term "negotiated costs" shall mean the costs of in-kind contributions to be provided by the Sponsors under the PMP."

9. New Article I.I. is added as follows:

"I. The term "in-kind contributions" shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the State of Georgia and State of South Carolina after the effective date of this Agreement in accordance with the PMP and that are necessary for performance of the Study, and shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the Sponsors after the effective date of Amendment No. 2 to this Agreement in accordance with the PMP and that are necessary for performance of the Study."



10. Article II.A. is amended by striking "in-kind services" and replacing it with "in-kind contributions," and adding the following sentence after the last sentence:

"The Sponsors expeditiously shall perform or provide in-kind contributions in accordance with applicable Federal laws, regulations, and policies."

11. Article II.B. is amended by striking the current paragraph and replacing it with the following:

"B. In accordance with this Article and Article III.A., III.B. and III.C. of this Agreement, the Sponsors shall contribute cash and in-kind contributions equal to fifty (50) percent of Study Costs, other than excess Study Costs. The Sponsors may, consistent with applicable law and regulations, contribute up to 50 percent of Study Costs through the provision of in-kind contributions. The in-kind contributions to be provided by the Sponsors, the estimated negotiated costs for those contributions, and the estimated schedule under which those contributions are to be provided are specified in the PMP. The actual amount of credit afforded toward the Sponsor's share of Study Costs for negotiated costs shall be subject to an audit by the Government to determine reasonableness, allocability, and allowability of costs; shall not exceed the Government's estimate of performing the in-kind contributions or the Sponsors' costs of performing or acquiring the in-kind contributions; is not subject to interest charges; nor is it subject to adjustment to reflect changes in price levels between the time the in-kind contributions are performed and the time that the credit is afforded."

12. Article II.D. is amended by striking each occurrence of "in-kind services" and replacing it with "in-kind contributions" in the first sentence, and striking "services" and replacing it with "contributions" in the second sentence.

13. Article II.E. is amended by striking the current paragraph and replacing it with the following:

"E. If, upon the award of any contract or the performance of any in-house work for the Study by the Government or the Sponsors, would result in total Study Costs exceeding \$2,753,050, the Sponsors may request in writing that the Government defer award of that contract or continuation of in-house work. Following receipt of the Sponsors' request, the Government shall defer award of such contract or continuation of in-house work on the Study. No deferral may exceed six months, after which the parties shall terminate this Agreement and proceed to a final accounting in accordance with Article III of this Agreement."

14. Article III.A. is amended by striking the current paragraph and replacing it with the following:

"A. The Government shall maintain current records of contributions provided by the parties, current projections of Study Costs, current projections of each party's share of Study Costs, and current projections of the amount of Study Costs that will result in excess Study Costs. At least quarterly, the Government shall provide the Sponsors a report setting forth this information. As of the effective date of Amendment No. 2 to this Agreement, Study Costs are

estimated to be \$2,753,050, the Sponsors' required share of Study Costs is estimated to be \$1,376,525, the credit to be afforded for in-kind contributions is estimated to be \$888,838, and the Sponsors cash contribution is estimated to be \$487,687. The dollar amounts set forth in this Article are based upon the Government's best estimates, which reflect the scope of the Study described in the PMP, projected costs, price-level changes, and anticipated inflation. Such cost estimates are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Sponsors."

15. Article III.C. is amended by striking the current paragraph and replacing it with the following:

"C. Within ninety (90) days after the conclusion of the Study Period or termination of this Agreement, the Government shall conduct a final accounting of Study Costs, including disbursements by the Government of Federal funds, required cash contributions by the Sponsors, the amount of any excess Study Costs, and credits for the negotiated costs of in-kind contributions provided by the Sponsors, and shall furnish the Sponsors with the results of this accounting. Within thirty (30) days thereafter, the Government, subject to the availability of funds, shall refund to the Sponsors funds provided by the Sponsors in excess of the required cash contributions, after credit is afforded for the negotiated costs of in-kind contributions provided by the Sponsors, to meet its required share of Study Costs, other than excess Study Costs; or the Sponsors shall provide to the Government any cash contributions required for the Sponsors to meet their required share of Study Costs, other than excess Study Costs. Notwithstanding the above, no refund shall be provided for funds contributed by the State of Georgia and the State of South Carolina prior to the effective date of Amendment No. 1 to this Agreement."

16. Article III.D.1. is amended by striking "Project Cooperation Agreement" and replacing it with "Project Partnership Agreement".

17. Article IV.A. is amended by replacing the second sentence with the following:

"The executive committee shall normally include the Savannah District's Chief, Planning Division, the Commissioner of the Georgia Department of Natural Resources, the Director of the South Carolina Department of Natural Resources, and an authorized representative of TNC."

18. Article IV.B. is amended by striking the current paragraph and replacing it with the following:

"B. Until the end of the Study Period, the Executive Committee shall generally oversee the Study consistently with the PMP."

19. Article IV.E. is amended by striking "total project costs" and replacing it with "Study Costs".

20. Article V is amended by striking "other party" in the first sentence and replacing it with "other parties"; striking "both parties" in the second sentence and replacing it with "all parties";



and striking "The parties shall each pay 50 percent of any costs" in the third sentence and replacing it with "Each party to the dispute shall pay an equal share of any costs".

21. Article VII is amended by redesignating it as Article VII.A. and the following is added as Article VII.B.:

"B. In the exercise of its rights and obligations under this Agreement, no party shall provide, without the consent of the other parties, any contractor with a release that waives or purports to waive any rights the other parties may have to seek relief or redress against that contractor either pursuant to any cause of action that the other parties may have or for violation of any law."

22. Article X.A. is amended by striking each occurrence of "either party" and replacing it with "the Sponsors or the Government"; and striking each occurrence of "both parties" and replacing it with "all parties".

23. New Article X.C. is added as follows:

"C. In the event that one or more of the Sponsors elects to terminate its responsibilities under this Agreement, and the remaining Sponsor(s) elect(s) to continue to participate in the Study, the Government shall negotiate in good faith with the remaining Sponsor(s) to effect a timely and productive conclusion to that portion of the Study pertaining to the area of statutory authority applicable for the remaining Sponsor(s). The Government shall prepare a revised PMP and revised estimate of Study Costs to complete that portion of the Study of interest to the remaining Sponsor(s). If the remaining Sponsor(s) elect(s) to complete the Study, this Agreement shall be amended to reflect the negotiated revisions to the scope of the Study defined in Article I.A. of this Agreement and the estimate of total Study Costs in Article III.A. of this Agreement. Amendments to this Agreement made pursuant to this paragraph shall reflect credits for the contribution of funds and in-kind contributions provided previously by all of the Study Sponsors and shall reflect task reductions made as a result of withdrawal of any Study Sponsor."

24. The following are inserted as Article XI and Article XII:

#### "ARTICLE XI – NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or mailed by first-class, registered, or certified mail, as follows:

If to the State of Georgia:

Georgia Department of Natural Resources  
Environmental Protection Division  
Assistant Branch Chief  
Watershed Protection Branch  
4220 International Parkway, Suite 101  
Atlanta, Georgia 30354

If to the State of South Carolina:

South Carolina Department of Natural Resources  
Deputy Director  
1000 Assembly Street  
Columbia, South Carolina 29201

If to TNC:

The Nature Conservancy  
Director of Science and Stewardship  
South Carolina Chapter  
1417 Stuart Engals Blvd  
Mt. Pleasant, South Carolina 29464

The Nature Conservancy  
Director of Conservation  
Georgia Chapter  
100 Peachtree Street, Northwest, Suite 2250  
Atlanta, Georgia, 30303

If to the Government:

US Army Corps of Engineers  
Civil Works, Project Manager  
100 West Oglethorpe Avenue  
Savannah, Georgia 31401

B. A party may change the recipient or address to which such communications are to be directed by giving written notice to the other parties in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

#### ARTICLE XII – CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party.”

25. All other terms and conditions of the Agreement, as amended, remain unchanged.



IN WITNESS WHEREOF, the parties hereto have executed this Amendment No. 2 to the Agreement, which shall become effective upon the date it is signed by the District Engineer.

**DEPARTMENT OF THE ARMY**

**STATE OF GEORGIA**

BY: 

Thomas J. Tickner  
Colonel, U.S. Army  
District Engineer

BY: 

Jud Turner  
Director, Environmental Protection Division  
Georgia Department of Natural Resources

DATE: 18 September 2013

DATE: 18 September 2013

**STATE OF SOUTH CAROLINA**

**THE NATURE CONSERVANCY**

BY: 

Colonel Alvin Taylor  
Director  
South Carolina Department of  
Natural Resources

BY: 

Deron Davis  
Interim Executive Director  
Georgia Chapter  
The Nature Conservancy

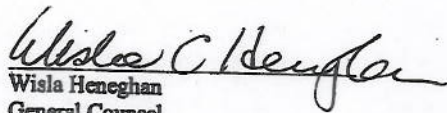
DATE: 18 September 2013

DATE: 18 September 2013

CERTIFICATE OF AUTHORITY

I, Wisla Heneghan, do hereby certify that I am the principal legal officer of THE NATURE CONSERVANCY, that THE NATURE CONSERVANCY is a legally constituted non-profit entity incorporated under the applicable laws of the District of Columbia as a non-profit organization, exempt from paying Federal income taxes under Section 501 of the Internal Revenue Code (26 U.S.C. 501); that THE NATURE CONSERVANCY has the full authority and legal capability to perform the terms of the Agreement, as amended, between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Basin Comprehensive Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the person who has executed this Agreement on behalf of THE NATURE CONSERVANCY has acted within his corporate authority.

IN WITNESS WHEREOF, I have made and executed this certification this  
17<sup>th</sup> day of September, 2013.



Wisla Heneghan  
General Counsel  
The Nature Conservancy



### CERTIFICATION REGARDING LOBBYING

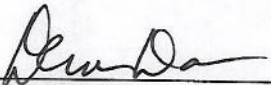
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

  
\_\_\_\_\_  
Deron Davis  
Interim Executive Director  
Georgia Chapter  
The Nature Conservancy

DATE: 9/20/13

### CERTIFICATE OF AUTHORITY

I, Kyle Pearson, do hereby certify that I am the principal legal officer of the GEORGIA DEPARTMENT OF NATURAL RESOURCES and that the GEORGIA DEPARTMENT OF NATURAL RESOURCES is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement, as amended, between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Basin Comprehensive Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the GEORGIA DEPARTMENT OF NATURAL RESOURCES have acted within their statutory authority

IN WITNESS WHEREOF, I have made and executed this certification this  
12<sup>th</sup> day of Sept. 2013.



Kyle Pearson  
Executive Counsel  
GA Department of Natural Resources



### CERTIFICATION REGARDING LOBBYING

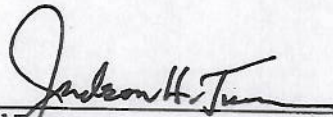
The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



Jud Turner  
Director, Environmental Protection Division  
Georgia Department of Natural Resources

DATE: 9/18/13

CERTIFICATE OF AUTHORITY

I, Buford S. Mabry Jr.; do hereby certify that I am the principal legal officer of the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES and that the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES is a legally constituted public body with full authority and legal capability to perform the terms of the Agreement, as amended, between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Comprehensive Study and that the persons who have executed this agreement on behalf of the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES have acted within their statutory authority.

IN WITNESS WHEREOF, I have made and executed this certification this

16<sup>th</sup> day of September, 2013.

NAME: Buford S. Mabry  
TITLE: Chief Counsel



### CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.



Colonel Alvin Taylor  
Director  
South Carolina Department of Natural Resources

DATE: 9-20-13



AMENDMENT NO. 1  
TO  
AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATES OF GEORGIA AND SOUTH CAROLINA  
FOR THE  
SAVANNAH RIVER BASIN COMPREHENSIVE STUDY

THIS AMENDMENT NO. 1 is entered into this 21 day of March, 2011, by and between the Department of the Army (hereinafter the "Government"), represented by the U.S. Army Engineer, Savannah District (hereinafter the "District Engineer"), the State of Georgia, and the State of South Carolina (hereinafter the "Sponsors"), represented by the Commissioner, Georgia Department of Natural Resources, and the Director, South Carolina Department of Natural Resources, respectively.

WITNESSETH, THAT:

WHEREAS, the Government and the Sponsor entered into an Agreement on June 30, 2000, to perform a feasibility study of the current and future needs for flood damage prevention and reduction, water supply, and other related water resources needs in the Savannah River Basin (hereinafter the "Study");

WHEREAS, Section 225 of the Water Resources Development Act of 2000, Public Law 106-541 (Section 225), amends Section 105(a)(1)(E) of the Water Resources Development Act of 1986, Public Law 99-662 (33 U.S.C. 2215(a)(1)(E)), to allow the Sponsor to provide their entire share of Study Costs through the provision of in-kind services; and

WHEREAS, the Government and the Sponsor desire to amend the Agreement to allow the increase in in-kind services provided by Section 225 to apply to work under this Agreement that has not yet been undertaken.

NOW, THEREFORE, the Government and the Sponsor agree to amend the Agreement as follows:

1. Article II.B. is changed by deleting "25" and substituting "50."
2. Notwithstanding the above, nothing in this Amendment requires the Government to refund or reimburse the Sponsor for funds previously contributed by the Sponsor to the Government for the Study.
3. All other terms and conditions of the Agreement remain unchanged.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment No. 1 which shall become effective upon the date it is signed by the District Engineer.

DEPARTMENT OF THE ARMY

SPONSORS

BY: Jeffrey M. Hall  
Jeffrey M. Hall  
Colonel, Corps of Engineers  
District Engineer  
Savannah District

BY: Mark Williams  
Mark Williams  
Commissioner  
Georgia Department of Natural Resources

DATE: 21 MAR 2011

DATE: 2/10/2011

BY: John Frampton  
John Frampton  
Director  
South Carolina Department of Natural Resources

DATE: 2/24/2011



AMENDMENT NO. 2  
TO  
AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATES OF GEORGIA AND SOUTH CAROLINA  
FOR THE  
SAVANNAH RIVER BASIN COMPREHENSIVE STUDY

THIS AMENDMENT NO. 2 is entered into this \_\_\_\_\_ day of \_\_\_\_\_, by and between the Department of the Army (hereinafter the "Government"), represented by the U.S. Army Engineer, Savannah District (hereinafter the "District Engineer"), the State of Georgia, represented by the Commissioner, Georgia Department of Natural Resources, the State of South Carolina, represented by the Director, South Carolina Department of Natural Resources, and The Nature Conservancy (hereinafter "TNC"), represented by the Managing Director, Eastern Division (the State of Georgia, the State of South Carolina and TNC hereinafter collectively the "Sponsors").

WITNESSETH, THAT:

WHEREAS, on June 30, 2000, the Government, State of Georgia, and State of South Carolina entered into an agreement (hereinafter the "Agreement") to conduct a comprehensive study of the current and future needs for flood damage prevention and reduction, water supply, and other related water resources needs in the Savannah River Basin (hereinafter the "Study");

WHEREAS, on March 21, 2011, the Government, State of Georgia, and State of South Carolina entered into Amendment No. 1, amending the Agreement to allow the State of Georgia and State of South Carolina to provide their entire share of Study Costs through the provision of in-kind services pursuant to Section 225 of the Water Resources Development Act of 2000, Public Law 106-541;

WHEREAS, on December 14, 2000, the Army Corps of Engineers and TNC entered into a Memorandum of Understanding to facilitate effective and efficient management of important biological resources within the context of the Army Corps of Engineers' civil works and regulatory missions and to meet specified objectives;

WHEREAS, TNC, a charitable, non-profit organization, desires to be added as a Sponsor pursuant to Section 221(b) of the Flood Control Act of 1970, as amended by Section 2003 of the Water Resources Development Act of 2007; and

WHEREAS, the Government, the State of Georgia, the State of South Carolina and TNC desire to amend the Agreement to include TNC as a Sponsor.

NOW, THEREFORE, the Government and the Sponsors agree to amend the Agreement as follows:

1. The Agreement Title is amended by striking the current title and replacing it with the following:

"AGREEMENT  
BETWEEN  
THE DEPARTMENT OF THE ARMY  
AND  
THE STATE OF GEORGIA  
AND  
THE STATE OF SOUTH CAROLINA  
AND  
THE NATURE CONSERVANCY  
FOR THE  
SAVANNAH RIVER BASIN COMPREHENSIVE STUDY".

2. In the second WHEREAS clause of the Agreement, "hereinafter the "Study")" is replaced with "(hereinafter the "Study", as defined in Article I.A. of this Agreement)".

3. The following three clauses are added after the third WHEREAS clause of the Agreement:

"WHEREAS, the Government, the State of Georgia, the State of South Carolina, and The Nature Conservancy (hereinafter "TNC") (the State of Georgia, the State of South Carolina, and TNC hereinafter collectively the "Sponsors") entered into Amendment No. 2 to the Agreement to include TNC as a Sponsor for the Study;

WHEREAS, the Sponsors desire to provide in-kind services (hereinafter the "in-kind contributions", as defined in Article I.I. of this Agreement) that are necessary for performance of the Study and to receive credit for such contributions toward the amount of its required contribution for the Study;

WHEREAS, the Sponsors may provide up to 100 percent of its required contribution for the Study as in-kind contributions;"

4. Throughout the Agreement, unless otherwise specified below, all uses of the term "Sponsor" are replaced with "Sponsors" and all uses of the singular possessive "Sponsor's" are replaced with the plural possessive "Sponsors". In addition, all necessary grammatical changes following the new term "Sponsors" (e.g., "its" to "their", "has" to "have", "furnishes" to "furnish", "is" to "are", and "fails" to "fail") are hereby made.

5. The following is inserted as Article I.A.:

"A. The term "Study" shall mean a comprehensive study to address the current and future needs for flood damage prevention and reduction, water supply and other related water

resources needs in the Savannah River Basin. The activities of the Study shall be described in the PMP."

6. Articles I.A. through I.G. are relettered as Articles I.B. through I.H.

7. ARTICLE I.F. (formerly Article I.E.) is replaced with the following:

"F. The term "PMP" shall mean the Project Management Plan, which is attached to this Agreement and which shall not be considered binding on any party and is subject to change by the Government, in consultation with the Sponsors.

8. Article I.G. (formerly Article I.F.) is replaced with the following:

"G. The term "negotiated costs" shall mean the costs of in-kind contributions to be provided by the Sponsors under the PMP."

9. New Article I.I. is added as follows:

"I. The term "in-kind contributions" shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the State of Georgia and State of South Carolina after the effective date of this Agreement in accordance with the PMP and that are necessary for performance of the Study, and shall mean planning, supervision and administration, services, materials, supplies, and other in-kind services that are performed or provided by the Sponsors after the effective date of Amendment No. 2 to this Agreement in accordance with the PMP and that are necessary for performance of the Study."

10. In Article II.A., "in-kind services" is replaced with "in-kind contributions," and the following sentence is added after the last sentence:

"The Sponsors expeditiously shall perform or provide in-kind contributions in accordance with applicable Federal laws, regulations, and policies."

11. In Article II.B., "in-kind services" is replaced with "in-kind contributions" in the first and second sentences.

12. In Article II.B., the third sentence is replaced with the following:

"The in-kind contributions to be provided by the Sponsors, the estimated negotiated costs for those contributions, and the estimated schedule under which those contributions are to be provided are specified in the PMP."

13. In Article II.D., "in-kind services" is replaced with "in-kind contributions" for both occurrences in the first sentence, and "services" is replaced with "contributions" in the second sentence.



14. Article III.A. is replaced with the following:

"A. The Government shall maintain current records of contributions provided by the parties, current projections of Study Costs, current projections of each party's share of Study Costs, and current projections of the amount of Study Costs that will result in excess Study Costs. At least quarterly, the Government shall provide the Sponsors a report setting forth this information. As of the effective date of this Agreement, estimated Study Costs are \$4,000,000.00 and the Sponsors' share of estimated Study Costs is \$2,000,000. The dollar amounts set forth in this Article are based upon the Government's best estimates, which reflect the scope of the Study described in the PMP, projected costs, price-level changes, and anticipated inflation. Such cost estimates are subject to adjustment by the Government and are not to be construed as the total financial responsibilities of the Government and the Sponsors."

15. In Article III.D.1., "Project Cooperation Agreement" is replaced with "Project Partnership Agreement".

16. In Article IV.A., the second sentence is replaced with the following:

"The executive committee shall normally include the Savannah District's Chief, Planning Division, the Commissioner of the Georgia Department of Natural Resources, the Director of the South Carolina Department of Natural Resources, and an authorized representative of TNC."

17. Article IV.B. is replaced with the following:

"B. Until the end of the Study Period, the Executive Committee shall generally oversee the Study consistently with the PMP."

18. In Article IV.E., "total project costs" is replaced with "Study Costs".

19. Article V is amended by striking "other party" and replacing it with "other parties" and striking "both parties" and replacing it with "all parties".

20. Article VII is redesignated as Article VII.A. and the following is added as Article VII.B.:

"B. In the exercise of its rights and obligations under this Agreement, no party shall provide, without the consent of the other parties, any contractor with a release that waives or purports to waive any rights the other parties may have to seek relief or redress against that contractor either pursuant to any cause of action that the other parties may have or for violation of any law."

21. Article X.A. is amended by striking each occurrence of "either party" and replacing it with "any party", and striking each occurrence of "both parties" and replacing it with "all parties".

22. ARTICLE X. is amended to add the following:

"C. In the event that one or more of the Sponsors elects to terminate its responsibilities under this Agreement, and the remaining Sponsor(s) elect(s) to continue to participate in the Study, the Government shall negotiate in good faith with the remaining Sponsor(s) to effect a timely and productive conclusion to that portion of the Study pertaining to the area of statutory authority applicable for the remaining Sponsor(s). The Government shall prepare a revised PMP and revised estimate of Study Costs to complete that portion of the Study of interest to the remaining Sponsor(s). If the remaining Sponsor(s) elect(s) to complete the Study, this Agreement shall be amended to reflect the negotiated revisions to the scope of the Study defined in Article I.A. of this Agreement and the estimate of total Study Costs in Article III.A. of this Agreement. Amendments to this Agreement made pursuant to this paragraph shall reflect credits for the contribution of funds and in-kind contributions provided previously by all of the Study Sponsors and shall reflect task reductions made as a result of withdrawal of any Study Sponsor."

23. The following are inserted as Article XI. and Article XII.:

#### "ARTICLE XI - NOTICES

A. Any notice, request, demand, or other communication required or permitted to be given under this Agreement shall be deemed to have been duly given if in writing and delivered personally or mailed by first-class, registered, or certified mail, as follows:

If to the State of Georgia:

Georgia Department of Natural Resources  
Environmental Protection Division  
Assistant Branch Chief  
Watershed Protection Branch  
4220 International Parkway, Suite 101  
Atlanta, Georgia 30354

If to the State of South Carolina:

South Carolina Department of Natural Resources  
Deputy Director  
1000 Assembly Street  
Columbia, South Carolina 29201

If to TNC:

The Nature Conservancy  
Director of Science and Stewardship  
South Carolina Chapter  
960 Morrison Drive, Suite 100  
P.O. Box 20246  
Charleston, South Carolina 29413

The Nature Conservancy  
Director of Conservation  
Georgia Chapter  
1330 West Peachtree Street, Suite 410  
Atlanta, Georgia, 30309

If to the Government:

US Army Corps of Engineers  
Civil Works, Project Manager  
100 West Oglethorpe Avenue  
Savannah, Georgia 31401

B. A party may change the address to which such communications are to be directed by giving written notice to the other parties in the manner provided in this Article.

C. Any notice, request, demand, or other communication made pursuant to this Article shall be deemed to have been received by the addressee at the earlier of such time as it is actually received or seven calendar days after it is mailed.

#### ARTICLE XII – CONFIDENTIALITY

To the extent permitted by the laws governing each party, the parties agree to maintain the confidentiality of exchanged information when requested to do so by the providing party."

24. All other terms and conditions of the Agreement, as amended, remain unchanged.

IN WITNESS WHEREOF, the parties hereto have executed this Amendment No. 2 to the Agreement, which shall become effective upon the date it is signed by the District Engineer.

#### DEPARTMENT OF THE ARMY

#### STATE OF GEORGIA

BY: \_\_\_\_\_  
Jeffrey M. Hall  
Colonel, US Army  
Commanding

BY: \_\_\_\_\_  
Mark Williams  
Commissioner  
Georgia Department of Natural Resources

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_

#### STATE OF SOUTH CAROLINA

#### THE NATURE CONSERVANCY

BY: \_\_\_\_\_  
Colonel Alvin Taylor  
Director  
South Carolina Department of  
Natural Resources

BY: \_\_\_\_\_  
John Cook  
Managing Director  
Eastern Division  
The Nature Conservancy

DATE: \_\_\_\_\_

DATE: \_\_\_\_\_



### CERTIFICATE OF AUTHORITY

I, \_\_\_\_\_, do hereby certify that I am the principal legal officer of THE NATURE CONSERVANCY, that THE NATURE CONSERVANCY is a legally constituted not-for-profit organization that is able to perform the terms of the Amendment No. 2 to the Agreement between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Basin Comprehensive Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of THE NATURE CONSERVANCY have acted within their designated legal authority.

IN WITNESS WHEREOF, I have made and executed this certification this  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_.

NAME: Wilsa Heneghan  
TITLE: General Counsel

### CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

(3) The undersigned shall require that the language of this certification be included in the award documents for all sub-awards at all tiers (including subcontracts, sub-grants, and contracts under grants, loans, and cooperative agreements) and that all sub-recipients shall certify and disclose accordingly.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

\_\_\_\_\_  
John Cook  
Managing Director  
Eastern Division  
The Nature Conservancy

DATE: \_\_\_\_\_

### CERTIFICATE OF AUTHORITY

I \_\_\_\_\_, do hereby certify that I am the principal legal officer of the GEORGIA DEPARTMENT OF NATURAL RESOURCES and that the GEORGIA DEPARTMENT OF NATURAL RESOURCES is a legally constituted public body with full authority and legal capability to perform the terms of the Amendment No. 2 to the Agreement between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Basin Comprehensive Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the GEORGIA DEPARTMENT OF NATURAL RESOURCES have acted within their statutory authority

IN WITNESS WHEREOF, I have made and executed this certification this  
\_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_

\_\_\_\_\_  
NAME:  
TITLE:



### CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

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\_\_\_\_\_  
Mark Williams  
Commissioner  
Georgia Department of Natural Resources

DATE: \_\_\_\_\_

# CERTIFICATE OF AUTHORITY

I, \_\_\_\_\_, do hereby certify that I am the principal legal officer of the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES and that the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES is a legally constituted public body with full authority and legal capability to perform the terms of the Amendment No. 2 to the Agreement between the Department of the Army, the State of Georgia, the State of South Carolina and The Nature Conservancy for the Savannah River Basin Comprehensive Study, and to pay damages, if necessary, in the event of the failure to perform in accordance with the terms of this Agreement and that the persons who have executed this Agreement on behalf of the SOUTH CAROLINA DEPARTMENT OF NATURAL RESOURCES have acted within their statutory authority

IN WITNESS WHEREOF, I have made and executed this certification this  
\_\_\_\_\_ day of \_\_\_\_\_ 20\_\_.

NAME: Buford Mabry  
TITLE: Chief Counsel

### CERTIFICATION REGARDING LOBBYING

The undersigned certifies, to the best of his or her knowledge and belief that:

(1) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

(2) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.

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This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. Section 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

\_\_\_\_\_  
Colonel Alvin Taylor  
Director  
South Carolina Department of Natural Resources

DATE: \_\_\_\_\_



## APPENDIX 6

### Risk Information

**Purpose:** The purpose of this Risk Analysis is to identify risks that have potential to affect project schedule, scope or cost and develop potential controls that would mitigate risks associated with the second interim study, the update of the Drought Contingency Plan of the Savannah River Basin Comprehensive Study (SRBCS). Ultimately, the purpose is to avoid or minimize the detriment from any occurrence of an undesired happening for which a risk exist. This plan supplements the Project Management Business Process, Risk Management Plan – REF-8007G.

**Project Description:** The SRBCS will be a Comprehensive examination of the Savannah River Basin (SRB) to determine current needs of the basin. The USACE reservoirs in the SRB are authorized and managed to support multiple project purposes including flood risk reduction, hydropower, fish and wildlife, water supply, water quality, recreation, and navigation. The original project purposes and cost allocations of the federal reservoir projects need to be updated to reflect changes in hydrology, utilization, population growth, improvements in defining sustainable ecosystem flow needs, changes in land use, and changes in societal prioritization of water resource allocations throughout the basin. The Savannah District has a water control plan than details how the reservoir system is operated to meet these purposes for a range of hydrologic conditions. The Drought Contingency Plan (DCP) is an appendix of the water control plan that details reservoir operation during drought conditions. This interim study will look to update that plan to determine how low reservoir releases can be and how long these low releases can be maintained.

**Risk Identification:** Risks may be identified by any number of methods and individuals. Once a risk is identified, a control to address the risk will be developed. Controls will be developed at the lowest level and among the fewest individuals possible but will be coordinated upward through management to the level the risk warrants.

**Anticipated Project Concerns and Responses:** It is anticipated the following risks at a minimum will need to be addressed as proactively as possible, ahead of the potential risk occurrence if at all possible. The most appropriate control/s will need to be determined or re-evaluated at the time the risk warrant.

**Table 1: Anticipated Minimum Risks**

#	Risk	Control
1	Unbalanced Cost Share	Clearly communicate all funding needs, amounts and dates, to sponsor as early as possible to allow sponsor maximum preparation time. If the sponsor's funding requirements are not met, work may need to stop to avoid a violation of the cost share requirements.
2	Insufficient Personnel	Personnel resource needs will be clearly communicated through existing mechanism such as the Project Management Plan, the Project Review Board, P2, etc. Upon identifying any insufficient personnel resources, attempts will be made to designate replacements. Project personnel priorities will be set by resource

		providers and changes should be made so that impacts are minimized. Any personnel resource limitations will be communicated to management by the PM and/or PDT as soon as they are identified.
3	Insufficient Funding	Clearly communicate Federal and non-Federal funding availability. Any funding limitations will be communicated to management by the PM and/or PDT as soon as they are identified. If funding is not provided or adequate, work may need to stop or scope reduced or schedule adjusted until funding is received.
4	Future Interim Studies not determined	Clear communication and planning about the next interim study is important. The next interim studies will be determined in coordination with the Corps higher headquarters and the non-Federal sponsors while taking stakeholder input into account. This will allow the study to progress without delay and will allow the Comprehensive authority to be answered.

**Table 2: Overall Risk Assessment**

	Hazard Probability					
		Frequent	Occasional	Likely	Seldom	Unlikely
Hazard Severity	Catastrophic					
	Critical					
	Marginal			3	1, 4	2
	Negligible					

**Primary Risk:** Insufficient Funding. Current Federal and non-Federal funds are available; however, the study progression has been impacted by available funds on both the Federal and non-Federal side. Proper communication and planning is needed to ensure that future interim studies can be addressed. Impacts would likely be marginal and the control will be to execute the funding provided as efficiently as possible and communicate the need for any additional funding as clearly as possible.

**Other Risks:** All other anticipated risks have a relatively seldom probability of occurring and a marginal severity if they were to occur.



## **APPENDIX 7**

### **Communication Plan**

#### References

USACE Strategic Plan  
Communication Principles  
Environmental Operating Principles  
USACE Strategic Directions

#### Purpose

It is the purpose of this plan to provide a strategy that presents communication goals, defines outcomes desired, identifies the audiences desired to reach, records communication actions, and affords appropriate opportunity for the release of accurate information.

#### Campaign Goal

As one of the stewards of our Nation's water resources, the Corps has a responsibility to provide safe, reliable, efficient, effective and environmentally sustainable project constructions. This is to include projects that reduce the risks from damaging floods.

#### Desired Outcome

Effective communication, both internally and with our customers and stakeholders, facilitates the achievement of the USACE Strategic Vision and Campaign Plan Goals and enables the Corps to be successful in its mission of serving the Nation.

#### Audiences

Because the Corps of Engineers has such a vast breadth of responsibility both here and around the world, there are many audiences that are critical to mission accomplishment. The list below pertains to our overall strategic goals. The audiences are not prioritized in order or importance since different objectives have different priorities for the audiences. Further, each of the campaign goals has its own specific list of audiences. We will maintain and build relationships with the following audiences:

#### Governmental Audiences

Corps Employees  
Congress  
Administration  
Department of Defense HQ and Agencies  
State and Local Officials and Agencies  
Tribes



## Non-Governmental Audiences

General U.S. Public  
Business (contractors)  
Industry (user groups)  
Recreation groups  
Environmental groups  
Media

## Strategic Themes and Messages

The Corps is committed to working with our partners and stakeholders to develop technically sound, economically justified and environmentally sustainable solutions in an open, transparent way.

- We welcome the opportunity to work with federal, state, public and private organizations to develop solutions for our Nation's challenges.
- We work to give citizens the opportunity they deserve to clearly see and understand the actions we take and the recommendations we make.
- We are committed to doing what is legal, ethical and right for the Nation, even when the situation calls for us to re-examine past decisions and projects.
- We provide decision makers with technically sound information to foster sound decision-making processes on water resource issues.
- We provide economic benefits through flood damage reduction and recreational resources for the Nation.
- We work collaboratively to find balance between human, economic and natural systems in accordance with our Environmental Operating Principles.

## Actions, Milestones and Metrics

Denoted below are actions, milestones and metrics critical to the success of the four communication objectives. *Actions* outline specific things that need to take place, *Milestones* specify when the actions need to take place. *Metrics* are the way we will measure success of the actions. More specific information, outlining which organizations or people will complete actions will be identified in the National Communication Plan Action Matrix and in the plans developed by the Divisions, Districts, Labs and Centers.

Recognizing the diverse nature of the organization, we realize not every one of our subordinate organizations will need to implement every one of the actions listed below. In addition, we realize that there are multiple ways to achieve objectives. Individual Divisions will be responsible for using the below actions, milestones and metrics to develop their own action matrix, using the action matrix as a template.

## USACE Communication Policies and Principles

- Headquarters will update and provide ER 360-1, the main USACE public affairs guidance, to all Corps PAOs. (Metric – headquarters will provide the ER by 4<sup>th</sup> quarter FY '06.)
- The USACE Communication Principles, which are a reference for this document, are an important piece of achieving this objective. (Metric - Program will be developed during FY '06 to ensure that relevant staff understands the Communication Principles and how to apply them.)
- Leaders at all levels of the organization will lead by example in providing information to both the internal Corps audience and the external audiences in a timely manner. (Metric – Information is provided quickly and completely.)

## Media Engagement

- All Corps organizations will develop and provide Themes, Talking points and Response To Query on all important issues or events (at the appropriate level of responsibility) to employees and subordinate units when appropriate. (Metric – Themes and Talking Points will be provided within 48 hours. RTQ will be provided within 12 hours.)
- Organizations will use the themes and messages when providing interviews, presentations and briefings. (Metric – Using computer software, analysis will be done to determine if messages are apparent when interviews were completed.)
- Headquarters will provide a Communication Skills Training Package – A PowerPoint presentation with example interviews focusing on building communication skills will be provided to all organizations. This training will focus on media engagement and presentation skills.
- Headquarters will provide Media Engagement Cards with Strategic Themes and Messages and guidelines.

## Public Engagement

- Corps employees will provide presentations and briefings to public and private organizations on issues, projects and events.
  - Communication plans will be in place when decisions are announced that have an impact on our partners and customers, which is a required part of all Project Management Plans. After Action Reports (AARs) of roll-outs will be complete within two weeks of action. Headquarters has provided a template for the Communication Plan as part of this document. (Metric – Command Inspections will examine PMPs to determine percent of compliant plans.)



- Corps organizations will use their web sites to maximize the ability to provide timely, relevant information to the public. (Metric – Organization Web sites will contain up-to-date data on projects and issues and will provide as much data and documents as possible on all issues and projects, within legal and ethical guidelines. Public affairs staff will review their web sites every month to review timeliness and quality of information.)

#### Release of Information:

There may be situations when information must be approved by entities both within and outside the Corps. This section outlines what information needs to be reviewed and what the approval procedures are.

#### Evaluation

Measuring communication effectiveness has always been a difficult task but it is important to measure our progress in achieving our goals. The sponsor will be provided with a customer survey to be filled out by them annually and the Savannah District Commander will forward the results to USACEHQ for assessment.

#### Timeline and Action Matrix

The communication plan was presented with the PMP for approval. This plan will be reviewed annually at the beginning of each FY and adjusted based on input from leadership, the field and on situational events.

#### Communication Action Matrix

This Matrix shows significant activities that will happen and gives specific dates/times that these actions must take place. It also identifies the person/organization responsible for the action.

ACTION	RESPONSIBILITY	DATE/TIME ACTION IS TO OCCUR	METHOD OF ACTION	METRIC
Monthly PDT Meetings	Project Manager	Every 3 <sup>rd</sup> Wednesday	Teleconference	PRB
Quarterly PDT Meetings	Project Manager	Every Qtr on 3 <sup>rd</sup> Wednesday	In person	PRB
Public Meeting for Feasibility Study (Augusta)	Project Manager	29 June 2015	In person	PRB



## APPENDIX 8

### Schedule & Cost Change Request (SACCR)

#### RECORD OF SCHEDULE & COST CHANGE REQUESTS (SACCRs)

<u>Request No.</u>	<u>Date Approved/Rejected</u>	<u>Subject</u>

SACCR example.xlw

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## **APPENDIX 9**

### **Quality Management Plan**

#### **ENGINEERING AND DESIGN QUALITY MANAGEMENT PLAN**

1. Purpose. This plan is established in accordance with ER 1110-1-12, Engineering and Design, Quality Management. The intent of this plan is to define and document those philosophies, policies, and procedures that influence the quality of the products and services provided by the division.
2. Applicability. This policy is applicable to all Savannah District Engineering Division elements.
3. Background. The control of quality of the engineering product involves the application of a variety of techniques and tools. These techniques include the development and implementation of appropriate policies, criteria, and procedures. Equally important is the need to provide adequate tools for executing a quality management program. These items include knowledge and application of special programs like Partnering and Continuous Quality Improvement (CQI), proper equipment, and training. Finally, there needs to be a clearly stated set of goals and philosophies regarding customer service and production of a quality product. This plan documents the policies and procedures and provides guidance on providing additional tools and a philosophy for providing a quality control and a high level of customer service.
4. Philosophy. Any effort to manage the quality of an engineering product can be only as good as the commitment on the part of the team member who executes the task. No amount of written procedures can, of themselves, assure quality. Policies and procedures that are understood and applied can facilitate consistency of effort and are an important tool in quality management. Such procedures, coupled with a commitment on the part of management to produce a quality product and a clear enunciation and demonstration of this commitment, can be major factors in producing consistent quality products. This commitment must be one part of a three-faceted approach to balance constraints of time and cost with product quality. These issues must be considered within the context of Corps and District goals and strategies and within the philosophy of the Engineering Division Quality Statement and Team Member Code of Conduct. Collectively, these efforts define the philosophy and commitment to providing consistent quality to all customers of the division and Savannah District.
5. Scope. This plan is applicable to all programs supported by or executed within Engineering Division. These programs include but are not limited to the following: Military, Design and Construction including O&M, HTRW Planning, Design, and Construction, and Support for Others. This plan should be considered a living document that will be revised and updated as necessary to meet changing program needs and customer expectations.



a. Management Responsibility.

(1) It is the responsibility of all managers in the division to assist in development of appropriate policies and guidance for their area of responsibility and to assure implementation of those procedures upon adoption. Managers are also responsible for recommending revisions to established guidance when necessary, including necessary updates to this plan.

(2) All managers are responsible for implementing this plan at their respective level within the division. This includes preparation of appropriate organization specific goals and policy guidance, assuring training of personnel in the plan and mission needs as well as utilization of all the above tools for quality enhancement. These aspects of management responsibilities need reinforcing:

(a) Assure fair ratings and address personnel issues promptly.

(b) Establish and maintain open and free communications and encourage initiatives for improvement.

(c) Recognize good performance and reward excellence and initiative. Use both the District incentive awards program and Engineering Division initiatives as appropriate. These include performance awards, on-the-spot recognition, time off awards, Superstar and Team of the Month.

b. Team Member Responsibility. It is the responsibility of all team members to follow established policies and procedures and to elevate to management where these procedures are ineffective or unduly restrictive. Team members should do their part in maintaining open communications and faster improvements by recommending cost effective process evaluations and changes. Team members should input to a project schedule and budget and, once accepted, execute in accordance with the plan, including promptly elevating concerns over time, cost, or quality slippage.

7. Written Policies and Procedures. Engineering Division implementation of ER 1110-1-12 is contained in subsequent sections of this plan and appendices thereto. Sections are generally classified as defined in the Engineer Regulation (ER) and address the following aspects of written guidance:

a. Quality Control Plan

b. Engineering and Design Criteria Management

c. Project Coordination

d. Design Process, Coordination and Review

(1) Architect-Engineer Designs



## (2) In-House Designs

- e. Design Tools
- f. Monitoring and Control of Time and Cost
- g. Designer Involvement during Construction
- h. Designer Performance Evaluation
- i. Lessons Learned and Customer Feedback
- j. Special Programs (VE, AE Responsibility, Assured Compliance Assessment Solution)

The above sections are generic to all organizations within Engineering Division. Specific procedures and policies within each branch or section are to be developed and included as an appendix to that organization's plan. These include such items as standard specific instructions; installation specific criteria, design and review check lists, etc.

8. Quality Enhancement Tools. It is the position of Engineering Division that a variety of tools should be brought to bear on execution of a program to continually enhance responsiveness to the customer while maintaining cost control and quality. To this end, the Division is committed to evaluating and using the proven and positive techniques including Training, Partnering, Continuous Quality Improvement, and the maintenance of state of the art automation technology and other equipment.

### a. Partnering.

(1) Customers - Formal partnerships are encouraged in all aspects of the design process. These initiatives are typically initiated by PM-C and supported by Engineering Division. Periodic follow-up sessions should be expected to be required as personnel change in the District and at the installations and bases.

(2) Design and Construction Partnering - The District is committed to evaluate and use the positive aspects of partnering with customers and A-E's during the design process and to support initiatives by Construction Division with construction contractors.

(3) Environmental - Partnering sessions with environmental; agencies and regulators are strongly encouraged.

b. Continuous Quality Improvement (CQI). Supervisors will use the existing Savannah District TQM structure to assure that all new employees receive orientation in basic TQM philosophy and principals. Employees will also be provided a copy of procedures for initiating process improvements within the Division as defined in the CQI Infrastructure plan.

c. Automation Capability. It is the responsibility of the Spatial Engineering Section (EN-EC) to plan, program, and recommend automation initiatives to maintain design capability (hardware and software). They are to also establish Division-wide standards and seek opportunities to improve and expand customer support in the automation arenas including systems such as: CADD, GEOHMS, GEORAS, GIS and the evolution to a project integrated database on selected projects. To the extent possible within funding availability, Engineering Division will leverage automation capability to the maximum extent possible to improve design, management, and administrative processes. Each technical section is responsible for coordinating with EN-EC to assure effective use of available automation technology. EN-EC will assure effective use of available automation technology. EN-EC will team up with each branch at least annually to identify needs, promote and explain current capabilities, assure system compatibility, inventory resources, and identify actions to improve capability.

d. Field Capability and Equipment. Engineering Division is currently committed to the maintenance of a "core" level of in-house capability in topographic and hydrographic surveying and in-field explorations for conventional and HTRW geotechnical investigations. Annual operating budgets will be developed and reviewed so that equipment acquisition can be prioritized to best meet mission needs. Five-year plans will be developed by Survey Section and Explorations Unit. Upon review and approval, these plans will serve as guidance for annual budgeting and acquisition. The intent is to maintain up to date technical capability for the mission requirements in hydrographic surveying and field investigations consistent with budget constraints.

e. Training. The annual training budget is established as a percentage of total Division salary. This figure is currently 2.45 percent. Labor is not included in this target. To best meet mission needs and provide customer service, training prioritization is frequently required. Technical training should take precedent over nontechnical, necessary courses for less experienced employees; new missions take precedent over old, journeyman positions take precedent over management and administrative training, and local or nearby courses take precedent over those further away. Careful application of resources has demonstrated that most training needs can be met within the current budget.

f. Value Engineering and Architect Engineer Responsibility Programs. Though addressed by separate SOP's in this plan, emphasis shall be given to the utilization of these programs to reduce costs and maintain expectation of quality for both in-house and A-E designs.



**APPENDIX 10**  
**Safety and Occupational Health Plan**  
**Savannah District**  
**Safety Management Action Plan (SMAP)**

1. As Commander, I will:
  - a. Ensure that the safety of all team members is paramount by providing a work environment that has been evaluated for potential health risks, and control methods are implemented to eliminate employee exposure to any recognized health hazards.
  - b. Promote safety during site visits by reviewing safety boards, discussing accident experiences, and celebrating safety successes.
  - c. Recognize team members and contractors who excel in safety compliance and performance.
2. Savannah District Safety and Occupational Health Office (SOHO) will:
  - a. Conduct safety training as needed and required to help reduce the frequency of accidents.
  - b. Provide support to field activities through safety and health inspections, training, technical support, and safety consultations. Visit each field office at least twice a year.
  - c. Continue to improve working conditions through implementation of the District's ergonomic evaluations, life safety code inspections, and safety and health promotions.
  - d. Make available Defensive Driving training through online services for team members required to operate vehicles in the performance of their duties.
  - e. Advise the Labor Relations Officer of safety and occupational health issues requiring Union Coordination
  - f. Emphasize safety and occupational health programs based on specific District needs.
3. Project Management, Engineering, Planning, Construction, and Operations Division will:
  - a. Support appropriate staff members' training in safety and occupational health, and improve integration of safety and health into our Project Management Business Processes (PMBP).
  - b. Assure that safety is embedded into every project designed, constructed, and/or operated by Savannah District.
4. Engineering Division will:
  - a. Ensure that safety and health is integrated into their management plan.
  - b. Ensure all team members are in compliance with the District Medical Surveillance Program Regulation DR 385-1-5.
  - c. Assure that reports of accidents and all supporting paperwork are submitted to District Safety Office (SO) in a timely manner.



## SMAP (FY 03)

### 5. Construction Division will

- a. Ensure Area and Resident Engineers complete ENG Form 3394 and forward to the District SOHO within 5 working days for the date of accident.
- b. Partner with contractors to investigate all lost time and near miss accidents at the project sites and make a report of such findings.
- c. Ensure that safety and health submittals such as accident prevention plans, asbestos and lead abatement plans are submitted to the District SOHO for review and acceptance prior to starting the project.
- d. Recognize and reward team members exemplifying good safety practices and accomplishments.
- e. Renew emphasis in QA processes and assure field personnel are properly trained.
- f. Prepare a plan to provide or obtain training on the updated Safety and Health Requirements manual, EM 385-1-1, and other required SOH training.

### 6. Operations Division will:

- a. Ensure proper signage and safety structures below and above civil works projects meet the ER 1130-2-520, 500.
- b. Continue emphasis of water safety programs to reduce the number of public fatalities at recreation areas.
- c. Coordinate with the Safety Office to ensure team members are receiving the proper
- d. Medical surveillance examinations and a Corps medical representative reviews the examination results.
- e. Continue to emphasize dredging safety through the USACE Dredge Safety Initiative Working Group, video based training and peer inspections.
- f. Prepare a plan to provide or obtain training on the updated Safety and Health Requirements manual, EM 385-1-1, and other required SOH training.

### 7. Project Management will

- a. Ensure the Site Safety and Health Plans (SSHP) for remediation activities such as underground storage tank removal, soil removal, and renovation/demolition projects are coordinated with the ACO/PE, and submitted to the District SOHO for review.
- b. Ensure that safety reviews are funded prior to submission to the Safety Office for approvals.
- c. Ensure safety issues such as asbestos and lead abatement are addressed in project management plans for renovation and intrusive projects.

## SMAP (FY 03)

### 8. Logistics Management will:

- a. Coordinate with General Service Administration (GSA) to ensure the Juliette Gordon Low Federal Building fire alarm system is operating correctly, and the intercom/public address system is also working properly.
- b. Coordinate with GSA and the Safety Office to ensure the Juliette Gordon Low Federal Building meets the life safety code guidelines set forth by the National Fire Protection Association.
- c. Provide team members handling chemicals, lifting heavy objects, or involved in other hazardous activities, the proper personal protective equipment, safety training and other controls to ensure they work in a safe manner.

### 9. Civilian Personnel Advisory Center will:

- a. Consult with the District Safety Office on all labor relations issues relating to safety and occupational health.

### 10. All Divisions/Offices will:

- a. Include a safety orientation for newly assigned team members.
- b. Review and update team member's Position Hazard Analyses (PHAs).
- c. Provide safety training to team members as required by EM 385-1-1.
- d. Conduct periodic safety inspections of work areas, document deficiencies, and take steps to correct the situation.
- e. Ensure that appropriate accident forms are submitted to the SOHO within 5 workdays from the time of the accident.
- f. As it relates to each Division/Office, assess safety and occupational health training tracking system so that no required safety and health training isn't complied with.



## APPENDIX 11

### Savannah River Basin Comprehensive Study – Future Work

The study involves a review of the current authorized purposes of the Hartwell, Richard B. Russell and J. Strom Thurmond reservoir projects and their operating plans. Some of the project authorizations occurred over 50 years ago. The water resource needs within the basin have changed since that time. The study will assess the current needs during flood, normal, and drought conditions to determine whether structural or operational changes are warranted. Because of limited funding, the study cannot be performed in a single basin-wide study, but instead, will be broken down into smaller interim studies.

#### Problem Statement

The original authorizations and water supply and cost allocations of the federal reservoir projects need to be updated to reflect changes in hydrology since construction, changes in utilization of the project purposes (i.e. navigation, recreation), population growth, improvements in defining sustainable ecosystem flow needs, changes in land use, and changes in societal prioritization of water resource allocations throughout the basin.

In the past decade, the SRB has undergone two new droughts of record in 1999-2002 and in 2007-2009 which have challenged traditional water management approaches. While the Savannah District has modified operations collaboratively with other Federal and State agencies through DCP updates and temporary deviations to the water control plan, the limit of these types of measures has been reached within existing authorities. There is a pressing need to examine comprehensive storage reallocation strategies to provide more sustainable solutions to water resource allocation throughout the SRB. The Savannah SRBCS is the best vehicle to address these issues and to update the water control plan for the next 50 years. Since the water in storage is a State owned resource, the SRBCS would provide an opportunity to better integrate State water management planning objectives into the operation of federal reservoir projects.

#### Project Description

The SRBCS shall address the current and future needs for flood damage prevention and reduction, water supply, and other related water resource needs in the SRB. As a basin-wide assessment, the study is wide-ranging and complex. The study area covers over 300 river miles and includes three federal multi-purpose projects and two single purpose projects. Although five separate Section 216 studies could be conducted on those federal water resource projects, this comprehensive assessment allows (1) an examination of how the effects of those projects interact within the basin, and (2) is the best approach to identify how those projects should be managed to best meet the present water resource needs of the basin.

- a. **Interim Study I: Initial Analysis (\$1.8M Completed in 2006).** Stakeholders were identified, water needs were assessed, the reservoir simulation model was developed, basin inflows were derived, and a Drought Contingency Plan was prepared.
- b. **Interim Study II: Drought Contingency Plan Update (\$0.9M).** The second interim study will determine the minimum environmentally acceptable release from Thurmond



Dam during drought conditions and how long this minimum release can be sustained. The study will update GA DNR's unimpaired inflow data, update the Ecosystem Flow Recommendation, and update the Ecosystem Functions Model. These technical improvements will update and strengthen the District's evaluation of the impacts of alternate flow scenarios. The study assumes that its recommendation will not require Congressional authorization, but fit within the Corps' discretionary authority.

- c. **Remaining work: Hydrologic Engineering and Environmental Analyses (>\$30.0M).** Additional work is needed to comprehensively examine potential modifications to the Corps' three reservoir project system (J. Strom Thurmond Dam, Richard B. Russell Dam, and Hartwell Dam) to consider how they may best meet the present water resource needs in the basin. The analysis will include operation during flood, normal, and drought conditions. Structural changes to the three projects will be considered as well as changes to their operation. Major reallocation of storage will be considered, such as reallocating flood storage that may no longer be needed since the three projects are operated as a combined system. Decreasing the flood control pools would allow that storage to be reallocated to a different project purpose (recreation or fish & wildlife). Alternatives would include identifying the economic and environmental impacts of changes to the present projects. This phase will consider in greater detail potential environmental effects of alternatives. The District assumes that this phase will exceed the Corps' discretionary authority and instead require Congressional authorization. The field data and studies that will be needed to conduct a comprehensive examination of potential modifications to the three-reservoir system are identified on the following page.

The Corps will engage its vertical team to review the overall scope and budget for the comprehensive plan to ensure compliance with established SMART planning principles and 3x3x3 guidelines. The District will also conduct a re-scoping charrette and include a plan to comply with SMART planning principles. The review will include an assessment of the need for any additional interim reports and outline the completion strategy for the final comprehensive plan.

<b>FIELD DATA</b> (Total Cost Estimate ~\$12.5M)	<b>STUDIES</b> (Total Cost Estimate ~\$11M)
Topo (River) LIDAR	Sediment Budget
Topo (Lakes) LIDAR	Recreational Use
Biological (Floodplain)	RAS Model JST to Clyn
Biological (Instream)	Ecological Benefits (River)
Biological (Lakes)	Flood Risk Analysis
Structure Values (River)	Economic Effects of Pool Levels (Lakes)
Structure Values (Lakes)	Biological Effects of Pool Levels (Lakes)
Bathymetry (Lake)	Water Quality in River from Flows
Bathymetry (River)	Water Quality Reservoir
Structure Elevation	Turbine Aeration at Hartwell
Inflow Data	Water Quality Systems Analysis
Survey Oxbows	Analyze Restoring Flow in Oxbows
Mussel Survey	Hydropower Upgrade Evaluation
River Habitat Survey (Woody Debris & Oxbows)	Cultural Resources
<b>Analysis, report preparation, management and coordination is estimated to cost ~\$10M</b>	

## **APPENDIX 12**

### **Review Plan**

The review plan, approved on 30 September 2010, is posted on the District website at <http://www.sas.usace.army.mil/reviewplans.html>.