

ATTACHMENT 4d

FINAL SCHEDULE B RESPONSE INCLUDING  
ADDRESSING OF CONSULTING AGENCIES  
AND TRIBES COMMENTS AND  
RECOMMENDATIONS –

Appendices 31 through 45

**Appendix 31**

**JANUARY 20, 2009 CONFERENCE CALL MEETING NOTES**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
CONFERENCE CALL WITH NMFS REGARDING STURGEON MITIGATION**

*Via Conference Call  
January 20, 2009*

Draft-CSB-01262009

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**ATTENDEES:**

Bill Argentieri, SCE&G	Alan Stuart, Kleinschmidt Associates
Bill Post, SCDNR	Prescott Brownell, NMFS
Shane Boring, Kleinschmidt Associates	Jeni Hand, Kleinschmidt Associates
Steve Summer, SCANA Services	Milton Quattlebaum, SCANA Services

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**ACTION ITEMS:**

- Adapt the *Shortnose Sturgeon Monitoring and Adaptive Recovery Program* developed by NMFS into a mitigation program document for inclusion in the Relicensing Settlement Agreement  
..... Kleinschmidt/SCE&G

**NEXT MEETING**

**To be determined**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
CONFERENCE CALL WITH NMFS REGARDING STURGEON MITIGATION**

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**MEETING NOTES:**

*These notes serve as a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Shane Boring opened the call at 9:00, noting that the purpose of the conference call was to discuss the *Shortnose Sturgeon Monitoring and Adaptive Recovery Program* (Attachment A), which had been developed by NMFS and distributed via e-mail to the group on 16 January 2009. It was noted that the document was developed in fulfillment of Prescott's commitment from the 17 October 2008 Fish and Wildlife Technical Working Committee to develop a list of studies that NMFS feels should be implemented relative to sturgeon under a new FERC license for Saluda.

Prescott noted that the document was developed with much assistance from SCDNR (Bill Post) and enquired as to whether the group had questions or comments. Alan Stuart noted that most of the recommended studies (most notably Study I - "Sturgeon Movement and Behavior") appear similar to those already being discussed as part of the Santee Basin Diadromous Fish Accord (ACCORD), and that conducting those as part of separate mitigation program for Saluda would likely be redundant and not cost-effective. Prescott noted that his recommended studies were intended to be more Project-specific than what he suspected would be implemented under the ACCORD. Alan and Bill A. enquired as to whether NMFS would be amiable to SCE&G developing some sort of "Sturgeon Protection, Mitigation and Enhancement (PM&E) Program" that would serve as a means of recommending the NMFS-recommended studies to the ACCORD Board for implementation under the ACCORD. Prescott noted that generally he could support such as approach, but added that measures would likely be needed to ensure the Saluda Project-specific objectives/information needs identified by NMFS (i.e., reporting, consultation with NMFS, etc.). Alan noted that the initial phase of the ACCORD includes a 5-year period during which sturgeon studies were slated to occur and proposed that language be included stating that SCE&G will consult with NMFS following this 5-year period (at a minimum) to determine whether the Project-specific objectives had been met. The group was in agreement that this was an acceptable approach.

In regards to recommended Study II (Temperature and Water Quality), Bill A. noted that SCE&G had funded a significant study of temperature in the lower Saluda (LSR) and Congaree over the past 2 yrs, and enquired as to why that study would not meet the study objectives of NMFS. Prescott indicated that temperature regimes could be affected (most likely improved) by implementation of the proposed minimum flows and that there needed to be a way to quantify those changes.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
CONFERENCE CALL WITH NMFS REGARDING STURGEON MITIGATION**

***Via Conference Call  
January 20, 2009***

Draft-CSB-01262009

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After discussion, it was determined that SCE&G would develop a Sturgeon PM&E Program, as discussed above. The program will include a commitment that SCE&G will recommend that Studies I and II be completed as part of the ACCORD process. If they are not completed as part of the ACCORD, SCE&G will consult directly with NMFS to ensure that the objectives of these studies are met outside of the ACCORD process. Further, it was agreed that Studies III and IV would be implemented at which point shortnose or Atlantic sturgeon are documented in the LSR. Similar to studies I and II, Studies III and IV would be implemented through the ACCORD process or independently in consultation with the NMFS.

Kleinschmidt staff was tasked with adapting the NMFS document into a draft Sturgeon PM&E Program document. Bill A. reiterated that the purpose of such a program would be to serve as mitigation for the Project and that it was SCE&G's intent to include any such program in the Saluda Settlement Agreement.

The conference call adjourned at approximately 10:00 AM.

ATTACHMENT A

PROPOSED SHORTNOSE STURGEON MONITORING AND ADAPTIVE RECOVERY  
PROGRAM

DEVELOPED BY NMFS AND DISTRIBUTED TO MEETING GROUP VIA E-MAIL 16  
JANUARY 2009

**DIADROMOUS FISH PROTECTION, MITIGATION AND ENHANCEMENT  
MEASURES  
SALUDA HYDROELECTRIC PROJECT**

**SHORTNOSE STURGEON MONITORING AND ADAPTIVE RECOVERY PROGRAM**

**- PROPOSAL -  
November 17, 2008**

***BACKGROUND***

This draft proposal was prepared by National Marine Fisheries Service (NMFS) in coordination with South Carolina Department of Natural Resources (DNR) for South Carolina Electric & Gas Company and the Saluda Relicensing Team. The proposal was provided to relicensing stakeholders for review on November 20, 2008. This proposal is intended to be included in development of a relicensing settlement agreement for the Saluda Project's aquatic resource protection, mitigation and enhancement measures (PM&E). Revisions may be considered during the settlement discussions to better integrate proposed studies into an overall plan for aquatic resource PM&E measures. NMFS intends to consider the proposed measures in development of the relicensing settlement agreement and recommendations to FERC pursuant to Section 10(j), and in resolution of consultation pursuant to the Endangered Species Act.

***PROJECT EFFECTS ON STURGEON AND OTHER DIADROMOUS SPECIES***

Construction and operation of the Saluda Project since its construction in the 1930's has resulted in blockage of access to many river miles of former spawning and maturation habitats above the Lake Murray Dam, permanent loss of riverine habitat by reservoir inundation, and alteration of natural flows, temperature, and dissolved oxygen in the lower Saluda and Congaree Rivers (Columbia Shoals). Hypolimnetic flows from the Lake Murray Dam have depressed seasonal ambient dissolved oxygen levels and temperatures in the lower Saluda River for decades, potentially playing a role in the observed absence of diadromous species including sturgeon, striped bass, American shad, and American eel. In recent years dissolved oxygen levels in the Saluda have been substantially improved through installation of turbine runner hub baffles and changes in hydro operations. Because of the lower ambient temperatures in the lake Murray Dam flow releases, trout were introduced in the 1960's to provide a "put and take" fishery which has become popular and of economic importance to the public and state fishery management objectives for the Saluda River. Active management of the Saluda River as a cold water fishery for trout provides significant public fishery benefits, and reduces habitat suitability for potential restoration of natural resident aquatic species and migratory diadromous fish.

Development of practical actions for mitigation of continuing project effects on diadromous species is limited by the size and depth of the Lake Murray Dam and reservoir, limited options for effective fish passage, hydropower generation operations, and established management of the lower Saluda River for a cold water trout fishery.

## ***RECOMMENDED STURGEON MONITORING AND RECOVERY PROGRAM***

To promote protection and recovery of sturgeon in remaining accessible habitats in the Broad, Saluda and Congaree Rivers, the following integrated studies and an adaptive management program are recommended, and may be included in a sturgeon protection plan:

### **I. Sturgeon behavior and movements.**

**Purpose:** Monitor sturgeon behavior and movements to improve understanding of habitat use patterns in response to river flow regulation, short term and seasonal temperature and dissolved oxygen variations, and availability of suitable habitat in the Saluda, lower Broad, and Congaree Rivers. Improved understanding of factors limiting recovery of sturgeon and other diadromous species is expected to support practical adaptive management actions.

**Methods:** Conduct a long term telemetry study to monitor movements of sturgeon in the Congaree, lower Broad, and Saluda Rivers, in concert with other telemetry studies in the Santee River Basin. This objective will be achieved by using a receiver array system already in place and in use ([Figure 1](#)). Study budget should include funding for the Biologist and Technician and supply monies to purchase transmitters ([Table 1](#)). Recommendations would be for a 10-year study with annual review of study findings and assessment of factors affecting sturgeon recovery.



**Figure 1: Receiver Array System Currently in Use**

## **II. Temperature and Water Quality Monitoring Study.**

**Purpose:** Establish a temperature and water quality monitoring program to help develop a better understanding of physical habitat factors potentially affecting movements, migrations, spawning, and recovery of sturgeon and other diadromous and resident species of special management interest. Study area should include the Saluda River, lower Broad River, and the Congaree River.

**Methods:** Establish an array of temperature and water chemistry monitoring stations located throughout the study area to allow for automated data collection and analysis. Data analysis should help identify annual and seasonal variations in temperature throughout the study area using GIS spatial analysis tools. Funding should include purchasing dataloggers and project personnel ([Table 1](#)). An initial 10-year study should be planned for with annual review of study findings and assessment of environmental factors actually or potentially affecting sturgeon recovery.

## **III. Habitat Characterization Study.**

**Purpose:** Integrate the findings of Studies I and II with a detailed physical habitat study to identify characterize, and map habitats in the Saluda, lower Broad, and Congaree Rivers to provide support for a long term sturgeon recovery program in the Santee River Basin. Identify potential critical habitats and limiting factors.

**Approach/Methods:** Conduct a field study to characterize, classify, and map important habitat components in the study area including substrate type, depth/velocity characteristics, location of point source discharges, seasonal temperature and dissolved oxygen distribution, etc. Plan for a one-year initial physical habitat characterization study, with provisions to adapt the habitat characterization based on findings of studies I and II.

## **IV. Adaptive Management Study for Sturgeon Recovery.**

**Purpose:** Integrate the findings of studies I-III to identify Saluda Project-specific effects and limiting factors, and other limiting factors affecting sturgeon recovery in the study area. Identify practical beneficial actions that can be undertaken to contribute positively to recovery of sturgeon in the Santee River Basin.

**Approach:** Establish a sturgeon technical advisory team to collaboratively participate in design and conduct of the proposed sturgeon study program, and to develop practical management and recovery actions. The technical advisory team would seek to integrate studies conducted and/or funded by S.C. Electric & Gas Company with other studies in order to develop sound and practical actions.

**Table 1: Estimated Costs for 2010**

<b>STURGEON STUDIES</b>	
<b>PERSONNEL</b>	
Biologist II-6 months	17,250
Technician II - 12.0 months	21,000
Fringe	11,475
Indirect	11,253
Travel	5,000
Supplies	38,000
Misc.	5,000
<b>Total</b>	<b>108,978</b>

Budget Justification, 2010:

Personnel – Biologist II and Tech. II employees including fringe and indirect for field sampling.

Travel – Vehicle mileage for field work.

Supplies – 30 Vemco transmitters and shipping charges; 100 dataloggers plus associated software.

Miscellaneous – Equipment maintenance, long distance calls, and supplies.

**Appendix 32**

STURGEON PROTECTION AND ADAPTIVE MANAGEMENT PROGRAM

FEBRUARY 2009

# **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

*COLUMBIA, SOUTH CAROLINA*

## **SALUDA HYDROELECTRIC PROJECT**

*(FERC NO. 516)*

### **STURGEON PROTECTION AND ADAPTIVE MANAGEMENT PROGRAM**

*FEBRUARY 2009*

*Prepared by:*

***Kleinschmidt***  
*Energy & Water Resource Consultants*



SOUTH CAROLINA ELECTRIC & GAS COMPANY  
COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)

STURGEON PROTECTION AND ADAPTIVE MANAGEMENT PROGRAM

FEBRUARY 2009

Prepared by:

***Kleinschmidt***  
*Energy & Water Resource Consultants*

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
COLUMBIA, SOUTH CAROLINA**

**SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)**

**STURGEON PROTECTION AND ADAPTIVE MANAGEMENT PROGRAM**

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**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
COLUMBIA, SOUTH CAROLINA**

**SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)**

**STURGEON PROTECTION AND ADAPTIVE MANAGEMENT PROGRAM**

**1.0 INTRODUCTION**

The Saluda Hydro Project (Project) is a 202.6 megawatt (MW) hydroelectric facility owned and operated by South Carolina Electric & Gas (SCE&G or Licensee) and located on the Saluda River in Lexington, Newberry, Richland, and Saluda counties of South Carolina ([Figure 1-1](#)). The Project is currently licensed by the Federal Energy Regulatory Commission (FERC No. 516), and the present license is due to expire in the year 2010. SCE&G has been engaged with state and federal agencies, non-governmental organizations (NGO's), and other stakeholders in a cooperative relicensing process for the Project since early 2005. The Final License Application to relicense the Project was filed with the FERC on August 27, 2008.

In comments issued in response to SCE&G's Draft License Application, NOAA Fisheries – National Marine Fisheries Service (NMFS) noted that Saluda and other Santee Basin projects potentially affect important historical spawning and maturation habitat for a number of diadromous fish species, including the federally endangered shortnose sturgeon and Atlantic sturgeon, a candidate for federal listing. NMFS also requested that SCE&G develop “practical and specific measures to mitigate continuing Project impacts” on these species. SCE&G subsequently consulted with NMFS, US Fish and Wildlife Service (USFWS), South Carolina Department of Natural Resources (SCDNR) and other stakeholders to cooperatively develop the Protection and Adaptive Management Program contained herein (See meeting notes, 17 October 2008<sup>1</sup> and 20 January 2009<sup>2</sup>).

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<sup>1</sup> Refers to joint meeting of all Fish and Wildlife Technical Working Committees (TWC's), including: Diadromous Fish; Rare, Threatened and Endangered Species; Instream Flow and Aquatic Habitat; Freshwater Mussels and Benthic Macroinvertebrates; Fish Entrainment TWC's.

<sup>2</sup> Refers to conference call with NMFS and other resource agency staff.

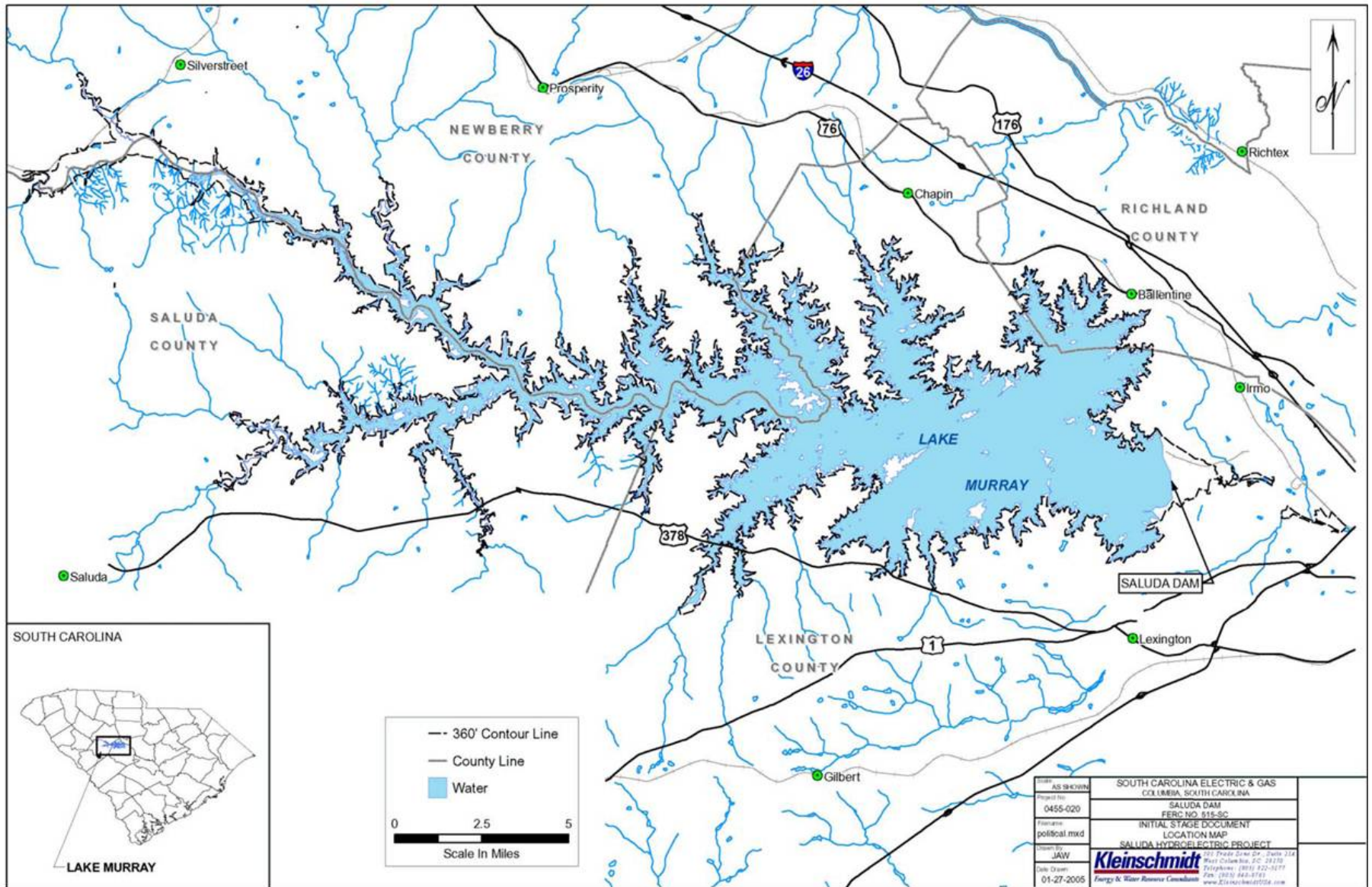


Figure 1-1: Location Map for the Saluda Hydroelectric Project (FERC No. 516)

## 2.0 **BACKGROUND**

### 2.1 Shortnose Sturgeon Life History and Status

Much of the Santee Basin, including the portion of the Saluda Basin encompassed by the Project, is thought to be within the historic range of the shortnose sturgeon (Welch, 2000; Newcomb and Fuller; 2001). In the Santee Basin, the shortnose sturgeon is believed to be amphidromous, migrating between freshwater and mesohaline reaches, and ascending to inland riverine reaches on annual spawning runs (NMFS, 1998a; Cooke et al., 2003). In northern rivers, migratory spawning runs of this species usually occur in early February to mid-March when water temperatures approach 9 – 14° C (Kynard, 1997). In southern rivers, spawning runs may occur as late as mid-April (S. Bolden, NMFS, Personal Communication, 2007). Shortnose sturgeon spawning has been documented in the Congaree River near Columbia over substrates of sand, gravel and rock, at temperatures ranging from 9.7-15.6°C, and dissolved oxygen concentrations of 10.6-12.5 mg/L (Collins et al., 2003). Shortly after spawning, shortnose sturgeon larvae begin movements downstream, and young of the year may remain in freshwater reaches for their first year of life before moving downstream as juveniles to lower river reaches near the saltwater interface (Kynard, 1997).

Population groups of shortnose sturgeon are known from downstream of the Santee-Cooper dams (lakes Marion and Moultrie) in the lower reaches of the Santee-Cooper basin (Collins et al., 2003). An additional dam-locked spawning population of shortnose sturgeon has been documented within and upstream of the Santee-Cooper Lakes, with Lake Marion and its tributaries harboring the most significant population, and an upstream spawning site located in the upper Congaree River. Radio-telemetry studies conducted by the SCDNR have documented migration of Lake Marion shortnose sturgeon as far upstream as the Gervais Street Bridge on the Congaree River, which is adjacent to the City of Columbia and just downstream of the confluence of the Broad and Saluda rivers (J. Gibbons, SCDNR, Pers. Comm.). NMFS considers the potential present range of shortnose sturgeon to include all accessible waters below the Saluda, Wateree, and Columbia Dams (P. Brownell, NMFS, Personal communication).

## 2.2 Atlantic Sturgeon Life History and Status

The Atlantic sturgeon is a large (up to 5.5m), long-lived (up to 60 years) anadromous species native to Atlantic Coast drainages from Labrador to Florida (Marcy et al., 2005). Atlantic sturgeon is currently considered by the USFWS as a candidate for federal listing as threatened or endangered (71 R 61022). Stocks of the species are considered imperiled, primarily due to overharvesting for flesh and eggs (caviar) during the early – to – mid-20<sup>th</sup> Century, and secondarily, due to habitat degradation and blockage of access to historical spawning grounds (NMFS, 1998b). In the Santee Basin, Atlantic sturgeon was historically present at least as far inland as the fall line (Newcomb and Fuller, 2001).

The Atlantic sturgeon is considered estuarine anadromous, spending most of its life in estuarine and ocean environments and undertaking spawning migrations into riverine systems during late-winter and spring months (NMFS, 1998b; Marcy et al, 2005). In southeastern rivers, female Atlantic sturgeon reach sexual maturity at age 7 to 19 and spawn only once in a 2 to 6 year period (NMFS, 1998b). Males of the species reach maturity between age 8 and 12 years (Marcy et al., 2005). Spawning typically occurs over hard bottoms of clay, rubble, or gravel, with running water and temperatures of 14 - 24°C. After spawning, females typically return to estuarine environments within 4 to 6 weeks, while males may remain in the river through the fall. Juveniles of this species remain in the natal rivers for 3 to 5 years before migrating to the ocean (Marcy et al., 2005).

The status of Atlantic sturgeon upstream from the Santee Cooper Dams is uncertain; however, three adults have been recovered upstream from the dams in recent years (P. Brownell, NMFS, Pers. Comm.). Like shortnose sturgeon, Atlantic sturgeon was historically present at least as far inland as the fall line (Newcomb and Fuller, 2001). Current upstream distribution in the Santee Basin is likely limited by the lack of passage for Atlantic sturgeon at the Santee Cooper Dams (P. Brownell, NMFS, Pers. Comm.). As with shortnose sturgeon, NMFS considers the potential present range of Atlantic sturgeon

to include all accessible waters below the Saluda, Wateree, and Columbia Dams (P. Brownell, NMFS, Personal communication).

### 2.3 Project Effects on Sturgeon and Other Diadromous Species

Construction and operation of the Saluda Project since its construction in the 1930's has resulted in blockage of access to many river miles of former spawning and maturation habitats above the Lake Murray Dam, permanent loss of riverine habitat by reservoir inundation, and alteration of natural flows, temperature, and dissolved oxygen in the lower Saluda and Congaree Rivers (Columbia Shoals). Hypolimnetic flows from the Lake Murray Dam have depressed seasonal ambient dissolved oxygen levels and temperatures in the lower Saluda River for decades, potentially playing a role in the observed absence of diadromous species including sturgeon, striped bass, American shad, and American eel. In recent years dissolved oxygen levels in the Saluda have been substantially improved through installation of turbine runner hub baffles and changes in hydro operations. Because of the lower ambient temperatures in the lake Murray Dam flow releases, trout were introduced in the 1960's to provide a "put and take" fishery which has become popular and of economic importance to the public and state fishery management objectives for the Saluda River. Active management of the Saluda River as a cold-water fishery for trout provides significant public fishery benefits, and reduces habitat suitability for potential restoration of natural resident aquatic species and migratory diadromous fish.

According to NMFS, development of practical actions for mitigation of continuing project effects on diadromous species is limited by the size and depth of the Lake Murray Dam and reservoir, limited options for effective fish passage, hydropower generation operations, and established management of the lower Saluda River for a cold-water trout fishery.

## 2.4 Relevant Studies Performed in Support of Relicensing

### *Sturgeon Survey of Lower Saluda and Upper Congaree Rivers*

In response to anadromous fish studies requested by the NMFS and SCDNR during the initial stages of the Saluda Project relicensing, SCE&G developed and implemented a Shortnose Sturgeon Study Plan (Kleinschmidt, 2006). The primary objective of this study was to document whether or not shortnose sturgeon are utilizing areas of the lower Saluda and upper Congaree rivers downstream of the Project. Implemented during the 2007 migratory season, the study included gillnet sampling for adult and juvenile sturgeon, as well as D-net samples for eggs and larvae, at four downstream locations: two in the lower Saluda and two in the upper Congaree (immediately upstream and downstream of the Granby Lock and Dam). Approximately 400 hours of gillnetting during the 2007 season resulted in no captures of adult or juvenile sturgeon; likewise, no eggs or larval sturgeon were captured during the sampling period (Kleinschmidt, 2007).

### *Lower Saluda and Upper Congaree Rivers Temperature Study*

At the request of the USFWS (letter dated August 1, 2005), SCE&G developed and executed a downstream water temperature study during 2006 and 2007 as part of relicensing (Kleinschmidt, 2008). The study objective was to characterize the effects of water releases from the Project Dam on the temperature regime of the LSR and Congaree River, including downstream extent of temperature alteration, timing and duration of temperature alteration, and mixing characteristics. Paired temperature sensors (left and right side of the channel) were deployed at 7 locations along an approximately 55 mile reach of the LSR and Congaree River downstream of Saluda Hydro (extending from the Riverbanks Zoo on the LSR to the Highway 601 Bridge on the Congaree). Project releases were found to result in cross-sectional differences in water temperature in the Congaree River downstream of the confluence, with the LSR side of the channel being significantly cooler than the Broad River side. Study results suggested that Broad and



Saluda waters were not completely mixed (from a temperature perspective) until approximately xxx mi below the confluence.

NMFS has noted that the altered thermal regime in the LSR and upper Congree potentially impacts current and/or historic spawning and maturation habitat for shortnose and Atlantic sturgeon, as well as other diadromous species.

## 2.5 Santee River Basin Cooperative Diadromous Fish Accord

Along with USFWS, SCDNR, North Carolina Department of Natural Resources (NCDNR), and Duke Energy, SCE&G is a signatory and funder of the Santee River Basin Accord for Diadromous Fish Protection, Restoration, and Enhancement (Accord). The purpose of this Accord is to collaboratively address diadromous fish protection, restoration and enhancement in the Santee River Basin through implementation of a 10-year action plan. The Accord will remain in effect through the duration of the new license for the Saluda Hydro Project. As currently proposed, the Accord would fund a number of diadromous fish studies in the basin as part of the 10-year Action Plan, including five years of sturgeon research.

### **3.0 PROTECTION AND ENHANCEMENT MEASURES**

#### **3.1 Downstream Dissolved Oxygen Enhancements**

SCE&G proposed in its Final License Application for Saluda Hydro (filed with the FERC on August 27, 2008) to continue turbine aeration measures implemented since 1999 aimed at optimizing DO in Project releases. Specifically, these measures included installation of turbine venting and hub baffles on Project turbines (completed in 1999 and 2005, respectively), as well as implementation of operational modifications (“look-up tables”) developed in recent years to provide guidance regarding unit and gate combinations that provide the greatest DO enhancement under various operating scenarios. These measures have resulted in significant DO improvements in the LSR, with median DO in Project releases increasing from 2.7 mg/L before 1999 to 7.2 mg/L after implementation (1999 to 2007). Likewise, this has resulted in less frequent occurrences of DO levels in the release below 5.0 mg/L, from 88% to about 12% of the time.

SCE&G has also elected to install new turbine runners during the life of the new license for the Project. The proposed turbine runners will be of modern design that offer higher efficiencies, output and DO uptake. While providing for enhanced unit efficiency and maintaining the reliability to generation obligations, the upgrade of the existing unit runners will provide positive benefits for downstream DO levels such that 100% maintenance of the SCDHEC in-stream DO standard may be assured.

#### **3.2 Implementation of Minimum Flows**

SCE&G has also proposed to implement minimum flow releases from Saluda Hydro to support target riverine species in the LSR, including sturgeon. In addition to improved DO conditions (through increased shoaling and turbulence), implementation of minimum flows will likely improve sturgeon habitat by ensuring more stable flows and

by providing depths and velocities that better match the sturgeon habitat requirements. Physical Habitat Simulation (PHABSIM) modeling conducted in support of relicensing suggested that the 1000 cfs minimum flow being proposed for the spring months during a normal water year will provide approximately 60% of maximum Weighted Usable Area (an estimate of available habitat) for shortnose sturgeon. Further, PHABSIM modeling suggested that sturgeon habitat would likely be enhanced by even higher flows, suggesting that the targeted striped bass flows that are part of the minimum flow regime would provide additional enhancement for sturgeon.

**Table 3-1: Summary or Proposed Minimum Flows for Lower Saluda River**

<b>TIME PERIOD</b>	<b>FLOW (cfs)</b>
January 1 – March 31	700
April 1 – May 10	1,000 plus SCDNR striped bass spawning flows <sup>3</sup>
May 11 – May 31	1,000
June 1 – December 31	700

### 3.3 Establishment of a Sturgeon Technical Advisory Team

Under a new FERC license for the Saluda Project, SCE&G will establish a Sturgeon Technical Advisory Team (STAT) consisting of the following agencies in addition to the Licensee: US Fish and Wildlife Service (USFWS), South Carolina Department of Natural Resources (SCDNR) and NMFS. The initial purpose of the STAT will be to collaboratively participate in design and implementation of the sturgeon study program outlined below in Section 3.4.

Following completion of sturgeon study program outlined in Section 3.4, the STAT will integrate the findings of Studies I-III to identify Saluda Project-specific effects and limiting factors, and other limiting factors affecting sturgeon recovery in the study area. To the extent possible, the STAT will then identify practical beneficial actions that can be undertaken to contribute positively to recovery of sturgeon in the Santee River Basin.

### 3.4 Implementation of NMFS-Recommended Studies

Under a new FERC license for the Saluda Project, SCE&G will recommend to the Santee Basin Accord Board that the Studies I and II outlined below be implemented during the initial 5-years of sturgeon studies. In consultation with the STAT, SCE&G

will review the results of the 5-year Accord study period to determine whether the Project-specific objectives of Studies I and II have been met. If it is determined that the Accord studies do not adequately address the Project-specific objectives of Studies I and II, SCE&G will consult directly with the STAT to ensure that the study objectives are met outside of the Accord process.

In the event that Atlantic or shortnose sturgeon are documented in the LSR, SCE&G will also implement Study III as outlined below. Similar to studies I and II, Study III would be implemented through the ACCORD process or independently in consultation with the NMFS.

#### 3.4.1 Study I: Sturgeon Behavior and Movements

**Purpose:** Monitor sturgeon behavior and movements to improve understanding of habitat use patterns in response to river flow regulation, short term and seasonal temperature and dissolved oxygen variations, and availability of suitable habitat in the Saluda, lower Broad, and Congaree Rivers. Improved understanding of factors limiting recovery of sturgeon and other diadromous species is expected to support practical adaptive management actions.

**Methods:** Conduct a telemetry study to monitor movements of sturgeon in the Congaree, lower Broad, and Saluda Rivers, in concert with other telemetry studies in the Santee River Basin. This objective will be achieved by using a receiver array system already in place and in use ([Figure 3-1](#)). Recommendations would be for a 5-year study with annual review of study findings and assessment of factors affecting sturgeon recovery.



**Figure 3-1: Receiver Array System Currently in Use**

#### 3.4.2 Study II: Temperature and Water Quality Monitoring Study

**Purpose:** Establish a temperature and water quality monitoring program to help develop a better understanding of physical habitat factors potentially affecting movements, migrations, spawning, and recovery of sturgeon and other diadromous and resident species of special management interest. Study area should include the Saluda River, lower Broad River, and the Congaree River.

**Methods:** Establish an array of temperature and water chemistry monitoring stations located throughout the study area to allow for automated data collection and analysis. Data analysis should help identify annual and seasonal variations in temperature throughout the study area using GIS spatial analysis tools. An initial 5-year study should be planned with annual review of study findings and assessment of environmental factors actually or potentially affecting sturgeon recovery.

#### 3.4.3 Study III: Habitat Characterization Study

**Purpose:** If Atlantic or Shortnose sturgeon are found in the LSR during Study I, integrate the findings of Studies I and II with a detailed physical habitat study to identify, characterize and map habitats in the lower Saluda, lower Broad, and Congaree Rivers to provide support for a long term sturgeon recovery program in the Santee River Basin. Identify potential critical habitats and limiting factors.

**Approach/Methods:** Conduct a field study to characterize, classify, and map important habitat components in the study area including substrate type, depth/velocity characteristics, location of point source discharges, seasonal temperature and dissolved oxygen distribution, etc. Plan for a one-year initial physical habitat characterization study, with provisions to adapt the habitat characterization based on findings of Studies I and II.





#### **4.0 REPORTING**

A report detailing study results and conclusions will be prepared and filed with the FERC annually after each study year during the 5-year sturgeon study period conducted as part of the Accord. A draft report will be submitted to the agencies participating in the STAT a minimum of 30 days prior to the report being filed with the FERC. Any additional reporting requirements will be determined based on consultation with the state and federal resource agencies.

#### **5.0 SCHEDULE**

The shortnose sturgeon study program outlined in Section 3.4 will be implemented following issuance of a new license for the Saluda Project and in accordance with the Accord schedule. The Shortnose Sturgeon Technical Advisory Team (STAT) (Section 3.3) will be convened a minimum of six months prior to SCE&G recommending any studies for implementation under the Accord. This will provide the STAT enough time to develop the list of studies they would like to have conducted as part of the Accord.

#### **6.0 LITERATURE CITED**

- Newcomb, T.J. and J.S. Fuller. 2001. Anadromous and Catadromous Fish Survey of Santee/Cooper Basin in North Carolina and South Carolina. Department of Fisheries and Wildlife Sciences, Virginia Polytechnic Institute and State University, Blacksburg, VA. Final Report, Prepared for Duke Power, June 25, 2001. 25 pp.
- Welch, S.M. 2000. *A Report on the Historical Inland Migrations of Several Diadromous Fishes in South Carolina Rivers*. Department of Aquaculture, Fisheries and Wildlife, Clemson University, Clemson, SC. Report prepared for Mr. Douglas W. Cook, South Carolina Department of Natural Resources. December 4, 2000. 19 pp.

**Appendix 33**

**2009 SETTLEMENT AGREEMENT SCHEDULE**

# 2009

JANUARY						
S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
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FEBRUARY						
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MARCH						
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MAY						
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31						

JUNE						
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AUGUST						
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30	31					

SEPTEMBER						
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27	28	29	30			

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NOVEMBER						
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29	30					

DECEMBER						
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27	28	29	30	31		

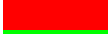


## Internal SCE&G/Kleinschmidt Dates

-  Issue First Draft of Settlement Agreement to SCE&G
-  Internal SCE&G Review of Final Draft Settlement Agreement
-  Finalize Settlement Agreement Package for Filing with the FERC
-  Address Agency Comments on License Articles

## Docment Submittal Dates

-  Issue First Draft of Agreement to Stakeholders
-  Issue Draft License Articles to SCE&G
-  Issue Draft License Articles to Agencies
-  Submit final Settlement Agreement to stakeholders

## Meeting Dates

-  Settlement Agreement meetings
-  Signing Ceremony
-  Agency Meeting to discuss Draft License Articles

## Reponse Dates

-  Receive Agency Comment on License Articles

## Other Important Dates

-  Holidays
-  Finalize Settlement Agreement with Stakeholders
-  File Settlement Agreement and License Articles with FERC

**Appendix 34**

**January 12, 2009 LIP Focus Group Meeting Notes**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
INSTREAM FLOW TECHNICAL WORKING COMMITTEE**

**SCE&G Lake Murray Training Center  
January 12, 2009**

Final JSH 1-26-09

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**ATTENDEES:**

Bill Argentieri, SCE&G	Alan Stuart, Kleinschmidt Associates
Ray Ammarell, SCE&G	Shane Boring, Kleinschmidt Associates
Mark Giffin, SCDHEC	Jeni Hand, Kleinschmidt Associates
Jim Bulak, SCDNR	Dick Christie, SCDNR
Scott Harder, SCDNR	Vivian Vejdani, SCDNR
Milton Quattlebaum, SCANA Serv.	Bill Marshall, SCDNR
Hal Beard, SCDNR	Mike Waddell, Trout Unlimited
Ron Ahle, SCDNR	Gerrit Jobsis, American Rivers
Matt Rice, American Rivers	Gina Kirkland, SCDHEC
Prescott Brownell, NMFS	Malcolm Leaphart, Trout Unlimited
Randy Mahan, SCE&G	

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**NEXT MEETING:** February 20, 2009 at the Lake Murray Training Center  
9:30 AM, Room 103A

**ACTION ITEMS**

- Quantify how additional flows from Lake Murray during low inflow periods would benefit the Santee Cooper lakes.

*Scott Harder*

- Put together a true comparison of equitability (sharing the pain) between the lake and the river.

*Agencies/stakeholders*

- Provide data on frequency of generation and the amount of water associated with each generation for the Saluda Hydro Project for moderate years.

*Ray Ammarell*

- Correlate frequency of generation from Saluda Hydro with temperature effects in the Congaree River.

*Jim Bulak*

- Discuss Trout Unlimited's proposal with the Recreation TWC.

*Bill Argentieri/Kleinschmidt*

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## **INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Bill Argentieri noted that at the last Instream Flow Technical Working Committee (TWC) meeting on December 10, 2009, agencies and stakeholders presented a new minimum flow proposal for the Lower Saluda River (LSR) for SCE&G to evaluate. Bill A. noted that he sent out an email explaining SCE&G's alternate proposal for the LSR's minimum flow and Low Inflow Protocol (LIP). He explained that SCE&G examined impacts to the lake and when the Broad River flows are moderate and inflow to Saluda is low. Based on these two conditions the most critical times for the lake are when the inflow is marginal or low. Bill A. noted that the email explains SCE&G's recommendations, but did not however include the LIP portion of the recommendation in the April/May time frame. He noted that Ray Ammarell will include and explain the LIP recommendations in his presentation.

*SCE&G's Minimum Flow and Low Inflow Protocol Alternate Proposal, Ray Ammarell  
The PowerPoint presentation may be viewed at the following link:*

<http://www.saludahydrorelicense.com/documents/STBasMinFlowLIPComparison2009-01-12.pdf>

Ray briefly discussed the new instream flow proposal requested by the SCDNR and Instream Flow TWC for striped bass spawning. The proposal was as follows:

- January –March: 700 CFS / 500 CFS LIP (no change);
- April 1 –May 10: Implement SCDNR striped bass flows as target flows, with 1,000 CFS minimum flow and 1,000 CFS LIP flow;
- May 11 –May 31: 1,000 CFS / 1,000 CFS LIP;
- June –December: 700 CFS / 500 CFS LIP (no change); and
- Use 2' drop / 14 day flow averaging LIP.

Ray noted that SCE&G recommends the following modified instream flow proposal:

- January –March: 700 CFS / 500 CFS LIP (no change);
- April 1 –May 10: Implement SCDNR striped bass flows as target flows, with 1,000 CFS minimum flow. Once lake falls below LIP trigger level:
  - 14 day inflow  $\geq$  striped bass request: Implement SCDNR striped bass flows as target flows, with 1,000 CFS minimum flow;
  - 14 day inflow  $<$  striped bass request: 1,000 CFS minimum flow;
  - 14 day inflow  $<$  1,000 CFS: 700 CFS minimum flow;

- 14 day inflow < 700 CFS: 500 CFS minimum flow;
- May 11 –May 31: 1,000 CFS / 700 or 500 CFS LIP as above;
- June –December: 700 CFS / 500 CFS LIP (no change); and
- Use 1' drop / 14 day flow averaging LIP.

Ray depicted several graphs using 18 years of historical data (1991-2008) from the Broad River to provide information on flow needed from the LSR during the April/May time period. He compared the historical percentage of flow from the Broad River to the TWC's requested 2' lake level drop with no LIP in April/May. He noted that the request is met 100% of the time, but the lake level averaged to be 357.1 elevation. He then compared the historical percentage of the Broad River flows to SCE&G's recommendation of a 1' lake level drop with the 14 day LIP in April/May. Ray explained that the requested flows are met 97% of the time over an 18 year period. He noted that if the inflow is 1,000 cfs, SCE&G will provide the 1,000 cfs even if we are in the LIP stage. He explained if the inflow drops below the 1,000 cfs, then SCE&G will drop into the LIP. Ray discussed scenarios for each year where the LIP was used.

In summary, Ray noted that implementing the DNR striped bass flows as target flows with 1,000 cfs hard minimum flow from April 1 – May 10 provided significantly higher percent of Broad River flows from Saluda compared with the historical data. Ray noted using a 2'-14 day LIP provided all the striped bass flows from 1991-2008. He pointed out that using a 1'-14 day LIP reduced the striped bass flows by 10% or more in 4 of the 18 years and resulted in slightly higher June 1<sup>st</sup> lake levels in low flow years. He explained that a 1'-14 day LIP appears to provide more equitable distribution of target storage vs. target flow, especially in lowest flow years.

Malcolm Leaphart noted that Trout Unlimited request 2 weekend days in the April and 2 weekend days in May to reduce the striped bass flows to allow anglers to fish for trout. He noted that 2 days, preferably weekends, out of each month would be sufficient. He noted that TU members are requesting 6 hours in the morning of each day. Bill A. noted that SCE&G does not have a problem with including these requested days as part of the 51 recreation flow days for the LSR as long as it's agreeable to the group. The group agreed.

Gerrit Jobsis noted that he was concerned with exactly how fast water would be released from Saluda to examine temperature effects in the Congaree River. Gerrit requested that the water be released over a 12 hour period minimum. Bill A. suggested a 6 hour period. Bill A. noted that it's important for SCE&G to release the water in an economical manner. Ray noted that a 6 hour minimum block is something they may be able to work with because it's a minimum, but it likely wouldn't get rid of large amounts of slugs at once because SCE&G would be providing higher flows to begin with. Jim Bulak calculated a 1.6°C change in water temperature in the Congaree River as a worst case scenario.

Bill A. asked the group where they stood with SCE&G's minimum flow and LIP proposal. Vivian Vejdani noted that DNR is still uncomfortable with the 1' trigger therefore, they would like to take some time to examine other scenarios, possibly looking at a 1.7 – 2' trigger. Scott Harder noted that he had discussed SCE&G's proposal with Bud Bader and he advised the group to push for a 2' trigger. Vivian also noted DNR did not consider the SCE&G equitability method (percent of time

when river or lake was not able to maintain 100% of their goal) as a far evaluation. Jim noted that the group has made great improvement so far in terms of providing the striped bass flows that were requested. In regards to the LIP and time of release, the group should discuss this internally in more detail. Gina noted that she was in favor of the 1' trigger because it's a good compromise between the lake and river.

Bill A. noted that SCE&G is being pressured by State legislators to not agree to the 2' lake drop LIP. Bill A. specifically noted that striped bass flows should remain separate from the minimum duration of operation request in reference to letters to FERC for the additional information request. Based on that, SCE&G makes two requests to the agencies:

1. Scott Harder was asked to quantify how additional flows from Lake Murray during low inflow periods would benefit the Santee Cooper lakes; and
2. Put together a true comparison of equitability (sharing the pain) between the lake and the river.

Bill A. noted that in regards to minimum duration of operation, Ray will examine past frequencies when Saluda has excess water during April/May time period. Bill A. noted that they would try to provide this in a license article, which would explain how SCE&G would get rid of excess water over a certain time period. Bill A. explained again that this issue should remain separate from the striped bass flows. Bill A. noted that unless there was an objection from the group SCE&G would like to move forward on the proposed minimum flow and LIP proposal issue and present them to the LIP focus group by the end of the month. No objections were noted.

Dick Christie noted that he was curious to know if these flows could be provided frequently each year using a 1' storage 90% of the time. He noted that SCE&G is considering the risks to be equitable based on information from the past and not the future, which is something we can not control. Dick asked if SCE&G would consider including the adaptive management plan in their 1'-14 day LIP proposal. Dick noted that the management plan should include lake level, hydro, downstream and aquatic resources in their proposal, with the intent of not getting the flows (e.g. only getting flows 65% of the time). This should be considered because we don't know what will happen in the future. Prescott Brownell recommended a ten year review period for the striped bass flows, which should be enough time to collect data to examine the effectiveness of the flows. Prescott noted that there should be a 5 year communication period to discuss potential issues with the flows.

Bill A. noted that Ray will provide data on frequency of generation and the amount of water associated with each generation for the Saluda Hydro Project for moderate years. Ray noted that Jim Bulak should be able to use this data to correlate temperature effects.

Bill noted that he would inform the Recreation TWC of Trout Unlimited's proposal to designate 1 weekend in the months of April and May for fishing. If approved, then these days would be included as part of the 51 designated recreation days for the LSR.



**Appendix 35**

**January 30, 2009 LIP Focus Group Meeting Notes**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
Low Inflow Protocol Focus Group**

**Lake Murray Training Center  
January 30, 2009**

draft ACG 2-12-09

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates	Steve Bell, Lake Watch
Alison Guth, Kleinschmidt Associates	Bill Argentieri, SCE&G
Scott Harder, SCDNR	Dave Landis, LMA
Ray Ammarell, SCE&G	Mike Waddell, Trout Unlimited
Matt Rice, American Rivers and SCCCL	Dick Christie, SCDNR
Bob Perry, SCDNR	Vivianne Vejdani, SCDNR
Amanda Hill, USFWS (via conference call)	

**DATE:** January 30, 2009

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Bill Argentieri opened the meeting and noted that there would be several presentations, one from Steve Bell at Lake Watch, as well as presentations from Scott Harder and Dick Christie at DNR and Ray Ammarell from SCE&G. Steve began the meeting with his presentation (available at <http://www.saludahydrorelicense.com/documents/LMWaterAllocations11.pdf>), describing Lake Watch's views behind the reasons for higher lake levels and thus their LIP recommendation. He pointed out that he put this presentation together in order to try to show how lake levels impact the resources. Steve began by explaining how the littoral zone was a critical area and their concern for emergent vegetation. Steve continued to note in his presentation that the vegetative shoreline needs to be inundated from March 15 through the summer if possible. Steve continued through his presentation and noted concerns they had for the resources at the lake. Steve further presented data from a study performed by Gene Hayes on the reservoir. Steve noted that the study indicated the following items: The fishery has been in decline since 1991 (Hayes-2000), the fishery improved after dam remediation due to increased habitat, the current condition was still impacted by draw down. Alan Stuart noted that if fishery has improved after the drawdown, then there may have been benefits to the drawdown. Dick Christie asked if the term "impacted" actually meant that the resource was impacted positively. Steve noted that he interpreted the study of Hayes to describe that the fishery has declined. However, Dick pointed out that this study was targeting only certain species, and when a fishery was declining, every species in the lake is collapsing, versus one or two species that may be going through normal cycles rather than declining.

Dick expressed concern that the slides had a negative connotation and appeared to say that if the water drops below 357' then there are problems on the lake, which is not true. He pointed out that the presentation needed to clarify that the drawdown for the dam remediation is an extended period which is a scenario not anticipated for the LIP. Dick continued to explain that there may be a benefit to the resource during short-duration drawdowns. Steve noted that he was not a biologist, however this is how he interpreted the data.

Steve then discussed lake level impacts to recreation and economics and explained that approximately 50% of dock owners lost access at elevation 354'. Steve noted that lake levels above 356' provide optimum recreational opportunities. He noted that there were boating hazards below 354' as well. It was pointed out that all of the values listed were based on existing guide curve and not the proposed guide curve and implementation of LIP, which will be an enhancement. Steve agreed that if the proposed guide curve was closely maintained then it would be an enhancement. Steve also presented a slide depicting the value of Lake Murray's resources as comparison to the LSR in terms of the size of the resource. Dave Landis added that another way to look at it would be in order for the economy on the lake to maintain health, the lake likely needs to be up to the highest point in the spring to help the activity, as well as the ecosystem, through the summer months. Dave further noted that the proposed guide curve was a great improvement and in normal years would serve both resources (upstream and downstream) well. Dick C. noted that regardless of an LIP, there were going to be periods of very low inflow where the lake level drops, and the LIP is not the factor that puts individuals out of business, it is the drought.

Steve put forth Lake Watch's LIP proposal:

- *SCE&G should operate placing priority on conserving water in the reservoir by adhering closely to the guide curve.*
- *Minimum lake level for late December should be between 354' and 356' based on the watershed condition. SCE&G should bring lake to 358' by March 1, and maintain that level until Sept. 1. SCE&G should gradually bring lake down to 356' by Dec. 31.*
- *Target downstream flows should be provided until the lake drops 6 inches off guide curve. Then flows should be reduced to 400 cfs until the lake rises back to the guide curve. If at anytime the lake should drop below two feet of the guide curve outflows would be reduced to 400 cfs. During "official" drought conditions flows should be reduced to 400 cfs.*

Steve concluded his presentation with a "worst-case scenario" using a two-foot lake level trigger. He depicted that if the lake was at 358' on April 1<sup>st</sup>, it could drop to 350.2 by December 31<sup>st</sup>. Ray Ammarell pointed out that this scenario has not actually happened during the period of record. Dick C. suggested using a scenario that has occurred during the last 68 years of record as an example.

Subsequent to Steve's presentation, Scott Harder with DNR presented the group with information comparing the 1' and the 2' lake level triggers proposed (available at [http://www.saludahydrorelicense.com/documents/DNR\\_policy\\_LIPproposal\\_01-30-2009.pdf](http://www.saludahydrorelicense.com/documents/DNR_policy_LIPproposal_01-30-2009.pdf)). He explained that DNR's management strategy was to look at the whole basin, which included the

Santee-Cooper lakes. Simulations were shown with the new striped bass flows included, as well as without the new striped bass flows. He explained that the 2' trigger would prolong higher flow releases during dry periods and could benefit downstream lakes, as well as instream flow needs. He noted that the prolonged flows would provide an additional daily flow of 200 cfs during low inflow periods in the Santee basin. Scott provided the group with a plot that depicted throughout the year in 2006, 200 cfs typically represents 10-20% of the streamflow deficit, and represents a little higher percentage in 2007. Scott explained that this would not solve all of the problems during a drought, however it could help minimize the severity. He further explained that when an entity was dealing with a basin and water management, as DNR is, they want to be careful on what is done and the impacts it could have on how other basins are managed. He further clarified that they wanted to stay consistent from basin to basin and not set a precedent.

Steve B asked if any research was done on how the 2 ft. trigger was impacting the lake economically. Dick C. noted that he was not aware of any site specific studies to perform a cost/benefit analysis. However, Dick continued to note that they do communicate with the industries. Steve also asked if DNR was able to quantify that the extra cfs will help these industries on the Cooper River. Dick C. replied that it does help support the downstream flows.

Scott went on to discuss a frequency analysis of flow reductions and the time spent at specific lake level intervals. Scott showed a table that depicted frequency and it was shown that, ultimately, the differences were not significant enough to justify using the 1 ft trigger over a 2 ft trigger. Dave Landis asked then why not go with the 1 ft trigger if the differences are insignificant. Dick C. replied that it was because it provided longer flows downstream. Scott also calculated the number of years out of the 69 year period of record that were spent in the LIP using the two-ft trigger vs. the 1 ft. trigger. It was shown that 12 years were spent in the LIP using the 2 ft trigger as opposed to 20 years with the 1 ft trigger.

Scott continued his presentation, reviewing striped bass flows. Steve noted that he would like to see an analysis done on the impacts to the habitat on Lake Murray. Dick C. replied that they were approaching this whole process by trying to enhance the existing baseline conditions. Scott then presented the group with lake level graphs during a good year, as well as a bad year. It was noted that during some years the striped bass flows did not have an impact on the reservoir and in some years there was a slight difference. However, Scott reiterated that from DNR's perspective the differences are not serious enough to warrant the 1 ft. trigger. Steve asked DNR if they did not see the reduction in lake habitat as a serious issue? DNR explained that during the LIP it would only be temporary, and the reductions in available habitat downstream were disproportionately greater and could be seen through the IFIM study.

After lunch, Dick C. gave a presentation comparing "optimum" scenarios in the lake and the river and the percent of time spent in the optimum levels (available at <http://www.saludahydrolicense.com/documents/DChristieSaludaRiver-LakeMurraypresentation.pdf>). The group viewed the charts and it was shown that the percentage of time at optimum levels was much higher for the lake than the river. Dick noted that it shows to him that what DNR has asked for is something reasonable, 86% of time spent at optimal levels on the lake rather than 46% for the river. Dick reiterated that DNR has concern that with the 1 ft. trigger the frequency in which the downstream flow will be reduced will be great, but rather using the 2 foot trigger there will be less flow reductions with a minimal difference in impacts to the lake when comparing the two. Dick further explained the DNR feels as though the lake will be getting a

large share of the water and the proposed guide curve will significantly benefit the biological, and recreational resources on the lake and river over the baseline conditions.

Dick finished up his presentation by noting that DNR recommends that SCE&G implement the proposed flow regime with an LIP using a 2-foot trigger. DNR would agree to including language in the license that would provide for an adaptive management approach. Alan asked if it would be a compromise to have a 1 foot trigger with an adaptive management approach. Dick noted that their current position was still with the 2 ft. trigger.

The group then transitioned into viewing a few slides that Ray had put together on equitability (available at <http://www.saludahydrorelicense.com/documents/SCEGSlides2009-01-30.pdf>). As another perspective on the issue at hand, Ray compared figures on Lake Murray to the Santee Cooper Lakes with the following conclusions: using the 1 foot LIP trigger reduces minimum flow volume by 15,300 ac-ft for the year, and the total releases from the project by 13,100 ac-ft. This represents 2.6% of the annual evaporation from the Santee-Cooper lakes. Or, this is a little over an inch in the Santee-Cooper lakes, if no evaporation takes place. In reality, 1 inch would evaporate in about 5 days in July.

The group concluded presentations and Alan Stuart noted that the group is getting to a point where there may not be the need for any more presentations. He explained that more presentations are not going to get the group any closer to agreement. Alan further re-capped that there is a proposal by SCE&G of one foot trigger. Alan suggested that the group place this issue in the “parking lot” until the Settlement Agreement negotiations.

Bob Perry re-capped DNR’s position and explained that the DNR seeks to balance the lake with downstream and they think they have been very consistent, they think that the 2 ft is extraordinarily fair, and when you over-balance the lake then you are disproportionately affecting the river. Steve replied that he believed that there is no data to support that. Matt Rice suggested that Scott Harder provide Steve with a copy of his presentation. Steve replied that Lake Watch will maintain their position.

Bill Argentieri noted that based on where he sees the group standing, his recommendation is that there is no need to meet with this group again. Bill continued to explain that SCE&G has to file a response to the FERC’s Additional Information Request (AIR) by Feb 24<sup>th</sup>, and the LIP is one of the items in the response. He noted that he wanted to make everyone aware that SCE&G will be filing in the AIR their recommendation of a 1 ft lake level drop and a 14 day averaging period. Bill further explained that they will have some wording in the AIR response stating the other positions and SCE&G is further asking for the time extension to resolve the issue. Amanda Hill (via conference call) noted that for the record, the USFWS is in complete agreement with the DNR proposal. Matt Rice with American Rivers/ SCCCL and Mike Waddell with Trout Unlimited noted that they were in agreement with the DNR proposal, as well. Matt Rice explained that he was not a part of the lake meetings and the discussion of the ecology, however he questioned Steve, noting that the lake groups are basing their proposal on the habitat needs of the reservoir and he would like to see any kind of data that supports that. Dave Landis noted that Matt should contact Steve for a copy of his presentation (as Steve had already left). Dave Landis explained that some of the frustration for the lake homeowners was that this is a dynamic issue; therefore, every time the group met, an aspect would change. He continued to noted that there was some difficulty for the average person to try and absorb the technical information and provide that information to someone else.

Bob asked if their proposal was any different from the one when they visited in early December. Dave Landis replied that it was, due to the inclusion of striped bass flows. Alan asked if there any value in DNR trying to talk to all of LMA at one of their quarterly meetings. Dick replied that if they could come with the information to better explain those issues to the lake groups then they will be happy to do it. Dick explained that DNR's goal is to balance this resource, and it is a difficult job. Dave L. explained that they have a board meeting coming up at which he could present this information. Bill A. thanked everyone for participating. He further pointed out that the group had a very cumbersome LIP to begin with, which they have been able to whittle down into something more manageable, which has been worthwhile.

**Appendix 36**

**DRAFT PROPOSED MAINTENANCE, EMERGENCY, AND HIGH/LOW INFLOW  
PROTOCOL**

**(SUPERSEDES APPENDIX 8)**

**SALUDA HYDROELECTRIC PROJECT P-516**  
**PROPOSED MAINTENANCE, EMERGENCY, AND HIGH/LOW INFLOW PROTOCOL**  
**- DRAFT -**

**PURPOSE**

The proposed Maintenance, Emergency, and Low Inflow Protocol (MELIP) for the Saluda Hydroelectric Project (FERC Project No. 516) is intended to provide operational guidance for abnormal operating situations caused by maintenance activities, emergency situations (including high inflow or flood events), and periods of sustained low inflow or drought conditions.

There are several types of maintenance activities which may require temporary modifications to normal reservoir levels and/or seasonal minimum flow and scheduled recreation flow releases. Certain emergency situations involving the interconnected electric system ("grid"), project structures, equipment, or waterways may also require temporary modifications to normal reservoir levels and/or seasonal minimum flow and scheduled recreation flow releases.

During periods of high inflow or flood events, the project must be operated to safely pass and/or store the high inflow without compromising the safety of the dam and other project structures. This may require temporary modifications to normal reservoir levels and/or seasonal minimum flow and scheduled recreation flow releases, either to pass higher than normal inflow, or to draw down the reservoir in advance of forecast high inflow.

During periods of low inflow, the Licensee's goal is to conserve the remaining water stored in Lake Murray, in order to delay or prevent depletion of the usable storage in the reservoir. This will allow the project to continue to fulfill three primary critical functions for as long as possible during drought periods: Reserve electric generation, municipal water supply, and critical downstream flow releases. This will also act to preserve the recreational and environmental values of the reservoir.

**PROPOSED TARGET RESERVOIR ELEVATIONS**

Normal target reservoir elevations are defined by the proposed Reservoir Guide Curve (Appendix 1). These are reservoir elevations which the Licensee will endeavor in good faith to achieve, unless operating under one of the conditions listed in this Maintenance, Emergency, and Low Inflow Protocol.

**PROPOSED MINIMUM FLOW SCHEDULE**

The seasonal minimum flow regime for the project under normal inflow conditions is currently being evaluated by the Licensee in consultation with the stakeholders. Currently proposed values for the normal seasonal flow regime are:

- January 1 – March 31: 700 CFS
- April 1 – May 10: Striped Bass Enhancement Flow Regime (See Appendix 3 for details.)
- May 11 – May 31: 1,000 CFS
- June 1 – December 31: 700 CFS

At this time, the consensus of the stakeholders is that a low flow of 400 CFS is a reasonable value to provide minimal navigability and preserve suitable conditions for most fish and other aquatic species



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in the lower Saluda River during periods of low inflow.

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**OPERATION DURING MAINTENANCE ACTIVITIES**

Under some maintenance conditions, it may be necessary to operate the project such that reservoir elevations and/or seasonal minimum or scheduled recreation flows cannot be maintained in the normal ranges, even during periods of normal inflow and hydrologic conditions. Examples of such conditions are:

- Scheduled or unscheduled project structure or hydro unit maintenance;
- Scheduled reservoir drawdown below normal minimum elevation due to required inspection or maintenance of project structures, or improvements to lakeside facilities.

To the extent practical, the Licensee will avoid scheduling project structure or hydro unit maintenance that would impact the ability of the Licensee to release the required seasonal minimum flow or scheduled recreation flows, unless it is likely that further damage or unscheduled maintenance would ensue if the work is delayed. If it is determined that the seasonal minimum flows cannot be maintained due to the scheduled maintenance activities, the Licensee will consult with the appropriate resource agencies to monitor and minimize impacts to water quality and aquatic habitat. To the extent practical, the licensee will also endeavor to replace any scheduled recreation flows which are impacted by the scheduled maintenance activities within the same calendar year as originally scheduled.

The reservoir may periodically be drawn down to its minimum level of el. 343.5' (el. 345.0' PD)<sup>1</sup> for repairs to the upstream riprap armor on the original earth dam, inspection or repairs to the intake towers or spillway structure, or to accomplish improvements to boat landings or other recreational sites. Scheduled drawdowns such as this would normally occur during October through February; however the time period may vary depending on the required scope of maintenance work. The Licensee will make public notification of scheduled drawdowns via media releases and announcements on the corporate web site as far in advance as practical.

An unscheduled reservoir drawdown due to unforeseen equipment damage or other reason is very unlikely; however it is possible that this would occur at some time. To the extent practical, the Licensee will take steps to limit the magnitude and duration of any unscheduled reservoir drawdown.

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<sup>1</sup> All elevation references in this MELIP are given in North American Vertical Datum 1988 (NAVD 88); conversion to traditional plant datum (PD, used in numerous supporting studies for this license application and often erroneously referred to as MSL) requires the addition of 1.5 ft.

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**OPERATION DURING EMERGENCIES**

During emergency conditions, it may be necessary to operate the project such that reservoir elevations and/or seasonal minimum or scheduled recreation flows cannot be maintained in the normal ranges, even during periods of normal inflow and hydrologic conditions. Examples of such emergencies are:

- Grid voltage or capacity emergency declared by the Licensee's System Operations Center or Transmission Operations Center;
- Dam safety emergency;
- Emergency plant shutdown due to equipment failure, fire, or other situations which endanger human health and safety or the environment;
- River access special circumstances (e.g., emergency rescue or recovery operations).

During a declared grid voltage or capacity emergency, the Licensee will operate the project as required to maintain or restore the reliability of the electrical system, with due regard to the safety of both the public and the project structures. This may result in deviation from scheduled recreation flows and/or normal reservoir operation levels.

During a dam safety emergency, the safety of the downstream population is paramount, and the Licensee will take actions as required to maintain or restore the integrity of all project water retaining structures. This may result in deviation from seasonal minimum flow, scheduled recreation flows and/or normal reservoir operation levels.

In the event of serious equipment failure, fire, releases or spills, or other conditions which endanger plant personnel, the public, or the environment, it may be necessary to completely shut down the Saluda Hydro plant and limit discharge from the facility to the minimum possible. This may result in deviation from seasonal minimum flow and/or scheduled recreation flows.

Upon request from local emergency response agencies, it may be necessary to decrease or increase the discharge from the Saluda Hydro plant in order to facilitate access to the lower Saluda River for rescue or recovery operations. This may result in deviation from seasonal minimum flow and/or scheduled recreation flows.

If it is determined that the seasonal minimum flows cannot be maintained due to an emergency condition, the Licensee will consult with the appropriate resource agencies as soon as is practical to monitor and minimize impacts to water quality and aquatic habitat. To the extent practical, the licensee will also endeavor to replace any scheduled recreation flows which are impacted by the emergency situation within the same calendar year as originally scheduled.

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**OPERATION DURING HIGH INFLOW PERIODS OR FLOODS**

The Licensee has developed a Flow Forecast Model (FFM) for the purpose of anticipating high inflow events due to large amounts of rainfall in the Saluda River basin draining to Lake Murray. The FFM uses precipitation forecasts from the National Weather Service (NWS) and near real time data from the U.S. Geological Survey (USGS) to estimate inflow to Lake Murray up to 5 days in advance. The Licensee's System Operators also monitor the National Weather Service on a routine basis. In the event a weather system capable of producing heavy precipitation is forecast to impact the Saluda Project, the Licensee's engineering staff runs the FFM using the latest precipitation forecast and current streamflow data from the USGS gauge network. Based on the magnitude and duration of the inflow hydrograph computed by the FFM, the System Operators are advised as to what action to take in order to safely pass and/or store the projected inflow. Such actions may include:

- Reduction of reservoir level below the existing target elevation in advance of or during the weather system to provide storage volume for the forecast inflow;
- Operation of one or more spillway gates to pass inflow in excess of that which can be passed by generation and prevent the reservoir from rising above el. 358.5' (360.0' PD);
- Allowing the reservoir to rise above the existing target elevation in order to store all or a portion of the inflow and limit excessive downstream releases.

Any of these actions may result in deviation from scheduled recreation flows and/or normal reservoir operation levels. To the extent practical, the licensee will endeavor to replace any scheduled recreation flows which are impacted by the high inflow conditions within the same calendar year as originally scheduled.

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**OPERATION DURING LOW INFLOW PERIODS**

For operation during periods of sustained low inflow or drought, the MELIP defines trigger points and procedures for incremental reductions in seasonal minimum flow and downstream recreation flows based on gauged inflow to the project. During periods of normal inflow, the Licensee will operate the Saluda Project to maintain the reservoir level at or near the current target elevation within the proposed normal operating range of el. 352.5' (354.0' PD) to el. 356.5.0' (358.0' PD), while providing the normal seasonal minimum downstream flow and normal scheduled recreation and safety training flows. The project will be available for reserve generation as required by the Licensee's system and obligations under the Virginia-Carolinas Electric Reliability Council (VACAR, or its successor) Reserve Sharing Agreement (VRSA). During times when inflow to the project exceeds the seasonal minimum flow and scheduled recreation flows, the project will generate on an as-needed basis to maintain the reservoir at or near the current target elevation.

If hydrologic conditions in the Saluda River basin draining to Lake Murray worsen and the 14 day average gauged inflow less estimated municipal usage ("net inflow")<sup>2</sup> falls below the scheduled minimum flow, water stored in Lake Murray will be used to augment project inflow to provide the normal seasonal minimum flow until the reservoir level falls to more than 1.0 ft. below the current target elevation. At that time, the Licensee will discharge target minimum flow as follows:

<b>14 Day Average Net Inflow</b>	<b>Target Flow (except April 1<sup>st</sup> – May 10<sup>th</sup>)</b>
< 1,000 CFS	700 CFS minimum flow
< 700 CFS	500 CFS target flow with 400 CFS minimum flow

If 14 day average net inflow falls below the scheduled minimum flow during the April 1<sup>st</sup> through May 10<sup>th</sup> period when the striped bass enhancement flow regime is in effect (as described in Appendix 3), reduced striped bass flows or continuous minimum flow will be implemented as follows, once the reservoir falls to more than 1.0 ft. below the current target elevation:

<b>14 Day Average Net Inflow</b>	<b>Target Flow Provided April 1<sup>st</sup> – May 10<sup>th</sup></b>
< Striped Bass Flow Request	1,000 CFS minimum flow
< 1,000 CFS	700 CFS minimum flow
< 700 CFS	500 CFS target flow with 400 CFS minimum flow

<sup>2</sup> Gauged inflow will be computed each day as the sum of three scaled USGS gauge values for the Saluda River, Little River, and Bush River, less estimated municipal usage from the reservoir. The 14 day average of these daily values will be computed each day. See Appendix 2 for details of inflow scaling and computing net inflow.

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If 14 day average net inflow should fall below the scheduled minimum flow between December 16<sup>th</sup> and January 17<sup>th</sup>, when the target reservoir elevation is within 1.0 ft. of el. 352.5' (354.0' PD), the reservoir will not be required to drop 1.0 ft. below the current target elevation before reducing the minimum flow. Additionally, at any time during a low inflow period (when 14 day average net inflow is less than the scheduled minimum flow), should the reservoir level fall below el. 352.5' (354.0' PD), the minimum flow from the project will be reduced to a target flow of 500 CFS (400 CFS minimum), and will remain at that value regardless of any increase of inflow until the reservoir level has risen above el. 352.5' (354.0' PD).

During low inflow periods, scheduled recreation flows will be reduced in stages. [This is to be determined in consultation with the Recreational Flow TWC.] Once the reservoir level falls to below el. 352.5' (354.0' PD), all scheduled recreation flows will be suspended until the reservoir level has risen above el. 352.5' (354.0' PD).

Scheduled spring and fall safety training flows for the Columbia Fire Department (CFD) Swift Water Rescue Team will be provided in full if the following criteria are met:

Spring: Reservoir level at least 354.5' (356.0' PD) on February 1 for early March safety training.

Fall: Reservoir level at least 354.5' (356.0' PD) on November 1 for early December safety training.

These safety training flow criteria may be modified in a given year if circumstances warrant or permit. If the criteria for providing full safety training flows are not met, a prearranged reduced schedule of flows as described in the Saluda Hydroelectric Project Recreation Plan will be provided by the Licensee and the Columbia Fire Department. [This is to be determined in consultation with the CFD.] If the lake elevation is below 352.5' (354.0' PD) on February 1 for early March safety training or on November 1 for early December safety training these safety training flows will be eliminated for that year.

During extended periods of low inflow, when depletion of the reservoir below el. 348.5' (350.0' PD) is imminent, the Licensee will consult with the South Carolina Department of Natural Resources (SCDNR), the South Carolina Department of Health and Environmental Control (SCDHEC), and other applicable resource agencies to determine if further reductions in minimum flow below 400 CFS should be considered. At that time, the Licensee will also coordinate a joint meeting with consulting agencies and the managers of the municipal water systems which withdraw water from Lake Murray, to determine a drought management plan that could include voluntary or mandatory water conservation measures, as determined by the agencies.

**COORDINATION OF LOW INFLOW PROTOCOL WITH MAINTENANCE ACTIVITIES OR EMERGENCY CONDITIONS**

If maintenance or emergency conditions require modifications to the normal reservoir target elevations and/or the normal minimum flow schedule during low inflow periods, the requirements of

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the maintenance activity or emergency condition may supersede the Low Inflow Protocol operation if necessary.

Drawdown of the reservoir due to maintenance or emergency conditions will not automatically trigger reductions in minimum flow, unless 14 day average inflow falls below the scheduled minimum flow. During refilling of the reservoir after a drawdown, if 14 day average inflow falls below the scheduled minimum flow while the reservoir is below el. 352.5' (el. 354.0' PD), the target flow will be reduced to 500 CFS (400 CFS minimum) until the reservoir exceeds el. 352.5' (el. 354.0' PD).

It should also be noted that the South Carolina Department of Natural Resources (SCDNR) has certain statutory authority under the South Carolina Drought Response Act and Regulations, and nothing in this LIP is intended to abrogate that authority.

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**PERIODIC REVIEW OF PROTOCOL**

Upon request, the Licensee will consult with the South Carolina Department of Natural Resources (SCDNR), the South Carolina Department of Health and Environmental Control (SCDHEC), and other applicable resource agencies every 5 years during the license term to evaluate the effectiveness of the MELIP during the previous 5 years, and to determine if any modifications to the MELIP are required.



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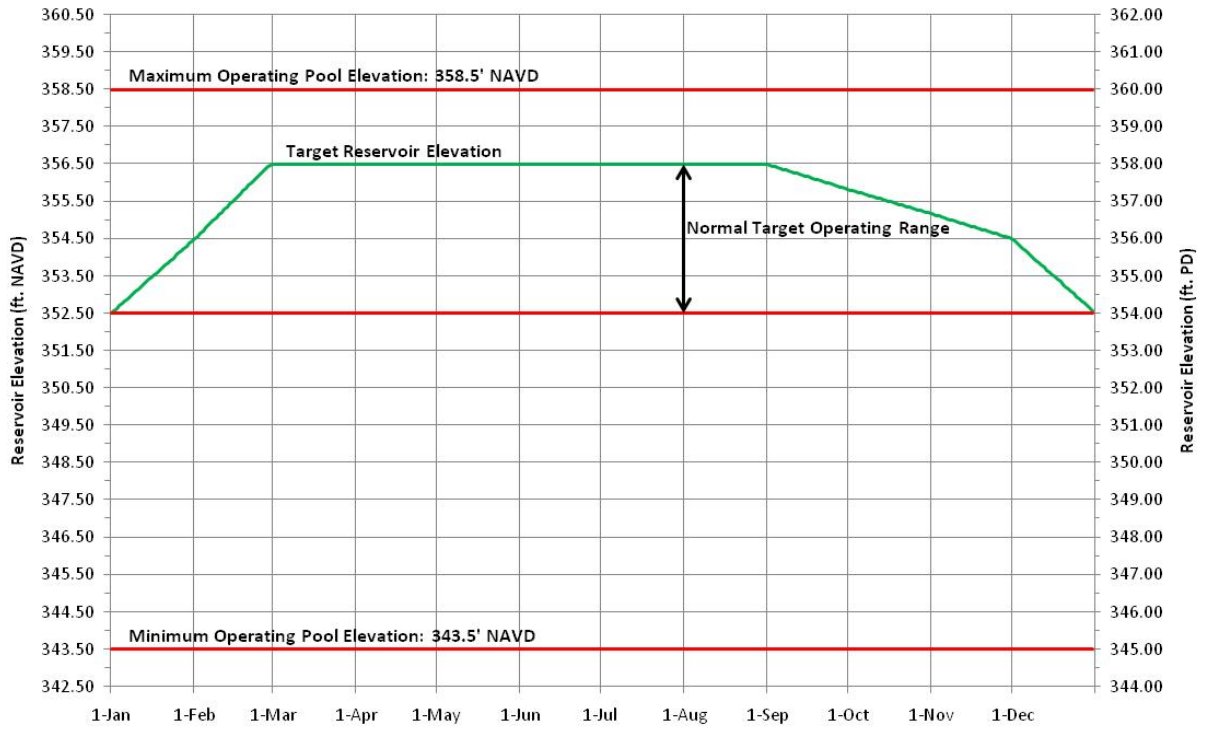
**APPENDIX 1**

**RESERVOIR GUIDE CURVE AND TABLES**

EXHIBIT B-17

Saluda Hydroelectric Project No. 516

Reservoir Guide Curve



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Reservoir Guide Curve Table – Elevations in Feet NAVD

	January	February	March	April	May	June	July	August	September	October	November	December
1	352.50	354.50	356.50	356.50	356.50	356.50	356.50	356.50	356.50	355.83	355.17	354.50
2	352.56	354.57	356.50	356.50	356.50	356.50	356.50	356.50	356.48	355.81	355.15	354.44
3	352.63	354.64	356.50	356.50	356.50	356.50	356.50	356.50	356.46	355.79	355.13	354.37
4	352.69	354.71	356.50	356.50	356.50	356.50	356.50	356.50	356.43	355.77	355.10	354.31
5	352.76	354.79	356.50	356.50	356.50	356.50	356.50	356.50	356.41	355.74	355.08	354.24
6	352.82	354.86	356.50	356.50	356.50	356.50	356.50	356.50	356.39	355.72	355.06	354.18
7	352.89	354.93	356.50	356.50	356.50	356.50	356.50	356.50	356.37	355.70	355.04	354.11
8	352.95	355.00	356.50	356.50	356.50	356.50	356.50	356.50	356.34	355.68	355.01	354.05
9	353.02	355.07	356.50	356.50	356.50	356.50	356.50	356.50	356.32	355.66	354.99	353.98
10	353.08	355.14	356.50	356.50	356.50	356.50	356.50	356.50	356.30	355.64	354.97	353.92
11	353.15	355.21	356.50	356.50	356.50	356.50	356.50	356.50	356.28	355.62	354.95	353.85
12	353.21	355.29	356.50	356.50	356.50	356.50	356.50	356.50	356.25	355.60	354.92	353.79
13	353.27	355.36	356.50	356.50	356.50	356.50	356.50	356.50	356.23	355.57	354.90	353.73
14	353.34	355.43	356.50	356.50	356.50	356.50	356.50	356.50	356.21	355.55	354.88	353.66
15	353.40	355.50	356.50	356.50	356.50	356.50	356.50	356.50	356.19	355.53	354.86	353.60
16	353.47	355.57	356.50	356.50	356.50	356.50	356.50	356.50	356.17	355.51	354.84	353.53
17	353.53	355.64	356.50	356.50	356.50	356.50	356.50	356.50	356.14	355.49	354.81	353.47
18	353.60	355.71	356.50	356.50	356.50	356.50	356.50	356.50	356.12	355.47	354.79	353.40
19	353.66	355.79	356.50	356.50	356.50	356.50	356.50	356.50	356.10	355.45	354.77	353.34
20	353.73	355.86	356.50	356.50	356.50	356.50	356.50	356.50	356.08	355.43	354.75	353.27
21	353.79	355.93	356.50	356.50	356.50	356.50	356.50	356.50	356.05	355.40	354.72	353.21
22	353.85	356.00	356.50	356.50	356.50	356.50	356.50	356.50	356.03	355.38	354.70	353.15
23	353.92	356.07	356.50	356.50	356.50	356.50	356.50	356.50	356.01	355.36	354.68	353.08
24	353.98	356.14	356.50	356.50	356.50	356.50	356.50	356.50	355.99	355.34	354.66	353.02
25	354.05	356.21	356.50	356.50	356.50	356.50	356.50	356.50	355.96	355.32	354.63	352.95
26	354.11	356.29	356.50	356.50	356.50	356.50	356.50	356.50	355.94	355.30	354.61	352.89
27	354.18	356.36	356.50	356.50	356.50	356.50	356.50	356.50	355.92	355.28	354.59	352.82
28	354.24	356.43	356.50	356.50	356.50	356.50	356.50	356.50	355.90	355.26	354.57	352.76
29	354.31	356.43	356.50	356.50	356.50	356.50	356.50	356.50	355.87	355.23	354.54	352.69
30	354.37		356.50	356.50	356.50	356.50	356.50	356.50	355.85	355.21	354.52	352.63
31	354.44		356.50		356.50		356.50	356.50		355.19		352.56

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Reservoir Guide Curve Table – Elevations in Feet Plant Datum (PD)

	January	February	March	April	May	June	July	August	September	October	November	December
1	354.00	356.00	358.00	358.00	358.00	358.00	358.00	358.00	358.00	357.33	356.67	356.00
2	354.06	356.07	358.00	358.00	358.00	358.00	358.00	358.00	357.98	357.31	356.65	355.94
3	354.13	356.14	358.00	358.00	358.00	358.00	358.00	358.00	357.96	357.29	356.63	355.87
4	354.19	356.21	358.00	358.00	358.00	358.00	358.00	358.00	357.93	357.27	356.60	355.81
5	354.26	356.29	358.00	358.00	358.00	358.00	358.00	358.00	357.91	357.24	356.58	355.74
6	354.32	356.36	358.00	358.00	358.00	358.00	358.00	358.00	357.89	357.22	356.56	355.68
7	354.39	356.43	358.00	358.00	358.00	358.00	358.00	358.00	357.87	357.20	356.54	355.61
8	354.45	356.50	358.00	358.00	358.00	358.00	358.00	358.00	357.84	357.18	356.51	355.55
9	354.52	356.57	358.00	358.00	358.00	358.00	358.00	358.00	357.82	357.16	356.49	355.48
10	354.58	356.64	358.00	358.00	358.00	358.00	358.00	358.00	357.80	357.14	356.47	355.42
11	354.65	356.71	358.00	358.00	358.00	358.00	358.00	358.00	357.78	357.12	356.45	355.35
12	354.71	356.79	358.00	358.00	358.00	358.00	358.00	358.00	357.75	357.10	356.42	355.29
13	354.77	356.86	358.00	358.00	358.00	358.00	358.00	358.00	357.73	357.07	356.40	355.23
14	354.84	356.93	358.00	358.00	358.00	358.00	358.00	358.00	357.71	357.05	356.38	355.16
15	354.90	357.00	358.00	358.00	358.00	358.00	358.00	358.00	357.69	357.03	356.36	355.10
16	354.97	357.07	358.00	358.00	358.00	358.00	358.00	358.00	357.67	357.01	356.34	355.03
17	355.03	357.14	358.00	358.00	358.00	358.00	358.00	358.00	357.64	356.99	356.31	354.97
18	355.10	357.21	358.00	358.00	358.00	358.00	358.00	358.00	357.62	356.97	356.29	354.90
19	355.16	357.29	358.00	358.00	358.00	358.00	358.00	358.00	357.60	356.95	356.27	354.84
20	355.23	357.36	358.00	358.00	358.00	358.00	358.00	358.00	357.58	356.93	356.25	354.77
21	355.29	357.43	358.00	358.00	358.00	358.00	358.00	358.00	357.55	356.90	356.22	354.71
22	355.35	357.50	358.00	358.00	358.00	358.00	358.00	358.00	357.53	356.88	356.20	354.65
23	355.42	357.57	358.00	358.00	358.00	358.00	358.00	358.00	357.51	356.86	356.18	354.58
24	355.48	357.64	358.00	358.00	358.00	358.00	358.00	358.00	357.49	356.84	356.16	354.52
25	355.55	357.71	358.00	358.00	358.00	358.00	358.00	358.00	357.46	356.82	356.13	354.45
26	355.61	357.79	358.00	358.00	358.00	358.00	358.00	358.00	357.44	356.80	356.11	354.39
27	355.68	357.86	358.00	358.00	358.00	358.00	358.00	358.00	357.42	356.78	356.09	354.32
28	355.74	357.93	358.00	358.00	358.00	358.00	358.00	358.00	357.40	356.76	356.07	354.26
29	355.81	357.93	358.00	358.00	358.00	358.00	358.00	358.00	357.37	356.73	356.04	354.19
30	355.87		358.00	358.00	358.00	358.00	358.00	358.00	357.35	356.71	356.02	354.13
31	355.94		358.00		358.00		358.00	358.00		356.69		354.06

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**APPENDIX 2 – NET INFLOW COMPUTATION**

**INFLOW SCALING**

The three USGS gauge stations used to compute inflow to Lake Murray are:

02167000 Saluda River at Chappells (gauged drainage area = 1,360 mi<sup>2</sup>)

02167450 Little River near Silverstreet (gauged drainage area = 230 mi<sup>2</sup>)

02167582 Bush River near Prosperity (gauged drainage area = 115 mi<sup>2</sup>)

Since the total drainage area of the Saluda River basin at the Saluda Dam is 2,420 mi<sup>2</sup>, the discharge values recorded at the gauge sites must be scaled to provide an estimate of the total inflow to Lake Murray. The project drainage basin has been divided into seven sub-basins, five of which are downstream of Lake Greenwood and represent inflow to Lake Murray. Two sub-basins (nos. 6 & 7) are un-gauged, and inflow from these areas is estimated based on the Bush River gauge using the scale factors in the table below. [Note: a streamflow gauge was installed in 2008 on the Little Saluda River near Saluda (No. 02167705), however there has been insufficient flow for the USGS to calibrate (rate) the gauge since it was installed. When this gauge has been rated, it will replace the Bush River gauge for estimating flow from sub-basins 6 & 7.]

Basin No.	Name	Area (SM)	Cum. Area (SM)	Gage No.	DA at Gage	Scale Factor		
1	Upper Saluda R.	1,034.0	1,034.0					
2	Lake Greenwood	126.0	1,160.0					
3	Chappells	227.3	1,387.3	02167000	1,360.0	1.020		
4	Little River	283.5	1,670.8	02167450	230.0	1.233		
5	Bush River	140.1	1,810.9	02167582	115.0	1.218	}	6.515
6	Little Saluda River	331.0	2,141.9	Scaled from 7582	115.0	2.878		
7	Lake Murray Direct	278.1	2,420.0	Scaled from 7582	115.0	2.418		

Using these scale factors, the total inflow (Q<sub>total</sub>) to Lake Murray is computed as:

$$Q_{total} = (1.02)(Q_{Chappells}) + (1.233)(Q_{Little R.}) + (6.515)(Q_{Bush R.})$$

**ESTIMATED MUNICIPAL WITHDRAWALS**

Five municipal water intakes are permitted to withdraw water from Lake Murray. The total maximum withdrawal rate for these intakes is estimated to be approximately 120 CFS as of 2008<sup>3</sup>. The actual withdrawal rate varies throughout the year, as estimated in the following table.

Month	Estimated Withdrawal Rate (CFS)	Month	Estimated Withdrawal Rate (CFS)
January	60	July	120
February	60	August	120
March	60	September	120
April	90	October	100
May	100	November	60
June	120	December	60

<sup>3</sup> The existing municipal water intakes are approved for higher withdrawal rates than those shown in the table, which represent estimates of actual withdrawals as of 2008. If water withdrawal rates change or new intakes are approved, the Licensee may modify the estimated withdrawal rates used to compute net inflow.

*- DRAFT -*

The above withdrawal rates are subtracted from the total inflow to Lake Murray to compute the net inflow to the project. The 14 day running average of net inflow is used to determine minimum flow during low inflow periods.

- DRAFT -

**APPENDIX 3 – STRIPED BASS ENHANCEMENT FLOW REGIME**



## PURPOSE

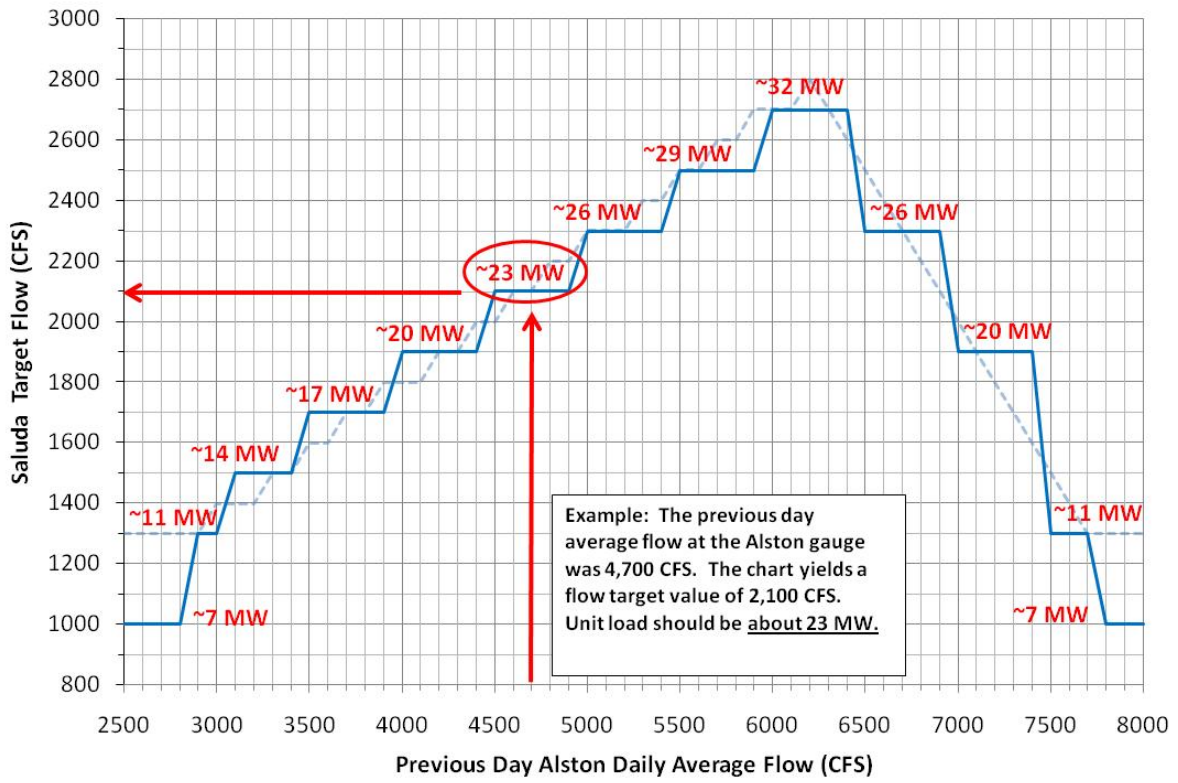
The Striped Bass Enhancement Flow Regime (STB Flows) were originally proposed by the South Carolina Department of Natural Resources (SCDNR) as a means of improving conditions for striped bass spawning in the Congaree River, which is formed by the confluence of the Broad and Saluda Rivers. It is SCDNR's contention that conditions most favorable to striped bass spawning have historically occurred when flow in the Congaree River near the I-77 bridge was approximately 9,000 CFS during the April 1<sup>st</sup> through May 10<sup>th</sup> period. Favorable conditions are also thought to have occurred when the Saluda River contributes approximately 30 percent of the total flow in the Congaree River at Columbia. This corresponds to a flow in the Saluda River which is approximately 45 percent of the flow in the Broad River as measured at the USGS Broad River at Alston, SC gage site (No. 02161000). The SCDNR developed a target flow regime for the Saluda Project designed to maintain the Saluda River's 30% flow contribution to the Congaree River when flow in the Broad River at Alston is between 2,900 and 7,700 CFS during the April 1<sup>st</sup> – May 10<sup>th</sup> period each year. The STB target flow request is summarized as follows:

- April 1<sup>st</sup> – May 10<sup>th</sup>: Each day that the previous day's daily average flow in the Broad River (measured at Alston gage) is between 2,900 CFS and 7,700 CFS, release as a continuous target flow the lesser of:
  - 45% of the previous day's daily average flow in the Broad River at the Alston gage, or
  - The balance of 9,000 CFS in the Congaree River.
- The striped bass request flows are intended to be continuously released over 24 hours and will be target flows with a 1,000 CFS minimum flow to be released when the previous day's daily average flow in the Broad River is less than 2,900 CFS or greater than 7,700 CFS.

The STB target flows will be determined on a daily basis using the previous day's average flow in the Broad River measured at the Alston gage. The STB target flow for a given day will be released to the extent possible as a continuous flow, but the STB target flow will not be considered a minimum flow for the purpose of license compliance. The minimum flow for compliance during April 1<sup>st</sup> – May 31<sup>st</sup> will be 1,000 CFS. There will be no restriction on additional generation by Saluda Hydro if required during the STB flow period each year; when additional generation is no longer required on a given day, the STB target flow for the given day will be resumed. When the previous day's average flow in the Broad River at Alston is less than 2,900 CFS or greater than 7,700 CFS, STB target flows will not be in effect and a continuous minimum flow of 1,000 CFS will be released.

The chart on the following page was prepared to correlate the Broad River flow with the STB target flow request.

### SCDNR Striped Bass Enhancement Target Flow Chart (Modified per 12/9/08 Instream Flow TWC)



**Appendix 37**

**DRAFT AQUATIC PLANT MANAGEMENT MOU MASTER AGREEMENT**

**MASTER AGREEMENT  
FOR THE STATE AQUATIC PLANT MANAGEMENT PROGRAM**

A. Definitions

As used throughout the CONTRACT, the following terms shall have the meanings set forth hereinafter:

1. DEPARTMENT shall mean the South Carolina Department of Natural Resources, or its successor designated as the agency to administer the State's Aquatic Plant Management Program.
2. COUNCIL shall mean the South Carolina Aquatic Plant Management Council or its successor.
3. LOCAL SPONSOR shall mean the public or private entity that provides matching funds for aquatic plant control services on public waterways as identified in the annual PLAN and required by the COUNCIL.
4. FEDERAL FUNDS shall mean funds for aquatic plant control in South Carolina as provided by the U.S. Government under Cooperative Agreement with the DEPARTMENT.
5. PLAN shall mean the annual Aquatic Plant Management Plan as developed by the DEPARTMENT and approved by the COUNCIL.
6. CONTRACT shall mean the terms and conditions contained in this Master Agreement along with the annual Purchase Orders issued by the LOCAL SPONSOR and any Attachments.
7. WORK shall mean the services set forth in or necessary to perform the CONTRACT.

B. General Terms

- I. Annually the DEPARTMENT and the LOCAL SPONSOR shall agree on the need for and the scope of work in accordance with the annual State PLAN. The scope of WORK shall include the estimated cost and estimated local match.
2. The LOCAL SPONSOR shall issue its Purchase Order (or corresponding document) to obligate itself.
3. The DEPARTMENT shall provide for the supply and application of aquatic plant control agents as specified in the PLAN and in accordance with the S.C. Consolidated Procurement Code.

4. The LOCAL SPONSOR shall pay the DEPARTMENT the local match. The local funding obligation reflects a maximum amount based on existing state and federal funds

C. Billing and Payment

1. The DEPARTMENT shall invoice the LOCAL SPONSOR for the local match obligation following treatment.
2. The LOCAL SPONSOR shall make payment to the DEPARTMENT for the invoiced amount not later than thirty (30) days after date of the invoice from the DEPARTMENT.
3. It is agreed and understood that this CONTRACT is to be supported in part by Federal matching funds, and this CONTRACT is contingent upon receipt of such funds from the Federal Government or other such funds that may be available.

D. Duration

1. The terms of this CONTRACT shall continue from year to year except as amended in writing by all of the parties. The Department may cancel the contract with anyone or more of the LOCAL SPONSORS FOR (1) Cause or (2) convenience. Completion of the WORK as agreed to in Section A.I. and payment by the LOCAL SPONSOR ends the obligations of the DEPARTMENT and the LOCAL SPONSOR for the specified year.
2. This CONTRACT becomes effective on the date last entered below.

S.C. Department of Natural Resources

By \_\_\_\_\_  
Director

By \_\_\_\_\_

Date \_\_\_\_\_

Date \_\_\_\_\_

**Appendix 38**

**DRAFT 2009 LAKE MURRAY AQUATIC PLANT MANAGEMENT PROGRAM**

2009

# SOUTH CAROLINA AQUATIC PLANT MANAGEMENT PLAN



Prepared by the  
Aquatic Nuisance Species Program  
South Carolina Department of Natural Resources  
and Approved by the  
South Carolina Aquatic Plant Management  
Council  
2009

## 2009 SOUTH CAROLINA

### AQUATIC PLANT MANAGEMENT COUNCIL

Steven J. de Kozlowski (Council Chairman) -

S.C. Department of Natural Resources, Land, Water, and Conservation  
Division

Jeannie Eidson -

S.C. Department of Health and Environmental Control, Environmental Quality  
Control, Bureau of Water

Bob Perry -

S.C. Department of Natural Resources, Wildlife and Freshwater Fisheries  
Division

Marc L. Cribb -

S.C. Department of Natural Resources, Land, Water, and Conservation  
Division

David L. Tompkins -

S.C. Department of Agriculture

Jeff Thompson -

S.C. Department of Health and Environmental Control, Environmental Quality  
Control, Office of Coastal Resource Management

John Inabinet -

S.C. Public Service Authority (Santee Cooper)

Stan Hutto -

S.C. Department of Parks, Recreation, and Tourism

Cam Lay -

Clemson University, Department of Pesticide Regulation

Appointment Pending-

Governor's Office



DRAFT

## Lake Murray

(Lexington, Newberry, Richland and Saluda Counties)

### Problem plant species

Hydrilla, Illinois pondweed, Water Primrose

### Management objectives

Maintain reduced hydrilla and Illinois pondweed growth throughout the lake to minimize its spread within the lake, help prevent its spread to adjacent public waters, and minimize adverse impacts to drinking water withdrawals and public use and access.

Monitor water primrose growth and consider control options if impacts are greater than anticipated.

Maintain diverse aquatic plant community through selective application of control methods and introduction of desirable native plant species.

### Selected control method

Triploid grass carp stocked in 2003 substantially reduced hydrilla coverage in Lake Murray during 2003-200. Consequently, no additional grass carp stockings are planned for these areas in 200. However, hydrilla populations and potential regrowth will be carefully monitored and in the event that survey results and regrowth warrant, the Aquatic Plant Management Council may reconsider the need for additional grass carp.

Mechanical harvester – short-term control in selected areas to provide public access and clear areas around municipal water intakes.

Aquatic herbicides - short-term control in selected areas to provide public access and clear areas around municipal water intakes.

Problem Species

Control Agents

Hydrilla

Chelated copper (Nautique)

Water primrose

Renovate 3, Habitat, Clearcast

### Area to which control is to be applied

If needed, release triploid grass carp in areas of the lake with greatest hydrilla growth.

Use mechanical harvesters or aquatic herbicides to provide immediate short-term control at high priority public access points, such as boat ramps and park sites, and municipal water intakes (75 acres of water primrose).

### **Rate of control agent to be applied**

If hydrilla acreage in 2008 warrants, additional grass carp may be stocked at the rate of 15 fish per vegetated acre following Council approval.

Harvest acreage as needed to provide public use, access and clear areas around municipal water intakes.

Apply aquatic herbicides to provide immediate short-term control at high priority public access points and municipal water intakes.

Chelated copper - up to 1 ppm

Renovate 3 - 0.50 to 0.75 gallons per acre.

Habitat - 2 to 4 pints per acre.

Clearcast - 1 to 4 pints per acre.

### **Method of application of control agent**

Triploid grass carp - See section 3 above.

Use mechanical harvester as designed.

All agents to be applied when plants are actively growing.

### **Timing and sequence of control application**

If hydrilla acreage in 2008 warrants, additional grass carp may be stocked following Council approval.

Harvest aquatic growth as it becomes problematic; multiple applications are likely.

Apply herbicides to aquatic vegetation as it becomes problematic.

### **Other control application specifications**

If needed, all sterile grass carp will be a minimum of 12 inches in length. All sterile grass carp shipments for Lake Murray will be examined by the SCDNR for sterility, size, and condition at the Campbell Fish Hatchery in Columbia prior to stocking in the lake.

Harvested vegetation must be removed from the lake and deposited on high ground. The harvesting process must minimize adverse impacts to fish.

Control by Residential/Commercial Interests:

This plan is designed to provide relief from noxious aquatic vegetation for the public at large. Private entities such as lake-front residents and commercial interests may have site specific concerns not addressed immediately by the use of grass carp or mechanical harvesters at public access areas.

Residential and commercial interests may remove nuisance aquatic vegetation manually or by use of mechanical harvesting devices. Of the three major control methods the following conditions apply.

- 1) Mechanical harvesters – Commercial aquatic plant harvesting services may be hired to remove hydrilla and Illinois pondweed from areas adjacent to residential and commercial property after notification of SCE&G. Harvesting precautions as stated in item above must be adhered to.
- 2) Aquatic herbicides – SCE&G opposes regular or general application of herbicides in Lake Murray, therefore, aquatic herbicides may not be applied in the lake by lake front property owners.
- 3) Sterile grass carp - A sufficient number of grass carp are being stocked by SCDNR to control nuisance aquatic vegetation. Stocking additional grass carp in Lake Murray without written consent by the SCDNR is prohibited.

#### **Entity to apply control agent**

Triploid grass carp - Commercial supplier with supervision by the SCDNR.

Mechanical harvester – Commercial harvester under supervision of SCE&G at park sites and public boat ramps; private marina operators to contract for application at commercial boat ramps.

Aquatic herbicides - Commercial applicator under supervision by the SCDNR.

#### **Estimated cost of control operations**

Triploid grass carp - None anticipated

Mechanical harvester - \$500-1000/acre

Aquatic herbicides - \$0

#### **Potential sources of funding**

Triploid grass carp if needed.

S.C. Electric and Gas Company, Lexington and Richland Counties 50%

U.S. Army Corps of Engineers 0%

S.C. Department of Natural Resources 50%

Mechanical harvester, S.C. Electric and Gas Company, Commercial marina operators, and residential property owners.

Aquatic herbicides

S.C. Electric and Gas Company, Lexington and Richland Counties 50%

U.S. Army Corps of Engineers 0%

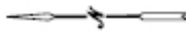
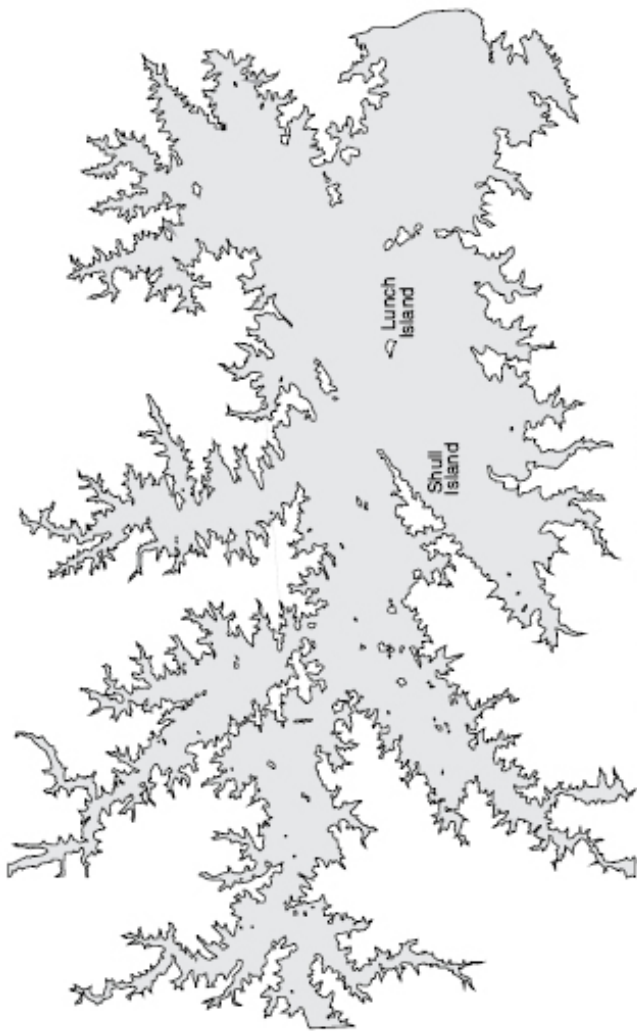
S.C. Department of Natural Resources 50%

(Percentage of match subject to change based on availability of Federal and State funding.)

#### **Long term management strategy**

- a) Manage the distribution and abundance of nuisance aquatic plant populations at levels that minimize adverse impacts to water use activities and the environment through the use of federal and state approved control methods.
- b) Maintain or enhance native aquatic plant populations at levels beneficial to water use, water quality, and fish and wildlife populations through selective control of nuisance plant populations where feasible, introduction of native plant species where appropriate, and public education of the benefits of aquatic vegetation in general.
- c) Seek to prevent further introduction and distribution of problem species through public education, posting signs at boat ramps, regular surveys of the water body, and enforcement of existing laws and regulations.
- d) Improve public awareness and understanding of aquatic plant management activities through the maintenance of the Lake Murray Aquatic Plant Management web site. The web site includes up-to-date information on annual management plans, dates and locations of current and historical control operations, locations of habitat enhancement activities, and other pertinent information.
- e) Periodically revise the management strategy and specific control sites as new environmental data and control agents and techniques become available and public use patterns change.
- f) Water primrose - Water primrose, a shoreline plant, became problematic in the upper portion of the lake last year. The two-year drawdown exposed a lot of unvegetated shoreline where water primrose quickly spread and re-established at the 345-348 foot contour level. While this plant can be invasive and cause localized problems, it has been in the lake for decades and is typically not a threat to general public access and use of the waterway. Based on past experience, it is expected that most of the plants that are rooted in deep water will not survive after the lake level returns to full pool. Therefore, there are no plans to control its growth this year. However, the SCDNR and SCE&G will monitor water primrose growth and consider control options if impacts are greater than anticipated.

# Lake Murray



**Appendix 39**

**JANUARY 28, 2009 DRAFT RECREATION MANAGEMENT TWC NOTES**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

**Lake Murray Training Center  
January 28, 2009**

draft ACG 2-22-09

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates  
Alison Guth, Kleinschmidt Associates  
Tommy Boozer, SCE&G  
Ron Ahle, SCDNR  
Bill Argentieri, SCE&G  
Bill Marshall, LSSRAC  
Charlene Coleman, American Whitewater  
Joy Downs, LMA

Mike Waddell, TU  
Vivianne Vejdani, SCDNR  
Dave Landis, LMA  
Tanjenique Paulin, SCDNR  
Tim Vinson, SCDNR  
Tony Bebbler – SCPRT  
Dave Anderson, Kleinschmidt Associates  
Karen Kustafik – COC Parks and Rec  
Dick Christie, SCDNR

**DATE:**            *January 28, 2009*

---

**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson began the meeting by progressing through the agenda. The first item for discussion was a presentation on the recreation plan. Dave explained that the original recreation plan straw-man was provided to the group in July of 2006, with the initial draft being distributed in March of 2008. He further pointed out that they were currently working on the final TWC draft. Dave reviewed through the different sections of the draft plan, as well as the proposed improvements to the various recreation sites on the Lake and the River. As the group reviewed through the proposed improvements, Bill Marshall noted that they had suggested the need for a restroom at Mett's Landing was curious as to why it was not included. Tommy explained that there were activities occurring there that made them reconsider placing a structure in that area. It was further reiterated that these were just what was proposed for the first 10 years and may be possible for the future if conditions improved.

Next, Dave reviewed the proposed sites for future recreation. He explained that, at this time, they will not see any formal facilities on the reserved property until it is decided that development is needed. Dave continued to review through document outline, and as Dave completed the presentation he reviewed back through the sites to take any comments. It was pointed out that two-bird cove and hurricane hole are identified as existing recreation, and in the license application



SCE&G proposed the de-designation of these two coves. It was asked if these two site would be then taken off of this table, to which Dave replied they will add a footnote to the table or towards the back of the plan that SCE&G is proposing to remove the classification on these sites. Tony also suggested adding that that land is proposed for the forest management classification.

The group also made a few other proposed changes:

- Columns on the table should be widened so that all numbers appear on one line
- Bill Marshall suggested having a table with the existing use of the sites
- Tony suggested adding a sentence to the proposed existing recreation sites noting the addition of 14 tracts on the LSR consisting of 320 acres to the recreation classification
- Dick Christie made suggestions regarding Table 6-1, including the discussion of ADA compliant paths under the appropriate facilities. He also noted that there was a site missing from the table. He added that it was important to capture the fact that the maintenance would be increased from 14 to 18 sites.
- Tony commented on section 6.2 and suggested the addition of a sentence that noted that at the 10 year review of the SMP, reviewing the possibility of another recreation study prior to the end of the second 10 year update.
- Dave Landis suggested that under section 7.1, updating the minimum lake level to 354'. Bill added that he may want to discuss both current and proposed lake levels. Dick Christie suggested adding in the proposed guide curve.
- The group discussed that under section 7-2, there is a need for clarification on current vs. proposed classifications.
- The group discussed that on page 7-6, the placement of shoal markers, add a paragraph that the form is available on the SCE&G website
- The group discussed that the section on minimum flows needs to be updated with the proposed minimum flows.

Tony also suggested including a schedule for the development of existing future sites. Tommy replied that if a schedule was developed, then they would not have the flexibility to develop them as needed. Dave explained that they could add a section that notes the improvements recommended by the TWC after the first 10 year period. An action item for the group would be for everyone to take a look at the proposed future recreation sites and develop a prioritization schedule for years 11 through 20. Bill Marshall asked the group how they should give guidance to Lexington county in order to control what activities occur on leased land. He suggested the possibility of adding in something that required activities to be consistent to the Lower Saluda River Corridor Plan. Tommy noted that the Saluda Shoals park developed a master plan that was proposed to the agencies, however this was not a requirement. The group noted that it would be a good idea to require the development of a master plan in consultation with the agencies for all leased sites.

After lunch Dave asked the group if there were any more recommendations. Tim Vinson asked why the courtesy dock at Lake Murray estates was not being rehabilitated with ADA access. Dave replied that this may be one of the items that is included as a priority after the current 10 year schedule due to the fact that there are also many improvements occurring to the Riverbend site which is in the vicinity. Tommy also noted that if something happened to the docks during a storm or other natural event, then they would be built back ADA.

After the group completed comments, Dave discussed the next steps with the group and noted that there was not the need for additional meetings with the TWC, as they would move forward with the process with the RCG. Dave noted that he would send a clean copy back out to the RCG, and the TWC would further have another opportunity to comment on the RCG review version. Dave further noted the RCG meeting will likely take place in March.

Alan briefly discussed the Settlement Agreement process with the group. He noted that the intent of the Settlement Agreement meetings would be to develop the language by resource area. He noted that if individuals were not interested in a particular resource area they did not have to attend that particular meeting. Alan noted that they would be sending out a draft schedule and the kick off meeting was scheduled for March 11<sup>th</sup>.

The group then gave Malcolm Leaphart the floor to discuss a proposal on recreation flows. Dave provided some background information on the flows posted in the recreation plan and noted that they were currently considering this as final. Dave further explained that there were a few issues relating to low inflows as well as some additional flow requests from DNR for striped bass during the months of April and May. Bill A. explained the striped bass flows to the group and it was noted that they could range from 1000 cfs, or higher, depending on whether or not an LIP was in effect. Malcolm's proposal, originally presented to the Instream Flow group, for recreation flows included the possibility of having a 700 cfs flow for wade fishing on two weekend days a month for a total of 4 weekend days during the April and May time period. The instream flow group noted that they could agree to four partial flow days. These four days would be changed from the 1000 cfs flow to 700 cfs.

Malcolm further explained that Trout Unlimited saw that there would not be flows under 1000 cfs for a two month period in April and May and they would like to have the opportunity for a few lower flow days. Charlene Coleman noted that from a striper fisherman perspective, those days would be essentially removed from their season. Bill Marshall pointed out that there were 51 total recreation days on the table, 26 of which were wade fishing and 25 are higher flows. The group continued to discuss the pros and cons of changing the flows, and it was explained that there will not likely be a large change in water levels during a 5 hour period of time. The group discussed that the recedeance of water in the river is a very slow occurrence, so it would take a very long period of time for the river levels to drop. Karen Kustafik suggested combining the two 5 hour periods into one 10 hour period. After discussion, it was decided that the striper flows would begin April 1 and remain through May 10, however on May 10, they would drop back down to 700 cfs and the one general recreation day during that time period will change to a wade fishing day, and memorial day will stay at 1000 cfs recreation day. It was noted that this information would be taken back to the Instream Flows group. Dick Christie added that the minimum flow should be an adaptive management process, possibly reviewed on a five year basis. With this, the group concluded discussions and adjourned.

**Appendix 40**

**RECREATION PLAN FOR THE SALUDA HYRDOELECTRIC PROJECT  
FINAL TWC DRAFT  
FEBRUARY 2009**

**(SUPERSEDES APPENDIX 22)**

**SOUTH CAROLINA  
ELECTRIC & GAS COMPANY**  
*COLUMBIA, SOUTH CAROLINA*

**SALUDA HYDROELECTRIC PROJECT**  
*(FERC NO. 516)*

**RECREATION PLAN FOR THE SALUDA HYRDOELECTRIC  
PROJECT (FERC NO. 516)**

RCG DRAFT

*FEBRUARY 2009*

*Prepared by:*

***Kleinschmidt***  
*Energy & Water Resource Consultants*

SOUTH CAROLINA  
ELECTRIC & GAS COMPANY  
COLUMBIA, SOUTH CAROLINA

SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)

RECREATION PLAN FOR THE SALUDA HYDROELECTRIC PROJECT (FERC NO. 516)

RCG DRAFT

FEBRUARY 2009

Prepared by:

***Kleinschmidt***  
*Energy & Water Resource Consultants*

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
COLUMBIA, SOUTH CAROLINA**

**SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)**

**RECREATION PLAN FOR THE SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)**

**DRAFT**

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## **1.0 PROJECT DESCRIPTION**

The Saluda Hydroelectric Project (FERC No. 516), which includes Lake Murray and portions of the lower Saluda River, is an existing hydroelectric facility owned and operated by South Carolina Electric & Gas Company (SCE&G). The Project is located in Richland, Lexington, Saluda, and Newberry Counties, SC. The Project impounds the 48,000 acre Lake Murray, a popular recreation area for boating and fishing, having numerous public access sites and supporting several popular recreational sport fisheries. The lower Saluda River, below the Saluda Dam, supports an active recreational fishery and offers a range of paddling experiences from flat water to whitewater with class II to class V rapids.

### **1.1 Regional Setting**

Lake Murray, the lower Saluda River, and the four surrounding counties (Richland, Lexington, Saluda, and Newberry) make up one complete tourism region defined as the Capital City/Lake Murray Country region by the South Carolina Department of Parks, Recreation and Tourism (SCPRT). This region of the state is home to many state, local, and municipal parks which provide a wide range of water and land-based recreation opportunities including hiking, biking, swimming, boating, and angling.

The region surrounding the Saluda Hydro Project includes portions of the Sumter National Forest, Sesquicentennial State Park, Harbison State Forest, and Congaree National Park. Numerous trails, game management sites, and state heritage preserves are also located in close proximity to the Project. In addition, several regional, county, municipal, and local parks are located within close proximity to the Project or provide access to project waters.

### **1.2 Lake Murray**

Lake Murray supports an active recreational fishery and is an important boating resource. The lake is host to numerous national and local fishing



tournaments annually, and is stocked with striped bass each spring by the South Carolina Department of Natural Resources (SCDNR). Surplus bluegill and largemouth bass reared at the SCDNR hatcheries are occasionally stocked as well. The lake supports substantial boating activity, which includes power boats, canoes and kayaks, and sail boats. Lake Murray is the site of 6-8 regattas annually (Mead and Hunt, 2002). In addition, the lake is used as a focal point for holiday and tourist events such as the annual Lake Murray Poker Run and the Independence Day celebrations. There are 14 public access sites on Lake Murray owned by SCE&G. All but two, Dreher Island State Recreation Area and Larry L. Koon Boat Landing, are managed by SCE&G.

### 1.3 Lower Saluda River

The lower Saluda River extends 11 miles from the outflow of the Saluda Dam to its confluence with the Broad River to form the Congaree River near downtown Columbia. Approximately 8 miles of the lower Saluda River is within the project boundary line (PBL). Similar to the Lake, the lower Saluda River also supports an active recreational fishery. The cold waters of the river support a trout and striped bass fishery and offer a range of paddling experiences from flat water to whitewater with class II to V rapids. Approximately 10 miles of the river, from approximately one mile downstream of the Dam to the confluence with the Broad River, is designated by the South Carolina General Assembly (SC Code of Laws Title 49, Chapter 29 South Carolina Scenic Rivers Act) as a State Scenic River (SC Legislature, 1989). Segments of both the lower Saluda River and the Congaree River are also listed on the Nationwide Rivers Inventory (NRI) by the National Park Service (NPS) as possessing “outstandingly remarkable” natural or cultural values. The lower Saluda River from the dam to RM 3 is so designated because it “affords scenic wilderness experience in urban areas; diversified flora and fauna” (NPS, 2007). There are three formal public access sites owned by SCE&G on the lower Saluda River and two, Saluda Shoals Park and James R. Metts Landing, are managed by the Irmo-Chapin Recreation

Commission (ICRC) and the Lexington County Recreation and Aging Commission (LCRAC), respectively.

## **2.0 DATA COLLECTION METHODS**

As part of the Saluda Hydro Project relicensing process, several studies were undertaken during 2006 and 2007. These studies provide information and support conclusions and recommendations made in this Recreation Plan. A variety of data collection methodologies were employed during the performance of these studies. They included the following: vehicle counts, on-site interviews, literature searches, GIS and spatial analysis, carrying capacity analysis, level logger deployment, and HEC-RAS modeling, among other methods. The following are descriptions of the methodologies employed for each effort.

### **2.1 2006 Saluda Hydro Project Recreation Assessment**

The purpose of the 2006 Saluda Hydro Project Recreation Assessment was to evaluate existing and future recreational use, opportunities, and needs for the Saluda Project (Kleinschmidt, 2007a). Specifically, the goals of this study were to characterize existing recreational use of SCE&G's recreation sites on Lake Murray and the lower Saluda River and examine future recreational needs relating to public recreation sites. Primary data collection included site inventories and assessments, counts of vehicles at recreation sites, user surveys, and a waterfowl focus group. Secondary data collection included information from the SCPRT, aerial photographs of boating use on the lake, and available relevant literature. Analyses included current recreation use estimates derived from both vehicle counts and people per vehicle information provided in the user surveys, future recreation use estimates calculated using population growth rates as a proxy for future recreation participation rates, and recreation site capacities using parking as the determinate. Recreation needs to accommodate existing and future use were based on site inventories, conditions, capacity assessments, use estimates and projections, user preferences and opinions, and consultation with relicensing stakeholders.

## 2.2 2007 Saluda Hydro Project Spring Use Addendum

In comments received on the draft 2006 Saluda Hydro Project Recreation Assessment described above, the SCPRT, SCDNR, and the Saluda River Chapter of Trout Unlimited (SRCTU) requested information concerning recreational use during winter/spring (January – May), particularly concerning specific user groups whom they expected to utilize lower Saluda River sites outside of the sampling frame of the 2006 Saluda Hydro Project Recreation Assessment. Therefore, the goals of the 2007 Saluda Hydro Project Spring Use Addendum were to collect additional information concerning spring use on Lake Murray and the lower Saluda River and to identify needs of selected recreational user groups for facilities on the lower Saluda River to support spring use (Kleinschmidt, 2007b). Primary data collection entailed facilitated meetings and personal interviews of recreationists who use recreation sites on the lower Saluda River. Secondary data collection included the 2006 Saluda Hydro Project Recreation Assessment, the Lower Saluda Corridor Plan and Update, and other relevant literature. As with the Recreation Assessment, analysis included calculating current recreation use estimates by applying the percent of total annual use attributable to the months of January and May at Dreher Island State Recreation Area and Saluda Shoals Park to Lake Murray and lower Saluda River recreation site use estimates for Memorial Day through September 30, respectively. Future recreation use estimates were calculated using population growth rates as a proxy for future recreation participation rates. Perceptions of site conditions and needs on the lower Saluda River were obtained from a variety of sources including a literature review, trout angler focus group discussions, and on-site interviews.

## 2.3 2007 Saluda Hydro Project Boating Density Assessment

The goals of the 2007 Saluda Hydro Project Boating Density Assessment were to identify the area available for recreational boating on Lake Murray by lake segment, to assess boat densities occurring under normal (weekend) and peak (holiday) use conditions, and to examine whether recreational boating use of Lake

Murray is currently above, below, or at a desirable, or optimal, level (Kleinschmidt, 2007c). The methodology employed for this effort was derived from standard accepted practices published in the Bureau of Outdoor Recreation (1977) *Guidelines for Understanding and Determining Optimum Recreation Carrying Capacity and Management of Aquatic Recreation Resources* by Warren and Rea (1989). The data used for this study included an examination of existing aerial photographs (The Louis Berger Group, 2002) of recreational boating at the Project and information collected from the survey research portion of the 2006 Saluda Hydro Project Recreation Assessment. Combined, the information provided the inputs necessary to assess recreational boating densities on Lake Murray.

#### 2.4 2007 Saluda Hydro Project Downstream Recreation Flow Assessment

The 2007 Saluda Hydro Project Downstream Recreation Flow Assessment examined downstream flows for the lower Saluda River for various types of recreation at different river reaches under different flow conditions (Kleinschmidt, 2008). The goals of the study included characterizing currently available recreation opportunities on the lower Saluda River, understanding the “rate of change” of the instream conditions of the lower Saluda River at various flows along various river reaches, and identifying potential public safety issues associated with lower Saluda River flows. This study undertook a three-phase approach. Phase I involved a literature review and desktop analysis of the recreation opportunities, patterns of use, physical characteristics, and hydrology of the lower Saluda River. Phase II involved a focus group, structured surveys and on-site reconnaissance of an expert panel of experienced recreationists to assess existing opportunities and the feasibility and potential quality of particular flow ranges for on-water activities. Phase III involved the deployment of water level data loggers at various predetermined intervals along the lower Saluda River. A HEC-RAS model was developed utilizing the level logger data for the purposes of determining maximum stages and rates of change (in feet) for scheduled flow events under simulated operating scenarios.

### ***3.0 SITE DESCRIPTIONS, USE ESTIMATES, BOAT DENSITIES, AND RECREATIONAL FLOW RECOMMENDATIONS***

The following is a summary of the results of the studies related to recreation performed in support of this plan. Detailed results can be found in respective reports (Kleinschmidt, 2007a; 2007b, 2007c; 2008).

#### **3.1 Recreation Site Descriptions**

As of 2007, within the project boundary, there are approximately 130 public, commercial, and private recreation sites<sup>1</sup> supporting such facilities as boat launches, marinas, boat slips, wet and dry storage, campgrounds, picnic areas, beaches, fishing areas and piers, trails, playgrounds, and other facilities. There are 17 “Existing Recreation Sites” owned by SCE&G that function primarily as lake or river access, providing boat launches, shoreline angling, picnicking, and swimming areas. SCE&G has also set aside 10 additional sites that are designated as “Existing Future Recreation Sites.” One of these “Existing Future Recreation Sites,” Bundrick Island, is currently used by boaters as an informal site; there is no road access to the site. The other nine “Existing Future Recreation Sites” are available to the public, but no facilities or amenities are provided on these sites. Collectively, the “Existing Recreation Sites” provide two designated swimming areas, 19 boat launches or carry-in launches, 19 courtesy or fishing piers, and one campground. Restroom facilities are provided at nine of the 20 sites, and picnic tables are provided at 12 sites (Table 3-1). In addition to these sites, there are two overnight anchoring areas required by FERC Order 107 FERC ¶ 62,273 to be designated as Special Recreation Areas: Two Bird Cove and Hurricane Hole Cove. Also, there are 62 islands on Lake Murray available for public recreation use, including primitive camping. Locations of “Existing Recreation Sites,” “Existing Future Recreation Sites,” private sites, and commercial sites on Lake Murray and the lower Saluda River can be found in Appendix A. The following

sections concentrate on the 17 “Existing Recreation Sites,” as well as Bundrick Island and two informal access sites on the lower Saluda River that are owned by SCE&G but outside the PBL (Mill Race)<sup>2</sup>.

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<sup>1</sup> For purposes of this Recreation Plan, public recreation sites refer to sites that are open to the public without discrimination, and which are operated by federal, state, and local agencies or SCE&G. A commercial site refers to a site operated by a business for profit. A private site refers to a site open only to specific individuals via membership or residency requirements.

<sup>2</sup> Although the Mill Race sites are located outside the PBL, they were included in the recreation studies performed during the Saluda Hydro Relicensing Process in order to determine Project effects on recreational use of these sites.

**Table 3-1. Existing Recreation Sites and Existing Future Recreation Sites at the Saluda Hydro Project (2007)**

Name	Site Number	Type of Facility	Acres	# of Picnic Tables	# of Grills	# of Firepits/Rings	# of Boat Pump Outs	# of Trails	# of Shelters	# of Designated Swimming Areas	# of Stores	# of RV Dumping Stations	# of Potable Water	# of Boat Fuel Pumps	# of Trash Cans	# of Docks	# of Playgrounds	# of Showers	# of Concessions	# of Wet Slips	# of Parking Spaces	# of ADA Spaces	# of Flush Toilets	# of ADA Toilets	# of Portable Toilets	# of RV Sites	# of Cabin Sites	# of Tent Sites	# of Primitive Sites	# of Hard Surfaced Boat Launches	# of Gravel Boat Launches	# of Unimproved Boat Launches	# of Carry-in Launches	Total # of Boat Launch Lanes	# of Courtesy/Fishing Docks	# of ADA Compliant Courtesy/Fishing Docks		
Park Site - Lexington Side	1-01	Picnic Area	17.9	80	45	2	0	Multiple	27	1	0	0	2	0	12	0	0	0	1		343	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Larry L. Koon Boat Landing	1-02	Launch Ramp	1.8	4	2	1	0		1	0	0	0	0	0	1	1	0	0	0		49	2	2	0	0	0	0	0	0	0	1	0	0	0	2	1	1	
Shull Island	1-02A	Future	22.4																																			
Shull Island	1-02B	Launch Ramp	0.4	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0		8	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
Murray Shores	1-03	Launch Ramp	1.6	7	3	1	0		1	0	0	0	0	0	1	1	0	0	0		50	0	0	0	2	0	0	0	0	0	1	0	0	0	2	1	0	
River Bend	1-04	Launch Ramp	11.6	5	1	6	0		1	0	0	0	0	0	2	2	0	0	0		84	0	2	2	0	0	0	0	0	0	1	0	0	0	2	2	0	
Sunset	1-05	Launch Ramp	2.3	1	0	2	0		0	0	0	0	0	0	2	2	0	0	0		28	0	0	0	2	0	0	0	0	0	1	0	0	0	1	2	0	
Simpson's Ferry	1-05A	Future	11.6																																			
Rocky Point	1-06	Launch Ramp	1.7	1	0	0	0		1	0	0	0	0	0	0	0	0	0	0		3	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	0	
Long Pine	1-06A	Future	31.4																																			
Hilton	1-07	Launch Ramp	4.4	5	2	0	0		2	0	0	0	0	0	3	2	0	0	0		37	2	2	0	0	0	0	0	0	0	1	0	0	0	2	2	0	
Hilton	1-07A	Future	27.9																																			
Dam Site - Irmo Side	1-08	Picnic Area/Launch Ramp	6.8	23	13	3	0	Multiple	7	0	0	0	0	0	7	3	0	0	1		181	3	2	2	0	0	0	0	0	0	1	0	0	0	3	3	1	
Saluda Shoals Park	1-09	Picnic Area/Launch Ramp	240.0	50	6	0	0	Multiple	4	1	0	0	0	0	17	0	2	0	1		463	18	6	6	0	0	0	0	0	0	1	0	0	0	1	1	1	
James R. Metts Landing	1-10	Launch Ramp	1.0	0	0	0	0		0	0	0	0	0	0	3	0	0	0	0		25	2	0	0	0	0	0	0	0	0	1	0	0	1	2	0	0	
Dreher Island State Recreation Area	1-11	Campground/Launch Ramp	348.0	219	133	0	2	Multiple	14	0	1	2	2	1	13	4	3	1	0	30	619	14	22	4	0	97	5	15	5	3	0	0	0	6	4	4		
Macedonia Church	1-12	Picnic Area	4.8	4	0	0	0		1	0	0	0	0	0	0	0	0	0	0		12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Higgins Bridge	1-13	Launch Ramp	1.1	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0		8	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	
Kempson Bridge	1-14	Launch Ramp	2.9	0	0	0	0		0	0	0	0	0	0	0	2	0	0	0		16	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	
Gardendale	1-15	Launch Ramp	4.7	0	0	0	0	1	0	0	0	0	0	0	1	0	0	0	0		40	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	
Water Treatment Plant	1-16	Future	4.3																																			
Stone Mountain	1-17	Future	26.5																																			
Cloud's Creek	1-18	Future	3.0																																			
Big Creek	1-19	Future	22.3																																			
Little Saluda Point	1-20	Future	15.4																																			
Bundrick Island	1-21	Future/Informal Site	87.9	0	0	0	0		0	0	0	0	0	0	2	0	0	0	0		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Lake Murray Estates Park	1-22	Launch Ramp	7.7	2	2	0	0		0	0	0	0	0	0	1	2	0	0	0		22	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	
Two Bird Cove <sup>a</sup>	1-23	Special Recreation Area																																				
Hurricane Hole Cove <sup>a</sup>	1-24	Special Recreation Area																																				
Islands <sup>b</sup>		Informal	100.0																																			



<sup>a</sup> SCE&G is proposing to remove the designation of “Special Recreation Area” from these two sites and remove them from the Recreation Plan.

<sup>b</sup> There are 62 SCE&G-owned islands on Lake Murray that are available for public recreation use, including primitive camping. These islands have not been assigned a Site Number as there is no intention of developing the islands into formal recreation sites.

### 3.1.1 Lake Murray

SCE&G owns 14 “Existing Recreation Sites” on Lake Murray and has set aside 62 SCE&G-owned islands in Lake Murray as undeveloped, natural areas that are available for public recreation. Of the 14 “Existing Recreation Sites,” SCE&G operates 12 of them, and leases the remaining two sites, Dreher Island State Recreation Area and Larry L. Koon Boat Landing, to others for use as public recreation areas. With the exception of Dreher Island State Recreation Area and River Bend, all sites are operated for day-use only.

### 3.1.2 Lower Saluda River

There are several formal and informal public access sites on the lower Saluda River, providing a range of water- and land-based recreation opportunities. Boating access for motorized water-craft is limited to the two most upstream access sites, Saluda Shoals Park and James R. Metts Landing, while carry-in access is available at these sites plus Gardendale and Mill Race A (upstream of Riverbanks Zoo and outside of the project boundary) and Mill Race B (downstream of Riverbanks Zoo and outside of the project boundary). Shoreline access for angling and swimming, sunbathing, sightseeing, and/or picnicking is available at all public access sites on the lower Saluda River.

## 3.2 Existing and Future Recreation Use Estimates

Estimated and future recreation use estimates are compiled from two sources: the Recreation Assessment Study Report (Kleinschmidt, 2007a) and the Spring Use Addendum Study Report (Kleinschmidt, 2007b).

### 3.2.1 Existing Recreation Use

The Saluda Hydro Project supported approximately 634,000 recreation days at “Existing Recreation Sites” (plus Bundrick Island but excluding Two Bird Cove, Hurricane Hole Cove, and the islands) within the project boundary during the 2006 peak recreation season, defined as April 1<sup>st</sup> through September 30<sup>th</sup> in the 2003 FERC Form 80 Report on Recreational Resources (Table 3-3). Lake

Murray experienced approximately 463,000 recreation days during this time period (73 percent of total use), while the lower Saluda River (excluding Mill Race) experienced a total of approximately 172,000 recreation days during the peak recreation season (27 percent of total use). Weekday use accounted for 49 percent of total use; 40 percent of total use occurred on weekends; and 11 percent of total use occurs on holidays. June and July account for the majority (40 percent) of total use during this time period. Total use reported in the 2003 FERC Form 80 was 1,250,000 recreation days annually, while the 1997 FERC Form 80 reported 1,200,000 recreation days annually at the Project (SCE&G, 1997; SCE&G, 2003).

The most used “Existing Recreation Sites” on Lake Murray (including Bundrick Island) were Dreher Island State Recreation Area (116,670 recreation days or 25 percent of total use), and Bundrick Island (94,570 recreation days or 20 percent of total use), Dam Site - Irmo Side (54,460 recreation days or 12 percent of total use), and Larry L. Koon Boat Landing (54,080 recreation days or 12 percent of total use). The sites with the least amount of use, equal to or less than 1 percent of total use, were Rocky Point (330 recreation days), Higgins Bridge (3,090 recreation days), and Kempson Bridge (5,620 recreation days).

Because all of the “Existing Recreation Sites” provide access to Lake Murray, it is not surprising that the majority of activities that individuals participated in at these sites were water-based recreation activities (80 percent). Fishing, from either a boat or the bank, was by far the most participated in activity by users of Lake Murray sites (53 percent of total use). After fishing, motor boating (14 percent of total use), swimming (8 percent of total use), and picnicking (5 percent of total use) were popular activities. These sites also supported limited land-based activities such as walking/hiking, sightseeing, and picnicking.

**Table 3-3. Estimate of Recreation Days for Saluda Hydro Project Existing Recreation Sites (plus Bundrick Island) by Month and Day Type, April 1 through September 30, 2006**

	Lake Murray Sites	Lower Saluda River Sites	Mill Race Sites <sup>a</sup>	Total
<b>April</b>				
Weekdays	42,830	17,400	5,570	65,800
Weekends	35,230	6,390	2,880	44,500
Holidays	0	0	0	0
<b>Total</b>	<b>78,060</b>	<b>23,790</b>	<b>8,450</b>	<b>110,300</b>
<b>May</b>				
Weekdays	31,100	16,180	3,190	50,470
Weekends	37,410	5,720	4,600	47,730
Holidays	20,220	4,430	1,570	26,220
<b>Total</b>	<b>88,730</b>	<b>26,330</b>	<b>9,360</b>	<b>124,420</b>
<b>June</b>				
Weekdays	52,800	23,850	13,390	90,040
Weekends	43,440	8,760	6,910	59,110
Holidays	0	0	0	0
<b>Total</b>	<b>96,240</b>	<b>32,610</b>	<b>20,300</b>	<b>149,150</b>
<b>July</b>				
Weekdays	34,300	22,780	4,200	61,280
Weekends	29,860	11,390	5,530	46,780
Holidays	20,950	6,500	1,690	29,140
<b>Total</b>	<b>85,110</b>	<b>40,670</b>	<b>11,420</b>	<b>137,200</b>
<b>August</b>				
Weekdays	26,170	8,180	3,360	37,710
Weekends	30,270	13,350	2,790	46,410
Holidays	0	0	0	0
<b>Total</b>	<b>56,440</b>	<b>21,530</b>	<b>6,150</b>	<b>84,120</b>
<b>September</b>				
Weekdays	20,310	16,310	1,790	38,410
Weekends	24,430	5,770	2,580	32,780
Holidays	13,210	4,480	880	18,570
<b>Total</b>	<b>57,950</b>	<b>26,560</b>	<b>5,250</b>	<b>89,760</b>
<b>Total</b>				
Weekdays	207,510	104,700	31,500	343,710
Weekends	200,640	51,380	25,290	277,310
Holidays	54,380	15,410	4,140	73,930
<b>TOTAL</b>	<b>462,530</b>	<b>171,490</b>	<b>60,930</b>	<b>694,950</b>

<sup>a</sup> Outside the project boundary.

The lower Saluda River supported an estimated 232,420 recreation days total, 171,490 recreation days within the project boundary and roughly 60,930 recreation days outside the project boundary at the Mill Race sites, from April 1<sup>st</sup> through September 30<sup>th</sup>, 2006. The most used sites were Saluda Shoals Park (135,050 recreation days or 58 percent of total use on the lower Saluda River), Mill Race B (37,950 recreation days or 16 percent of total use), James R. Metts Landing (24,520 recreation days or 11 percent of total use) and Mill Race A (22,980 recreation days or 10 percent of total use). The site with the least amount of use was Gardendale (11,930 recreation days or 5 percent of total use).

Activities participated in by users of the lower Saluda River sites were varied. About half of the activities that individuals participated in at these sites were water-based recreation activities (51 percent). As with the Lake Murray sites, fishing, either wading or from a boat, pier, or the bank, was the most participated in activity at lower Saluda River sites (21 percent of total use). Canoeing and kayaking, both flatwater and whitewater, comprised 20 percent of total use, making paddling the second most popular activity. Sightseeing/wildlife viewing was the third most popular activity on the lower Saluda River (13 percent of total use), followed by hiking/walking (12 percent of total use).

### 3.2.2 Future Recreation Use

SCPRT reports that approximately 90 percent of participation in outdoor recreation occurs in an area close to a resident's home for day to day activities (SCPRT, 2002). Activities that require special environments, such as boating and fishing, generally occur within a region of slightly greater proportions around a resident's home, but still nearby to their residence. At the Saluda Hydro Project, a majority of the recreation activity occurring from "Existing Recreation Sites" was attributed to residents of nearby local communities, either shoreline property owners or individuals residing in Columbia, Irmo, Lexington, Gilbert, Newberry, Prosperity and Chapin, and other communities surrounding the lake and the lower Saluda River. A smaller portion of recreational use at the Project was attributed to a more regional population from the outskirts of Richland, Lexington, Saluda, and Newberry Counties.

Because of the association of locality with recreation participation, population growth is typically a good indicator of future recreational use. Cordell et al. (2004) reports that “[p]opulation has been, is, and will be the major driver of outdoor recreation participation growth in this country.” In fact, between 1960 and 2000, the population of southern states grew more rapidly than any other region in the United States (Cordell and Tarrant, 2002). The population of the counties around the lake (Richland, Newberry, Saluda, and Lexington) increased by 4.1 percent between 2000 and 2005 and is projected to increase by another 24.0 percent by the year 2030 (SCBCB, 2005). For counties surrounding the lower Saluda River – Richland and Lexington – population is expected to increase by 31.3 percent from 2005 to 2030, with Lexington County having the fastest population growth of the area, at 41.6 percent from 2005 to 2030 (SCBCB, 2005). If participation in recreation increases at a similar rate, one can expect to see significant increased demand for recreation opportunities in the future, including at those sites that were estimated to be reaching capacity and, in a few cases, exceeding capacity under current use levels.

Estimated recreation use stemming from “Existing Recreation Sites” (including Bundrick Island) at the Saluda Hydro Project could total almost 784,270 recreation days during the recreation season, April 1st through September 30th in the year 2030 -- an increase of approximately 165,000 recreation days (24 percent) over 2006 levels (Table 3-4). Use of Lake Murray public access sites could increase by roughly 110,000 recreation days by the year 2030; use of lower Saluda River access sites (including Mill Race) could increase by approximately 55,000 recreation days in the same time period. Since this estimate of future recreation days was based on population projections, which will likely change over time, a process has been developed to adjust this plan periodically over the life of the license (see Section 6.2). Applying current outdoor recreation trends and existing public recreation facilities, fishing will likely continue to be the dominant activity at the Project in the year 2030.

**Table 3-4. Estimated Future Recreation Days from Existing Recreation Sites (including Bundrick Island) at the Saluda Hydro Project**

Use	Use Estimates (2006)	Estimated Future Participation				
		2010	2015	2020	2025	2030
Population Growth Rates		4.87%	4.62%	4.37%	4.19%	3.68%
Lake Murray Sites	462,530	485,060	507,460	529,640	551,830	572,140
Lower Saluda River Sites	171,490	179,840	188,150	196,370	204,600	212,130
Mill Race Sites	60,930	63,900	66,850	69,770	72,690	75,370
<b>TOTAL</b>	<b>694,950</b>	<b>728,790</b>	<b>762,460</b>	<b>795,780</b>	<b>829,130</b>	<b>859,640</b>

3.2.3 Adequacy of Existing Recreation Sites to Accommodate Existing and Potential Future Recreational Use

During the 2006 recreation season, the capacities of “Existing Recreation Sites” around the lake and on the lower Saluda River were estimated. “Existing Recreation Sites” at the project were generally well used with several sites reportedly being used at their design capacity, particularly on weekends and holidays<sup>3</sup>. The current capacity at which public access sites are used was estimated for all sites with the exception of Bundrick Island, which does not have a parking area, and is used mainly by boaters.

Results suggested that Dam Site - Irmo Side, Park Site - Lexington Side, Rocky Point and Dreher Island State Recreation Area on Lake Murray are consistently used within their design capacities, regardless of day type (weekend, weekday or holiday), and could accommodate additional use. Three sites, River Bend, Higgins Bridge, and Kempson Bridge, are currently used at rates approaching capacity, though this trend was only observed on holidays for River Bend and Kempson Bridge.

<sup>3</sup> For the purposes of this Plan, sites were considered to be utilized within their design capacities if parking areas were less than 75 percent full on weekends. Use is considered to be approaching capacity if parking areas were between 75 and 99 percent full on weekends. Use is considered to be exceeding capacity if parking areas were greater than 99 percent full on weekends.

The remaining seven sites were observed to be used at rates that regularly meet or exceed their design capacities on some or all day types. Larry L. Koon Boat Landing and Shull Island are used beyond their capacities, regardless of day type. Lake Murray Estates Park is utilized at rates that exceed its capacity on weekends, and use exceeds capacity on weekends and holidays at Sunset and Hilton. Capacity is exceeded on holidays at Murray Shores but this site is consistently used within its design capacity on weekdays and weekends. Use at Macedonia Church is considered to exceed design capacity on weekdays and weekends.

### 3.3 Boat Densities on Lake Murray

In addition to the capacity at which “Existing Recreation Sites” along Lake Murray are being used, the boating density study identified the area available for recreational boating on Lake Murray by lake segment (Appendix A), assessed boat densities occurring under normal (weekend) and peak (holiday) use conditions, and determined whether recreational boat use of Lake Murray was currently above, below, or at a desirable, or optimal, level.

Results of the boating density study (Kleinschmidt, 2007c) showed that Lake Murray is currently utilized well below its recreational boating capacity. Weekend percent capacity only exceeds 20 percent in Segment 2. Six segments (1, 6, 7, 8, 10, and 12) had weekend percent capacities between 10 percent and 20 percent, with the remaining five segments (3, 4, 5, 9, and 11) being below 10 percent capacity on weekends. Percent capacity averaged about 12 percent on weekends across the entire reservoir. Holiday use, which is the peak use time for the reservoir, was higher in most segments, leading to higher percent capacities on holidays. Four segments (1, 2, 10, and 12) had percent capacities over 20 percent, with Segment 1 having the highest percent capacity (26 percent). Six segments (3, 5, 6, 7, 8, and 11) had percent capacities between 10 percent and 20 percent. The remaining two segments (4 and 9) were still below 10 percent capacity on holidays. Percent capacity averaged about 16 percent on holidays across the entire reservoir.



### 3.4 Recreational Flow Recommendations on the Lower Saluda River

As stated previously, about half of the total use at “Existing Recreation Sites” on the lower Saluda River is water-based activities. Based on the results of Kleinschmidt (2008), the range of acceptable flows for water-based activities varies by experience level. Generally, whitewater boating opportunities are available at all water levels ranging from 500 cfs and up and are favorable at flows of between 2,300 cfs (rated “good” to “excellent” during the on-site reconnaissance) up to 18,000 cfs. Flatwater canoeing/kayaking, like whitewater boating, is generally available at all water levels ranging from 500 cfs and up, from Metts Landing/Saluda Shoals Park to Gardendale. Power boating, including fishing from a boat, is generally best at flows between 1,000 cfs and 4,000 cfs.

Activities requiring lower flows include wade angling, swimming, and rock hopping. Because these activities involve full or partial body contact with the water, they are best suited at flows that provide minimized current, shallower depths, exposed rocks and shoals, and the presence of eddies. According to Kleinschmidt (2008), wade angling, swimming, and rock-hopping are best enjoyed at flows between 500 and 1,100 cfs.

To some degree, any number or all of the most popular on-water activities are available at flows of 4,000 cfs and less. Boating activities are generally available at flows of between 1,000 cfs and 4,000 cfs. Non-boating on-water activities, such as swimming and wade angling, are best suited for flows of 1,000 cfs or less. Daily average flows of less than 1,000 cfs are generally available 38 percent of the time year-round; hourly average flows of less than 1,000 cfs are generally available 60 percent of the time year-round. Flows of less than 4,000 cfs, daily average, are generally available 83 percent of the time year-round and flows of less than 4,000 cfs hourly average are generally available 27 percent of the time year-round. Higher flows, for whitewater activities such as canoeing/kayaking and rafting, of 12,000 cfs or greater are generally only available approximately 2 percent of the time year-round on a daily average and hourly average basis. However, daily average flows represent a range of flows provided on a daily basis and hourly average flows on an hourly basis. Therefore, peak flows of

12,000 cfs and higher for specific durations are provided much more often than 2 percent of the time year-round.

#### **4.0 CONSULTATION PROCESS AND METHODOLOGY**

Beginning in November 2005, SCE&G has undertaken an extensive consultation process associated with the Saluda Hydro Project Relicensing. After issuance of the Initial Consultation Document (ICD), SCE&G formed the Recreation Resource Conservation Group (RCG) to discuss and resolve recreation-related issues submitted in response to the ICD. The first meeting of the Recreation RCG was held on November 18, 2005. At subsequent meetings, smaller Technical Working Committees (TWC) were formed to deal with specific issues raised during the initial RCG meeting. In the Recreation RCG, three TWCs were formed to deal with recreation-related issues: Recreation Management, Downstream Flows, and Lake Levels. In total, the Recreation RCG and its associated TWCs met over 20 times from 2005 to 2008. Membership lists and meeting minutes are available in Appendix B.

After the formation of the TWCs, the Recreation RCG continued to develop a Work Plan, which included a Mission Statement, Identified Issues, RCG Responsibilities, Tasks and Products, Schedule, and Possible Mitigation Measures to be Considered. The Recreation RCG also developed a Recreation Vision Statement for the Saluda Project and agreed on a Standard Process to aid in the development of this Plan. The Standard Process is further described in Section 4.1 and Section 4.2. The final Work Plan, Vision Statement, and Standard Process can be found in the Recreation RCG Working Documents in Appendix C.

The Recreation Management TWC was tasked with dealing with issues associated with future recreational needs at the Saluda Hydro Project, including facility upgrades and policy. This TWC was used to complete three studies: the Recreation Assessment Study Report (Kleinschmidt, 2007a), the Spring Use Addendum Study Report (Kleinschmidt, 2007b), and the Boating Density Report (Kleinschmidt, 2007c). The results of these studies were described in previous sections and provide the necessary background information for recreation planning at the Saluda Hydro Project.

The Downstream Flows TWC was tasked with developing a schedule of recreational releases for the lower Saluda River. This TWC completed one study: the Downstream Recreation Flow Assessment Report (Kleinschmidt, 2008). The results of this study applicable to recreational flows were described in a previous section. Upon completion of this report, the

Downstream Flows TWC met several times to agree on a recreational flow schedule for the Saluda Hydro Project.

The Lake Levels TWC was tasked with determining an appropriate lake level for recreational activities and examining the effects of various lake levels on recreation. Using results from a previous study (The Lake Murray Association, 2006) and utilizing the Standard Process Questions, the Lake Levels TWC agreed on two lake level scenarios submitted to the Operations RCG.

#### 4.1 Standard Process

In order to remain focused on those issues relevant to the Recreation RCG, the group agreed to use a Standard Process to guide decision making during the consultation process.

#### 4.2 Standard Process Steps and Questions

The four steps of the Standard Process are intended to ensure that all facility improvements and needs identified through the consultation process are consistent with desired future conditions. The first step was to determine desired future condition. This was accomplished through identifying the issues, finalizing the Vision Statement, and completing the first set of questions on the Standard Process Form. The second step was to establish baseline conditions. This was accomplished through the various studies performed during the consultation process. The third step was to determine what actions are needed and when they should occur. This step was accomplished through consultation with the Recreation RCG and was based on results of the various studies performed. Finally, the final step was the consultation associated with various proposals for recreation facility improvements at the Saluda Hydro Project.

#### 4.3 Recreation Solution Principles

Early in the consultation process, the Recreation RCG agreed that it needed a set of “guidelines” to assist with recreation planning to ensure any facility improvements would take into consideration the various issues at the Saluda Hydro Project. The result

was a set of Solution Principles. These Solution Principles can be found in the Recreation RCG Working Documents in Appendix C.

## **5.0 RECREATION SITE RECOMMENDED IMPROVEMENTS AND DEVELOPMENT**

Perceptions of those interviewed at public recreation sites suggest that sites are generally not crowded and in good condition overall. It is desirable to maintain those perceptions and the diversity of the recreation experiences provided while accommodating additional use. However, while many sites accommodate American with Disabilities Act (ADA) compliant parking, few sites are developed to provide a high level of barrier free access. Most sites are not staffed but are frequented regularly by managing personnel and/or law enforcement to check on site and safety conditions. Nonetheless, improved maintenance was recommended for the majority of recreation sites. Specific improvement to “Existing Recreation Sites” and development of “Proposed Recreation Sites” are described in Section 5.1 and 5.2. “Existing Recreation Sites” that do not need improvement, whether because they are not well used or are in satisfactory condition, are described in Section 5.3.

### **5.1 Proposed Improvements at Existing Recreation Sites**

#### **Lake Murray Sites**

##### *Larry L. Koon Boat Landing (1-02; 1.8 acres)*

Larry L. Koon Boat Landing is a large formally developed boat launch. The site is considered in very good condition by visitors. It ranks 4<sup>th</sup> in patronage among Lake Murray public access sites, accommodating 12 percent of all use estimated for the peak season. The site is partially ADA compliant. This site is most commonly used for boat fishing. This is a very popular boat launch, and is well used, frequently to capacity. Of all public access sites on the lake, patrons rated this site as being most crowded. SCE&G owns the site but it is leased to the LCRAC. The LCRAC will continue to be responsible for operation and maintenance (O&M) of the site. At this site, in order to relieve the capacity issues, enhance barrier free access, and eliminate an issue related to the entrance/exit, SCE&G will:

- Evaluate alternatives to increase parking capacity (such as overflow parking at Shull Island [1-02A]);
- Identify substitute sites through education (web site, maps, etc.);
- Pave an ADA compliant path from the parking lot to the restroom facilities; and
- Widen the existing driveway to eliminate the “trailer drop” into the drainage ditch.

*Shull Island (1-02B; 0.4 acres)*

Shull Island is located adjacent to Larry L. Koon Boat Landing. It is relatively undeveloped site with a gravel lot and launch. This site generally serves as overflow for Larry L. Koon Boat Landing. The site is considered by users to be in very good condition. It ranks 6<sup>th</sup> in patronage among all public access sites at the Lake, accommodating approximately 5 percent of all use. This site is not ADA compliant. Boat fishing and swimming are the primary uses of this site. This site is a popular boat launch, frequently used to its capacity. This site should be managed in concert with Larry L. Koon Boat Landing, to accommodate additional parking. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, SCE&G will:

- Add two ADA compliant picnic tables (including an ADA compliant path, as necessary).

*Murray Shores (1-03; 1.6 acres)*

Murray Shores is predominantly a boat launch site. Boat fishing is the most popular activity at this location. It is well developed, and also supports SCE&G’s Shoreline Stabilization Demonstration Project. Murray Shores is considered by its users to be a little above average in its condition. It ranks 7<sup>th</sup> in use among all public access sites, accommodating approximately 5 percent of all estimated use at public access sites at Lake Murray. This site is not ADA compliant. The site accommodates current levels of use and can absorb additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to make the site easier to find, enhance barrier free access, improve safety, and relieve potential future capacity issues, SCE&G will:

- Install additional directional signs to the site (working with Lexington and/or Saluda counties);
- Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary);
- Stripe the existing parking lot;
- Install additional lighting; and
- Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary), depending on availability of a sewer connection. If a sewer connection is not available at the scheduled time of construction, SCE&G will install an ADA compliant vault type restroom facility.

*River Bend (1-04; 11.6 acres)*

River Bend is a formal day use access site, with facilities to support shoreline fishing, picnicking, and boat launching. It is considered by patrons to be slightly above average in condition. It ranks 5<sup>th</sup> in usage among the public access sites on the lake, accommodating approximately 7 percent of all estimated use. This site is partially compliant with the ADA. This site is estimated to be used below design capacity (except for holidays) and can absorb additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to improve barrier free access, relieve potential future capacity issues, and expand the site for potential future use, SCE&G will:

- Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary);
- Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary);
- Pave and stripe the existing overflow parking area; and
- Add 5.9 acres for future use (Site 4B).



*Sunset (1-05; 2.3 acres)*

Sunset is a day use site used primarily for picnicking, shoreline fishing, and some swimming. The site is considered by users to be in very good condition. It ranks 8<sup>th</sup> in usage among the lake sites, accounting for approximately 4 percent of total estimated use. This site does not provide barrier free access. Estimated use is at the site's design capacity. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to provide barrier free access, relieve potential future capacity issues, and expand the site for potential future use, SCE&G will:

- Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary);
- Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary);
- Pave and stripe existing parking area;
- Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary), depending on availability of a sewer connection. If a sewer connection is not available at the scheduled time of construction, SCE&G will install an ADA compliant vault type restroom facility;
- Install stabilization material on the sides of the existing boat ramp to eliminate drop-off conditions;
- Construct an additional ADA compliant paved parking lot; and
- Add 29.9 acres for future use.

*Hilton (1-07; 4.4 acres)*

Hilton is a formal day use site with a boat launch, picnic facilities, and a fishing pier. The site is considered to be in near excellent condition by its users, and ranks 9<sup>th</sup> in usage among all lake sites. It accommodates approximately 3 percent of all estimated use at the lake stemming from public access sites. Boat fishing is reported as the primary activity at this site. This site does not offer barrier free access. Estimated use is at the site's design capacity. SCE&G owns the site and will continue to be responsible for

O&M of the site. At this site, in order to improve barrier free access and improve safety, SCE&G will:

- Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary);
- Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary), depending on availability of a sewer connection. If a sewer connection is not available at the scheduled time of construction, SCE&G will install an ADA compliant vault type restroom facility;
- Install additional lighting; and
- Construct an ADA compliant fishing pier (including an ADA compliant path, as necessary).

*Dam Site - Irmo Side (1-08; 6.8 acres)*

Dam Site - Irmo Side is a well-developed day use recreation area that functions primarily as a boat launch. It is located on the north side of the Saluda Dam. The site is considered well maintained by users. It ranks third in patronage among all public access sites at the Lake, accommodating 12 percent of all estimated use during the peak season. Primary uses of this site are fishing from shore, pier/dock, or boat. It is partially compliant with the ADA. This site is estimated to be used below design capacity and can absorb additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to improve barrier free access and relieve potential future capacity issues, SCE&G will:

- Construct an ADA compliant courtesy dock (including an ADA compliant path, as necessary);
- Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary); and
- Pave an ADA compliant path to the existing restroom facilities.

*Higgins Bridge (I-13; 1.1 acres)*

Higgins Bridge is a rural site with a small, single lane boat launch. It provides access to the upper Saluda River. This site is considered by users to be in average condition. There are no support facilities at this location. The site ranks 14<sup>th</sup> in usage among all 15 public access sites on the lake, accounting for approximately 1 percent of estimated use. This site does not offer barrier free access. Estimated use at this site is approaching design capacity but the site can absorb some additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, SCE&G will:

- Add two ADA compliant picnic tables (including an ADA compliant path, as necessary).

*Kempson Bridge (I-14; 2.9 acres)*

Kempson Bridge is a newly redeveloped site used primarily for boat launching and shoreline fishing. It is considered to be in near excellent condition. It is ranked 13<sup>th</sup> in usage with about 1 percent of all estimated use for the lake. This site is partially compliant with the ADA. The site is estimated to be used below design capacity (except for holidays) and can absorb additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to improve available amenities, SCE&G will:

- Install an ADA compliant vault type restroom facility (including an ADA compliant path, as necessary); and
- Add two ADA compliant picnic tables (including an ADA compliant path, as necessary).

*Lake Murray Estates Park (I-22; 7.7 acres)*

Lake Murray Estates Park is a formal day use site, with facilities supporting shoreline fishing, boat launching, and picnicking. The site is located in a residential

neighborhood, near a gated community. This site is difficult to find without detailed directions. Users of this site consider it to be in very good condition. It is ranked 10<sup>th</sup> in usage among all 15 public access sites, accommodating approximately 3 percent of all estimated use. This site does not provide barrier free access. This site is estimated to be approaching design capacity but can absorb some additional use. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, in order to make the site easier to find, improve available amenities, and relieve potential future capacity issues, SCE&G will:

- Install additional directional signs to the site (working with Saluda County);
- Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary), depending on availability of a sewer connection. If a sewer connection is not available at the scheduled time of construction, SCE&G will install an ADA compliant vault type restroom facility;
- Pave and stripe existing parking area; and
- Pave an ADA compliant path from the parking lot to the existing fishing pier.

*Two Bird Cove and Hurricane Hole Cove (1-23 and 1-24)*

The designation required by FERC Order 107 FERC ¶ 62,273 for Two Bird Cove and Hurricane Hole Cove will be removed.

**Lower Saluda River Sites**

*James R. Metts Landing (1-10; 1.0 acres)*

James R. Metts Landing is predominantly a boat launch site located across the river from Saluda Shoals Park. This site was ranked by its patrons as being in very good condition, the largest percentage of whom use the site for fishing. It ranks 3<sup>rd</sup> in usage among all the lower Saluda River sites, accommodating approximately 11 percent of estimated use. This site is used at capacity. SCE&G owns the site but it is operated by the LCRAC. The LCRAC will continue to be responsible for O&M of the site. At this site, SCE&G will:

- Add two ADA compliant picnic tables (including an ADA compliant path, as necessary); and
- Construct a bank fishing area.

#### *Gardendale (1-15; 4.7 acres)*

Gardendale is a relatively informal access site, with walk-in access and a carry-in launch. Canoeing/kayaking was the most popular activity at this site. Park patrons rated the condition of this site as good to very good. Gardendale is the least used of all the lower Saluda River sites, ranking 5<sup>th</sup>, and accounting for approximately 5 percent of all use. This site does not provide barrier free access. The site is estimated to be used at capacity on weekends. SCE&G owns the site and will continue to be responsible for O&M of the site. At this site, SCE&G will:

- Explore a lease for the property to the ICRC.

#### 5.2 Proposed Future Recreation Sites

In addition to the above proposed improvements at “Existing Recreation Sites,” stakeholders recommended that SCE&G set aside additional project lands for future recreation development. As part of the rebalancing of shoreline classifications conducted in the Lake and Land Management TWC, which included input from the Recreation Management TWC, SCE&G agreed to designate approximately 200 acres and 10 shoreline miles as Recreation (project lands) as well as to include 900 acres of land from outside the project (proposed project lands) in the Recreation classification. These lands have been determined to be topographically suitable for recreational use, free of sensitive resources such as rare, threatened, or endangered (RTE) species, fish spawning beds, wetlands, etc.; and would not be expected to exacerbate current on-water use patterns. These lands include the “Existing Future Recreation Sites” shown in Table 3-1 as well as some additional lands to accommodate future recreational use of the Project. The location of these proposed lands is shown in Appendix D. SCE&G currently owns these properties but may lease the property during the new license term. If the property is

leased during the new license term, SCE&G will inform FERC as to the change in status of the property. These “Proposed Future Recreation Sites” (pending FERC approval of this plan) are:

**Lake Murray**

**Existing Future Recreation Sites**

- Shull Island (1-02A; 22.4 acres)
- Simpson’s Ferry (1-05A; 11.6 acres)
- Long Pine (1-06A; 31.4 existing acres,  
additional 20 acres proposed)
- Hilton (1-07A; 27.9 acres)
- Water Treatment Plant (1-16; 4.3 acres)
- Stone Mountain (1-17; 26.5 acres)
- Cloud’s Creek (1-18; 3.0 acres)
- Big Creek (1-19; 22.3 existing acres,  
additional 15 acres proposed)
- Little Saluda Point (1-20; 15.4 existing acres,  
additional 14.2 acres proposed)
- Bundrick Island (1-21; 87.9 acres)

**Proposed Future Recreation Sites**

- Old Corley Bridge Road (1-25; 2.0 acres)
- Shealy Point Tract (1-26; 40.1 acres)
- Shealy Road Access Area (1-27; 27.6  
acres)
- Rocky Creek (1-28; 648.0 acres)
- Little River/Harmon’s Bridge (1-29; 2.8  
acres)
- Crayne’s Bridge Public Park (1-30; 47.9  
acres)

**Lower Saluda River**

**Existing Future Recreation Sites**

**Proposed Future Recreation Sites**

- Twelve-mile Creek (1-31; 52.0 acres)
- Candi Lane (1-32; 3.1 acres)
- Lower Saluda River (320.2 acres)

### 5.3 Proposed Development of Future Recreation Sites

Several locations have been identified through review of existing recreation management plans, consultation with the Recreation Management TWC, and results of relicensing recreation studies conducted for the Project. As a result, the following sites will be developed within the first ten years of license issuance to accommodate increased future recreational use of project waters.

#### **Lake Murray Sites**

##### *Cloud's Creek (I-18; 3.0 acres)*

Cloud's Creek is located on the south side of the reservoir at the Spann Road bridge, near the intersection of Spann Road and US Hwy 378. SCE&G owns the site and will be responsible for O&M of the site once completed. At this site, in order to provide a take-out/put-in on the Cloud's Creek Canoe Trail, SCE&G will:

- Construct a gravel parking lot for approximately 8 to 10 vehicles; and
- Construct a carry-in launch; and
- Install directional signs to the site (working with Saluda County).

##### *Little Saluda Point (I-20; 29.6 acres)*

Little Saluda Point is located on the south side of the reservoir at the Hwy. 391 bridge, near the intersection of Highway 391 and US Highway 378, adjacent to an existing commercial site, Little River Marina. The existing gravel parking lot, which contains an estimated 10 spaces for vehicles, will be utilized for parking (with permission of Little River Marina). SCE&G owns the site and will be responsible for O&M of the site once completed. At this site, in order to improve bank fishing access on Lake Murray, SCE&G will:

- Construct two ADA compliant fishing piers (including an ADA compliant path, as necessary); and
- Install shoreline stabilization materials as necessary.

*Old Corley Bridge Road (I-25; 2.0 acres)*

Old Corley Bridge Road is located on the west side of Cloud's Creek approximately four miles off of US Highway 378 on Corley Bridge Road. SCE&G owns the site and will be responsible for O&M of the site once completed. At this site, in order to provide a take-out/put-in on the Cloud's Creek Canoe Trail, SCE&G will:

- Construct a gravel parking lot for approximately 8 to 10 vehicles;
- Construct a carry-in launch; and
- Install directional signs to the site (working with Saluda County).

**Lower Saluda River Sites**

*Twelve-mile Creek (I-31; 52.0 acres)*

Twelve-mile Creek is located approximately 3.5 miles below the Saluda Dam and about 2 miles from the boat launches at Saluda Shoals Park and James R. Metts Landing. The site can be accessed via Corley Mill Road from US Highway 378. At this site, SCE&G will:

- Explore a lease for the property to the LCRAC.

*Candi Lane (I-32; 3.1 acres)*

Candi Lane is located approximately 8.5 miles below the Saluda Dam and about 3.5 miles below the Gardendale site. This site is primarily intended to be a take-out above the Mill Race rapids, approximately 0.5 miles downstream. The site can be accessed via Greystone Blvd from Interstate 126. At this site, SCE&G will:



- Explore a lease for the property to the City of Columbia.

#### 5.4 Existing Recreation Sites Not Needing Improvements at This Time

During the course of development of this Recreation Plan, several sites were identified that may need improvements but which are unfeasible for a given reason. SCE&G will continue to monitor site conditions over time to check on user perceptions of the condition ratings at these sites. This will be done informally by staff. If conditions warrant improvements at these sites, they will be detailed in future addenda (see Section 6.2).

#### **Lake Murray Sites**

##### *Park Site - Lexington Side (1-01; 17.9 acres)*

Park Site - Lexington Side is a newly renovated seasonal, day use site, positioned on the south side of the Saluda Dam. Park Site - Lexington Side is the only site that was rated as being in poor condition by patrons, and then only on weekdays. Patronage was also lower than expected at this site. However, it is likely that these results were due to low water levels, beach closure early in the season at a site that is first and foremost a swimming beach, and heavy road construction on Route 6 in 2006. Internal records of revenue collected at this site show that 2006 use at this site was just two percent of historical use (prior to construction beginning on the back-up Saluda Berm). It ranks 12<sup>th</sup> in patronage among all public access sites at the Lake, accommodating one percent of all estimated use during the peak season. Primary use of this site is picnicking (although swimming may increase in use as road and site construction are now concluded). This site provides very good compliance with the ADA. This site is estimated to be used below design capacity and can absorb additional use.

No improvements are schedule for Park Site - Lexington Side during the first ten years of the new license. Park Site - Lexington Side was recently renovated (completed in 2007); therefore, Recreation RCG members felt that no improvements were needed.

Site conditions will continue to be monitored informally by SCE&G staff. SCE&G will continue to be responsible for O&M at this site.

*Rocky Point (1-06; 1.7 acres)*

Rocky Point is a relatively rural day use site. It is small compared to other locations with a boat launch. Rocky Point receives very limited usage, ranking 15<sup>th</sup> (last) in usage among all the lake sites. It accommodates less than one percent of all estimated use for the public access areas on the lake. This site does not provide barrier free access. This site is estimated to be used below design capacity and can absorb additional use.

Since Rocky Point receives such little use, Recreation RCG members decided that no improvements were needed at this time. Site conditions will continue to be monitored informally by SCE&G staff. SCE&G will continue to be responsible for O&M at this site.

*Dreher Island State Recreation Area (1-11; 348.0 acres)*

Dreher Island State Recreation Area is the largest park on the lake in terms of physical area. The Park is formally developed, managed by SCPRT, and provides numerous facilities for day use (boat launches, picnic areas, etc.) and overnight use (campground, villa rentals). The site is considered by its users to be in very good condition. Dreher Island ranks 1<sup>st</sup> in usage among all lake sites. It accommodates approximately 25 percent of all estimated use at the lake. This site is in compliance with the ADA. This site is estimated to be used below design capacity for day use activities and can absorb additional use.

Although Dreher Island State Recreation Area accommodates the most use of all sites on Lake Murray, the site was designed to receive this much use and appears to be used below its capacity. SCE&G will continue to informally consult with park staff to determine if future improvements are necessary. SCPRT will continue to be responsible for O&M at this site.

*Macedonia Church (1-12; 4.8 acres)*

Macedonia Church is a shoreline area used primarily for bank fishing. The site is located adjacent to the church for which it is named. It is considered by users to be in very good condition. It ranks 11<sup>th</sup> in usage among all of the lake access sites, accommodating 1 percent of estimated use. This site does not provide barrier free access. Estimated use is at the site's design capacity; however, patrons frequently use the church parking area for overflow parking.

Since this site receives little use overall, and is considered to be in satisfactory condition, no improvements to this site have been scheduled at this time. SCE&G will continue to informally monitor site conditions. SCE&G will continue to be responsible for O&M at this site.

*Bundrick Island (1-21; 87.9 acres)*

Bundrick Island is an undeveloped area on a peninsula that juts into the Lake. It provides a fairly remote, undeveloped wooded setting with natural sand beaches on the shoreline. Vehicular access is prohibited. The site serves primarily as a day use area for boaters. The site is very popular, ranking 2<sup>nd</sup> in patronage among all public access sites, accommodating approximately 20 percent of all estimated use. This site is not ADA compliant. In addition to boating activities, this site supports primitive camping, picnicking and bicycling.

Although Bundrick Island could potentially be a large park on the southern side of the reservoir near the town of Lexington, Recreation RCG members felt that the site should continue to be managed in its current state for as long as possible. The site serves a unique population and is obviously well liked by patrons. SCE&G will continue to informally monitor this site to see if perceptions change.

## **Lower Saluda River Sites**

### *Saluda Shoals Park (1-09; 240.0 acres)*

Saluda Shoals is a large community park on the lower Saluda River. It provides two miles of trail along the river, access for wade and bank fishing, boat launch, picnic shelters, and a water spray park. It is the only site with a dog park and bridle trails. Saluda Shoals was rated by respondents as being in nearly excellent condition. The site ranks 1<sup>st</sup> in usage, accounting for 58 percent of all use estimated for the lower Saluda River public access sites. Much of this site accommodates barrier free access. The site is well used and enjoyed by patrons. It is used below capacity.

Although Saluda Shoals Park is the most used site on the lower Saluda River, it is currently used within designed capacity. The ICRC monitors site conditions and is in frequent contact with SCE&G regarding site needs. SCE&G will continue to be an active member in this partnership. The ICRC will continue to be responsible for O&M at this site.

### *Mill Race (MILLA & MILLB; 0.9 acres)*

Mill Race A and B are informal shoreline areas on the lower Saluda River, outside the project boundary. They are located at Riverbanks Zoo. Mill Race A is particularly popular with whitewater boaters as it provides access to a short section of whitewater rapids on the lower Saluda River. Mill Race B also provides access to the rapids and may be used as a take-out area. Both sites are used for sunbathing, picnicking, and other leisure activities along the shoreline and on rocky outcroppings in the river. There are no formal facilities at these sites beyond parking associated with the zoo. Mill Race A and B are ranked 4<sup>th</sup> and 2<sup>nd</sup>, respectively, in usage among all the public access river sites. Collectively, these sites accommodated approximately 26 percent of the total estimated use at public access sites on the lower Saluda River. These sites do not provide barrier free access.

SCE&G is not proposing any improvements to these sites as they are located outside the project boundary. The Saluda River Walk, a portion of the Three Rivers Greenway pathway, is being planned by the River Alliance and City of Columbia and will provide significant access in this area. If completed, this phase of the project will provide access to these two sites. While SCE&G is supportive of the River Alliance's plans, it cannot guarantee the Three River's Greenway Project will be constructed. However, SCE&G will continue to work with the River Alliance, City of Columbia, and other groups, with a view toward the ultimate construction of the Three Rivers Greenway pathway.

#### 5.5 Recommended Improvements Not Incorporated at This Time

During the course of development of this Recreation Plan, several improvements were recommended but are not scheduled during the first ten years of the new license. Although members of the Recreation Management TWC made these recommendations, there was not a strong consensus that these improvements were necessary at this time. These improvements are included here for the record and for consideration during future consultation. If conditions warrant these improvements can be made in the future, they will be detailed in future addenda (see Section 6.2).

##### *Parksite (1-01)*

- Expand the parking area

##### *Larry L. Koon Boat Landing (1-02)*

- Provide ADA accessible fishing pier with hard surfaced walkway from parking area to fishing pier that meets ADA Standards
- Expand the parking area

##### *Shull Island (1-02B)*

- Rehabilitate existing ramp to provide steeper slope and access deeper water

- Provide an ADA accessible floating courtesy dock system to allow use at low lake levels
- Pave and delineate parking area to eliminate the migration of sediments into the lake and to provide organized traffic flow and parking
- Expand the parking area

*Murray Shores (1-03)*

- Provide ADA accessible fishing pier with hard surfaced walkway from parking area to fishing pier that meets ADA Standards
- Improve access drive by paving to eliminate the migration of sediments into the lake and control dust
- Expand the parking area or add additional overflow parking

*River Bend (1-04)*

- Expand the parking area or add additional overflow parking

*Rocky Point (1-06)*

- Expand the parking area

*Hilton (1-07)*

- Provide hard surfaced walkway from parking area to fishing pier that meets ADA Standards
- Improve access drive by paving to eliminate the migration of sediments into the lake and control dust
- Expand the parking area or add additional overflow parking

*Dam Site (1-08)*

- Provide ADA accessible fishing pier to allow deep-water fishing during lake drawdowns to level 345'

*Saluda Shoals Park (1-09)*

- Provide bank access area to deep water for fishing opportunities up-stream
- Provide ADA accessible fishing pier with a hard surface area
- Extend the trail network into the additional property recently acquired by ICRC
- Expand the parking area

*James R. Metts Landing (1-10)*

- With the cooperation of the LCRAC, add restroom facilities that meet ADA Standards
- Expand the parking area

*Dreher Island State Park (1-11)*

- Install additional slips at marina
- Create a sailboat mooring area
- Install fishing piers
- Expand the parking area
- Expand wet storage to accommodate 200 slips

*Macedonia Church (1-12)*

- Expand the parking area or add additional overflow parking

### *Higgins Bridge (1-13)*

- Pave access drive and existing parking area to eliminate the migration of sediments into the lake and to provide organized parking and traffic flow
- Access drive should allow for two-way traffic flow for safety concerns
- Expand the parking area

### *Kempson Bridge (1-14)*

- Provide hard surfaced walkway from parking area to fishing pier that meets ADA Standards
- Provide additional paved, organized parking for vehicle/trailer use
- Provide proper number of handicap parking spaces for both vehicle/trailers and car only spaces. There are currently none provided
- Expand the parking area or add additional overflow parking

### *Gardendale (1-15)*

- Explore lease to the Irmo-Chapin Recreation Commission with the following conditions:
  - Pave access road
  - Add picnic tables
  - Add restroom facilities (ADA compliant)
  - Increase capacity
  - Pave parking lot
  - Improve carry-in access (reduce distance from parking area to launch)
- Share cost with ICRC
- Expand the parking area

### *Little Saluda Point (1-20)*

- Expand the parking area



### *Bundrick Island (1-21)*

- Explore lease /development alternatives with the LCRAC and/or SCPRT
- Develop into a formal site
  - A small portion should be utilized for parking area and boat launching facilities should be constructed. Walking trails with an occasional picnic area would protect the natural setting. The Sandy Beach area should remain pristine to continue to protect this unique setting.

### *Lake Murray Estates Park (1-22)*

- Rehabilitate the existing floating courtesy dock system to comply with ADA Standards for use at low lake levels
- Expand the parking area or add additional overflow parking

### *Shealy Point*

- Install a gravel parking lot to accommodate approximately 8 to 10 vehicles (no trailers)
- Install fishing piers
- Install picnic shelters
- Create walking trails

### *Candi Lane*

- Explore lease to the City of Columbia with the following conditions:
  - Install a gravel parking lot to accommodate approximately 20 vehicles (no trailers)
  - Install carry in access

## **6.0 SCHEDULE AND FUTURE CONSULTATION**

Improvements at the Existing Recreation Sites and Proposed Future Recreation Sites will occur according to a schedule as outlined below. In order to accommodate the adaptive nature of recreation planning, the schedule is presented in five-year increments. Additional consultation will be required upon approval of this plan to accommodate additional improvements and/or development of the Proposed Future Recreation Sites beyond the ten year schedule presented here. This future consultation is outlined in Section 6.2.

### **6.1 Implementation Schedule**

Many of the improvements at Existing Recreation Sites are scheduled to be completed within the first five years of license issuance (Table 6-1). Collectively, these improvements should alleviate some congestion at Existing Recreation Sites immediately, improve ADA compliance at the majority of Existing Recreation Sites, provide for more shore-based fishing access, and provide for more shore-based activities. Additionally, possible development of Existing and Proposed Future Recreation Sites are identified beyond the initial ten-year period based on perceived needs for these sites. The development of these sites may change based on additional information and/or the consultation process outlined in Section 6.2. Improvements during the first ten-year period, as noted on Table 6-1, are proposed for completion as noted. Recommendations listed during the second ten-year period, as noted on Table 6-1, are not proposed at this time, but will be evaluated during the second 10-year review period as outlined in Section 6.2.

**Table 6-1: Schedule of Improvements at Existing Recreation Sites and Development of Proposed Future Recreation Sites**

Name	Site Number	Type of Facility	Existing Acres	Years 1 – 5	Years 6 – 10	Years 11 – 15	Years 16 – 20
Park Site - Lexington Side	1-01	Picnic Area	17.9				
Larry L. Koon Boat Landing	1-02	Launch Ramp	1.8	Evaluate alternatives to increase parking capacity; Identify substitutes through education; Pave an ADA compliant path from the parking lot to the restroom facilities; Widen the existing driveway			
Shull Island	1-02A	Future	22.4				
Shull Island	1-02B	Launch Ramp	0.4	Add two ADA compliant picnic tables (including an ADA compliant path, as necessary)			
Murray Shores	1-03	Launch Ramp	1.6	Install additional directional signs to the site; Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary); Stripe the existing parking lot; Install additional lighting; Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary)			
River Bend	1-04	Launch Ramp	11.6	Add 5.9 acres; Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary); Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary)	Pave and stripe the existing overflow parking area		
Sunset	1-05	Launch Ramp	2.3	Add 29.9 acres; Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary); Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary); Pave and stripe the existing parking area; Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary); Install stabilization material on the sides of the existing boat ramp	Construct an additional ADA compliant paved parking lot		
Simpson's Ferry	1-05A	Future	11.6				
Rocky Point	1-06	Launch Ramp	1.7				
Long Pine	1-06A	Future	31.4	Add 20 acres		Possible development of site (or Site 1-17) depending on Year 9 consultation	Possible development of site (or Site 1-17) depending on Year 9 consultation
Hilton	1-07	Launch Ramp	4.4	Refurbish the existing courtesy dock for ADA compliance (including an ADA compliant path, as necessary); Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary); Install additional lighting	Construct an ADA compliant fishing pier (including an ADA compliant path, as necessary)		
Hilton	1-07A	Future	27.9				
Dam Site - Irmo Side	1-08	Picnic Area/Launch Ramp	6.8	Construct an ADA compliant courtesy dock (including an ADA compliant path, as necessary); Refurbish the existing fishing pier for ADA compliance (including an ADA compliant path, as necessary); Pave an ADA compliant path to the existing restroom facilities			
Saluda Shoals Park	1-09	Picnic Area/Launch Ramp	240.0				
James R. Metts Landing	1-10	Launch Ramp	1.0	Add two ADA compliant picnic tables (including an ADA compliant path, as necessary)	Construct a bank fishing area		
Dreher Island State Recreation Area	1-11	Campground/Launch Ramp	348.0				
Macedonia Church	1-12	Picnic Area	4.8				
Higgins Bridge	1-13	Launch Ramp	1.1	Add two ADA compliant picnic tables (including an ADA compliant path, as necessary)			
Kempson Bridge	1-14	Launch Ramp	2.9	Add two ADA compliant picnic tables (including an ADA compliant path, as necessary); Install an ADA compliant vault type restroom facility (including an ADA compliant path, as necessary)			

Name	Site Number	Type of Facility	Existing Acres	Years 1 – 5	Years 6 – 10	Years 11 – 15	Years 16 – 20
Gardendale	1-15	Launch Ramp	4.7	Explore a lease for the property to the ICRC			
Water Treatment Plant	1-16	Future	4.3				
Stone Mountain	1-17	Future	26.5			Possible development of site (or Site 1-06A) depending on Year 9 consultation	Possible development of site (or Site 1-06A) depending on Year 9 consultation
Cloud's Creek	1-18	Future/Proposed Carry-in Launch	3.0	Construct a gravel parking lot; Construct a carry-in launch; Install directional signs to the site			
Big Creek	1-19	Future	22.3	Add 15.0 acres			
Little Saluda Point	1-20	Future/Proposed Angling Access	15.4	Add 14.2 acres	Construct two ADA compliant fishing piers (including an ADA compliant path, as necessary); Install shoreline stabilization materials as necessary		
Bundrick Island	1-21	Future/Informal Site	87.9				
Lake Murray Estates Park	1-22	Launch Ramp	7.7	Install additional directional signs to the site; Construct ADA compliant restroom facilities (including an ADA compliant path, as necessary); Pave and stripe existing parking area; Pave an ADA compliant path from the parking lot to the existing fishing pier			
Two Bird Cove	1-23	Special Recreation Area		Remove designation required by FERC Order 107 FERC ¶ 62,273			
Hurricane Hole Cove	1-24	Special Recreation Area		Remove designation required by FERC Order 107 FERC ¶ 62,273			
Old Corley Bridge Road	1-25	Proposed Future/Carry-in Launch	0	Add 2 acres; Construct a gravel parking lot; Construct a carry-in launch; Install directional signs to the site			
Shealy Point Tract	1-26	Proposed Future	0	Add 40.1 acres		Possible development of site (or Site 1-27) depending on Year 9 consultation	Possible development of site (or Site 1-27) depending on Year 9 consultation
Shealy Road Access Area	1-27	Proposed Future	0	Add 27.6 acres		Possible development of site (or Site 1-26) depending on Year 9 consultation	Possible development of site (or Site 1-26) depending on Year 9 consultation
Rocky Creek	1-28	Proposed Future	0	Add 648.0 acres			
Little River/Harmon's Bridge	1-29	Proposed Future	0	Add 2.8 acres			
Crayne's Bridge Public Park	1-30	Proposed Future	0	Add 47.9 acres		Possible development of site depending on Year 9 consultation	
Twelve-mile Creek	1-31	Proposed Future	0	Add 52.0 acres; Explore a lease for the property to the LCRAC			Possible development of site depending on lease exploration and/or Year 9 consultation
Candi Lane	1-32	Proposed Future	0	Add 3.1 acres; Explore a lease for the property to the City of Columbia			
Lower Saluda River Property <sup>a</sup>		Proposed Informal	0	Add 320.2 acres			
Islands <sup>b</sup>		Informal	100.0				

<sup>a</sup> There are 14 tracts of land associated with the Lower Saluda River Property. These properties will be available for passive public recreation and in support of the Lower Saluda Scenic Corridor Plan and the Three Rivers Greenway. These tracts have not been assigned a Site Number as there is no intention of developing the property into formal recreation sites.

<sup>b</sup> There are 62 SCE&G-owned islands on Lake Murray that are available for public recreation use, including primitive camping. These islands have not been assigned a Site Number as there is no intention of developing the islands into formal recreation sites.

## 6.2 Future Consultation Process

A process has been developed to review and develop future addenda to this Plan beyond the initial ten years after license issuance and over the licensing term. Recreation use levels, site capacities, and needs will be reviewed every 10 years using the most recent FERC Form 80 Recreation Report. The Recreation RCG members will review the results of this periodic assessment, in light of the proposed improvements that have been implemented to date, and make appropriate recommendations for the following ten year period to account for changing needs. Such recommendations could include identification of new sites on lands set aside for future recreation development and the continued improvement to existing recreation sites. Recommendations may also include additional studies as determined by the Recreation RCG, understanding that the cost of the study will be considered by SCE&G in developing the following ten year plan. During Year 9 of the current ten year period (i.e., 9 years after license issuance, 19 years after license issuance, etc.), SCE&G will host a public meeting with interested stakeholders at which time they will review the most recent use and capacity assessment, make recommendations for the following ten years, and receive comments from stakeholders on what improvements need to be considered. Within 30 days of this meeting, SCE&G will provide a draft copy of the ten year plan to meeting participants and ask for written comments. A 30-day comment period will be observed. Upon receipt of these written comments, SCE&G will file a Recreation Plan Addenda with FERC. The final addendum will include any comments or edits provided by the stakeholders, as appropriate, as well as a consultation record and table of responses to stakeholder comments.

## **7.0 OTHER ISSUES ADDRESSED WITHIN THE RECREATION RCG CONSULTATION PROCESS**

Over the course of the consultation process, several issues were identified in the Recreation RCG that did not directly apply to this plan. The Recreation RCG agreed that “Issue Recommendations” would be drafted and finalized as part of the consultation process. These recommendations were then sent to other RCGs in the Saluda Hydro Relicensing Process for their consideration. For example, minimum lake levels were identified as an issue that has an effect on recreational use of the lake from private docks. A recommendation was sent from the Recreation RCG to the Operations RCG requesting that new minimum lake levels be considered as part of the operations of the Saluda Hydro Project. One exception is the recreational flow releases drafted by the Downstream Flows TWC. These releases are meant to be managed through the Recreation RCG. Further descriptions of the issues and associated recommendations are provided below. Complete issue recommendations can be found in Appendix E.

### **7.1 Minimum Lake Levels for Lake Murray**

The Lake Murray Association (LMA), Lake Murray Homeowners Coalition (LMHOC), and Lake Murray Watch (LMW) expressed concerns that elevations less than 354 ft. Plant Datum (PD) at Lake Murray impede recreational use of the reservoir. According to a 2005 survey of Lake Murray users conducted by LMA, over half (51%) of lake users who responded, responded that 354 ft. PD was the minimum lake level needed for “year around safe lake use” at their “normal site or dock”; 98% of respondents indicated 356 ft. PD.

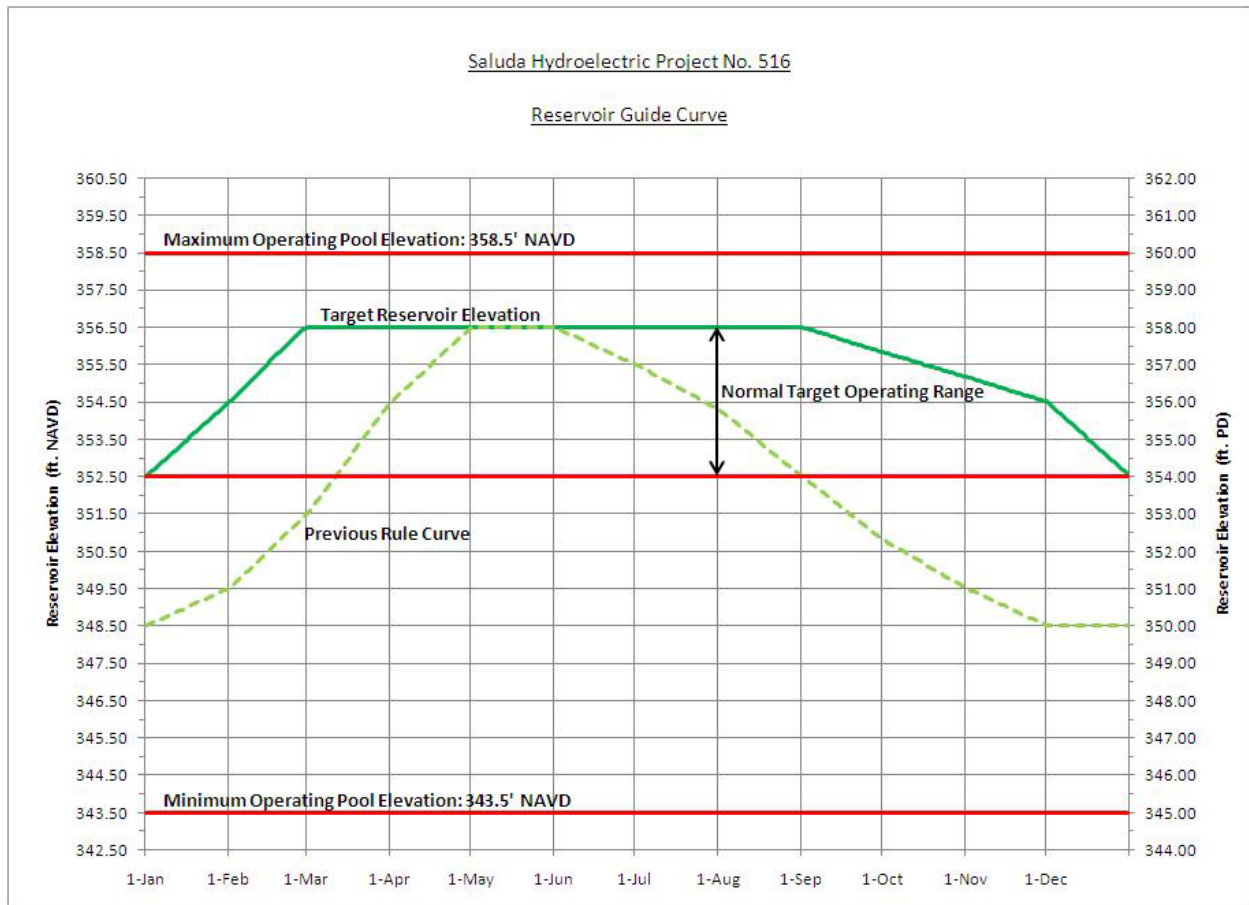
The Recreation RCG recommended two operating scenarios be modeled within the Operations RCG. Both scenarios entail a target elevation (358 ft. PD) being reached by April 1 of each year and held until the first Monday of September (to coincide with Labor Day). The difference in the two scenarios is the minimum lake level: 354 ft. PD vs. 356 ft. PD.

Currently, the lake typically reaches 358 ft. PD at the beginning of June. Beginning in September, water is released, via generation, to achieve 350 ft. PD by

December 31. Rising lake levels begin again around January 1 with the objective to continue to allow the rise so as to reach approximately 358 ft. PD by June 1.

Under the proposed guide curve submitted with the Final License Application, a target elevation of 358 ft. PD will be reached by March 1 and will be maintained until September 1. The lake will remain above 356 ft. PD until December 1 and then drop to 354 ft. PD by December 31, when refilling will begin. Figure 7-1 provides the proposed guide curve submitted with the Final License Application.

**Figure 7.1. Previous Rule Curve and Proposed Guide Curve for the Saluda Hydroelectric Project**



## 7.2 Protection of Natural/Undeveloped Lands for Public Recreation

The LSSRAC, SCPRT, LMW, and Coastal Conservation League/American Rivers (CCL/AR) expressed concerns regarding the conservation of lands to enhance recreational use around Lake Murray and in the lower Saluda River corridor, protect the scenic integrity of the Project, protect wildlife habitat, and provide informal recreational opportunities.

The Recreation Management TWC drafted a recommendation for the Lake and Land Management TWC (L&LMTWC) that outlined appropriate activities on each classification of Project land. During the drafting of this recommendation, a focus group of stakeholders met outside of the consultation process and drafted recommendations for submission to the L&LMTWC. The Recreation Management TWC agreed to forward these recommendations from the focus group to the L&LMTWC although not all recommendations had the full endorsement of the entire Recreation Management TWC. Both recommendations are included in Appendix E, along with the memorandum sent to the L&LMTWC.

As a result of the discussions and rebalancing efforts in the L&LMTWC, SCE&G is proposing a new Shoreline Management Plan (SMP) that will include over 9,000 acres in a shoreline classification that allows for recreation. This includes approximately 500 acres in “Natural Areas,” 3,700 acres in “Forest Management,” and 2,150 acres in “Recreation.” In addition, SCE&G is proposing to lease to the SCDNR approximately 2,754 acres outside the PBL for wildlife management. The 2,150 acres proposed for “Recreation” includes 658 acres of non-project lands proposed to be included in the project, as well as the 320 acres along the lower Saluda River outlined in Section 5.2 and Table 6.1.

## 7.3 Warning System for Rising Water on the Lower Saluda River

The Lower Saluda Scenic River Advisory Council, American Whitewater, Trout Unlimited, SCPRT, and American Rivers have expressed concern over the safety of river



users due to the unscheduled flows from the Project, as well as the rates that the river level changes due to the higher flows (> 10,000 cfs).

The Recreation RCG has developed numerous recommendations to improve river user safety on the lower Saluda River. These include continued consultation with river stakeholders to improve the current warning system and the installation of additional warning devices on the lower Saluda River. SCE&G is proposing to install additional warning devices on the lower Saluda River that will expand the warning system to include the entire lower Saluda River from the dam to the confluence with the Broad River. These include sirens installed in 2008 between the Saluda Hydro powerhouse and Saluda Shoals Park (Phase I). Phase II will be installed within one year of license issuance and consist of: sirens at Corley Island, Gardendale, and downstream of the Interstate 26 bridge; and strobe lights at Corley Island and on the upstream and downstream sides of the Interstate 26 bridge. Phase III will be installed within two years of Phase II completion and may (as determined by the coverage of Phase I and Phase II) consist of: sirens at Saluda Shoals Park, downstream of the Interstate 20 Bridge, and two additional sirens downstream of the Interstate 26 bridge; and a strobe light upstream of the Interstate 20 bridge.

Additionally, SCE&G is proposing to continue managing an electronic ring-down call system (operational on April 14, 2008) that is activated by the SCE&G System Dispatchers upon initiation of significant generation at Saluda. Upon activation, a message is sent to registered individuals via e-mail and telephone, alerting them to the initiation of generation. Registration for this ring-down service can be made at SCE&G's website (<http://www.sceg.com/en/my-community/lower-saluda-river/>). This system was developed in response to Safety RCG member requests for notification of initiation of Saluda Hydro generation. Information about current and planned operations is also provided on a website maintained by SCE&G.

#### 7.4 Recreational Flow Releases on the Lower Saluda River

The LSSRAC, SCPRT, SCDNR, AW, SRCTU, and CCL/AR have requested instream flows for the lower Saluda River to support recreational uses such as small boat navigation, swimming, wade and boat fishing, and other downstream uses.

AW, CCL/AR, and the City of Columbia Parks and Recreation Department have also requested scheduled recreational releases for whitewater boating, wade fishing, and special events.

As a result of consultation with the aforementioned groups, SCE&G is proposing to schedule recreational releases that will be administered through compliance with this Recreation Plan. The recommendation includes the flexibility to change the recreational flow schedule yearly in consultation with affected groups and provides for those times when inflow to the reservoir has triggered the Low Inflow Protocol.

The recreational releases will be scheduled as follows:

1. SCE&G will release approximately 45,000 acre feet of water for recreational flows in the lower Saluda River. These flows will occur on no more than 51 days. The Saluda Hydro Project will be removed from reserve status during the recreational flow hours on those 51 days;
2. SCE&G will host an annual meeting during October of each year to review the previous year's flows, set the specific dates for the following year's flows (with the understanding that the volume of water and number of days will remain consistent from year to year, even if the schedule varies), and discuss any outstanding issues with appropriate stakeholders;
3. SCE&G will host triennial meetings for comprehensive reviews of the recreation flow schedule for the purpose of reviewing recreation trends, trout reproduction and holdover, etc.; and

4. SCE&G will meet with the Recreation Flow Technical Working Committee to determine a schedule for the reduction and elimination of recreational flows based on criteria from the final Low Inflow Protocol. This issue has not been resolved at this time.
  
5. Flows will be measured at the USGS gage below the Saluda Dam (02168504). Actual flows may vary  $\pm 10\%$ . Make-up days will be allowed; no more than 5 recreational days per year can be lost to operational or maintenance emergencies before make up days will be required to be scheduled; make-up days must occur within three months of the scheduled flow. The annual flow release schedule will be posted on the SCE&G website.

The initial schedule of release is:

	Event Name	Rec. Flows					
		Days Allocated	Hours/Day	Start Time	End Time	CFS	Ac-Ft*
January	Iceman Race	1	6	8:00	14:00	4,000	1,636
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	MLK Day	1	5	7:00	12:00	700	0
February	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	President's Day	1	5	7:00	12:00	700	0
March	WW Festival	1	6	8:00	14:00	8,650	3,941
	WW Festival	1	3	10:00	13:00	3,300	644
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
April	General Recreation (Sat.)	1	5	12:00	17:00	1,000	0
	General Recreation (Sun.)	1	5	7:00	12:00	1,000	0
May	CFK	1	9	7:30	16:30	10,000	6,470
	Wade Fishing	1	9	8:00	17:00	700	0
	Memorial Day/ General Recreation	1	9	8:00	17:00	1,000	0
June	Rescue Rodeo	2	9	7:00	16:00	2,111	2,099
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0

	Event Name	Rec. Flows					
		Days Allocated	Hours/Day	Start Time	End Time	CFS	Ac-Ft*
July	WW Rodeo	2	8	9:00	17:00	3,300	3,437
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
	Ind. Day/ General Recreation	1	9	8:00	17:00	1,000	223
August	USTWWR Prac.	2	8	8:00	16:00	10,000	12,295
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
September	High Boating (Sat. and Sun.)	2	6	10:00	16:00	4,500	3,768
	Labor Day/ General Recreation	1	9	8:00	17:00	1,000	223
October	CFK	1	7	9:30	16:30	2,400	983
	High Boating (Sat. and Sun.)	2	6	10:00	16:00	4,500	3,768
November	Low Boating (Sat.)	1	6	10:00	16:00	2,400	843
	High Boating (Sun.)	1	6	10:00	16:00	4,500	1,884
December	Low Boating (Sat.)	1	6	10:00	16:00	2,400	843
	High Boating (Sun.)	1	6	10:00	16:00	4,500	1,884
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Totals>>>>	51					44,940

\*Increment Above Minimum Flow

In addition to the recreational releases outlined above, SCE&G will provide the City of Columbia Fire Department (CFD) with flow releases to allow them to train for swift water rescue on the lower Saluda River. These flows will be as follows.

- During a “normal” flow year, SCE&G will provide 6 days (8 hours per day) of flows ranging from 12,000 cfs to 15,000 cfs in March. SCE&G will coordinate with the CFD at least 30 days prior to implementation of the flows as to the exact dates the flows will be available. The Saluda Hydro Project will be removed from reserve operations status during these times.
- During a “normal” flow year, SCE&G will provide 5 days (8 hours per day) of flows ranging from 8,000 cfs to 10,000 cfs in the September to December months. SCE&G will coordinate with the CFD at least 30 days prior to implementation of the flows as

to the exact dates the flows will be available. The Saluda Hydro Project will be removed from reserve operations status during these times.

- Reduced flows will be made available to the CFD based on the Low Inflow Protocol (LIP). The flows will range from 12,000 cfs to 15,000 cfs in March, but will be reduced to 3 days (10 hours per day). The September to December flows will range from 8,000 cfs to 10,000 cfs but will be reduced to 3 days (10 hours per day). SCE&G will coordinate with the CFD at least 30 days prior to implementation of the flows as to the exact dates the flows will be available. The Saluda Hydro Project will be removed from reserve operations status during these times. The triggers for implementing these reduced flows and the elimination of the swift water rescue training flows during low inflow periods will be determined once the LIP is finalized. This issue has not been resolved at this time.

As with the recreation flow releases, flows will be measured at the USGS gage below the Saluda Dam (02168504). Actual flows may vary  $\pm$  10%.

#### 7.5 Placement and Maintenance of Shoal Markers

Lake Murray is a large reservoir and, like many other reservoirs, has hazards that present a danger to boaters and other recreationists. The LMW and the LMA have raised the issue of the responsibility for marking these hazards to make Lake Murray safer for the boating public. SCE&G has historically depended on the SCDNR to bear responsibility for the marking of hazards. Stakeholders contend that the SCDNR system is not as effective as it could be because of the yearly fluctuations in water level, unmarked hazards, and missing/damaged shoal markers.

The Recreation RCG is recommending SCE&G continue to cooperate with the SCDNR in the marking of hazards in Lake Murray. This includes support for public communication regarding locations of unmarked hazards and a system whereby the SCDNR can be made aware of these areas. As a result of these discussions, SCE&G is hosting a Navigational Aids Marking Form on its website to make it easier for the public to report unmarked hazards and/or damaged or missing markers. The form is available at: <http://www.sceg.com/en/my-community/lake-murray/lake-management/>.

## 7.6 Protection of the Trout Fishery in the Lower Saluda River

The lower Saluda River is successfully managed (and classified by the SCDHEC) as a put, grow, and take trout fishery by the SCDNR. Currently, annual stockings of brown and rainbow trout species are necessary to support the trout fishery in the lower Saluda River.

Trout stockings vary in number depending primarily on availability of fish from the SCDNR Walhalla Fish Hatchery. Stocking records suggest that typically the SCDNR stocks approximately 30,000 to 34,000 trout annually in the lower Saluda River, with approximately 60% being rainbow trout. The length of the fish at the time of stocking is typically 6-8” for brown trout and 9-10” for rainbow trout.

Trout are typically stocked from November – March throughout the lower Saluda River after the dissolved oxygen (DO) levels in the releases of water from Lake Murray have improved to safer levels for fish. The initial stocking event is typically done by the use of helicopter to facilitate distribution of both species along the lower Saluda River. Subsequent stockings are conducted by truck with stocking limited to three locations along the lower Saluda River. Intense fishing pressure, predation, potential late-summer and fall low DO concentrations, and thermal regimes affect both carryover and incidental reproductive success of adult trout in the lower Saluda River. Recent turbine improvements have increased DO concentrations. However, while continued stocking efforts by the SCDNR will be required to support the trout fishery, changes in project operations (i.e., minimum flows) should facilitate increased carryover of stocked trout. Increased adult carryover could provide increased opportunities for natural reproduction of trout, further enhancing the lower Saluda River trout fishery.

The Recreation RCG recommended a number of measures to support the trout fishery in the lower Saluda River. These include providing sufficient access points, maintaining state water quality standards, and continuing relationships with appropriate agencies to support the health and survival of the trout in the lower Saluda River. During the relicensing process, several of these recommendations have been incorporated into various management plans, including the additional access areas outlined in the Plan on

the lower Saluda River, the additional warning devices on the lower Saluda River, scheduled flows for wade fishing, and development of a trout management program.

## **8.0 AS BUILT AND CONCEPT DESIGN DRAWINGS**

SCE&G is providing as built drawings and/or concept design drawings of all recreation sites referenced in this plan in Appendix F. These drawings are provided to show detail regarding site amenities (i.e., location of boat ramps, docks, etc.) and the relation of the site to the existing project boundary. Pending FERC approval of this plan, these drawings will be updated as sites are modified and/or the project boundary is approved. For those sites where no updates are scheduled and no property is being added (i.e., the project boundary is not being changed), the drawings reflect best available information regarding site amenities. SCE&G will update these drawings as necessary during the 10 year review process incorporated in Section 6.2.



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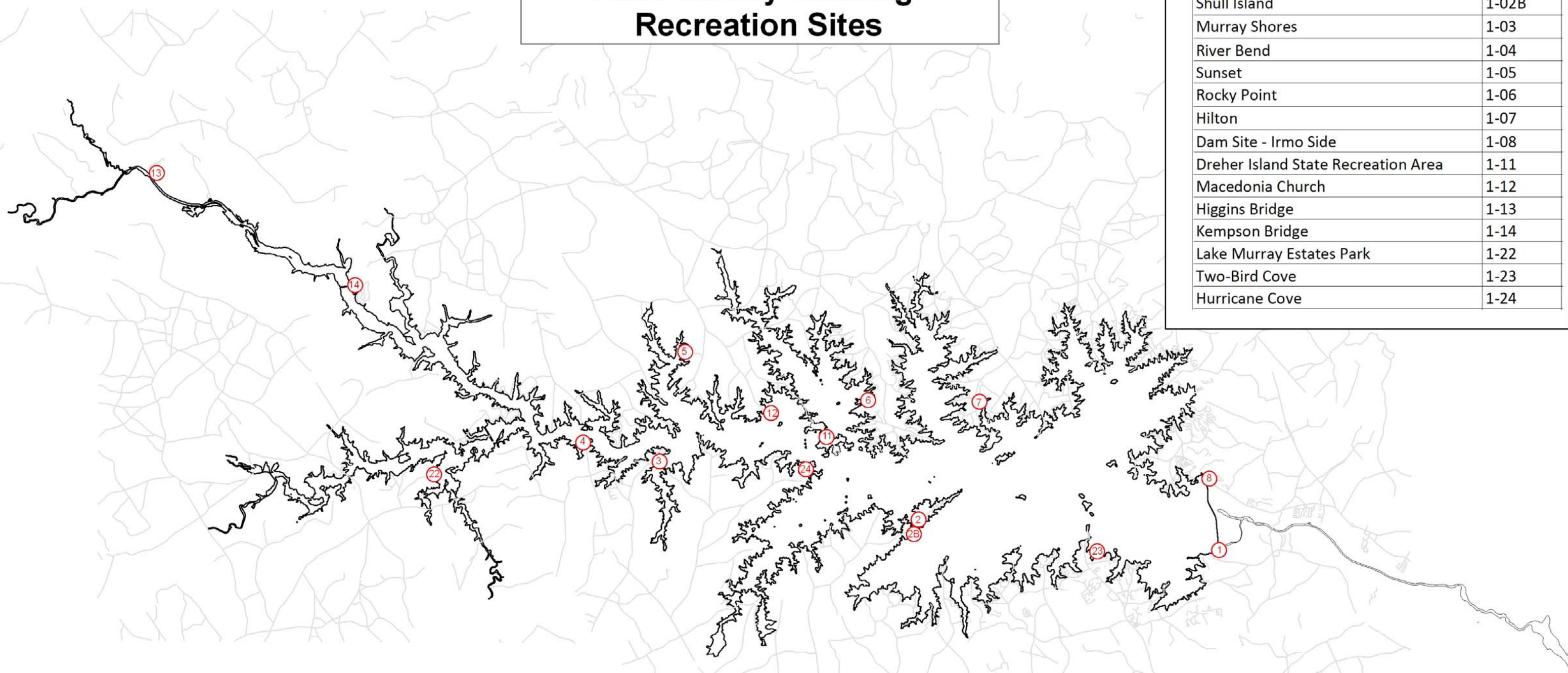
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## APPENDIX A

MAPS OF EXISTING RECREATION SITES, EXISTING FUTURE RECREATION SITES,  
AND SEGMENTS OF LAKE MURRAY USED FOR THE BOATING DENSITY ANALYSIS

**Figure A-1  
Lake Murray Existing  
Recreation Sites**

Existing Park Sites	Number
Park Site - Lexington Side	1-01
Larry L. Koon Boat Landing	1-02
Shull Island	1-02B
Murray Shores	1-03
River Bend	1-04
Sunset	1-05
Rocky Point	1-06
Hilton	1-07
Dam Site - Irmo Side	1-08
Dreher Island State Recreation Area	1-11
Macedonia Church	1-12
Higgins Bridge	1-13
Kempson Bridge	1-14
Lake Murray Estates Park	1-22
Two-Bird Cove	1-23
Hurricane Cove	1-24



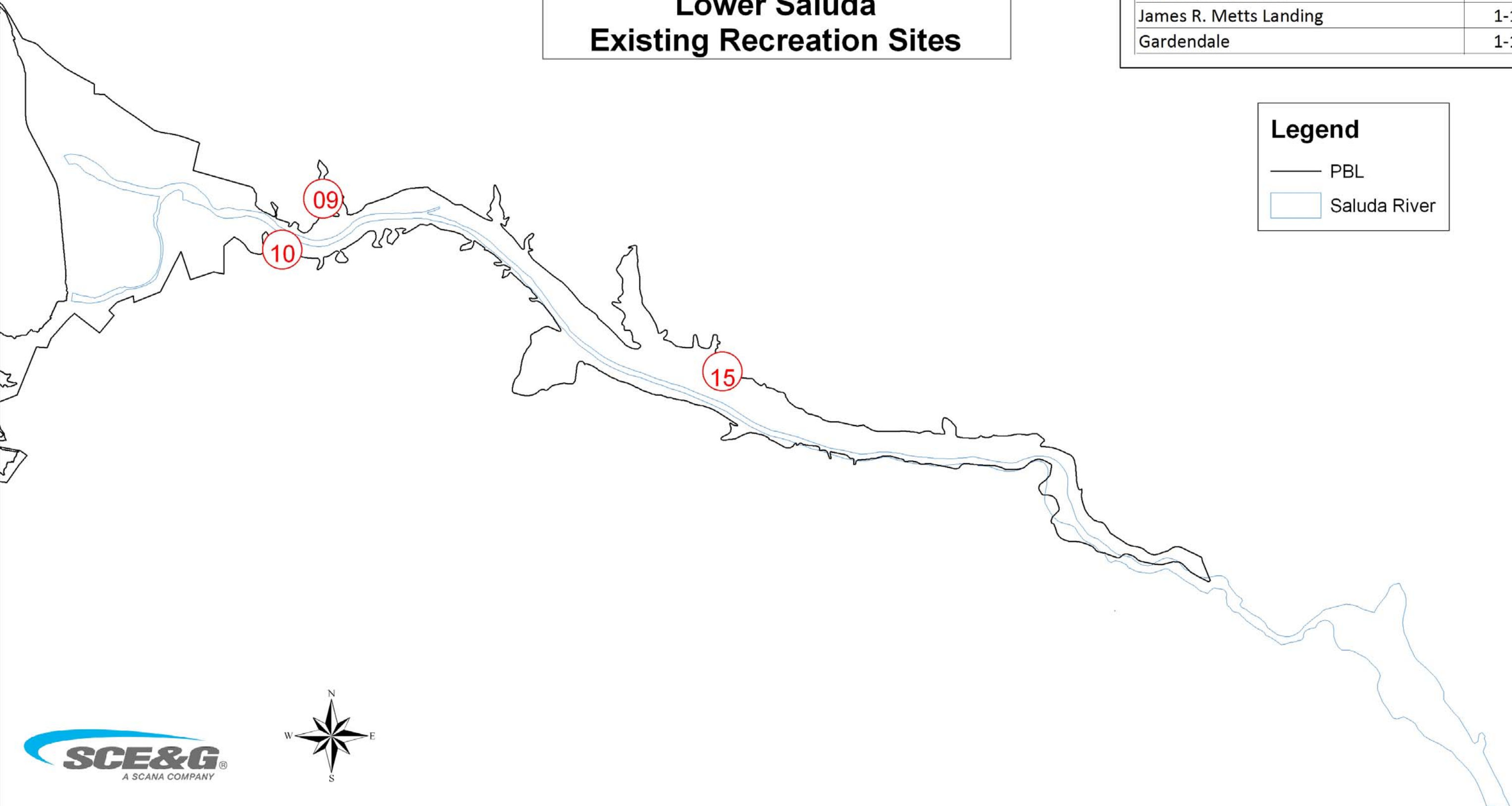
1 inch equals 3 miles

**Figure A-2  
Lower Saluda  
Existing Recreation Sites**

Lower Saluda Park Sites	Number
Saluda Shoals Park	1-09
James R. Metts Landing	1-10
Gardendale	1-15

**Legend**

- PBL
- Saluda River

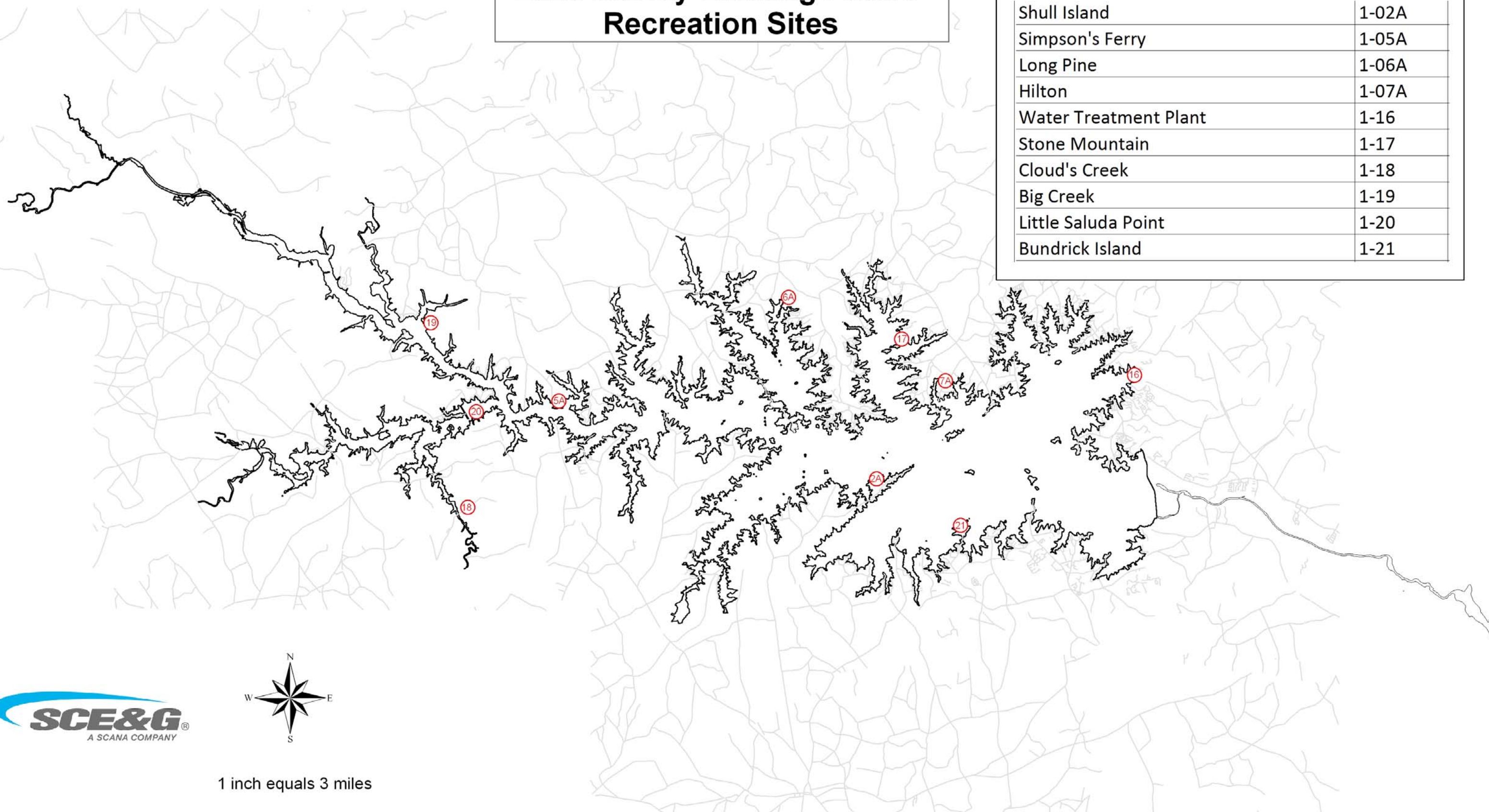


1 inch equals 1 mile



**Figure A-3  
Lake Murray Existing Future  
Recreation Sites**

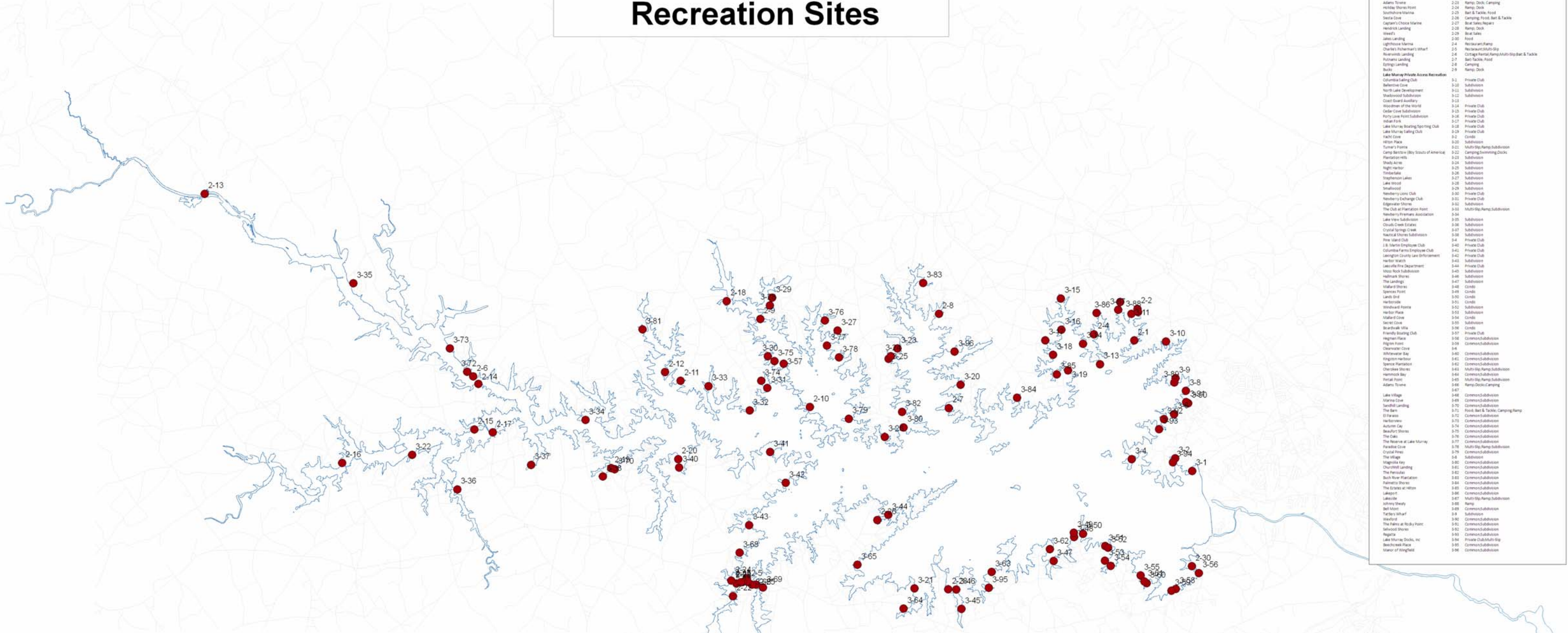
Existing Future Park Sites	Number
Shull Island	1-02A
Simpson's Ferry	1-05A
Long Pine	1-06A
Hilton	1-07A
Water Treatment Plant	1-16
Stone Mountain	1-17
Cloud's Creek	1-18
Big Creek	1-19
Little Saluda Point	1-20
Bundrick Island	1-21



1 inch equals 3 miles



# Figure A-4 Commercial and Private Recreation Sites



CODE	Description
2-1	Restaurant
2-11	Ramp; Dock; Food; Motel
2-12	Ramp; Dock; Food; Bar & Tackle
2-13	Ramp; Dock; Food; Camping
2-14	Ramp; Dock; Food; Bar & Tackle
2-15	Ramp; Dock; Food; Camping
2-16	Ramp; Bar & Tackle; Food
2-17	Ramp; Dock; Bar & Tackle; Food
2-18	Bar & Tackle; Food; Ramp; Dock; Fishing Dock
2-19	Ramp; Dock; Bar & Tackle; Food; Multi-Slip Cottage Rental
2-20	Ramp; Dock
2-21	Bar; Ramp; Multi-Slip
2-22	Ramp; Dock
2-23	Ramp; Dock; Camping
2-24	Ramp; Dock
2-25	Bar & Tackle; Food
2-26	Camping; Food; Bar & Tackle
2-27	Ramp; Dock
2-28	Ramp; Dock
2-29	Bar; Tackle
2-30	Food
2-31	Restaurant; Ramp
2-32	Restaurant; Multi-Slip
2-33	Cottage Rental; Ramp; Multi-Slip; Bar & Tackle
2-34	Bar; Tackle; Food
2-35	Camping
2-36	Ramp; Dock
3-1	Private Club
3-2	Subdivision
3-3	Subdivision
3-4	Subdivision
3-5	Subdivision
3-6	Subdivision
3-7	Subdivision
3-8	Subdivision
3-9	Subdivision
3-10	Subdivision
3-11	Subdivision
3-12	Subdivision
3-13	Subdivision
3-14	Subdivision
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3-99	Subdivision
3-100	Subdivision

Saluda Hydroelectric Project No. 516  
South Carolina Electric & Gas Company

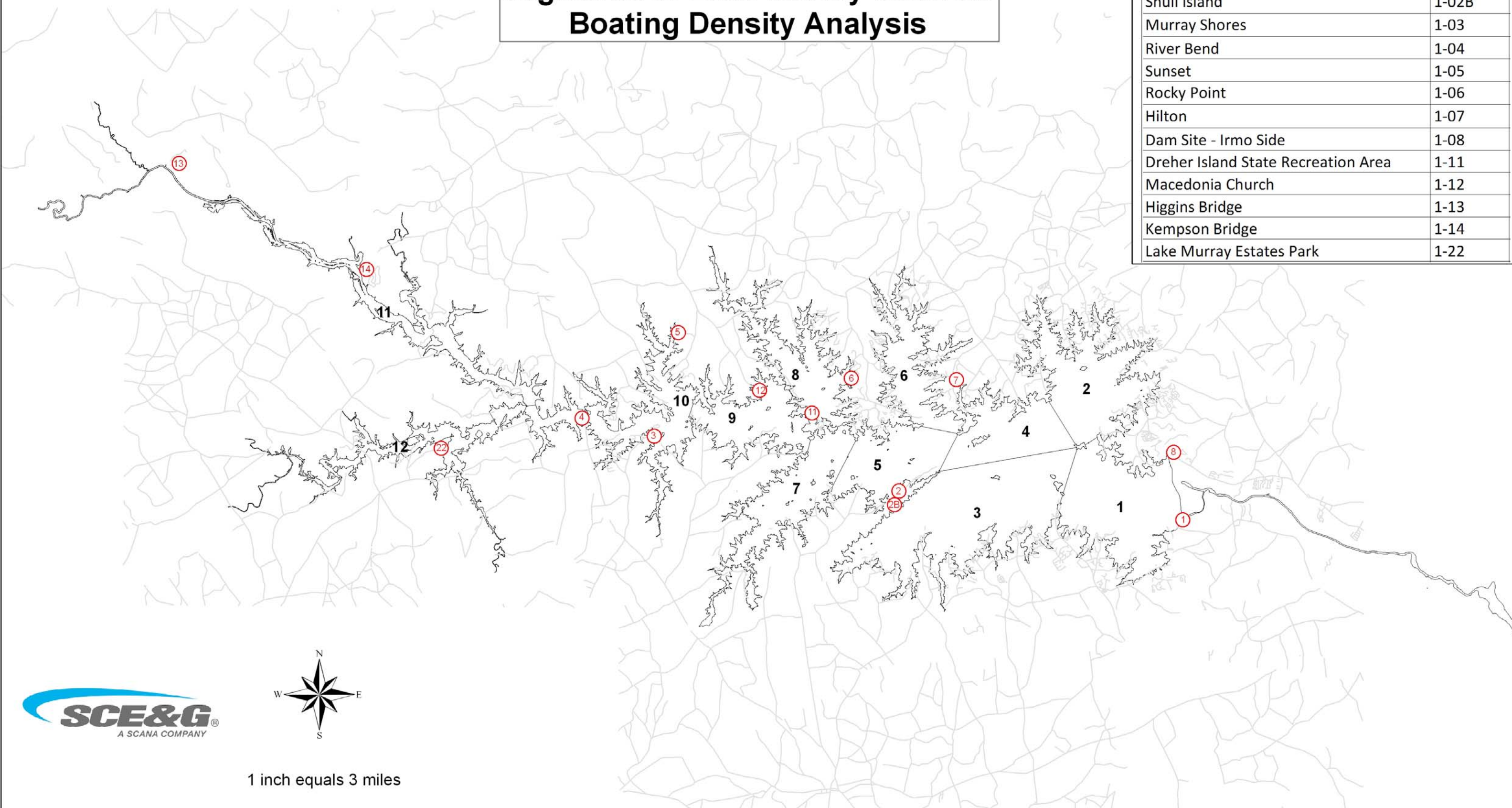


1 inch equals 1 mile



**Figure A-5**  
**Segments of Lake Murray Used for**  
**Boating Density Analysis**

Existing Park Sites	Number
Park Site - Lexington Side	1-01
Larry L. Koon Boat Landing	1-02
Shull Island	1-02B
Murray Shores	1-03
River Bend	1-04
Sunset	1-05
Rocky Point	1-06
Hilton	1-07
Dam Site - Irmo Side	1-08
Dreher Island State Recreation Area	1-11
Macedonia Church	1-12
Higgins Bridge	1-13
Kempson Bridge	1-14
Lake Murray Estates Park	1-22



1 inch equals 3 miles



APPENDIX B  
MEETING NOTES

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**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**SCE&G Training Center  
November 18, 2005**

final acg 1-25-06

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates	Dave Anderson, Kleinschmidt Associates
Randy Mahan, SCANA Services, Inc.	Tommy Boozer, SCE&G
David Hancock, SCE&G	George Duke, LMHC
Van Hoffman, SCANA Services, Inc.	Jim Devereaux, SCE&G
Tim Vinson, SCDNR	Bill Marshall, SCDNR
Steve Bell, Lake Watch	Alan Axson, Columbia Fire
Gerrit Jobsis, American Rivers, CCL	Michael Waddell, Trout Unlimited
Dick Christie, SCDNR	Irvin Pitts, SCPRT
Tony Bebber, SCPRT	Joy Downs, LMA

---

**HOMEWORK ITEMS:**

- Each entity will list the issues and goals they feel are valuable and important – forward to Dave Anderson
- Review the ICD and list of study requests
- Read about the SCORP through the online website

**AGENDA ITEMS FOR NEXT MEETING:**

- Tommy Boozer will give an update on recreation around Lake Murray and associated issues
- Tony Bebber will give a brief explanation on the SCORP
- The group will begin discussion on the issues and goals that were submitted to Dave Anderson

**DATE OF NEXT MEETING:**

**January 11, 2006 at 9:00 a.m.  
Located at the Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**SCE&G Training Center  
November 18, 2005**

final acg 1-25-06

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Alan Stuart opened the meeting and gave a short recap of the previous resource conservation groups. He encouraged those who have not yet seen the Operations Presentation given by Lee Xanthakos to come to the January 12<sup>th</sup> quarterly public meeting. Alan noted that the RCG meetings were generally scheduled in the beginning of the month due to agency conflicts with other Relicensings, whose meetings are generally focused at the end of the month.

The group began discussion on the merging of the Recreation and Safety Resource groups. Randy Mahan noted that some concerns arose when joining these groups due to the fact that the Recreation group will potentially be discussing quite a few land use issues that may not directly tie in to safety. When posed a question about what he believed the groups would cover, Tommy Boozer answered that the recreation group would most likely be dealing with land issues and what entities were in charge with handling certain issues around the lake. Joy Downs noted that LMA would like to see the safety group meeting even after Relicensing to discuss safety related issues. The group concluded that it may be best to keep the groups separate and break up the Lake and River issues on the agenda into morning and afternoon sessions. If a combined meeting was necessary then it could be arranged for. Alan noted that it may be important for the Recreation RCG members to read the Safety meeting notes.

The group briefly discussed the need for more law enforcement personnel to attend. Dick Christie pointed out that the group should keep in mind that the Technical Working Committees (TWC) will include members of the DNR law enforcement who might not have time to attend RCG meetings.

Alan noted they had received the second set of comments on the Operating Procedures, and a revised set of the operating procedures will be sent out in the following weeks. Bill Marshall mentioned that the LSSRAC had a comment on the Operating procedures that was in reference to the time of the day during which the meetings were held. He noted that there were individuals who would like to be involved, but could not do so due to work conflicts. One individual then asked if it would be out of the question for agency personnel to come after hours. Dick Christie replied that although it was not completely out of the question, the group needed to remember that the agencies are juggling quite a few things and there is a need to keep the agency personnel involved in this process because their input is very important.

One suggestion that was made during the meeting was for group members to have the opportunity to add items to the meeting minutes after the meeting was over. The group decided that if you have

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**SCE&G Training Center  
November 18, 2005**

final acg 1-25-06

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any additional comments you can add it to a section at the end of the meeting minutes that was specified as "Additional Comments".

The group began to discuss the draft mission statement and add to it. A question arose as to what the SCORP was. Tony Bebber noted that it was revised every five years and is a document used to allocated funds. He noted that it contained quite a bit of information that could help identify goals for the recreation group. Tony was asked to give a brief presentation on the SCORP at the next meeting.

One individual asked whether they could submit comments on issues that would then be posted on the website. Alan responded that comments on the milestone documents and such would be posted on the website, however, comments on particular issues need to expressed within the RCG, that it was in fact part of the purpose of the RCGs.

After a short lunch break, Alan passed out a list of study requests relating to recreation that were compiled from all of the requests that were received. A homework item included a review of the study requests in order to ensure that everyone's requests were properly covered and expressed. Alan also pointed out that if anyone feels a presentation is needed to educate the group on a particular issue then to please make that request. Tommy Boozer was asked to give an update on recreation, listing problems and issues. He noted that one of the things that they were doing was working with a landscape architect to look at the area on the Lexington side of the dam where the construction will be. He also added that they will have a recreation map that shows all the existing recreation sites and also lists future recreational sites and impromptu areas.

In closing, the group discussed some of the homework items for next time. Randy Mahan pointed out that it may be a good idea to go online and read about the SCORP. The group also decided that it would be good for each entity to prioritize their interests and have them ready for discussion by the next meeting. Dave Anderson noted that he would send out an email to group members regarding this following the meeting.

The group decided that the next Recreation meeting would occur on January 11, 2006 at 9:00 at the Training Center.

Meeting Adjourned

Attached below is the agenda for this meeting:

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**SCE&G Training Center  
November 18, 2005**

final acg 1-25-06

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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**November 18, 2005  
9:30 AM  
Lake Murray Training Center**

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- **9:35 to 9:45** Introduction
    - SCE&G and KA Staff
    - Resource Agency Representatives
    - NGO Representatives
    - Individuals
  - **9:45 to 10:15** Purpose of Resource Groups and Discussion on Combining Recreation and Safety RCGs
  - **10:15 to 10:45** Discuss Recreation RCG Procedures
  - **10:45 to 11:45** Develop Recreation RCG Mission Statement
  - **11:45 to 12:45** Lunch
  - **12:45 to 1:30** Develop List of Homework Assignments
  - **1:30 to 2:00** Develop an Agenda for Next Meeting and Set Next Meeting Date
- Adjourn



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
January 11, 2006**

*final dka 02-22-06*

**ATTENDEES:**

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Bill Argentieri	SCE&G	Norm Ferris	TU
Alison Guth	Kleinschmidt Associates	Bill Marshall	SCDNR/LSSRAC
Randy Mahan	SCANA	Patrick Moore	CCL/American Rivers
Charles Rentz	Resident	David Hancock	SCE&G
Steve Bell	Lake Watch	Dave Anderson	Kleinschmidt Associates
Karen Kustafik	Columbia Parks and Recreation	Lee Barber	LMA
George Duke	LMHOC	Guy Jones	River Runner Outdoor Center
Tim Vinson	SCDNR	Alan Stuart	Kleinschmidt Associates
Tony Bebber	SCPRT	Tommy Boozer	SCE&G
Jim Devereaux	SCE&G		

**HOMEWORK ITEMS:**

- Dave Anderson – send updated list of sites and amenities to group

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**February 15, 2006 at 9:30 a.m.  
Located at the Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
January 11, 2006**

*final dka 02-22-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Tommy B. began the meeting by giving an update on recreational access around the reservoir. He showed maps of SCE&G owned access, public marinas, and private marinas, and noted that there is recreational access around the entire lake. Tommy also noted that Billy Dreher State Park and Saluda Shoals Park are two large recreation areas on the Chapin side and Lower Saluda River, respectively. Tommy also pointed out the tract of land leased to the Lexington County Sheriffs Department. Tommy noted that they had some property set aside on the upstream part of the river such as Kempsons Bridge and Higgins Bridge for future recreation areas. He further noted that all of the boat ramps at public access areas on the lake were extended when the lake was down for the dam remediation project so that boats can launch from 345'. He also pointed out that SCE&G has 10 sites set aside for future development and are looking at additional sites. Tommy also explained that all of the islands on the lake are owned by SCE&G and are open to the public for recreation. Steve B. noted that all of the project lands that SCE&G owns below the 360' is open to the public. The group discussed that if it was private property you could not walk on it, even if it is below the 360'. The group discussed that SCE&G is only required by FERC to purchase land that is necessary to the operation of the project and that it was an unusual project since it has so much property. It was mentioned that the high water mark is the project boundary on Lake Norman in Charlotte, NC. It was discussed that the FERC has the option of requiring a licensee to buy a piece of property for operation of the project.

Tommy B. continued that the five year review resulted in a commitment to some improvements, including building a fishing platform at Sunset Point, paving at Hilton Park, and enlarging the parking lot at River Bend. Tommy also talked about Park Site 1 on the Lexington side of the dam and noted when the highway was redesigned for the dam remediation, it took the main entrance to the site. A new entrance is being designed at the intersection near Corley Mill Road that will have a stoplight. He further noted that the new bridge would change some of the aesthetics at the park site. He also noted that many utilities have a drop box for user fees, but SCE&G has no plans of doing this so that they can continue to use the user fees for traffic control. The other issue SCE&G looked at in relation to the dam remediation and the new highway was the site on the Irmo side of the dam, which may have some issues when the new highway is complete. Tommy mentioned that all of their parks have some sort of parking lot with a boat ramp and courtesy dock and at some sites they have rest rooms or Port-a-johns. He noted that any future park sites will have to be buffered away from neighborhoods. Another issue Tommy talked about is public marinas and wet storage around the lake and the possibility of these facilities closing.

## **MEETING NOTES**

### **SOUTH CAROLINA ELECTRIC & GAS COMPANY SALUDA HYDRO PROJECT RELICENSING RECREATION RESOURCE GROUP**

#### **LAKE MURRAY TRAINING CENTER January 11, 2006**

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George D. asked about a couple of marinas that went out of business when the water went down, which led to a discussion of the service these marinas provide. It is hard for them to compete with private marinas since most of them do not provide gas and food, so many public marinas are going private to remain in business. However, Tommy noted that losing these public marinas affects public access so SCE&G is working on getting a clause in new permits that says that a public marina will have to remain a public marina unless they get a new permit. Tommy noted that Lake Murray Tourism has a brochure with all the information about public and private marinas, but he doesn't think this information is on the web. The group noted that maybe this was something they can look into. Lee B. mentioned that the conversion of marinas from public to private was one thing that interests his group, especially the loss of space for larger boats. Steve B. mentioned that small access points encourage development around the lake. Tommy B. and David H. agreed and noted they try to get new neighborhoods to put in community access points.

Tommy continued his presentation and moved to the LSR and noted three recreation areas on the river (Saluda Shoals, Metz Landing, and Gardendale) and that they are looking for property for another take out above the rapids.

Bill M. presented an update on the Lower Saluda River Corridor Plan and provided a brief history of the plan. The plan was written in the late 1980s and published in 1990 when the river received scenic river status (about a 10 mile stretch of the river). The 1990 plan identifies eight potential and existing park/access sites along the river. Currently, five park/access sites are established: Saluda Shoals Park, Hope Ferry (Metts) Landing, Gardendale Landing, Riverbanks Zoo, and Riverbanks Garden. Bill M. noted that many of the current facilities on the river (Saluda Shoals, Riverbanks Zoo) were originally leased by SCE&G. Bill M. talked about the plan update in 2000 and the vision for a greenway trail going down the entire river linking existing parks and access sites on the north bank and linking with the Three Rivers Greenway. Bill M. told the group what he knows about the Three Rivers Greenway. There were some concerns about Rocky-shoal spider lilies below the Greenway and Bill A. noted that SCE&G is working with the Zoo and SC Native Plants Society for spider lily enhancement associated with the Columbia project.

Bill M. also showed the planned path for the Saluda River corridor that would link up the park sites at the top of the dam with the proposed river side trail, which starts at Saluda Shoals Park. Bill M. doubted this trail would be completed given that the trail would have to be routed along Bush River Road to avoid security concerns around the dam. Steve B. asked about SCE&G owned property along the river and Tommy B. said it is very fragmented now. There was some discussion about how to control development along the river and the impact that the proposed Corridor Plan may have on visitation. Bill M. noted it will increase but he has no information to discern how much, other than what anecdotal evidence suggests on existing sections of the Three Rivers Greenway.

**MEETING NOTES**

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Bill M. talked about a particular section between the I-20 and I-26 bridges that will be difficult to complete because of existing land uses.

Tony B. presented information about the last Statewide Comprehensive Outdoor Recreation Plan (SCORP) done for South Carolina in 2002. The SCORP is in the process of being updated and may be of use during the Relicensing process. SCPRP has conducted a phone survey for the new SCORP. Tony B. noted the SCORP is the official plan used by state agencies for recreation planning and is listed as a FERC-approved comprehensive plan. The SCORP considers outdoor recreation related to citizen participation and analyzes demand for recreational opportunities. It also identifies funding opportunities and is used as a tool to distribute monies in the state. Tony B. talked a little bit about the process of writing the plan and that the final plan is approved the National Park Service. Tony B. then gave a brief overview of results from the latest SCORP, highlights of which are: state is in a region of unprecedented growth; steady population growth and trend toward an older population and high minority population; tourism accounts for \$9 billion of gross state product; and nature based and cultural tourism are expected to grow. After presenting some basic results about participation trends in various activities, Tony identified the following issues that were raised in the SCORP process: protecting significant lands for public recreation; manage and expand trail resources; maintain/improve existing parks and recreation facilities; increase funding for variety of park facilities; acquire public open space; provide more multi-use athletic complexes; create partnerships; implement existing plans; increase ongoing education about recreational opportunities and avoid user conflicts; and increase public beach access.

Tommy B. asked about visitation to Billy Dreher State Park and if it operates profitably. Tony B. thinks it is getting close to breaking even and that use is increasing. George D. pointed out that we need to concentrate on facilities close to the population base.

The group then discussed the mission statement and decided to finalize the statement and post it to the website. Afterwards, the group started listing recreation issues associated with Lake Murray and the Lower Saluda River. Among the group, the issues were public access, conservation of lands, instream flows, dependable water levels on the lake, safety as it relates to flows, river access/egress, canoe portages; provide for sufficient nature based recreational activities, permanent protection for Dreher Island, protection of property for a state park on the south side of the reservoir, implementation of the Lower Saluda Scenic River Corridor Plan, and water quality as it relates to primary contact activities. Bill A. also mentioned having a ten year review cycle for recreation activities. Bill A. asked for clarification of nature based activities and wondered if this meant SCE&G sponsoring fishing tournaments. Tony B. replied that fishing, hunting, hiking, canoeing, and bird watching are typical activities and that tournaments are not usually considered nature-based tourism. He envisions SCE&G providing the places for tournaments, not necessarily sponsorship.

**MEETING NOTES**

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The group had a discussion about adaptive management and how any sort of recreation plan would be based on this principle. Steve B. noted that we don't need to put anything off that we can do now. Dave said that adaptive management is a way of correcting things that change with time. The group also briefly discussed the American Whitewater request for using the spillway as a recreational resource; Bill A. said that SCE&G has a severe liability issue with this request.

The group further discussed lake levels and it was suggested that a survey be done to see what is acceptable to lake users. Randy M. mentioned that there is difference between what is convenient and what they can use.

The group then began to identify information that they might need to address some of the issues raised. Tim Vinson noted completing a Boating Needs Assessment. George D. mentioned looking at industry figures of boating participation. The group also talked about a carrying capacity study like was done on the Duke Power projects. Dave mentioned completing an inventory of existing sites and amenities available at each one. Tommy B. agreed to update the table provided in the ICD and see if the group thinks any other information will be necessary.

The discussion then switched to the river and the need for Mike Dawson to update the group on the Three Rivers Greenway. The group is interested in hearing about access, facilities plan, projected timeframe, safety issues, parking and ADA compliance, and an instream flow analysis at the confluence. Jim D. agreed to talk to Mike about giving the group a presentation.

Below is a table of issues as recorded by Dave A.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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<b>LSR</b>	<b>Both</b>	<b>Lake</b>
public access/portage	scenic integrity	aquatic weeds – <b>covered under lake and land management</b>
conservation of land	future growth	access
safety as it has to do with security at the recreational facilities, and safety related to flows	adaptive management	facilities/adequacy
facilities/adequacy	water quality - <b>covered under water quality group</b>	new state park in Lexington County
communication	fishing	expansion of facilities
recreation Flows/instream flows	non-boating access	conservation of land – <b>management prescriptions identified in land use group and specifics for recreation will be developed in this group, will make recommendations</b>
		paddling access
		large multi-lane facility
		lake level reliability – <b>will be carried over between this group and the other group</b>

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The agenda for this meeting is attached below.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**January 11, 2005**

**9:00 AM**

**Lake Murray Training Center**

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- **9:00 to 10:45** Update on Recreation around Lake Murray and Associated Issues – Tommy Boozer, SCE&G
- **10:45 to 11:00** Break
- **11:00 to 11:30** Discussion on the SCORP – Tony Bebber, SCPRT
- **11:30 to 12:00** Lunch
- **12:00 to 12:15** Group Discussion of Mission Statement for Finalization Purposes
- **12:15 to 3:00** Group Discussion of Recreation Interests



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
February 15, 2006**

*final dka 03-17-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Bill Argentieri	SCE&G	David Hancock	SCE&G
Alison Guth	Kleinschmidt Associates	George Duke	LMHC
Alan Stuart	Kleinschmidt Associates	Norm Nicholson	LCSD
Randy Mahan	SCANA	Lee Barber	LMA
Tom Eppink	SCANA	Dave Anderson	Kleinschmidt Associates
Steve Bell	Lake Watch	Van Hoffman	SCE&G
Guy Jones	River Runner	Bill Marshall	SCDNR/LSSRAC
Tony Bebber	SCPRT		

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**HOMEWORK ITEMS:**

- Alan Stuart/Tom Eppink – ADA Design Standards
- All – Review Standard Process Form
- All – draft a vision statement for Lake Murray/LSR

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**April 17, 2006 at 9:30 a.m.  
Located at the Lake Murray Training Center**



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
February 15, 2006**

*final dka 03-17-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

The meeting began with a group review of the updated facility inventory provided by David H. Tommy B. and David H. had updated the inventory from last meeting and included some additional variables such as number of shelters, number of grills, etc. There was a discussion regarding additional variables that should be collected so that the group can understand what is currently available around the lake and river. Tony B. mentioned that number of parking spaces would be useful to know so we can begin to talk about facility capacity. He noted he could get this information for Dreher Island. David H. commented counting parking spaces at some sites would be problematic because of gravel parking areas and/or un-striped parking lots. Dave A. asked if it would be acceptable to come up with an estimate based on the size of the parking area. Dave A. also mentioned we could identify paved and non-paved parking areas.

There was some discussion on the inventory of existing docks at access sites. Lee B. mentioned that knowing dock capacity would be useful, citing Hilton as an example where the dock is not big enough. David H. replied the dock at Hilton is supposed to be a courtesy dock for launching/trailing boats. There is also a fishing dock at Hilton. The group agreed that knowing the function of the dock would be helpful, i.e., identifying courtesy docks, multi-slip docks, fishing docks.

Dave noted the inventory at present has no indication of ADA compliant facilities at any of the sites. There was some discussion on whether we should record ADA compliant facilities (the entire facility is compliant) versus ADA compliant amenities (parking spaces, restrooms, trails). Alan S. and Tom E. agreed to research ADA design standards so we can be consistent across all recreational sites. Dave wondered if there are any design standards for ramp length, as this is a fluctuating reservoir. David H. replied SCE&G makes the ramps at their sites as long as functionally possible to accommodate for this.

Guy J. wondered if we could record the quality of the facility, specifically citing Gardendale as a facility that needs improvement. David H. noted this area was strictly supposed to be for launching canoes; Guy replied a different put-in (i.e., steps) would be better for canoe access. Dave A. remarked we need to focus on the big picture at the moment and individual sites will be discussed later.

Dave A. questioned the group as to the necessity of collecting all of the information for private marinas as well. Randy M. stated that SCE&G does not really have much of an impact as to what

**MEETING NOTES**

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amenities are available at these private facilities. Tony B. noted it would be nice to know the number of slips and boat launches, but not much beyond that. George D. asked for clarification for the meaning of “private,” noting there are public private facilities and then private facilities that you have to belong to an organization before using the facility. The group discussed this distinction and concluded it will be nice to know if the facility is open to the public, and make the distinction between those facilities and those that are not available unless you are a member of an organization. One classification scheme put facilities into either public, commercial, or private.

The group also discussed adding a variable on the number of restrooms and identifying the restrooms as either seasonal (port a johns) or year round. There was also some discussion on how this information will be stored once collected. Steve B. wondered if we could include a facility’s potential for expansion as a variable. Randy M. replied that we do not want to give the public any expectations of what might happen around the lake. Steve B. agreed but wanted to make sure the group understands what the potential build out will be around the lake.

Bill M. asked for clarification regarding ownership of recreational sites. David H. replied that SCE&G pays for most of the public sites around the lakes and does all of the maintenance on those sites. The group then discussed the need for identifying public campgrounds. The group decided to add “Primitive Camping” as a variable to the facility inventory. The list of variables the group would like to see added to the inventory are: courtesy dock, fishing dock, parking, overflow parking, multi-slip docks, private, commercial, restrooms (seasonal/permanent), ADA compliance, primitive camping, formal camping, on-site security.

Dave A. introduced the “standard process” that is being proposed for use by this group as a way of staying focused on recreation issues around the lake/river. Dave went over the standard process diagram (attached) and briefly discussed the solution principles that will guide decision making for this group. Dave agreed to send out the principles for comment by the next meeting. The solution principles are:

1. Consideration of new recreational facilities should be based on demonstrated need and the potential impact on existing facilities.
2. Priority should be given to demonstrated need within the FERC project boundary.
3. Priority should be given to recreational proposals where multiple stakeholders offer significant participation.
4. Recreational facilities should appeal to a broad public.
5. Reasonable access for the disabled should be provided.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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6. Recreational needs should be prioritized for the project.
7. The improvement or expansion of existing recreational facilities should be considered first.
8. Additional recreational studies (if needed) should be only of sufficient scope and duration to provide necessary information to develop issue solutions.
9. Consensus based solutions are preferred over studies, unless solutions cannot be developed with existing information.

Preferred consideration will be given to ideas that:

- do not promote facilities that would adversely impact existing commercial operations;
- identify actual recreational needs that are not filled by existing facilities;
- receive broad public support;
- expand existing recreational facilities prior to developing green field sites;
- require doing recreational studies only if consensus cannot be reached with existing information (It is preferred to put financial resources into recreational facilities and opportunities that benefit the overall Project, rather than fund unnecessary/subjective studies).

These principles will be discussed at the next meeting after the group has had a chance to review them.

The group then discussed a few specifics of the solution principles. George D. wondered if we could shift some of the cost of the access sites to those people that use them. Randy M. pointed out that it would nice to identify potential partners through the process. There was also a brief discussion concerning demographic projections and how they relate to future recreational use. Lee B. noted we might be able to find projected boat sales data from the boating industry. Alan S. questioned Bill M. and Guy J. to see if they are comfortable with the process since they have focused interests on the Lower Saluda River. Both men agreed they are comfortable with the process.

**MEETING NOTES**

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Dave A. then introduced the standard process form that will guide the group throughout relicensing (the blank form is attached). Dave directed the group to approach the questions from a general sense to gauge whether the questions are sufficient for this project. Someone mentioned it would be nice to change “tailrace” to “Lower Saluda River” and “impoundment” and “reservoir” to “Lake Murray.”

The group then began to discuss Step One questions. Rather than summarize the suggested responses to these questions, these meeting notes (and any future notes talking about answering the process questions) will simply state the group discussed the answers to the questions. The actual result of this discussion will be tracked using the Microsoft Word Tracking Tool on the Standard Process Form. For example, someone mentioned water level stability, which can be found as a response to Question One. Any disagreements about a particular answer will be summarized in the meeting notes.

The group agreed to review Question Three and get their vision statement to Dave by the next meeting. Dave will compile these visions and the group will discuss and finalize a vision statement for recreational opportunities at the Project.

As a result of discussing Question Five, the group discussed the need for more commercial marinas around the lake. Steve B. felt that there are areas on the lake that could use a commercial marina. Lee B. disagreed. There was some discussion on whether new marinas are needed or if the current ones need to be upgraded. David H. explained the current moratorium on multi-slip marinas and why it is in place. The group agreed that any future access sites should not impact existing commercial operations. Lee B. suggested asking Archie Trawick, owner of Jake’s Landing, to come and speak to the group. Norm N. said that a marina management company had taken over Lake Murray Marina and wondered if it would be beneficial for them to come speak to the group.

After lunch, the group began to form Technical Working Committees. Dave A. listed three TWCs that he envisioned forming based on the issues submitted in response to the Initial Consultation Document. These are Recreation Management, Downstream Flows, and Lake Levels. The Recreation Management TWC will deal with future facilities, existing and future sites, policy, etc. The Downstream Flows TWC will talk about scheduled recreational releases. The Lake Levels TWC will help determine an appropriate lake level for recreational activities and will examine the effects of various lake levels on recreation. Membership in the TWCs is as follows:

**MEETING NOTES**

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Recreation Management	Downstream Flows	Lake Levels
Tommy Boozer David Hancock Tony Bebber SCDNR Rep Steve Bell Van Hoffman George Duke Lee Barber (observer) Dave Anderson (facilitator)	Charlene Coleman Malcolm Leaphart Patrick Moore Guy Jones Tom Eppink Bill Marshall Karen Kustafik Dave Anderson (facilitator)	Lee Barber Steve Bell Bill Argentieri DNR Rep Alan Stuart (facilitator)

Bill M. asked about bringing up a new issue. He wanted to know about equipment requirements for the Lower Saluda River. He brought up that at other rivers he is familiar with, there are requirements for certain equipment before a recreational user is allowed on the river (i.e., helmets, PFDs). Alan S. noted that any regulations would be a legislative issue, but education could help the situation. Dave A. asked Bill M. if he would like to add this issue to the Parking Lot for the Safety RCG. Bill agreed.

Dave reminded the members of the TWCs that the recreation season is rapidly approaching and that he would like to see the first meeting of the Recreation Management TWC occur as quickly as possible. He also reminded the group that he would like to complete Step One of the Standard Process at the next RCG meeting. The group agreed on the next meeting date and then broke up into respective TWCs to schedule meetings.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**February 15, 2006**

**9:30 AM**

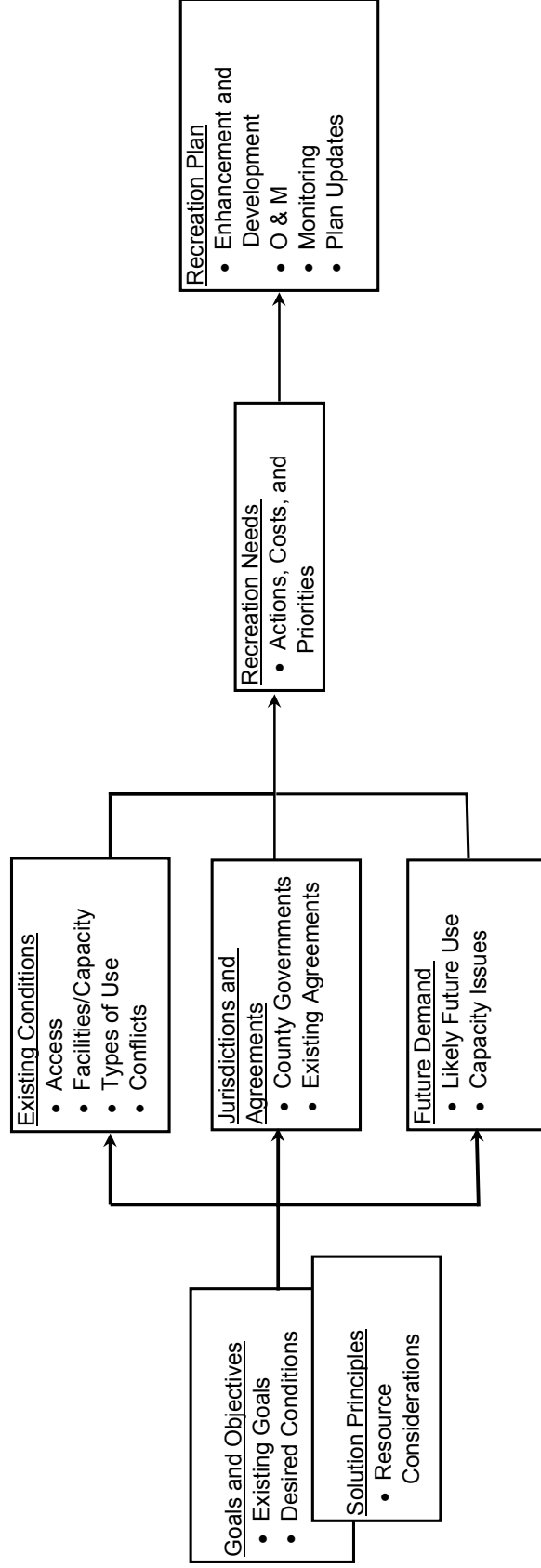
**Lake Murray Training Center**

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- **9:00 to 10:00** Discussion of Facility Inventory
- **10:00 to 12:00** Discussion of Standard Questions
- **12:00 to 12:30** Lunch
- **12:30 to 3:00** Identification of Technical Working Committees



## Recreation Plan Development Standard Process



**Step 1**  
 Determine  
 Desired Future  
 Condition

**Step 2**  
 Establish  
 Baseline  
 Conditions

**Step 3**  
 Determine What  
 Is Needed  
 And When

**Step 4**  
 Decide How Needs  
 Will Be Met And  
 Who is Responsible

## **Recreation Issues Standard Process**

The following is a list of standard questions designed to help characterize existing recreation resources and aid in development of an appropriate recreation plan for the Saluda Project. Questions pertaining to recreation management are categorized according to a four-step recreation planning process developed for the project. Questions pertaining to reservoir levels and downstream flows are listed following the facility management material.

### **STEP 1 – DETERMINE DESIRED FUTURE CONDITION**

1. Identify impoundment and/or downstream tailrace qualities important to keep and any qualities that need changes.
2. Are there unique characteristics of the reservoir and/or tailrace relative to other reservoirs/tailraces in the area?
3. What is the overall vision for the reservoir and/or tailrace, in terms of recreation experiences and opportunities?
4. Are there sensitive biological or cultural resources associated with the Project that need to be considered? Where are these resources located and are there seasonal sensitivities (e.g., nesting or spawning times, etc.)?
5. Identify specific goals and objectives for managing recreation at the reservoir and/or in the tailrace.

### **STEP 2 – ESTABLISH BASELINE CONDITIONS**

6. What is the nature of existing recreational access to the reservoir?
  - a. How many public accessible, developed recreation sites are there?
  - b. Where are they located/how are they distributed around reservoir?
  - c. Of these publicly accessible access sites how many are owned and operated by public versus private entities and how are they supervised?
  - d. How many sites, open to the public, provide boat access to the reservoir?
  - e. How many provide shoreline fishing?
  - f. Identify the most heavily used facilities.
  - g. Are there informal, undeveloped use areas? Where are they?
7. What types of existing developed facilities are there?
  - a. Enumerate boat ramps, restrooms, docks, and other facilities.
  - b. What is the existing capacity at each site?
  - c. What is the general condition of each site and its facilities?
  - d. Ideas for improving existing facilities.



8. Describe notable recreation activities on the reservoir.
  - a. List recreation activities currently occurring and identify most prominent activities.
  - b. Where are these uses occurring, and are they concentrated in certain areas?
  - c. Identify existing impediments to these activities, if any.
9. Are there known management issues associated with use?
  - a. Are there areas of congestion, and if so where?
  - b. Are there known conflicts between users, and if so where and when?
  - c. Are there other known management issues, such as littering, trespassing, etc.?
10. What is the expected future demand for recreation activities at the reservoir?
  - a. Will existing facility capacity likely be exceeded, and if so where and when?
  - b. Would accommodating this demand be consistent with the long-term vision for the reservoir?
  - c. Will demand introduce new or additional congestion, conflicts, or other management issues?
11. Identify current local benefits from recreation and any local detriments.

### **STEP 3 – DETERMINE WHAT IS NEEDED AND WHEN**

12. Ideas for better or different access, consistent with Step 2 above.
13. Potential facility enhancements or upgrades, consistent with Step 2 above.
14. Potential new facilities, or other management actions, consistent with Step 2 above.
15. What are the priorities regarding identified needs both in terms of resources and time?  
How do priorities compare across the entire Project?

### **STEP 4 – DECIDE HOW NEEDS WILL BE MET AND WHO IS RESPONSIBLE**

## **QUESTIONS REGARDING RESERVOIR LEVELS**

16. How is the reservoir currently operated and what are the typical reservoir levels during key recreation seasons?
17. Are there changes to reservoir level operations that you would like to see addressed to improve the overall value of the reservoir, and how specifically would such changes benefit recreation?
18. Are there seasonal and/or daily variations in reservoir level that can occur without adversely affecting the overall value of the project (including impoundment objectives such as recreation, fish and wildlife, flood control, generation, navigation, etc.)?
19. What are the reservoir levels at which recreation problems tend to occur (may be different for different locations or problems)?
20. When (i.e., what time of year) and how frequently do problems occur related to reservoir levels?
21. Why are the current operating water levels important to the operation of the project and the overall system?
22. Are there state or federal operating requirements that stipulate specific operating goals?

## **QUESTIONS REGARDING DOWNSTREAM FLOWS**

23. Are there riverine recreation opportunities below the dam? If yes, move to additional questions, if not, stop.
24. Do we know how different flow levels affect recreation opportunities and specific recreation activities?
25. Can opportunities be enhanced by modifying releases, and in what way?
26. How would modified releases affect upstream lake levels?
27. How would suggested modified downstream flows affect project operations at the project and at upstream and downstream projects?
28. Are there additional concerns with regard to state and federal requirements or existing ecological issues that limit suggested changes to downstream flows?

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
April 17, 2006**

*final dka 05-15-06*

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**ATTENDEES:**

<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Bill Argentieri	SCE&G	Alan Stuart	Kleinschmidt Associates
Dave Anderson	Kleinschmidt Associates	Jennifer Summerlin	Kleinschmidt Associates
Randy Mahan	SCANA Services	Tom Eppink	SCANA Services
David Hancock	SCE&G	Tony Bebber	SCPRT
George Duke	LMHOC	Joy Downs	LMA
Karen Kustafik	Columbia Parks and Recreation	Malcolm Leaphart	Trout Unlimited
Tommy Boozer	SCE&G	Tim Vinson	SCDNR
Bill Marshall	SCDNR & LSSRAC	Patrick Moore	CCL/AR
Steve Bell	Lake Watch		

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**HOMEWORK ITEMS:**

- Dave Anderson – Check Recreation Interests and Issues for issues needed on Recreation RCG Work Plan
- Dave Anderson – E-mail vision statement to Recreation RCG
- Dave Anderson – Combine Recreation RCG Work Plan and Recreation Issue Standard Process into one document and email to all RCG members
- Dave Anderson – Draft issue sheets for issue tracking
- Everyone – Finalize Standard process form
- Everyone – Review stakeholder list on the web
- Dave Anderson – Schedule next Recreation RCG meeting

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**July 21, 2006 at 9:30 a.m.  
Located at the Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
April 17, 2006**

*final dka 05-15-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson opened the meeting by briefly reviewing the Recreation Issues Standard Process, which is designed to help characterize existing recreation resources and aid in development of an appropriate recreation plan for the Saluda Project. Dave A. noted that the questions pertaining to recreation management are categorized according to a four-step recreation planning process developed for the project. He added that the list will be distributed to all members in Microsoft Word in order to track changes as the document is completed.

Dave A. noted that in order to keep everyone focused on the overall purpose of the Recreation RCG, he formulated a draft recreation vision statement (attached) and asked the group to provide comments and/or changes. The group modified the vision statement and Dave A. noted that he would send out these track changes by email to all group members.

Dave A. reviewed the Recreation RCG Work Plan (attached) and noted that he came up with a list of Identified Issues from comments to the ICD and previous meeting minutes. He briefly talked about each issue and group members suggested and agreed to the necessary changes. George Duke noted that he was unclear as to why there were two documents and suggested combining them into one document to avoid confusion. The group agreed and Dave noted that he would combine the documents and send them out to everyone.

After a short break, the group began to examine RCG Tasks and Responsibilities listed on the Work Plan. Dave asked the group to provide comments. Joy Downs had a couple of specific suggestions on the need to address minimum winter levels and lake level fluctuations. Steve Bell suggested that the Recreation RCG should make recommendations to the Lake and Land Management RCG to ensure adequate lands are retained to meet recreational needs. Through brief discussion, the group agreed to all changes.

Dave then focused attention on the Work Scope and Product section of the Work Plan. He went through each task and noted the tasks that have been completed and tasks that are in the process of being completed. Through brief discussion, changes were made by group members. Steve B. wanted to know about the timeframe for discussing the amount of land that SCE&G sets aside for the future. Dave replied that once we have completed Step One and Step Two, the results and the expertise represented in the RCG will determine the amount of land that will be set aside for the future. The group then discussed the schedule for future issues that will be addressed.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
April 17, 2006**

*final dka 05-15-06*

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After lunch, Dave discussed up-dates from the Technical Working Committees (TWC). He noted that the Downstream Flow TWC had a meeting at the SCDNR office and agreed to start identifying users of the lower Saluda River (attached). He added that the TWC plans to use this list to eventually determine an optimum flow and schedule for various river users. They are currently examining the River Alliance study along with other studies through a working bibliography.

Dave then updated the group on issues that are being addressed in the Recreation Management TWC. The group has discussed Lake Murray and lower Saluda River questionnaires to be implemented in concurrence of site counts at SCE&G owned sites at the Project. Dave mentioned that the Recreation Management TWC will also examine aerial photographs of Lake Murray to look for possible information on boat densities. George Duke noted that the 2001 photos may not be valid due to the significant changes over the years, and suggested we need to take new photos on a couple of dates to compare current use with use reported in 2001. There was further discussion about assessing ADA compliance on SCE&G sites as part of the recreation site inventory. Alan Stuart presented information on ADA compliance to educate the group. The presentation included the amount of complexity that is involved with this process, such as types of ramps, gangways, railings, edge protection, restrooms, and parking lot types. David Hancock noted that if any new facilities are built, they must be ADA compliant.

Dave reminded the group that one of their tasks is to finalize the Standard Process Form and to review the stakeholder list on the Saluda relicensing website. There was some discussion about the TWC sending items to the RCG for approval. Dave noted all issues will be finalized by the RCGs, which may then task a TWC to deal with the issue. The TWC will decide what information is needed to deal with the issue and whether or not existing information is sufficient. After the TWC determines if the existing information is sufficient, or conducts a study to collect needed information, they will then send their recommendation to the RCG for approval. Dave noted that agenda items for the next meeting will be updates from the TWC. The group agreed to schedule the next meeting around the July Quarterly Public Meeting.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
April 17, 2006**

*final dka 05-15-06*

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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**April 17, 2006  
9:30 AM**

**Lake Murray Training Center**

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- **9:30 to 10:30** Review of Standard Process and Development of Vision Statement
  - **10:30 to 11:30** Review Recreation RCG Work Plan
  - **11:30 to 12:30** Lunch
  - **12:30 to 1:00** Update from Downstream Flows TWC
  - **1:00 to 1:45** Update from Recreation Management TWC (to include presentation on ADA design standards)
  - **1:45 to 2:00** Discussion of Questions for FERC Representative
  - **2:00 to 2:15** Develop an Agenda for Next Meeting and Set Next Meeting Date
- Adjourn



## **Recreation Vision Statement for the Saluda Project**

The long-term vision for the Saluda Project is to recognize, protect, and enhance the fishery, water quality, and recreational opportunities on the reservoir and the Lower Saluda River, while recognizing the need to protect habitat supporting threatened, endangered, and sensitive species of the reservoir and tailwater, and ensure adequate facilities and public access are provided. Given the size of the reservoir it is felt that it can continue to support a diversity of recreation opportunities.

Improvements to be considered at the Saluda Project include:

Providing appropriate operations and maintenance of public recreation facilities.

Optimizing the capacity of existing public recreation facilities to accommodate existing and future demand.

Improving access and safety in the publicly accessible waters below the dam and minimizing impacts of project operations on downstream recreation, recognizing the need to meet power generation, and downstream flow responsibilities at Saluda.

Managing lake level drawdowns so as to minimize the occurrence of surface elevations lower than 354' in the late summer and early fall.

Ensuring public access areas for the non-boating public remain available along the shoreline.

Development of new facilities if a proven need arises.

## Recreation Resource Conservation Group Work Plan Saluda River Project

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Van Hoffman	SCANA Land Mgt.	vhoffman@scana.com	



# Recreation Resource Conservation Group Work Plan Saluda River Project

## Mission Statement

The mission of the Recreation RCG is to ensure adequate and environmentally-balanced public recreational access and opportunities related to the Saluda Hydroelectric Project for the term of the new license. The objective is to assess the recreational needs associated with the lower Saluda River and Lake Murray and to develop a comprehensive recreation plan to address the recreation needs of the public for the term of the new license. This will be accomplished by collecting and developing necessary information, understanding interests and issues and developing consensus-based recommendations.

## Identified Issues

- the need for better public access
  - access site above the Mill Race rapids
  - creation of a state park on the south side of the reservoir
  - creation of a multi-lane boating facility that can accommodate large tournaments
  - non-boating access
  - paddling access
  - expansion of existing facilities to accommodate future growth
  - security at recreation facilities
- protect the scenic integrity of the Project
- using the concept of adaptive management in future recreation planning
- creation of a communication system that would encompass information on lake levels and river flows
- protection of the cold water fishery on the Lower Saluda River
- creation of scheduled recreation flows for the Lower Saluda River
- identification of a reliable lake level that will provide year round access for a majority of lake users

## RCG Tasks and Responsibilities

- Utilizing and modifying the Standard Process for evaluating and addressing recreation management and access issues specific to the Saluda Project, including developing a vision statement for the Project.
- Identifying specific areas where lake level fluctuations may be adversely affecting recreation at the lake, including the nature and timing of the effect (e.g., access to sections of water, access to facilities and aesthetics).
- Working with the Operations Resource Conservation Group to identify “reasonable” (based on hydrologic, structural, and other limitations identified) changes and alternatives for modifying project operations, including operations that would benefit recreation.
- Identifying any studies, if applicable, that need to be performed for identifying and/or evaluating changes to Project operations.
- Presenting a range of reasonable alternatives or recommendations to the Saluda Hydro Relicensing Group (SHRG) regarding modifications to facilities or current Project operations and provide recommendations for recreation access, facilities, and use.

## **Recreation Resource Conservation Group Work Plan Saluda River Project**

### **Work Scope and Product**

- **Task 1** – Utilize the stepwise process diagram and solution principles to guide the planning process for addressing recreation management issues at the Saluda Project.
- **Task 2** – Develop a Vision Statement for the Saluda Project.
- **Task 3** – Review the operational constraints and current operations of the Saluda Project (see Initial Consultation Document).
- **Task 4** – Answer the list of questions on the Standard Process Form in order to characterize the existing and potential future condition of access and lake level fluctuations – from a recreation setting perspective.
- **Task 5** – Review stakeholder requests (e.g., agency letters) for particular studies and/or enhancement measures to ensure that these are incorporated into study planning, if applicable
- **Task 6** – Develop and recommend operation scenarios to the Operations RCG for analysis. These scenarios should reflect initial thinking on potential solutions and be designed to narrow the focus of Task 10 below. Analysis by the Operations RCG will focus on an assessment of potential recreational impacts associated with any suggested changes to operations.
- **Task 7** – Discuss results of the Operations RCG analyses.
- **Task 8** – Develop study designs/methods/plans and review agreed upon studies, literature reviews, etc.
- **Task 9** – Check the solution principles to ensure proposed study plans are consistent.
- **Task 10** – Provide recommendations for Project operations and recreation access, facilities, and use to be considered in conjunction with all ecological and recreational issues.
- **Task 11** – Develop a consensus based Recreation Plan for the Saluda Project that addresses all of the issues and tasks identified above.

### **Schedule**

**Late 2005/Early 2006**—Finalize Mission Statement, Standard Process Form, Solution Principles, and Work Plan

**Mid-2006**—Complete identification of studies, literature reviews, etc. that need to be completed to address issues and tasks identified in the Work Plan

**Late 2006**—Begin compilation of existing information, review preliminary study results, and draft an outline of the Recreation Plan

**2007**—Complete any studies identified in Task 8 and review results; draft recommendations to SHRG, complete draft Recreation Plan

**2008**—Finalize Recreation Plan and provide comments on Draft License Application

## IDENTIFIED USERS OF THE LOWER SALUDA RIVER

- swimmers
  - children & teenagers on the river banks
  - people at access areas
  - rock people
  - educational groups and clubs
- tubers
- fishermen
  - bank
    - trout
    - food—people that actually fish to feed their families
    - bass and other
    - father and son type outings to learn to fish
    - scouts and other clubs, groups
  - boat
    - trout
    - trophy bass
    - recreational
    - food
    - business (oriental group that fishes near bridges)
  - wade
    - trout
    - children w/ parents
- charity groups
  - canoe, raft, sit on tops, etc
- social groups
- clubs
- educational groups
  - schools and university
  - scouts
  - club field trips
  - outdoor clubs
- hikers
- mountain bikers
- kayakers and canoeists—(skilled)
- recreational boaters (rental and less skilled)
- 4x4 clubs
- zoo visitors
- rescue training
- kayak and canoe classes
- us team boaters practicing (olympic and world team level)
- bird watchers
- nature lovers

**WORKING BIBLIOGRAPHY OF STUDIES ON THE LOWER SALUDA RIVER**

de Kozlowski, Steven J. 1988. Instream Flow Study, Phase II: Determination of Minimum Flow Standards to Protect Instream Uses in Priority Stream Segments; A Report to the SC General Assembly. SC Water Resources Commission.

DRAFT

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
July 21, 2006**

final dka 08-14-06

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Alison Guth	Kleinschmidt Associates	Tim Vinson	SCDNR
Dave Anderson	Kleinschmidt Associates	John Frick	landowner
Bill Argentieri	SCE&G	Steve Bell	Lake Watch
Alan Stuart	Kleinschmidt Associates	Regis Parsons	landowner
Tom Eppink	SCANA Services	Tony Bebber	SCPRT
Tommy Boozer	SCE&G	Joy Downs	LMA
David Hancock	SCE&G	Richard Mikell	Adventure Carolina
George Duke	LMHC		

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**HOMEWORK ITEMS:**

- Tony Bebber – check on combining data for the Recreation Participation & Preference Study for four counties around Lake Murray
- Dave Anderson – email web link on Recreation Participation & Preference Study to group
- Entire Group – review and prioritize issues

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**October 25, 2006 at 9:30 a.m.  
Located at the Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
July 21, 2006**

final dka 08-14-06

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson welcomed the group and noted that the purpose of the meeting would be to finalize the Work Plan, Vision Statement, Solution Principles, and begin discussion on the Recreation Plan (attached, dated July 14, 2006). After passing out the working documents, Dave noted that they would begin an interactive session of reviewing each section and make changes as needed. The group began this exercise by separating possible solutions from the Identified Issues in the Work Plan. During this discussion, Tim Vinson noted that he would like to see additional boating access sites on the Lexington side of Lake Murray. David Hancock replied and noted this issue would be covered with the possible creation of a state park on the south side of the reservoir. Tim agreed that this would sufficiently address his issue. The group continued through the document and modified items to ensure that they correctly covered all the issues.

The group briefly discussed whether to cover the issue of Two Bird Cove in the Work Plan. Regis Parsons, a landowner in the cove, was concerned about the recent classification of the cove to a special recreation area. The group decided that since this issue overlapped between the Recreation and Lake and Land Management RCGs, they would mention the item in the Recreation Work Plan, but deal with it primarily in the Lake and Land Management RCG.

As the group progressed through the Work Plan, Dave noted that he had included all of the comments and issues in the draft and, because of this, several items were repeated in the document. The group agreed to remove a few items that were already noted in the document.

After complete review of the Work Plan, the group moved on to discuss the Vision Statement. Dave noted that the Vision Statement can be explained as the over-arching image of the Project in fifty years that guides the group through the tasks set out in the Work Plan.

During discussions on the Vision Statement, John Frick noted that he believed there needed to be an item included that encouraged low density development around the lake, as well as ensuring back property owners access to the lake. The group noted that this was not an issue that pertained to the Recreation Vision Statement and the issue was placed in the Parking Lot for the Lake and Land Management RCG. There were no additional comments on the Vision Statement and the group moved to Solution Principles and made a few changes. All changes made during the meeting are attached (document dated July 21, 2006).

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
July 21, 2006**

final dka 08-14-06

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After a short break, the group began to discuss the Recreation Plan “straw man” (attached). Dave noted that the Recreation Plan is the primary deliverable from the Recreation RCG. Dave reviewed each item in the document. During discussions, it was noted that the new Recreation Participation & Preference Study is available; however, the report does not group the data into the four counties surrounding the Project. Tony Bebbler will check on combining data for the Recreation Participation & Preference Study for the four counties as a homework item.

There was brief discussion regarding the prioritization of recreation sites that were at capacity and looking into expanding existing sites. Dave explained there will be an implementation schedule because, budget-wise, not all improvements could be done at one time. It was also noted that SCE&G and the agencies will meet on a regular basis to discuss the schedule and any priority adjustments. Alan suggested that the meetings be scheduled after the implementation schedule was developed. The group agreed. The group voiced no objections to the direction that the Recreation Plan was headed.

Dave gave a brief update as to the status of the TWCs. He noted the Recreation Assessment Study was started this past spring. He explained that the interviewers have been hired and in place since Memorial Day. Dave also noted that the inventory of existing SCE&G recreation sites has been completed and the database will be ready by the end of the year. Dave also pointed out that as of June 30, they have completed 173 of the 600 sample days and have completed approximately 660 questionnaires. Dave also noted that the TWC recently had discussions regarding the Boat Density Study Plan and the group is going to move forward with this study. He added that both studies will be using the new Recreation Participation & Preference Study funded by SCPRT and noted he would send the web link to the group.

Finally, Dave explained that there was a study plan currently under internal review that will be submitted to the Downstream Flows TWC for approval. Dave asked the group if there were questions on any of the studies mentioned. George Duke noted that he was a little concerned with the use of a 1977 study as a baseline for the Boat Density Study. Dave replied the 1977 procedures are generally used throughout FERC relicensings when performing a boat density study. He noted that they use the values for water skiing when applying values to jet skis because jet skis were not around in 1977. Dave also added that they have an idea of the number of jet skis from the interviews at the recreation sites. George also expressed concern that since 2006 was a drought year, accurate boat counts would not be attained. Dave noted that they would be using 2001 photography to obtain the counts.

Dave concluded the meeting and reviewed the homework assignments. He noted that before the next meeting the group should review and prioritize those issues that do not need the results of the studies currently taking place. The next Recreation RCG meeting was set for October 25<sup>th</sup>, 2006.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE GROUP**

**LAKE MURRAY TRAINING CENTER  
July 21, 2006**

final dka 08-14-06

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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**July 21, 2006  
9:30 AM**

**Lake Murray Training Center**

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- **9:30 to 10:30** Finalize Recreation RCG Work Plan (Dave Anderson)
- **10:30 to 10:45** BREAK
- **11:00 to 12:00** Finalize Recreation Vision Statement (Dave Anderson)
- **12:00 to 1:00** LUNCH
- **1:00 to 1:30** Finalize Solution Principles (Dave Anderson)
- **1:30 to 2:00** Discussion of Recreation Plan Straw Man (Dave Anderson)
- **2:00 to 2:10** BREAK
- **2:10 to 2:30** Update on TWCs (Dave Anderson)
- **2:30 to 2:45** Develop an Agenda for Next Meeting and Set Next Meeting Date

Adjourn





# Recreation Resource Conservation Group

## Working Documents

July 14, 2006



# Recreation Resource Conservation Group Work Plan

DRAFT

<b>Facilitator:</b>		
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# Recreation Resource Conservation Group Work Plan

DRAFT

## Mission Statement

The mission of the Recreation RCG is to ensure adequate and environmentally-balanced public recreational access and opportunities related to the Saluda Hydroelectric Project for the term of the new license. The objective is to assess the recreational needs associated with the lower Saluda River and Lake Murray and to develop a comprehensive recreation plan to address the recreation needs of the public for the term of the new license. This will be accomplished by collecting and developing necessary information, understanding interests and issues and developing consensus-based recommendations.

## Identified Issues

- ~~ensure that recreational facilities and opportunities are protected and enhanced for current and future users, on and near the lake and river~~
  - ~~support creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on north bank of river connecting Saluda Shoals Park to Gardendale Landing and to Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek~~
  - access site above the Mill Race rapids (~~encompassed within LSR Corridor Plan item, above~~)
  - creation of a state park on the south side of the reservoir
  - creation of a multi-lane boating facility that can accommodate large tournaments
  - ~~boating access~~
  - non-boating access
  - paddling access
  - expansion of existing ~~SCE&G and public commercial~~ facilities to accommodate future growth
  - security at recreation facilities
  - ~~sufficient egress points on lower Saluda River~~
  - ~~fishing opportunities for non-boaters~~
  - ~~A riverfront greenway trail is wanted by the community as expoused by the River Alliance. Assistance by SCE&G will in making this trail a reality will also help by opening up many areas of the river now only reached by boat, or by trespassing. The River Alliance has proposed a trail to extend up the north shore of the Saluda from the Riverbanks Zoo to I26. Continuation of the trail to Saluda Shoals, connecting the Gardendale site and an additional access area between I20 and I26 is also envisioned by the LSRAC and Saluda Shoals. Also, there is no legal access except by boat to the stretch of river upstream of the rapids above Saluda Shoals which should be remedied with a riverfront trail connection if possible, or through seperate access. The trail should parallel the river and not disturb the scenic integrity of the riverbank, but should allow for sufficient viewsapes and even water access by foot, especially to the popular, shallower riffle areas.~~

**Deleted:** the need for better public access

## Recreation Resource Conservation Group Work Plan

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- consideration of a boat ramp for small trailered boats at Gardendale or further downstream, but above I26, to allow safer upstream motoring towards Hopes Ferry. Many boaters have carried in their heavy rigs for years at the Gardendale 'throw-in' to be able to more safely boat the Saluda.
- public access with parking and trails on the Lexington (south) side such as the public park at the confluence of 12 Mile Creek and the Saluda River proposed in the Corridor Plan by SC PRT and the SC DNR (Lower Saluda River Advisory Council).
- safe recreational opportunities should be available on the Saluda below the lake through daily flow release schedules, and with release rates deemed to be not life threatening through a controlled study using river experts and stakeholders.
- conservation of lands to protect the scenic integrity of the Project and to provide wildlife habitat areas
- using the concept of adaptive management in future recreation planning
- creation of a communication system that would encompass information to better inform the public of existing and projected conditions regarding lake levels and river flows as related to anticipated hydro operations and maintenance Deleted: on
- protection of the cold water fishery on the lower Saluda River Deleted: Lower
- identification of flows needed for the lower Saluda River to support a variety of recreational uses
- creation of scheduled recreation flows for the lower Saluda River Deleted: Lower
- identification of a reliable lake level that will provide year round access for a majority of lake users
- consideration of The Lower Saluda River Corridor Plan and the Lower Saluda Scenic River Corridor Plan Update and their related public access sites and greenway-trail concepts
- identification and conservation of undeveloped shoreline and adjacent land for recreational use
- management of river flows to improve safety for river users (coordinate with Safety RCG)
- minimum flows to provide for recreational navigation and to protect and enhance aquatic life in river (coordinate with Fish and Wildlife RCG)

### RCG Tasks and Responsibilities

- Utilizing and modifying the Standard Process for evaluating and addressing recreation management and access issues specific to the Saluda Project, including developing a vision statement for the Project.
- Identifying specific areas where lake and river levels, river flows, and/or lake and river level fluctuations may be adversely affecting recreation including the nature and timing of the effect (e.g., access to sections of water, access to facilities, and aesthetics). Deleted: level  
Deleted: at the lake,
- Identifying specific areas where river flow changes may be adversely affecting recreation along the river, including the nature and timing of the effect (e.g., access to and safe use of sections of river).
- Working with the Operations Resource Conservation Group to identify “reasonable” (based on hydrologic, structural, and other limitations identified) changes in Project operations that would benefit recreation. Deleted: and alternatives for modifying project operations, including

## Recreation Resource Conservation Group Work Plan

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- Working with the Safety RCG and the Fish and Wildlife RCG to coordinate actions on issues of mutual interests such as river flows, lake levels, and the siting and management recreational facilities.
- Identifying any studies, if applicable, that need to be performed for identifying and/or evaluating (1) changes to Project operations, (2) enhancements to existing facilities, and (3) creation of new facilities to provide for public recreational access and opportunities.
- Make recommendations to the Lake and Land Management RCG to ensure adequate project lands are retained to meet recreational needs.
- Presenting a range of reasonable alternatives or recommendations to the Saluda Hydro Relicensing Group (SHRG) regarding modifications to facilities or current Project operations, needs for additional future access and facilities, and provide recommendations for recreation access, facilities, and use.

### Work Scope and Product

- **Task 1** – Utilize the stepwise process diagram and solution principles to guide the planning process for addressing recreation management issues at the Saluda Project.
- **Task 2** – Develop a Vision Statement for the Saluda Project.
- **Task 3** – Review the operational constraints and current operations of the Saluda Project (see Initial Consultation Document).
- **Task 4** – Answer the list of questions on the Standard Process Form in order to characterize the existing and potential future condition of access and lake levels and river flows – from a recreation setting perspective.
- **Task 5** – Review stakeholder requests for particular studies and/or enhancement measures to ensure that these are incorporated into study planning, if applicable
- **Task 6** – Develop and recommend operation scenarios to the Operations RCG for analysis. These scenarios should reflect initial thinking on potential solutions and be designed to narrow the focus of Task 10 below. Analysis by the Operations RCG will focus on an assessment of potential recreational impacts associated with any suggested changes to operations.
- **Task 7** – Discuss results of the Operations RCG analyses.
- **Task 8** – Develop study designs/methods/plans and review agreed upon studies, literature reviews, etc.
- **Task 9** – Check the solution principles to ensure proposed study plans are consistent.
- **Task 10** – Provide recommendations for Project operations and recreation access, facilities, and use to be considered in conjunction with all ecological (including water quality), recreational, and safety issues.
- **Task 11** – Develop a consensus based Recreation Plan for the Saluda Project that addresses all of the issues and tasks identified above.

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## Recreation Resource Conservation Group Work Plan

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### Schedule

**Late 2005/Early 2006**—Finalize Mission Statement, Standard Process Form, Solution Principles, and Work Plan

**Mid-2006**—Complete identification of studies, literature reviews, etc. that need to be completed to address issues and tasks identified in the Work Plan

**Late 2006**—Begin compilation of existing information, review preliminary study results, and draft an outline of the Recreation Plan

**2007**—Complete any studies identified in Task 8 and review results; draft recommendations to SHRG, complete draft Recreation Plan

**2008**—Finalize Recreation Plan and provide comments on Draft License Application

## Recreation Vision Statement for the Saluda Project

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The long-term vision for the Saluda Project is to recognize, protect, and enhance the fishery, water quality, aesthetic values, cultural resources, and public recreational opportunities on the reservoir and the Lower Saluda River, while recognizing the need to protect habitat supporting threatened, endangered, and sensitive species of Lake Murray and the lower Saluda River, and ensure adequate facilities and public access are provided. Given the size of the reservoir/hydro-project area, it is felt that it can continue to support a diversity of recreation opportunities. Recognizing that needs and demands will change, recreational uses will be monitored and managed to balance access/uses with the protection of natural resources and environmental quality; and planning for new facilities and management schemes will remain adaptive to changes.

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Recreational opportunities for Lake Murray and the lower Saluda River over the next 30 to 50 years of the pending new FERC license for SCE&G should incorporate the following attributes:

- Recreational sites access areas on the lake and the river should be adequate to allow for the continued rapid population growth in the midlands over the term of the new license based on surveys of the public and input from the stakeholders and public.
- Sites should be spaced around the lake and along the river corridor to provide legal public access to the different geographic sections of both.
- Uncrowded conditions should be available most of the time at the sites, with natural viewsapes and provisions for most of the current and anticipated popular recreational activities incorporated into the overall provisions.
- Patrols and/or assistance for emergencies should be provided, though not necessarily manned, such as adequate phone boxes.
- Safe recreational opportunities should be available for boaters on the lake with adequate lake levels for the navigational markers, and on the river with release levels that are not life-threatening to the average person.
- The recommendations of the Lower Saluda Scenic River Advisory Council should be implemented to reflect the broad community-based consensus for river access, with consideration of additional river access to areas where trespassing is now the only way to enter an area.

Improvements to be considered at the Saluda Project include:

- Evaluation of SCE&G-owned Project lands for possible reclassification for recreation activities.
- Providing appropriate operations and maintenance of public recreation facilities.
- Optimizing the capacity of existing public recreation facilities to accommodate existing and future demand.

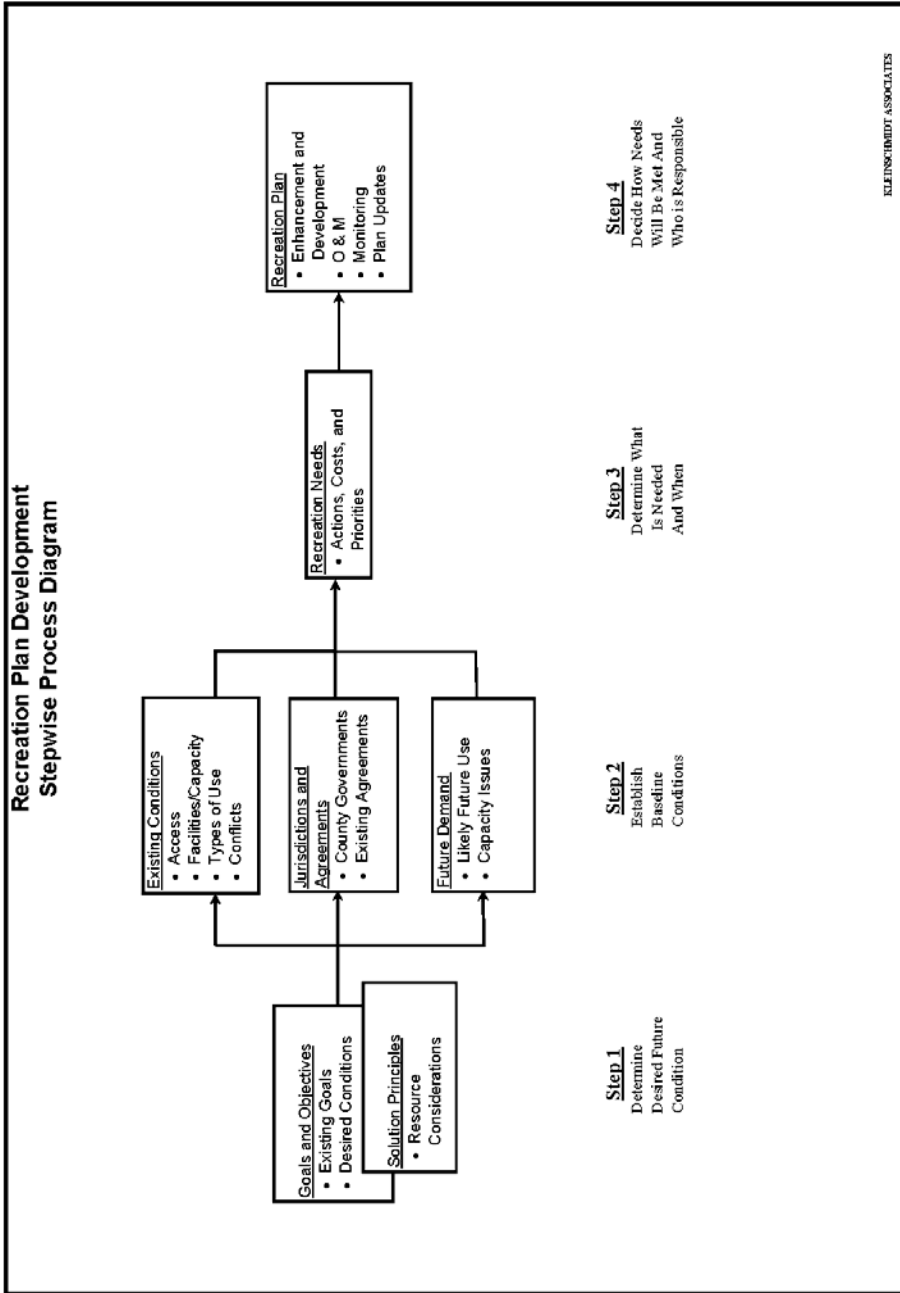
## Recreation Vision Statement for the Saluda Project

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- Improving access and safety in the public waters below the dam and minimizing impacts of project operations on downstream recreation, recognizing the need to meet power generation, and downstream flow responsibilities at Saluda. Deleted: ly  
Deleted: accessible
- Managing lake level drawdowns so as to optimize safety and recreational opportunities. Deleted: minimize the occurrence of surface elevations lower than 354' in the late summer and early fall
- Managing river flows so as to optimize safety and recreational opportunities.
- Ensuring public access areas for the non-boating public remain available along the lake and river shorelines.
- Development of new facilities in accordance with the comprehensive plan as the need arises. Deleted: if a proven



Stepwise Process Diagram



### Solution Principles

Consideration of new recreational facilities should be based on demonstrated need and the potential impact on existing facilities.

1. Priority should be given to demonstrated need within the FERC project boundary.
2. Priority should be given to recreational proposals where multiple stakeholders offer significant participation.
3. Recreational facilities should appeal to a broad public.
4. Reasonable access for the disabled should be provided.
5. Recreational needs should be prioritized for the project.
6. The improvement or expansion of existing recreational facilities should be considered first.
7. Additional recreational studies (if needed) should be only of sufficient scope and duration to provide necessary information to develop issue solutions.
8. Consensus based solutions are preferred over studies, unless solutions cannot be developed with existing information.
9. A schedule of proposed improvements should be considered so that all costs are not in the first few years of the new license.
10. A process should be developed to adjust proposed improvements over the 30+ year time frame approximately every 7 to 10 years to account for changing needs. This should include the ability to trade a new needed facility for a proposed (but not built) facility of approximately the same cost.
11. Sufficient “future recreational” land should be set aside now to handle the recreational needs of 30+ years.

Preferred consideration will be given to ideas that:

- do not promote facilities that would adversely impact existing commercial operations;
- identify actual recreational needs that are not filled by existing facilities;
- receive broad public support;
- expand existing recreational facilities prior to developing green field sites;

## Recreation Plan Development

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- require doing recreational studies only if consensus cannot be reached with existing information (It is preferred to put financial resources into recreational facilities and opportunities that benefit the overall Project, rather than fund unnecessary/subjective studies).

Standard Process Form

The following is a list of standard questions designed to help characterize existing recreation resources and aid in development of an appropriate recreation plan for the Saluda Project. Questions pertaining to recreation management are categorized according to the four-step recreation plan stepwise process diagram developed for the project. Questions pertaining to reservoir levels and downstream flows are listed following the facility management material.

**STEP 1 – DETERMINE DESIRED FUTURE CONDITION**

1. Identify Lake Murray and/or Lower Saluda River (LSR) qualities important to keep and any qualities that need changes.

Change:

Relative water level stability

Predictability – desire flows in river to be more predictable; desire advanced notice of flows to be available to public

Accessibility and amenities (boardwalk accessible from land and water)

Water quality – desire to resolve DO problems in the tailrace and in the reservoir

Minimum flow – desire minimum flow standards that will protect aquatic health in river

Management of flow increases – desire slower rates for increasing flows in river to increase margin of safety for downstream river users

Keep:

Water quality

Natural shoreline and riverbanks

Undeveloped lands remain undeveloped

Aesthetics

Fishing opportunities

Hunting opportunities

Wildlife watching

Living on lake/river

Solitude

Keep islands natural

Safety/security

Public-private balance

Shoreline Management Program

Contingency reserve capacity

2. Are there unique characteristics of Lake Murray and/or the LSR relative to other reservoirs/tailraces in the area?

Location – near and within metropolitan area

Size

Uninterrupted by bridges

Amount of land owned by SCE&G

Extensive shoreline  
Usable/accessible shoreline  
Purple Martin habitat  
Whitewater paddling in river  
Cold water fisheries in river

3. What is the overall vision for Lake Murray and/or the LSR, in terms of recreation experiences and opportunities?

Insert Final Vision Statement

4. Are there sensitive biological or cultural resources associated with the Project that need to be considered? Where are these resources located and are there seasonal sensitivities (e.g., nesting or spawning times, etc.)?

ESA  
Lands that support wildlife habitat  
See Cultural RCG  
Rocky shoals spider lily; Saluda River  
Spawning, migrating fishes; lower Saluda and Congaree River  
Trout; lower Saluda

5. Identify specific goals and objectives for managing recreation at Lake Murray and/or in the LSR.

Lake levels  
River levels and flows  
Minimum flows to support aquatic community health and recreational uses in the river  
Recreational flows  
Management of flow, changes from the hydro to improve safety for downstream river users  
Scheduled recreational releases  
Knowledge of current and anticipated generation releases made accessible to the public  
Park on Lexington side of lake  
Park/preserve on Lexington side of river at Twelve-mile Creek as describe in LSR Corridor Plan  
Provide takeout point above Zoo at Millrace Rapids  
LSR greenway trail described in LSSR Corridor Plan Update (involves River Alliance/City of Columbia and ICRC/Saluda Shoals Park)  
Assure long term stability of Billy Dreher Island, Flotilla Island, and Saluda Shoals Park  
Large tournament facility  
Reasonable avoid negatively impacting commercial facilities  
Conservation of existing project lands for wildlife and scenic values  
Estimate current and future recreational use of reservoir and river  
Year-round access for recreation sites

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**STEP 2 – ESTABLISH BASELINE CONDITIONS**

## Recreation Plan Development

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6. What is the nature of existing recreational access to Lake Murray and the LSR?
  - a. How many public accessible, developed recreation sites are there?
  - b. Where are they located/how are they distributed around the Project?
  - c. Of these publicly accessible access sites how many are owned and operated by public versus private entities and how are they supervised?
  - d. How many sites, open to the public, provide boat access to the reservoir and the LSR?
  - e. How many provide shoreline fishing?
  - f. Identify the most heavily used facilities.
  - g. Are there informal, undeveloped use areas? Where are they?
7. What types of existing developed facilities are there?
  - a. Enumerate boat ramps, restrooms, docks, and other facilities.
  - b. What is the existing capacity at each site?
  - c. What is the general condition of each site and its facilities?
  - d. Ideas for improving existing facilities.
8. Describe notable recreation activities on Lake Murray and/or the LSR.
  - a. List recreation activities currently occurring and identify most prominent activities.

Greatest activity is independent family recreation, including many forms of boating, waterskiing, swimming/sunbathing, fishing, picnicking, and camping.

Solitary wade fishing in river.

Bank fishing at public sites and impromptu sites in the lake and river.

Small and large bass tournaments.

Motor boating

Sailing

Fishing from boats

Fishing from banks

Wade fishing

Swimming and sunning

Picnicking

Canoeing and kayaking (flatwater and whitewater)

Floating with tubes and rafts

- b. Where are these uses occurring, and are they concentrated in certain areas?

Lower Saluda River supports all above activities except sailing

Whitewater boating concentrated on Saluda River below I-26 Bridge

Swimming and sunning on Lower Saluda concentrated at Riverbanks Zoo area; and will expand upriver when greenway trail opens in 2007

Wade fishing concentrated at shoal areas of lower River: at least four areas along river

- c. Identify existing impediments to these activities, if any.

## Recreation Plan Development

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Dramatic river fluctuations are impediments to recreational activities along the lower Saluda River.

9. Are there known management issues associated with use?
  - a. Are there areas of congestion, and if so where?
  - b. Are there known conflicts between users, and if so where and when?

Fishing tournaments are disruptive to other boaters and residents. There needs to be an established, enforced protocol for organizes fishing tournaments.  
Jet skis and large motorboats are disruptive to anglers, other boaters, and residents.

- c. Are there other known management issues, such as littering, trespassing, etc.?

Enforcement of established rules are limited by funding, staffing, and political boundaries.

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- d. Are there known issues regarding recreational safety?

Wade fishing, canoeing/kayaking, and other water contact and bank use is often dangerous due to river fluctuations in water levels on the Lower Saluda River.

10. What is the expected future demand for recreation activities at Lake Murray?
  - a. Will existing facility capacity likely be exceeded, and if so where and when?
  - b. Would accommodating this demand be consistent with the long-term vision for the reservoir?
  - c. Will demand introduce new or additional congestion, conflicts, or other management issues?

11. Identify current local benefits from recreation and any local detriments.

### **STEP 3 – DETERMINE WHAT IS NEEDED AND WHEN**

12. Ideas for better or different access, consistent with Step 2 above.
13. Potential facility enhancements or upgrades, consistent with Step 2 above.
14. Potential new facilities, or other management actions, consistent with Step 2 above.
15. What are the priorities regarding identified needs both in terms of resources and time? How do priorities compare across the entire Project?

### **STEP 4 – DECIDE HOW NEEDS WILL BE MET AND WHO IS RESPONSIBLE**

### **QUESTIONS REGARDING RESERVOIR LEVELS**

## Recreation Plan Development

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16. How is the Project currently operated and what are the typical reservoir levels during key recreation seasons?

- SCE&G operates Saluda Hydroelectric Project as a multi-purpose project. The seasonal changes in elevations provide hydroelectric generation, maintenance of downstream water quality, a unique tailrace fishery, and municipal/industrial water supply.
- SCE&G has a verbal agreement with SCDHEC for a minimum flow of 180 cfs.
- During the low DO season which generally runs from late June to early December, SCE&G will try to maintain a minimum flow of 400 – 500 cfs to help maintain a higher level of DO in the Lower Saluda River.
- From April through the end of August the lake is operated near the normal operating high water level of el. 358 ft Plant Datum (PD). Maximum full pool is el. 360.
- Drawdown begins near the end of August or early September and ends in late December near the winter pool level of 350 - 352 ft PD. This allows additional storage capacity in anticipation of the late winter and early spring rainy season.
- At the beginning of January the lake is allowed to refill during the rainy season so it will be at the normal operating high water level of 358 ft. PD by April.
- The plant normally schedules power operations for contingency reserve to meet our obligation to the Virginia/Carolinas Reserve Sharing Group (VACAR), a member of the Southeastern Electric Reliability Council (SERC), which is governed by the North American Electric Reliability Council (NERC). During the fall and in anticipation of heavy rains from a tropical storm or hurricane the plant will generate as necessary to manage the lake level, system reserve, and emergency generation requirements.
- Power generation may be increased to allow SCE&G to meet their obligations of contingency reserve as part of our VACAR agreement with neighboring utilities.

17. Are there changes to Project operations that you would like to see addressed to improve the overall value of the reservoir, and how specifically would such changes benefit recreation?

- What minimum lake elevation will provide recreational benefits during each season of the year?
- Current reservoir level operations balance the multi-purpose use of the reservoir. Maintaining the existing reservoir level fluctuations would allow for continued water level management through daily and weekly power generation operations however recreation would see no additional benefits. Conversely, limiting the seasonal fluctuation may have recreational benefits but other project purposes would be compromised (power generation, water level management, water quality maintenance, and aquatic weed control).

18. Are there seasonal and/or daily variations in reservoir level that can occur without adversely affecting the overall value of the project (including impoundment objectives such as recreation, fish and wildlife, flood control, generation, navigation, etc.)?

- There are not large daily fluctuations at the Saluda Hydroelectric Project.

19. What are the reservoir levels at which recreation problems tend to occur (may be different for different locations or problems)?



- There appears to be a potential impact to recreational resources when the lake level is lower.
- SCE&G already extended boat ramps at several of their public access parks to accommodate a water level down to el. 345 ft PD.

20. When (i.e., what time of year) and how frequently do problems occur related to reservoir levels?

- In general, the operation of Saluda Hydroelectric Project has been consistent throughout the years except for 1990, 1996, 2002 – 2004, and 2006. During those years the lake level was lowered to around el. 345 – 348 ft PD for the following project maintenance requirements:
  - 1990 – Intake towers maintenance
  - 1996 – Hydrilla control as requested by SCDNR
  - 2002 – 2004 – FERC Order for safety during dam remediation project
  - 2006 – Upstream riprap repair
- It will be necessary to lower the lake level to around el. 345 ft PD in the future for maintenance of project structures and installing new recreational access.

21. Why are the current operating water levels important to the operation of the project and the overall system?

- The Saluda Hydroelectric Project is a multi-purpose reservoir. The current operating water levels are critical for the project to meet its required purposes. The changes in water level have many beneficial impacts both upstream and downstream of the dam :
- The project is used to meet our contingency reserve capacity obligation as part of the VACAR agreement. This is for a loss on our own system or by one of our neighboring Reserve Sharing Group utilities.
- Electricity (inexpensive, clean, renewable)
- Electric system ancillary services (transmission line maintenance & overload protection, security resource for VCS Nuclear Statino)
- Navigation support
- Trout fishery
- Downstream water quality and aquatic habitat
- Municipal and industrial water supply

22. Are there state or federal operating requirements that stipulate specific operating goals?

- SCE&G and SCDHEC have an agreement to discharge a minimum flow of 180 cfs from the project.
- Article 12 of the FERC license requires that reservoir levels and discharge from storage be controlled by reasonable rules and regulations of the Commission for the protection of life, health, and property and for other beneficial public uses including recreational purposes.
- Exhibit H of the latest FERC license application identifies the lower lake level to be Elev. 350 during normal flow years and Elev. 345 during low flow years.

- Our McMeekin Generating Station NPDES permit requires a minimum of 2,500 cfs discharge from Saluda prior to discharging the fossil plant circulating water return directly into the Lower Saluda River.

**QUESTIONS REGARDING DOWNSTREAM FLOWS**

23. Are there riverine recreation opportunities below the dam? If yes, move to additional questions, if not, stop.

Yes, trout fishing (wading, bank, boat), striper fishing (wading, bank, boat), canoeing/kayaking, tubing, sunbathing/swimming/rock hopping, picnicking, walking/hiking, bicycling, wildlife watching.

24. Do we know how different flow levels affect recreation opportunities and specific recreation activities?

25. Can opportunities be enhanced by modifying releases, and in what way?

26. How would modified releases affect upstream lake levels?

27. How would suggested modified downstream flows affect project operations at the project and at upstream and downstream projects?

28. Are there additional concerns with regard to state and federal requirements or existing ecological issues that limit suggested changes to downstream flows?

29. How binding is the VACAR agreement and when does it expire? (I notice that it is not listed in the state/federal operating requirements in Question 22).

# Recreation Resource Conservation Group

## Working Documents

~~July 21, 2006~~

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# Recreation Resource Conservation Group Work Plan

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# Recreation Resource Conservation Group Work Plan

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## Mission Statement

The mission of the Recreation RCG is to ensure adequate and environmentally-balanced public recreational access and opportunities related to the Saluda Hydroelectric Project for the term of the new license. The objective is to assess the recreational needs associated with the lower Saluda River and Lake Murray and to develop a comprehensive recreation plan to address the recreation needs of the public for the term of the new license. This will be accomplished by collecting and developing necessary information, understanding interests and issues and developing consensus-based recommendations.

## Identified Issues

- ensure that recreational facilities and opportunities are protected and enhanced for current and future users, on and near the lake and river
  - boating access, including future access on Lexington side of lake
  - non-boating access
  - paddling access
  - security at recreation facilities
  - sufficient egress points on lower Saluda River
  - fishing opportunities for non-boaters
- conservation of lands
  - protect the scenic integrity of the Project
  - provide wildlife habitat areas, and
  - provide formal and informal (impromptu areas) recreational opportunities
    - consideration of Two Bird Cove and Hurricane Hole Cove (special recreation designation areas) classification
- using the concept of adaptive management in future recreation planning
- River flows
  - safe recreational opportunities should be available on the Saluda below the lake through daily flow release schedules, and with release rates deemed to be not life threatening through a controlled study using river experts and stakeholders.
  - lack of scheduled recreation flows for the lower Saluda River
  - management of river flows to improve safety for river users (coordinate with Safety RCG)
  - minimum flows to provide for recreational navigation and to protect and enhance aquatic life in river (coordinate with Fish and Wildlife RCG)
- lack of a communication system that would encompass information to better inform the public of existing and projected conditions regarding lake levels and river flows as related to anticipated hydro operations and maintenance
- protection of the cold water fishery on the lower Saluda River
- impacts of lake level on recreational use of the lake
- consideration of The Lower Saluda River Corridor Plan and the Lower Saluda Scenic River Corridor Plan Update and their related public access sites and greenway-trail concepts

## Possible Resolution

- Deleted:** the need for better public access
- Deleted:** <#>support creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on north bank of river connecting Saluda Shoals Park to Gardendale Landing and to Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek¶
- Deleted:** <#>access site above the Mill Race rapids (encompassed within LSR Corridor Plan item, above)¶
- Deleted:** <#>creation of a state park on the south side of the reservoir¶
- Deleted:** <#>creation of a multi-lane boating facility that can accommodate large tournaments¶
- Inserted:** <#>support creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on north bank of river connecting Saluda Shoals Park to Gardendale (... [1])
- Inserted:** <#> (encompassed wi (... [2])
- Deleted:** <#>expansion of existi (... [3])
- Inserted:** <#>SCE&G and publ (... [4])
- Deleted:** <#>A riverfront greeny (... [5])
- Inserted:** <#>A riverfront green (... [6])
- Inserted:** <#>consideration of a (... [7])
- Inserted:** <#>¶
- Formatted:** Bullets and Numbering
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## Recreation Resource Conservation Group Work Plan

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- support creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on north bank of river connecting Saluda Shoals Park to Gardendale Landing and to Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek
- access site above the Mill Race rapids (encompassed within LSR Corridor Plan item, above)
- creation of a state park on the south side of the reservoir
- creation of a multi-lane boating facility that can accommodate large tournaments
- A riverfront greenway trail is wanted by the community as expoused by the River Alliance. Assistance by SCE&G will in making this trail a reality will also help by opening up many areas of the river now only reached by boat, or by trespassing. The River Alliance has proposed a trail to extend up the north shore of the Saluda from the Riverbanks Zoo to I26. Continuation of the trail to Saluda Shoals, connecting the Gardendale site and an additional access area between I20 and I26 is also envisioned by the LSRAC and Saluda Shoals. Also, there is no legal access except by boat to the stretch of river upstream of the rapids above Saluda Shoals which should be remedied with a riverfront trail connection if possible, or through separate access. The trail should parallel the river and not disturb the scenic integrity of the riverbank, but should allow for sufficient viewscapes and even water access by foot, especially to the popular, shallower riffle areas.
- consideration of a boat ramp for small trailered boats at Gardendale or further downstream, but above I26, to allow safer upstream motoring towards Hopes Ferry. Many boaters have carried in their heavy rigs for years at the Gardendale 'throw-in' to be able to more safely boat the Saluda.
- public access with parking and trails on the Lexington (south) side such as the public park at the confluence of 12 Mile Creek and the Saluda River proposed in the Corridor Plan by SC PRT and the SC DNR (Lower Saluda River Advisory Council).
- identification of flows needed for the lower Saluda River to support a variety of recreational uses
- identification of a reliable lake level that will provide year round access for a majority of lake users
- Consideration of conservation easements on large tracts of land within the PBL

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### RCG Tasks and Responsibilities

- Utilizing and modifying the Standard Process for evaluating and addressing recreation management and access issues specific to the Saluda Project, including developing a vision statement for the Project.
- Identifying specific areas where lake ~~and river levels, river flows, and/or lake and river level~~ fluctuations may be adversely affecting recreation, including the nature and timing of the effect (e.g., access to sections of water, access to facilities, and aesthetics).

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# Recreation Resource Conservation Group Work Plan

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- Identifying specific areas where river flow changes may be adversely affecting recreation along the river, including the nature and timing of the effect (e.g., access to and safe use of sections of river).
- Working with the Operations Resource Conservation Group to identify “reasonable” (based on hydrologic, structural, and other limitations identified) changes in Project operations that would benefit recreation.
- Working with appropriate RCGs to coordinate actions on issues of mutual interests such as river flows, lake levels, conservation of lands, and the siting and management of recreational facilities.
- Identifying any studies, if applicable, that need to be performed for identifying and/or evaluating (1) changes to Project operations, (2) enhancements to existing facilities, and (3) creation of new facilities to provide for public recreational access and opportunities.
- Presenting a range of reasonable alternatives or recommendations to the Saluda Hydro Relicensing Group (SHRG) regarding modifications to facilities or current Project operations, and provide recommendations for future recreation access and facilities.

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## Work Scope and Product

- **Task 1** – Utilize the stepwise process diagram and solution principles to guide the planning process for addressing recreation management issues at the Saluda Project.
- **Task 2** – Develop a Vision Statement for the Saluda Project.
- **Task 3** – Review the operational constraints and current operations of the Saluda Project (see Initial Consultation Document).
- **Task 4** – Answer the list of questions on the Standard Process Form in order to characterize the existing and potential future condition of access and lake levels and river flows – from a recreation setting perspective.
- **Task 5** – Review stakeholder requests for particular studies and/or enhancement measures to ensure that these are incorporated into study planning, if applicable
- **Task 6** – Develop and recommend operation scenarios to the Operations RCG for analysis. These scenarios should reflect initial thinking on potential solutions and be designed to narrow the focus of Task 10 below. Analysis by the Operations RCG will focus on an assessment of potential recreational impacts associated with any suggested changes to operations.
- **Task 7** – Discuss results of the Operations RCG analyses.
- **Task 8** – Develop study designs/methods/plans and review agreed upon studies, literature reviews, etc.
- **Task 9** – Check the solution principles to ensure proposed study plans are consistent.
- **Task 10** – Provide recommendations for Project operations and recreation access and facilities to be considered in conjunction with all ecological (including water quality), recreational, and safety issues.
- **Task 11** – Develop a consensus based Recreation Plan for the Saluda Project that addresses all of the issues and tasks identified above.

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## Recreation Resource Conservation Group Work Plan

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### Schedule

**Late 2005/Early 2006**—Finalize Mission Statement, Standard Process Form, Solution Principles, and Work Plan

**Mid-2006**—Complete identification of studies, literature reviews, etc. that need to be completed to address issues and tasks identified in the Work Plan

**Late 2006**—Begin compilation of existing information, review preliminary study results, and draft an outline of the Recreation Plan

**2007**—Complete any studies identified in Task 8 and review results; draft recommendations to SHRG, complete draft Recreation Plan

**2008**—Finalize Recreation Plan and provide comments on Draft License Application



# Recreation Vision Statement for the Saluda Project

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The long-term vision for the Saluda Project is to recognize, protect, and enhance the fishery, water quality, aesthetic values, cultural resources, and public recreational opportunities on the reservoir and the Lower Saluda River, while recognizing the need to protect habitat supporting threatened, endangered, and sensitive species of Lake Murray and the lower Saluda River, and ensure adequate facilities and public access are provided. Given the size of the reservoir/hydro-project area, it is felt that it can continue to support a diversity of recreation opportunities. Recognizing that needs and demands will change, recreational uses will be monitored and managed to balance access/uses with the protection of natural resources and environmental quality; and planning for new facilities and management schemes will remain adaptive to changes.

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Recreational opportunities for Lake Murray and the lower Saluda River over the next 30 to 50 years of the pending new FERC license for SCE&G should incorporate the following attributes:

- Recreational sites access areas on the lake and the river should be adequate to allow for the continued rapid population growth in the midlands over the term of the new license based on surveys of the public and input from the stakeholders and public.
- Sites should be spaced around the lake and along the river corridor to provide legal public access to the different geographic sections of both.
- Uncrowded conditions should be available most of the time at the sites, with natural viewsapes and provisions for most of the current and anticipated popular recreational activities incorporated into the overall provisions.
- Patrols and/or assistance for emergencies should be provided, though not necessarily manned, such as adequate phone boxes.
- Safe recreational opportunities should be available for boaters on the lake with adequate lake levels for the navigational markers, and on the river with release levels that are not life-threatening to the average person.
- The recommendations of the Lower Saluda Scenic River Advisory Council should be implemented to reflect the broad community-based consensus for river access, with consideration of additional river access to areas where trespassing is now the only way to enter an area.

Improvements to be considered at the Saluda Project include:

- Evaluation of SCE&G-owned Project lands for possible reclassification for recreation activities.
- Providing appropriate operations and maintenance of public recreation facilities.
- Optimizing the capacity of existing public recreation facilities to accommodate existing and future demand.

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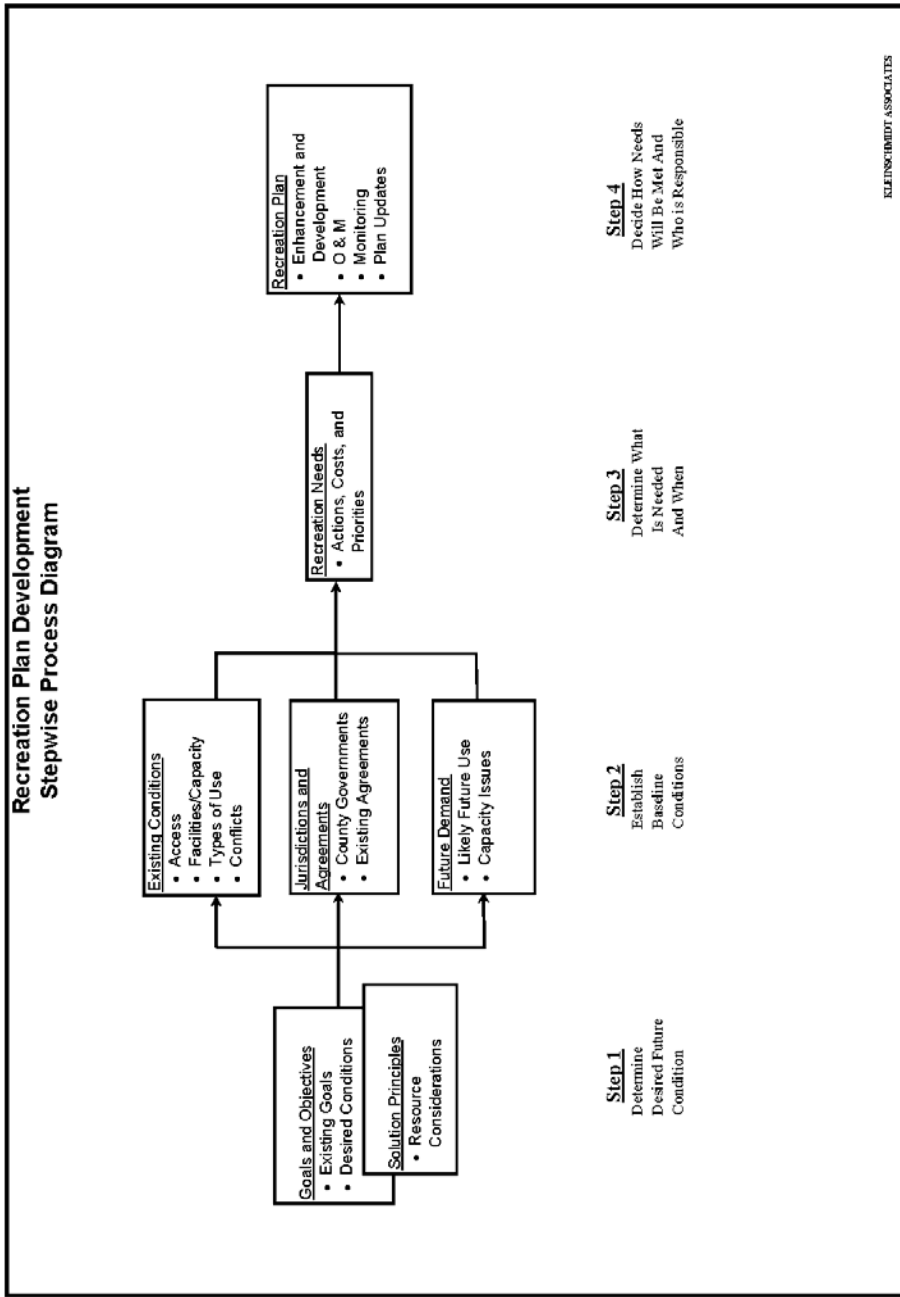
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# Recreation Vision Statement for the Saluda Project

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- Improving access and safety in the public waters below the dam and minimizing impacts of project operations on downstream recreation, recognizing the need to meet power generation, and downstream flow responsibilities at Saluda. Deleted: ly  
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- Managing lake level drawdowns so as to optimize safety and recreational opportunities. Deleted: minimize the occurrence of surface elevations lower than 354' in the late summer and early fall
- Managing river flows so as to optimize safety and recreational opportunities.
- Ensuring public access areas for the non-boating public remain available along the lake and river shorelines.
- Development of new facilities in accordance with the comprehensive plan as the need arises. Formatted: Bullets and Numbering  
Evaluation of other properties and potential partnerships as needed to meet the mission statement Deleted: if a proven
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Stepwise Process Diagram



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Solution Principles

Consideration of new recreational facilities should be based on demonstrated need and the potential impact on existing facilities.

1. Priority should be given to demonstrated need within the FERC project boundary.
2. Priority should be given to recreational proposals where multiple stakeholders offer significant participation.
3. Recreational facilities should appeal to a broad public.
4. Reasonable access for the disabled should be provided.
5. Recreational needs should be prioritized for the project including a schedule of proposed improvements so that all costs are not in the first few years of the new license.
6. The improvement or expansion of existing recreational facilities should be considered first.
7. Additional recreational studies (if needed) should be only of sufficient scope and duration to provide necessary information to develop issue solutions.
8. Consensus based solutions are preferred over studies, unless solutions cannot be developed with existing information.
9. 
10. A process should be developed to adjust proposed improvements over the 30+ year time frame approximately every 7 to 10 years to account for changing needs. This should include the ability to trade a new needed facility for a proposed (but not built) facility of approximately the same cost.
11. Sufficient “future recreational” land should be set aside now to handle the recreational needs of 30+ years.

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Preferred consideration will be given to ideas that:

- do not promote facilities that would adversely impact existing commercial operations;
- identify actual recreational needs that are not filled by existing facilities;
- receive broad public support;
- expand existing recreational facilities prior to developing green field sites;

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## Recreation Plan Development

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- require doing recreational studies only if consensus cannot be reached with existing information (It is preferred to put financial resources into recreational facilities and opportunities that benefit the overall Project, rather than fund unnecessary/subjective studies).

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Standard Process Form

The following is a list of standard questions designed to help characterize existing recreation resources and aid in development of an appropriate recreation plan for the Saluda Project. Questions pertaining to recreation management are categorized according to the four-step recreation plan stepwise process diagram developed for the project. Questions pertaining to reservoir levels and downstream flows are listed following the facility management material.

**STEP 1 – DETERMINE DESIRED FUTURE CONDITION**

1. Identify Lake Murray and/or Lower Saluda River (LSR) qualities important to keep and any qualities that need changes.

Change:

Relative water level stability

Predictability – desire flows in river to be more predictable; desire advanced notice of flows to be available to public

Accessibility and amenities (boardwalk accessible from land and water)

Water quality – desire to resolve DO problems in the tailrace and in the reservoir

Minimum flow – desire minimum flow standards that will protect aquatic health in river

Management of flow increases – desire slower rates for increasing flows in river to increase margin of safety for downstream river users

Keep:

Water quality

Natural shoreline and riverbanks

Undeveloped lands remain undeveloped

Aesthetics

Fishing opportunities

Hunting opportunities

Wildlife watching

Living on lake/river

Solitude

Keep islands natural

Safety/security

Public-private balance

Shoreline Management Program

Contingency reserve capacity

2. Are there unique characteristics of Lake Murray and/or the LSR relative to other reservoirs/tailraces in the area?

Location – near and within metropolitan area

Size

Uninterrupted by bridges

Amount of land owned by SCE&G

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[Extensive shoreline](#)  
[Usable/accessible shoreline](#)  
[Purple Martin habitat](#)  
[Whitewater paddling in river](#)  
[Cold water fisheries in river](#)

3. What is the overall vision for Lake Murray and/or the LSR, in terms of recreation experiences and opportunities?

[Insert Final Vision Statement](#)

4. Are there sensitive biological or cultural resources associated with the Project that need to be considered? Where are these resources located and are there seasonal sensitivities (e.g., nesting or spawning times, etc.)?

[ESA](#)  
[Lands that support wildlife habitat](#)  
[See Cultural RCG](#)  
[Rocky shoals spider lily; Saluda River](#)  
[Spawning, migrating fishes; lower Saluda and Congaree River](#)  
[Trout; lower Saluda](#)

5. Identify specific goals and objectives for managing recreation at Lake Murray and/or in the LSR.

[Lake levels](#)  
[River levels and flows](#)  
[Minimum flows to support aquatic community health and recreational uses in the river](#)  
[Recreational flows](#)  
[Management of flow changes from the hydro to improve safety for downstream river users](#)  
[Scheduled recreational releases](#)  
[Knowledge of current and anticipated generation releases made accessible to the public](#)  
[Park on Lexington side of lake](#)  
[Park/preserve on Lexington side of river at Twelve-mile Creek as describe in LSR Corridor Plan](#)  
[Provide takeout point above Zoo at Millrace Rapids](#)  
[LSR greenway trail described in LSSR Corridor Plan Update \(involves River Alliance/City of Columbia and ICRC/Saluda Shoals Park\)](#)  
[Assure long term stability of Billy Dreher Island, Flotilla Island, and Saluda Shoals Park](#)  
[Large tournament facility](#)  
[Reasonable avoid negatively impacting commercial facilities](#)  
[Conservation of existing project lands for wildlife and scenic values](#)  
[Estimate current and future recreational use of reservoir and river](#)  
[Year-round access for recreation sites](#)

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## **STEP 2 – ESTABLISH BASELINE CONDITIONS**

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## Recreation Plan Development

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6. What is the nature of existing recreational access to Lake Murray and the LSR?
  - a. How many public accessible, developed recreation sites are there?
  - b. Where are they located/how are they distributed around the Project?
  - c. Of these publicly accessible access sites how many are owned and operated by public versus private entities and how are they supervised?
  - d. How many sites, open to the public, provide boat access to the reservoir and the LSR?
  - e. How many provide shoreline fishing?
  - f. Identify the most heavily used facilities.
  - g. Are there informal, undeveloped use areas? Where are they?
7. What types of existing developed facilities are there?
  - a. Enumerate boat ramps, restrooms, docks, and other facilities.
  - b. What is the existing capacity at each site?
  - c. What is the general condition of each site and its facilities?
  - d. Ideas for improving existing facilities.
8. Describe notable recreation activities on Lake Murray and/or the LSR.
  - a. List recreation activities currently occurring and identify most prominent activities.

Greatest activity is independent family recreation, including many forms of boating, waterskiing, swimming/sunbathing, fishing, picnicking, and camping.

Solitary wade fishing in river.

Bank fishing at public sites and impromptu sites in the lake and river.

Small and large bass tournaments.

Motor boating

Sailing

Fishing from boats

Fishing from banks

Wade fishing

Swimming and sunning

Picnicking

Canoeing and kayaking (flatwater and whitewater)

Floating with tubes and rafts

- b. Where are these uses occurring, and are they concentrated in certain areas?

Lower Saluda River supports all above activities except sailing

Whitewater boating concentrated on Saluda River below I-26 Bridge

Swimming and sunning on Lower Saluda concentrated at Riverbanks Zoo area; and will expand upriver when greenway trail opens in 2007

Wade fishing concentrated at shoal areas of lower River: at least four areas along river

- c. Identify existing impediments to these activities, if any.

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## Recreation Plan Development

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Dramatic river fluctuations are impediments to recreational activities along the lower Saluda River.

9. Are there known management issues associated with use?
  - a. Are there areas of congestion, and if so where?
  - b. Are there known conflicts between users, and if so where and when?

Fishing tournaments are disruptive to other boaters and residents. There needs to be an established, enforced protocol for organizes fishing tournaments.  
Jet skis and large motorboats are disruptive to anglers, other boaters, and residents.

- c. Are there other known management issues, such as littering, trespassing, etc.?

Enforcement of established rules are limited by funding, staffing, and political boundaries.

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- d. Are there known issues regarding recreational safety?

Wade fishing, canoeing/kayaking, and other water contact and bank use is often dangerous due to river fluctuations in water levels on the Lower Saluda River.

10. What is the expected future demand for recreation activities at Lake Murray?
  - a. Will existing facility capacity likely be exceeded, and if so where and when?
  - b. Would accommodating this demand be consistent with the long-term vision for the reservoir?
  - c. Will demand introduce new or additional congestion, conflicts, or other management issues?

11. Identify current local benefits from recreation and any local detriments.

### **STEP 3 – DETERMINE WHAT IS NEEDED AND WHEN**

12. Ideas for better or different access, consistent with Step 2 above.
13. Potential facility enhancements or upgrades, consistent with Step 2 above.
14. Potential new facilities, or other management actions, consistent with Step 2 above.
15. What are the priorities regarding identified needs both in terms of resources and time? How do priorities compare across the entire Project?

### **STEP 4 – DECIDE HOW NEEDS WILL BE MET AND WHO IS RESPONSIBLE**

### **QUESTIONS REGARDING RESERVOIR LEVELS**

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## Recreation Plan Development

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16. How is the Project currently operated and what are the typical reservoir levels during key recreation seasons?

- SCE&G operates Saluda Hydroelectric Project as a multi-purpose project. The seasonal changes in elevations provide hydroelectric generation, maintenance of downstream water quality, a unique tailrace fishery, and municipal/industrial water supply.
- SCE&G has a verbal agreement with SCDHEC for a minimum flow of 180 cfs.
- During the low DO season which generally runs from late June to early December, SCE&G will try to maintain a minimum flow of 400 – 500 cfs to help maintain a higher level of DO in the Lower Saluda River.
- From April through the end of August the lake is operated near the normal operating high water level of el. 358 ft Plant Datum (PD). Maximum full pool is el. 360.
- Drawdown begins near the end of August or early September and ends in late December near the winter pool level of 350 - 352 ft PD. This allows additional storage capacity in anticipation of the late winter and early spring rainy season.
- At the beginning of January the lake is allowed to refill during the rainy season so it will be at the normal operating high water level of 358 ft. PD by April.
- The plant normally schedules power operations for contingency reserve to meet our obligation to the Virginia/Carolinas Reserve Sharing Group (VACAR), a member of the Southeastern Electric Reliability Council (SERC), which is governed by the North American Electric Reliability Council (NERC). During the fall and in anticipation of heavy rains from a tropical storm or hurricane the plant will generate as necessary to manage the lake level, system reserve, and emergency generation requirements.
- Power generation may be increased to allow SCE&G to meet their obligations of contingency reserve as part of our VACAR agreement with neighboring utilities.

17. Are there changes to Project operations that you would like to see addressed to improve the overall value of the reservoir, and how specifically would such changes benefit recreation?

- What minimum lake elevation will provide recreational benefits during each season of the year?
- Current reservoir level operations balance the multi-purpose use of the reservoir. Maintaining the existing reservoir level fluctuations would allow for continued water level management through daily and weekly power generation operations however recreation would see no additional benefits. Conversely, limiting the seasonal fluctuation may have recreational benefits but other project purposes would be compromised (power generation, water level management, water quality maintenance, and aquatic weed control).

18. Are there seasonal and/or daily variations in reservoir level that can occur without adversely affecting the overall value of the project (including impoundment objectives such as recreation, fish and wildlife, flood control, generation, navigation, etc.)?

- There are not large daily fluctuations at the Saluda Hydroelectric Project.

19. What are the reservoir levels at which recreation problems tend to occur (may be different for different locations or problems)?

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## Recreation Plan Development

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- There appears to be a potential impact to recreational resources when the lake level is lower.
- SCE&G already extended boat ramps at several of their public access parks to accommodate a water level down to el. 345 ft PD.

20. When (i.e., what time of year) and how frequently do problems occur related to reservoir levels?

- In general, the operation of Saluda Hydroelectric Project has been consistent throughout the years except for 1990, 1996, 2002 – 2004, and 2006. During those years the lake level was lowered to around el. 345 – 348 ft PD for the following project maintenance requirements:
  - 1990 – Intake towers maintenance
  - 1996 – Hydrilla control as requested by SCDNR
  - 2002 – 2004 – FERC Order for safety during dam remediation project
  - 2006 – Upstream riprap repair
- It will be necessary to lower the lake level to around el. 345 ft PD in the future for maintenance of project structures and installing new recreational access.

21. Why are the current operating water levels important to the operation of the project and the overall system?

- The Saluda Hydroelectric Project is a multi-purpose reservoir. The current operating water levels are critical for the project to meet its required purposes. The changes in water level have many beneficial impacts both upstream and downstream of the dam :
- The project is used to meet our contingency reserve capacity obligation as part of the VACAR agreement. This is for a loss on our own system or by one of our neighboring Reserve Sharing Group utilities.
- Electricity (inexpensive, clean, renewable)
- Electric system ancillary services (transmission line maintenance & overload protection, security resource for VCS Nuclear Statino)
- Navigation support
- Trout fishery
- Downstream water quality and aquatic habitat
- Municipal and industrial water supply

22. Are there state or federal operating requirements that stipulate specific operating goals?

- SCE&G and SCDHEC have an agreement to discharge a minimum flow of 180 cfs from the project.
- Article 12 of the FERC license requires that reservoir levels and discharge from storage be controlled by reasonable rules and regulations of the Commission for the protection of life, health, and property and for other beneficial public uses including recreational purposes.
- Exhibit H of the latest FERC license application identifies the lower lake level to be Elev. 350 during normal flow years and Elev. 345 during low flow years.

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## Recreation Plan Development

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- Our McMeekin Generating Station NPDES permit requires a minimum of 2,500 cfs discharge from Saluda prior to discharging the fossil plant circulating water return directly into the Lower Saluda River.

### QUESTIONS REGARDING DOWNSTREAM FLOWS

23. Are there riverine recreation opportunities below the dam? If yes, move to additional questions, if not, stop.

Yes, trout fishing (wading, bank, boat), striper fishing (wading, bank, boat), canoeing/kayaking, tubing, sunbathing/swimming/rock hopping, picnicking, walking/hiking, bicycling, wildlife watching.

24. Do we know how different flow levels affect recreation opportunities and specific recreation activities?

25. Can opportunities be enhanced by modifying releases, and in what way?

26. How would modified releases affect upstream lake levels?

27. How would suggested modified downstream flows affect project operations at the project and at upstream and downstream projects?

28. Are there additional concerns with regard to state and federal requirements or existing ecological issues that limit suggested changes to downstream flows?

29. How binding is the VACAR agreement and when does it expire? (I notice that it is not listed in the state/federal operating requirements in Question 22).

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support creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on north bank of river connecting Saluda Shoals Park to Gardendale Landing and to Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek

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(encompassed within LSR Corridor Plan item, above)

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expansion of existing SCE&G and public commercial facilities to accommodate future growth

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SCE&G and public commercial

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A riverfront greenway trail is wanted by the community as expoused by the River Alliance. Assistance by SCE&G will in making this trail a reality will also help by opening up many areas of the river now only reached by boat, or by trespassing. The River Alliance has proposed a trail to extend up the north shore of the Saluda from the Riverbanks Zoo to I26. Continuation of the trail to Saluda Shoals, connecting the Gardendale site and an additional access area between I20 and I26 is also envisioned by the LSRAC and Saluda Shoals. Also, there is no legal access except by boat to the stretch of river upstream of the rapids above Saluda Shoals which should be remedied with a riverfront trail connection if possible, or through seperate access. The trail should parallel the river and not disturb the scenic integrity of the riverbank, but should allow for sufficient viewscapes and even water access by foot, especially to the popular, shallower riffle areas.

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safe recreational oppourtunities should be available on the Saluda below the lake through daily flow release schedules, and with release rates deemed to be not life threatening through a controlled study using river experts and stakeholders.

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and to provide wildlife habitat areas

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identification of flows needed for the lower Saluda River to support a variety of recreational uses

creation of scheduled recreation flows for the

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identification of flows needed for the lower Saluda River to support a variety of recreational uses

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lower Saluda River

identification of a reliable lake level that will provide year round access for a majority of lake users

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identification and conservation of undeveloped shoreline and adjacent land for recreational use

management of river flows to improve safety for river users (coordinate with Safety RCG)

minimum flows to provide for recreational navigation and to protect and enhance aquatic life in river (coordinate with Fish and Wildlife RCG)

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**Page 2: [13] Inserted** **Dave Anderson** **5/18/2006 9:55 AM**

identification and conservation of undeveloped shoreline and adjacent land for recreational use

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**Page 2: [14] Inserted** **Bill Marshall** **5/30/2006 10:45 AM**

management of river flows to improve safety for river users (coordinate with Safety RCG)

minimum flows to provide for recreational navigation and to protect and enhance aquatic life in river (coordinate with Fish and Wildlife RCG)



**SOUTH CAROLINA  
ELECTRIC & GAS COMPANY**  
*COLUMBIA, SOUTH CAROLINA*

**SALUDA HYDROELECTRIC PROJECT**  
*(FERC NO. 516)*

**RECREATION PLAN**

DRAFT

*JULY 2006*

*Prepared by:*

***Kleinschmidt***  
*Energy & Water Resource Consultants*



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**RECREATION PLAN**

**DRAFT**

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## ***1.0 PROJECT DESCRIPTION***

These sections will be basic descriptions of existing and/or planned future recreation opportunities.

### ***1.1 Regional Setting***

This section will briefly describe recreation opportunities in the Lake Murray region. In order to be consistent with the Statewide Comprehensive Outdoor Recreation Plan (SCORP), the region is defined as the “Capital City & Lake Murray Country” tourism region and includes the counties of Richland, Lexington, Saluda, and Newberry.

### ***1.2 Lake Murray***

This section will briefly describe Project facilities, Lake Murray, and recreation opportunities available on the lake.

### ***1.3 Lower Saluda River***

This section will briefly describe recreation opportunities available on the lower Saluda River. We must also describe what is actually in the project boundary.

## ***2.0 DATA COLLECTION METHODS AND STORAGE***

This section will basically be the methodology from the Recreation Assessment Study and the Boat Density Study.

## ***3.0 SITE DESCRIPTIONS, USE ESTIMATES, AND BOAT DENSITY ANALYSIS***

This section will incorporate results from the Recreation Assessment Study and the Boat Density Study.

## ***4.0 FACILITY DEVELOPMENT CONSULTATION PROCESS AND METHODOLOGY***

This section will describe the consultation process with the Recreation RCG. We will incorporate the following subheadings to help describe the process.

### ***4.1 Standard Process***

This section will describe the Standard Process that we are using in the Recreation RCG.

### ***4.2 Standard Process Steps and Questions***

Basically, this will be a list of the four steps and the final questions from the Standard Process form.

### 4.3 Recreation Solution Principles

This will be a reiteration of the final Solution Principles we are following.

## **5.0 FACILITY DEVELOPMENT PRIORITIZATION AND SCHEDULING**

The following questions briefly describe the process we will use for determining facility development and prioritization.

**“Does the *existing* supply of recreation sites/facilities meet the *current* demand for them?”  
The answer to this question defines our baseline – it tells us what exists *now* and how it is *currently* used.**

1. Identify supply of recreation sites. In this instance, supply of recreation sites around Lake Murray will be determined using the results of the recreation site inventory. That will tell us (a) what’s available for public access sites and (b) approximately how many people these sites can accommodate at any period in time (site capacity).
2. Estimate whether we are meeting *current* demand for these recreation sites. We need to estimate at what level these sites are being used now. This is determined from our vehicle counts, which are occurring concurrently with the site surveys. This information will be supplemented with results from the user surveys, which will tell us whether the patrons of recreation sites feel the existing facilities are adequate to meet their needs, and the staging locations of special events (regattas, fishing tournaments, etc.).

### 5.1 Prioritization Consultation

**“Will the current supply of recreation sites/facilities meet expected future demand?”**

1. Determine what *future* participation in recreation might look like. We need to estimate how many more people will be demanding recreational access to the Project. This information will come from estimates of population projections (population trends are an indicator of potential growth in recreation demand); trends in participation in outdoor recreation from national studies, the SCORP, River Corridor studies, and other relevant literature.
2. Decide whether the *existing* sites might accommodate our expected *future* use, or whether those sites might need to be *expanded* or new sites *created*. The capacity at which these sites are being used currently will be compared with the estimates of future use to gain an idea of how much additional use in the future a site could or could not handle.

### 5.2 Implementation Schedule

**“If site expansion or new access is determined to be required, where and when should that occur?”**

1. Identify the recreation sites where expansion might be necessary. Identify the activities that need to be accommodated. Determine whether (a) the site can accommodate an expansion and (b) whether an expansion is desirable at that site. Data required here will come from the site evaluation, professional engineers, and resource

managers/professionals. For boat launches, also examine maps from the boating density study, survey results, and accident locations to identify whether or not waters in front of the launch can handle additional boat traffic.

2. If it is determined that new sites should be created, the location of any potential site should be determined by examining the following items, at a minimum:
  - a. Location of existing project lands that are available
  - b. Topographic suitability of available project lands to meet the need
  - c. Location of other sensitive resources (T&E species, spawning beds, wetlands, etc.).
  - d. Current on-water use patterns that might become more concentrated by the development of a new site.
3. Develop a prioritization schedule that will identify the approximate time frame for these improvements to occur.

### 5.3 Annual Consultation

We will include an annual consultation with the SCDNR and SCPRT that will review improvements made during the prior year and review the schedule for the upcoming year. If the schedule of improvements needs adjusting, it can occur at this meeting.

### 5.4 Recreation Plan Addenda

We will include an annual report describing improvements made during the previous year and plans for the coming year; basically meeting notes from the annual consultation.

## **6.0 RECREATION CONCEPT PLAN EVALUATION**

This section will describe the detailed improvements that we agree will take place.

### 6.1 Suitable Sites for Development

This section will describe the sites and the improvements to those sites.

### 6.2 Unsuitable Sites for Development

During the course of consultation, we may find that a site may need improvements that are unfeasible for a given reason. We will record why these sites are unsuitable in order to provide a record for future use.

## **7.0 OTHER ISSUES ADDRESSED WITHIN THE RECREATION RCG CONSULTATION PROCESS**

If we have any other recommendations related to recreation, we will describe them in this section.

## **8.0 REFERENCES**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

**LAKE MURRAY TRAINING CENTER  
October 25, 2006**

final dka 11-27-06

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Alan Stuart	Kleinschmidt Associates	Dave Anderson	Kleinschmidt Associates
Jeni Summerlin	Kleinschmidt Associates	Steve Bell	Lake Watch
Jenn O'Rourke	SCWF	Marty Phillips	Kleinschmidt Associates
Tony Bebbler	SCPRT	Richard Mikill	Adventure Carolina
Bill Brebner	YCOA	Joy Downs	LMA
Randy Mahan	SCANA Services	Bill Marshall	SCDNR, LSSRAC
Tim Vinson	SCDNR	Tom Eppink	SCANA Services
Tommy Boozer	SCE&G	David Hancock	SCE&G

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**HOMEWORK ITEMS:**

- Dave Anderson—revise the Recreation RCG Issues Matrix and send out to RCG members
- Dave Anderson—develop a Communication System Plan
- Dave Anderson—send out the Standard Process Form with track changes to RCG members
- TWC—review draft responses to Work Plan items relating to reservoir levels in preparation for the next meeting

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**February 7, 2006 (tentative) at 9:30 a.m.  
Located at the Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

**LAKE MURRAY TRAINING CENTER  
October 25, 2006**

final dka 11-27-06

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson of Kleinschmidt Associates welcomed everyone and opened the meeting with a review of study updates for the Recreation RCG. He indicated that approximately 2,000 surveys were completed this summer for the Saluda Recreation Assessment. Dave A. noted that the Boat Density Study Plan was finalized and sent out to RCG members. He mentioned that SCE&G's 2001 aerial photographs will be used to estimate boat densities on Lake Murray. Dave also noted that the Downstream Flow Assessment Study Plan has been finalized. He then handed the floor over to Marty Phillips of Kleinschmidt Associates to present information on boat density/carrying capacity studies performed at other FERC projects.

**Presentation on Boat Density/Carrying Capacity Studies at FERC Projects**

Marty noted that the purpose of the presentation was to give committee members an overview of boat densities and carrying capacities. Marty noted that there was a difference between estimating boat densities and carrying capacities. Boat densities are the number of boats per unit area, which may include type of boat/activity, and may address shoreline configuration and availability of open water. Carrying capacity is defined as the type and level of visitor use that could be accommodated while sustaining the desired resource and social objectives. Boat densities illustrate how and where the lake is used, and may provide input to shoreline management decisions. Boat density is a building block used in the estimation of carrying capacity. She identified a variety of inputs that might be used for density and carrying capacity studies. The inputs chosen for any individual study should be selected to address the individual needs of a project's scope and with a clear understanding of how results will be used. There are multiple methods that can be used for estimating density or carrying capacity; each is generally tailored to the project at hand.

Marty explained that, similar to the entire relicensing process, it is important to balance the needs of the people who use the lake, when considering boat density information and carrying capacity studies. There is a significant amount of overlap between carrying capacity studies and shoreline management plans. Each may independently consider a multitude of resource areas, such as boat density, public access, fisheries, water quality, shoreline erosion, etc. Marty suggested that it is appropriate to consolidate research and management efforts – and avoid duplication of information gathering and analysis – by incorporating boat density information into a shoreline management plan, thereby balancing resource needs comprehensively.

Marty pointed out that, typically a licensee may be responsible for the provision of public access within the project boundary to a water body. Typically, state agencies are responsible for managing activity on the water at FERC licensed projects.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

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October 25, 2006**

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She provided a few examples of other projects that have conducted carrying capacity studies. She pointed out that most boat counts are based on a predetermined sampling schedule. She explained that mapping boat densities helps managers view areas of high use, where they may wish to discourage additional access, and areas of low use, where additional access might be appropriate. This can be important input for a shoreline management plan. She specifically noted that different user groups may use the resource differently. She noted that sometimes just boat counts are used and sometimes the counts are combined with on-the-ground survey research. In general, most studies show that different user groups will have different perceptions of crowding on weekdays, weekends, and holidays. Also that different user groups tend to have different characteristics and different needs, all of which need to be recognized by resource managers. Finally, Marty noted that because public preferences and resource conditions may evolve over time, management strategies should be flexible in order to accommodate changing conditions and resource needs.

The presentation can be viewed at the following link:

<http://www.saludahydrorelicense.com/documents/CarryingCapacityPresentation.ppt>

HEC-ResSim Model Discussion

Dave noted that the HEC-ResSim Model would be discussed at the Quarterly Public Meeting on October 26th located at Saluda Shoals Park.

Dave also verified with the group that we would be requesting the Operations TWC to analyze keeping the lake levels at 354' msl, 355' msl, and 356' msl.

Standard Process Questions – Questions 1 to 5 and 16 to 22

The group worked to finalize Standard Process Questions 1 through 5 and 16 through 22 of the Work Plan. The group was reminded that the purpose of this exercise is to track the progress of the Recreation TWC/RCG. It was noted that the third sentence of the first answer should be changed to “Maintain a balance between public/private recreational access.” Joy Downs noted that “Maintaining and/or improving the water quality of Lake Murray” should be added to the end of the first paragraph. It was noted that the third sentence in the second paragraph should be changed to “The quality of amenities and access should be improved for recreational users: and an “s” needed to be added to the word “standard” in the fifth sentence in the second paragraph. The last sentence in the first question should read: “The Project should also continue to provide reasonably affordable, reliable energy to SCE&G’s service area.”

Dave A. then read the second question and asked if anything needed to be changed. It was noted that the word “managed” should be added in the second sentence after the word “access.” It was

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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noted that the third sentence should read, "This may be to the amount of project lands." It was also noted that "striped bass fishery" should be added to the second paragraph of Question Two.

Dave A. read Question Three and no comments were made. He then read Question Four and asked for comments. It was noted that "bald eagles, wood storks, and purple martins" should be added to the end of the second paragraph. Dave A. noted that he would send the standard process form out to committee members with the track changes included.

Bill Argentieri drafted responses to the Work Plan questions on reservoir levels. These were provided to and reviewed with the TWC. It was agreed to modify the eighth bullet to read as follows: "Power generation is increased to allow SCE&G to meet their obligations of contingency reserve as part of our VACAR agreement with neighboring utilities." TWC members will review the document more thoroughly in preparation for discussion at the next meeting.

Lower Saluda River Corridor Plan

Dave introduced Bill Marshall and noted that he serves on the Lower Saluda Scenic River Advisory Council with the South Carolina Department of Natural Resources (SCDNR). Bill M. opened his presentation by explaining the South Carolina Scenic Rivers Act. He noted that the act has enabled the SCDNR to create a cooperative, non-regulatory program, which involves landowners, river users, community interests, and the SCDNR working for conservation on eight State Scenic Rivers, which are designated through state legislation. He explained that for each scenic river a local advisory council is created to put together a scenic river management plan, which sets river conservation and management objectives for the advisory council.

Bill M. explained that the Lower Saluda Scenic River begins at the old railroad pilings below the Lake Murray Dam and ends at the confluence of the Lower Saluda River (LSR) and Broad River. Presenting a series of photographs, he pointed out popular locations along the LSR, including Mill Race Rapids, the confluence with the Broad, Ocean Boulevard, and Oh Brother Rapids.

Bill M. explained that the Lower Saluda Scenic River Advisory Council consists of 16 members. He noted that the objectives of the Advisory Council are to protect/conserves natural, cultural, and scenic qualities of the river corridor and improve water quality, public access, and river-user safety. These general objectives are expanded upon in the 1990 Lower Saluda River Corridor Plan and the 2000 Corridor Plan Update; which serve as management plans for the Scenic River. He explained that the 1990 Corridor Plan process led to the LSR being designated a State Scenic River in 1991.

Bill explained why and how a Task Force of local community leaders and interests created the 1990 Lower Saluda River Corridor Plan. The Task Force and its committees addressed issues such as access and facilities, historic and archeological sites, law enforcement, resource protection, river-user safety, tourism, and litter. Bill presented conceptual plans and park opportunities from the

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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1990 Corridor Plan. Saluda Shoals Park and Riverbanks Botanical Garden are the only concepts that were realized from the 1990 plan. A Twelvemile Creek Park concept was proposed in the 1990 plan; and this site may still present an opportunity for a future public park or preserve.

Bill M. then reviewed the 2000 LSR Corridor Plan Update. He explained that this plan was produced from a community-based planning process convened by the Advisory Council and focused on recreational access issues; and a primary feature of this plan is the proposal of a LSR Greenway Trail along the north bank of the Saluda to connect Lake Murray, Saluda Shoals Park, Gardendale Landing, and Riverbanks Zoo. The first section consisted of designing a trail that starts at the Lake Murray Dam, which will then run through Saluda Shoals Park. The next section extends from Saluda Shoals Park down to Gardendale Landing. The third section consists of extending the trail from Gardendale down to the I-26-bridge to connect with the Three River's Greenway. He mentioned that this third section would be challenging as it requires getting through the asphalt plant and sewer lagoon, which are located in between Gardendale and the I-26 bridge. He then explained that the Three River's Greenway will run from the I-26 bridge to the Broad River. In closing, Bill noted the Advisory Council's desired outcomes for the hydro relicensing process and these included finding ways to support the LSR Greenway Trail through the relicensing process.

The PowerPoint presentation may be viewed at the following link:

<http://www.saludahydrorelicense.com/documents/SaludaRiverCorridorPlans.ppt>

Communication System Needs

The TWC was provided a list of communication-related systems that were discussed in the October 24th Safety RCG meeting.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

**LAKE MURRAY TRAINING CENTER  
October 25, 2006**

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**Communication System Needs**

<u>Information Needed</u>	<u>How To Get Information</u>
Recreation Sites	Word of mouth*
Lake Levels (Rule Curve)	Signage
Generation Schedule	Internet*
Lake Level Management/Normal Operations	Newspaper*
Reserve Calls	Tourism Department
Special Releases	University South Carolina 101
Special Drawdowns	High Schools
Maintenance	Local Outfitters*
Minimum Flow	Call Down System*
Identification of Shoals at Different Lake Levels	Marinas/Parks
Education About	Brochures
What to do in an Emergency	Billboards
<u>How To Get Information</u>	Real Estate Agents
	Conservation Group
	Low Frequency AM Radio**
	Electronic Info Boards**
	Newsletter**
	Emails**

\* Determined to be those sources of information that can be updated more frequently

\*\* Added by Recreation RCG

The group expanded on a number of items. SCE&G indicated they are examining providing information on “Lake Level Management/Normal Operations” on a two day rotating window, i.e., they will provide scheduled releases for two days in advance. The group indicated it would be nice to know the dates, times and range of expected flows for the “Reserve Calls,” “Special Releases,” and “Special Drawdowns.”

There was a brief discussion about warnings the difference between a communication system and warning system. It was suggested that some of these listings could be updated daily. David Hancock noted and the group agreed that it would be beneficial to explain why SCE&G is increasing flows in the LSR. Dave A. agreed to draft a Communication Systems Plan for future review.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

**LAKE MURRAY TRAINING CENTER  
October 25, 2006**

final dka 11-27-06

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Develop an Agenda for Next Meeting and Set Next Meeting Date

Dave A. will update the Issues Matrix and submit it to the TWC for comment. Joy D. noted that the effects of docks on water quality in Lake Murray should be addressed in the Issues Matrix.

The next meeting date is tentatively scheduled for February 7, 2007.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RESOURCE CONSERVATION GROUP**

**LAKE MURRAY TRAINING CENTER  
October 25, 2006**

final dka 11-27-06

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**Saluda Hydro Relicensing  
Recreation Resource Conservation Group**

**Meeting Agenda**

**October 25, 2006  
9:30 AM  
Lake Murray Training Center**

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- **9:30 to 10:00** Study Updates/Study Plan Questions (Dave Anderson)
- **10:00 to 10:30** Presentation on Boat Density/Carrying Capacity Studies at FERC Projects (Marty Phillips)
- **10:30 to 10:45** BREAK
- **10:45 to 11:00** HEC-ResSim Model Discussion (Dave Anderson)
- **11:00 to 12:00** Standard Process Questions – Questions 1 to 5 and 16 to 22 (Dave Anderson)
- **12:00 to 1:00** LUNCH
- **1:00 to 1:30** Lower Saluda River Corridor Plan (Bill Marshall)
- **1:30 to 1:45** BREAK
- **1:45 to 2:30** Communication System Needs (Dave Anderson)
- **2:30 to 2:45** Develop an Agenda for Next Meeting and Set Next Meeting Date

Adjourn



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
LAKE AND LAND MANAGEMENT and RECREATION RCGs MEETING**

**SCE&G Lake Murray Training Center  
February 7, 2007**

Final acg 3-7-07

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates	Bill Argentieri, SCE&G
Alan Stuart, Kleinschmidt Associates	Tony Bebbber, SCPRT
Lee Barber, LMA	Joy Downs, LMA
Stan Jones, CALM	John Altenberg, Sea Tow, CALM
Tammy Wright, CALM	Archie Trawick Jr., CALM, Jakes Landing
Bill Brebner, Yacht Cove Owners	George Duke, LMHOC
John Frick, landowner	Bill Shipley, CALM
Joe Agnew, CALM	Charlie Higgins, CALM, Holland's Marina
Jon Dukes, Lake Murray Boat Club, CALM	Edie Beaver, CALM, Lake Murray Vacation
Angie Walston, CALM, Lake Murray Vac.	Randy Walston, Acapulco, Lake Murray Vacation.
Donnie LeJohn, Spinners Marina	Suzanne Rhodes, SC Wildlife Fed.
Steve Bell, Lake Murray Watch	George King, landowner
Dave Anderson, Kleinschmidt Associates	Tommy Boozer, SCE&G
David Hancock, SCE&G	Kim Westbury, Saluda County
Teresa Powers, Newberry County	Jenn O'Rourke, SC Wildlife Federation
Carl Sundias, CALM, South Shore Marina	Bill Mathias – LMPS

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**HOMEWORK:**

- Dave Anderson– To issue recreation assessment to Recreation Management TWC
- Dave Anderson- Provide examples of recreation plans from other projects to the RCG.

**DATE OF NEXT MEETING:**

**TBA**

***Review of Recreation Assessment in Quarterly Public Meeting on April 19<sup>th</sup> at 10:00 am and 7:00 pm***

**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

**Presentation by the Commerce Association of Lake Murray:**

Dave Anderson of Kleinschmidt Associates opened the meeting and the group began with introductions. Dave noted that the first item on the agenda included a presentation from the Commerce Association of Lake Murray (CALM) (link to presentation at [http://www.saludahydrorelicense.com/documents/SCEGpresentation4\\_000.ppt](http://www.saludahydrorelicense.com/documents/SCEGpresentation4_000.ppt)). Carl Sundias of South Shore Marina, and a member of CALM, began the presentation. He proceeded to describe the membership of the organization and noted that it not only consisted of marina operators, but other local businesses affected by the lake. Carl explained that the group had collectively developed a mission statement and he proceeded to review the mission statement with the group. After Carl had reviewed the mission of the CALM, Stan Jones of Lighthouse Marina reviewed some of the goals of the group. Stan explained that they were working with the Grow Boating Initiative which would provide boating infrastructure grants. He also reviewed how marinas help to improve the economy and meet the needs of the community. In conclusion, the CALM made a formal request of the Recreation RCG that the moratorium on multi slip dock permits be amended to allow permit applications at existing commercial marinas.

After the presentation, the floor was opened for questions. Dave asked about the Grow Boating Initiative and if it was related to the national "Take Me Fishing" campaign. Carl and Stan indicated that they do not believe that the two are related and they explained that much of the funding for this initiative comes from portions of boat sales. Lee Barber asked how the work of the CALM aligned with the work of other agencies. Stan explained that they were willing to work with other groups to provide boats or facilities for smart boating courses and such.

The group had a brief discussion on boating safety and David Hancock of SCE&G asked if any of the marina operators have licensed captains that offer basic training on boat operation. A few of the marina operators indicated that they were licensed captains or knew of licensed captains that could assist their patrons. Many of the marina operators noted that they helped individuals who appeared to be having trouble or were inexperienced. Tommy Boozer noted that this may be an important item to note in the Safety RCG.

Tommy asked Stan for a little background on the requirements by DHEC in order to receive the clean marina certification. Stan noted that DHEC has just begun to fully develop the criteria; however, he anticipates that Lighthouse Marina will receive its certification this month. He explained that once a marina is certified, DHEC will do testing to make sure that water quality is maintained. Stan further noted that the Commerce Association has also received grants for new pump out facilities, many of which will be pump out boats.

Dave noted that a concern of the Recreation RCG was regarding recreational access to the reservoir and asked the Commerce Association for their opinion regarding current public access to the lake. Carl noted that the marinas have a difficult time competing with the free ramps, which has, in turn, started to put some of the smaller marinas out of business. Carl noted that they do feel the public needs more access, however once more free public access is put in place, the commercial marinas struggle to compete. Dave noted that the RCG's and TWC's do consider the impacts to commercial operators in their discussions. Tommy pointed out that FERC requires SCE&G to fulfill certain needs regarding recreational access, to which SCE&G must comply in order to protect their license. However, Tommy further noted that any access SCE&G provides is basic and does not include the amenities that the marinas provide, such as fuel or food.

The group briefly discussed the CALM's request for an amendment to the moratorium on multi-slip dock permits. Carl noted that the existing commercial marinas would like to perform upgrades and safety improvements that would require the lifting of the moratorium for existing facilities. Tommy noted that this was something that they would consider.



### **Lake and Land Management Group Update:**

The group reconvened after a short break and Alan provided the group with an update on Lake and Land Management. Alan explained that the TWC had been meeting quite frequently and building on the existing Shoreline Management Plan section by section. Alan noted that the draft SMP would progress from the TWC to the RCG to SCE&G management for approval. From that point, Alan explained, the SMP would go out for public comment. Alan asked the CALM to submit any comments that they had so far on the SMP documents as soon as they could. The CALM noted that they could have any comments on the draft documents submitted to the Alison Guth by the end of March. Alan noted that the TWC has thus far attempted to introduce the needs of the commercial marinas; however, it will be very helpful if the commercial marinas can provide the group with specific needs.

Alan continued to explain what the Lake and Land Management group has been discussing. Dave noted that one item that overlapped both Recreation and Lake and Land groups was the issue of the designation of Two-Bird Cove and Hurricane Hole Cove as special recreation areas. This issue, however, was specifically being dealt with under the Lake and Land group.

### **Adaptive Management in FERC Licenses:**

After lunch, Dave provided the group with a presentation on Adaptive Management in the context of FERC licenses. The presentation can be viewed at <http://www.saludahydrolicense.com/documents/2007-02-07AdaptiveManagement.ppt> . Dave noted that adaptive management is a relatively new principle in ecological fields, and the first example of adaptive management being used in a FERC license occurred around 10 years ago. As Dave proceeded through the presentation, he pointed out where the Recreation RCG stood within the adaptive management procedures (in the Planning Stage).

### **Update on Recreation RCG and TWC's:**

There was group discussion on Recreation Plans, and Dave noted that he would send out an example of a recreation plan to the group. In regards to the drafting of a Recreation Plan for Lake Murray, Dave suggested that the Recreation Management TWC take the lead on this. The group agreed that that was acceptable. Dave explained that the Recreation Plan for Lake Murray would need to be drafted by the end of 2007 and finalized by early 2008. Dave explained that the results of the recreation assessment study would be needed for the drafting of the recreation plan. The results of the recreation assessment study would be presented at the April 19<sup>th</sup> Quarterly Public Meeting. Dave also mentioned that the Recreation RCG would convene in April to view the results of the boating density study and the recreation assessment. He explained that the Recreation Management TWC should anticipate bi-weekly conference calls/meetings during the next several months. Dave noted that the Downstream Flows TWC would probably meet sometime in the fall and the Lake Levels TWC would convene in the next couple weeks.

The group concluded discussions noting that the Lake and Land and Recreation group would be working close together during the land rebalancing process. The group adjourned.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
March 01, 2006**

*final dka 03-22-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Tom Eppink	SCANA	Charlene Coleman	AW
Bill Marshall	SCDNR and LSSRAC	Malcolm Leaphart	TU
Patrick Moore	AR/SCCCL	Dave Anderson	Kleinschmidt Associates
Guy Jones	River Runner	Jennifer Summerlin	Kleinschmidt Associates
Karen Kustafik	Columbia Parks and Recreation		

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**HOMEWORK ITEMS:**

- Charlene Coleman – send list of river users to group
- All – Review list of river users and begin to fill in “who, what, when, where, why”
- All – compile a working bibliography of existing studies related to the LSR
- Dave – scan and email creel surveys done on the LSR

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**                      **TBA**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
March 01, 2006**

*final dka 03-22-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave A. began the meeting by going over the tasks associated with the committee. Dave outlined the function of the group to include proposing recreational flows for the lower Saluda River and the effects of project operations on recreational use of the LSR. Tom E. questioned the group about what recreational issues exist on the LSR. Someone identified the coldwater trout fishery and the striper fishery. Dave asked if there were any conflicts between users on the LSR, noting that, in general, there are conflicts between boat and wading anglers. Malcolm replied that there are some problems with boats going to fast through “runs” the wading anglers are fishing, but it is not a major issue on the LSR.

Malcolm L. questioned the group as to what “recreational flows” means. Dave replied that he thinks it means flows conducive to certain activities, or optimal flows. Malcolm replied that their main concerns with the LSR are that project releases are not announced in advance and that recreating is often unsafe because of the extreme flow level changes; and, that TU advocates for the best flows to be set based on scientific studies for the fish, not for the fishermen or other recreationists. Tom E. believed the flow issues will be dealt with in the Safety RCG and in the Fish & Wildlife RCG.

Dave reviewed the plan for the TWC for the coming months. Dave thought the group should begin by reviewing existing information on the number of users on the river. Dave reminded the group that the number of users needs to be established so we can project use for the new license term. Dave wondered if we would be able to use information from the SCORP to estimate use.

Dave questioned the group as to whether it is necessary to separate users in any sort of recreational analysis. The group agreed that if another group were to conduct a use estimate for the Project, then it would be necessary to differentiate different types of uses on the LSR.

Tom questioned the group as to what would be each groups “preferred” flow for the LSR, not taking other Project uses into account (i.e., what would each group like to see if their respective uses were the only consideration). Malcolm replied that he would like to see more of a ‘run of the river’ flow regime with flows out of the lake based on flows into the lake with scheduled releases that averaged those flows over a 24 hour period for less fluctuation. Tom replied there will ultimately be a flow regime. Dave also noted the FERC will be using the current license as a baseline and they will not go back to pre-Project conditions in an environmental analysis.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
March 01, 2006**

*final dka 03-22-06*

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Tom continued the exercise of identifying who uses the LSR, pointing out that he envisioned identifying who, what, where, and whens of recreational use on the LSR. Tom noted that once all of this information is identified, we can begin to diagram use and provide some flow recommendations to the operations group.

Charlene discussed her classification of river users. She identified several different types of river users, as well as different sub-categories of users. The group agreed that Charlene's classifications are a good place to start and asked Charlene to type out her list and send it to the group (attached). Tom asked Charlene if there was any information about the number of users to go along with her list. Charlene replied we would have to do an informal account because different types of users are present at different times of the year. Malcolm added we need to add bikers to the list. Charlene noted that some bikers use the spillway at the dam because it's "extreme" to go over the rocks.

Bill M. noted that the largest number of river users is at the Zoo, either lounging on the rocks or enjoying the water. Tom noted that this is the next step in the process—to identify users and their locations. Charlene noted we could include drug dealers and people who are "trolling" for dates. Patrick noted that even though we joke about "rock people", there are optimal flows for those users as well.

Malcolm asked about scheduled flows. Dave pointed out the comments from the SCDNR concerning an instream flow study. The comments that SCDNR submitted in response to the ICD indicate that in lieu of an instream flow study, SCE&G can implement an instantaneous flow of at least 470 cfs to support one-way downstream navigation, and flows of 590 cfs (July – November), 1170 cfs (Jan-April), and 880 cfs (May, June and December) to provide seasonal aquatic habitat. Dave talked about the possibility that another group might conduct an IFIM based on existing data, and the Operation RCG is doing an operations model that we will have to consider when making recreational flow recommendations.

Malcolm questioned the flows the DNR is requesting and where the numbers are from. Bill M. replied that he thinks these numbers came from a study conducted by the DNR. Charlene wondered where these flows would be measured, in the tailrace or at the Zoo, etc. Tom wants to confirm the DNR standards for navigational flows. Bill M. believes the 470 cfs is the minimum flow based on an earlier study; the study does not address navigation through Millrace because jon boats do not navigate through these rapids.

Tom questioned if everyone in the group has an idea for their optimal flows. Tom clarified that, looking at the big picture, the committee will identify different flows for different users. We need to identify the impact of these various flows on different uses, and then base our optimum flow on the fewest negative impacts for the greatest number of users. Guy J. questioned the group as to how

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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**SCDNR HEADQUARTERS  
March 01, 2006**

*final dka 03-22-06*

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SCE&G will regulate flows to suit the public. Tom E. replied the new license will allow SCE&G to operate under a certain regime. The group will look at all alternatives and decide on the best outcomes. Tom thinks the final plan will fall somewhere in the middle.

Dave reminded the group that their task is to identify recreational flows and make a recommendation to other groups based on these flows. Dave reminded everyone to review the standard process form before the next RCG meeting. Dave also reminded the group that recreation is only one part of downstream flows; there are ecological considerations that will have to be made before any flow regime is approved.

The meeting adjourned with everyone agreeing to attempt to fill out the river user outline via e-mail before meeting again. The next meeting time will be determined after this process occurs.

## **IDENTIFIED USERS OF THE LOWER SALUDA RIVER**

- swimmers
  - children & teenagers on the river banks
  - people at access areas
  - rock people
  - educational groups and clubs
- tubers
- fishermen
  - bank
    - trout
    - food—people that actually fish to feed their families
    - bass and other
    - father and son type outings to learn to fish
    - scouts and other clubs, groups
  - boat
    - trout
    - trophy bass
    - recreational
    - food
    - business (oriental group that fishes near bridges)
  - wade
    - trout
    - children w/ parents
- charity groups
  - canoe, raft, sit on tops, etc
- social groups
- clubs
- educational groups
  - schools and university
  - scouts
  - club field trips
  - outdoor clubs
- hikers
- mountain bikers
- kayakers and canoeists—(skilled)
- recreational boaters (rental and less skilled)
- 4x4 clubs
- zoo visitors
- rescue training
- kayak and canoe classes
- us team boaters practicing (olympic and world team level)
- bird watchers
- nature lovers

## **WORKING BIBLIOGRAPHY OF STUDIES ON THE LOWER SALUDA RIVER**

de Kozlowski, Steven J. 1988. Instream Flow Study, Phase II: Determination of Minimum Flow Standards to Protect Instream Uses in Priority Stream Segments; A Report to the SC General Assembly. SC Water Resources Commission.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER  
April 18, 2006**

*final dka 05-15-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Dave Anderson	Kleinschmidt Associates	Jeni Summerlin	Kleinschmidt Associates
Karen Kustafik	City of Cola. Parks & Rec.	Charlene Coleman	American Whitewater
Patrick Moore	CCL/AR	Tom Eppink	SCANA Services
Bill Marshall	SCDNR & LSSRAC	Mike Waddell	Trout Unlimited

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**HOMEWORK ITEMS:**

- Dave Anderson – contact Kelly Maloney about drafting a flow study on the lower Saluda River

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**                      **TBA**



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER  
April 18, 2006**

*final dka 05-15-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

The Downstream Flows Technical Working Committee (TWC) met shortly after the Safety Resource Conservation Group (RCG) meeting to briefly discuss issues concerning flows/users on the lower Saluda River. In the preceding Safety RCG meeting, the Downstream Flows TWC was given the additional responsibility to address not only recreational flow needs but also to address safety issues related to downstream flows.

The group began to look at the user list to examine flows that are suitable for each individual activity. Dave A. pointed out that the DNR recommends a minimum flow of 470 cfs for one-way downstream navigation, and flows of 590 cfs (July – November), 1170 cfs (Jan-April), and 880 cfs (May, June and December) for seasonal aquatic habitat. Dave A. reminded the group that ultimately a schedule of flows and how they are implemented needs to be developed.

As previously stated in the Safety RCG meeting, Patrick M. would like to see a flow study to understand the rate of change of the lower Saluda River at various flows and river reaches. He also suggested coming up with a study that analyzes different flows for various user groups and skill levels that will provide reasonably safer conditions. He noted that an example of safer conditions would be when users feel compelled to get off the river based on the rate of change in the river.

Dave A. mentioned that we may be able to correlate the flow study with the river survey. He suggested adding questions to the lower Saluda River Questionnaire being developed by the Recreation Management TWC, such as “did you feel comfortable on the river today.” He noted that the interviewers would write down the time and date of the interview that could then be correlated to the USGS gage information for that day and time. He added that once the river survey is complete, the results will be presented to the group to determine if a flow study is needed.

There was some further discussion as to how to incorporate a flow study with the river survey. Patrick suggested adding in questions pertaining to skill level and comfort level on the river, the amount of river flow adequate for the user’s activity, and how often they use the river. Ultimately, the group decided to forego adding additional questions to the questionnaire. Bill M. suggested that the TWC needed to consider a study to understand the rate of change in the river under differing hydro release rates to see how rising waters levels can affect the safety of river users. He also suggested that the study could focus on characterizing rivers conditions and associated potential hazards at different flows and under changing/increasing flow conditions.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

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**April 18, 2006**

*final dka 05-15-06*

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The group decided to explore the possibility of designing a study with the goals of: 1) understanding the “rate of change” of the river at various flows at various river reaches; and 2) an analysis of different flows for various user groups and skill levels that provide the safest conditions.

Dave A. noted that he would turn over these issues to Kelly Maloney, an individual with whitewater experience from Kleinschmidt. He added that Kelly will get in touch with everyone about drafting a flow study plan to address these goals.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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April 18, 2006**

*final dka 05-15-06*

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**Saluda Hydro Relicensing  
Downstream Flows Technical Working Committee**

**Meeting Agenda**

**April 18, 2006**

**2:30 pm**

**Lake Murray Training Center**

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There was no set agenda for this meeting as it was intended to discuss updates on the Working Document and a request for a flow study on the lower Saluda River.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
September 20, 2006**

*final dka 10-20-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Tom Eppink	SCANA	Malcolm Leaphart	TU
Bill Marshall	SCDNR and LSSRAC	Dave Anderson	Kleinschmidt Associates
Patrick Moore	AR/SCCCL	Jennifer Summerlin	Kleinschmidt Associates
Mary Crockett	SCDNR	Alan Stuart	Kleinschmidt Associates
Kelly Maloney (by phone)	Kleinschmidt Associates		

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**ACTION ITEMS:**

- Dave Anderson – contact Hal Beard about creel surveys
- Dave Anderson – send out study plan to committee members and finalize

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**                      **TBA**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
September 20, 2006**

*final dka 10-20-06*

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**MEETING NOTES:**

*These notes serve as a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave welcomed the Downstream Flow TWC (DFTWC) members and noted the purpose of the meeting was to discuss and finalize the Downstream Recreation Flow Assessment Study Plan (attached). Dave noted that he would like to go through each section so all committee members have the opportunity to comment on the study plan.

Dave briefly summarized the introduction of the study plan and no comments were made. Dave further explained the purpose of the study is to assess recreational flows for the lower Saluda River (LSR) for different types of recreation at different river reaches under different flow conditions. Malcolm asked how a rate of change will be determined. Dave noted that rate of change will be estimated from the tailrace to the confluence using level loggers. He explained that level loggers will measure down to a tenth of a foot. He added that all flows will be investigated to examine how the river rises differently. Dave noted that the locations of level loggers coincide with the HEC Res-Sim model and cross sections were chosen according to river habitats (riffle, run, pool).

The group continued to review the study plan and Dave briefly discussed the goals of the study plan. There were no comments provided on Goals One and Two. Dave read Goal Three and it was noted that “public” should be inserted before the word “ingress” for Objective Three of Goal Three. Dave then briefly reviewed the locations the level loggers will be placed in the lower Saluda River. He noted that rate of change will be estimated between each location. There was some discussion about where the level loggers will be placed in the LSR and the group agreed that a second level logger should be added to Oh Brother Rapids and Ocean Boulevard locations.

Dave then began to discuss the three phases of methodology. He noted that the first phase will include hydrologic data, creel surveys, and the IFIM study. Dave then explained that Phase Two will include a downstream flows focus group and a land based reconnaissance. There was some discussion about the benefits of doing a water-based reconnaissance. The group also felt flow ranges should be provided in order to assess actual flows rather than collect opinions on flows. At the end of the reconnaissance, members will fill out a questionnaire about the flows for that day. There was a brief discussion about what flow ranges should be evaluated. Kelly Maloney noted that Phase One will help identify the specifics of the flows. The group decided that flow ranges will be determined by the DFTWC based on the results from Phase One. There was further discussion about the use of video documentation to capture a rate of change of event. The group decided to include this option in the study plan as part of the Phase Two work.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
September 20, 2006**

*final dka 10-20-06*

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Dave briefly reviewed Phase Three and asked the group to provide comments. It was noted that “minimum of 180 days” should be deleted and replaced with “deployed long enough to capture the full range of flow releases necessary to complete the study.” The group also agreed that the first two bullets should be removed from Phase Three (overall and daily average flow). It was suggested the comment matrix should be added to the appendix of the study plan. Dave noted that questionnaires will be drafted once Phase One is complete. Dave mentioned that he would send out the study plan to committee members so everyone can review changes made.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
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September 20, 2006**

*final dka 10-20-06*

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**Comments from Bill Marshall:** Folks, more food for thought...I was thinking this morning about some ideas which have been expressed about understanding rate-of-change and even experiencing rate-of-change.

I'm not sure what we concluded yesterday about the use of video, but I'm thinking now that we may want to consider trying to capture video or time-lapsed photography of certain rates of change in order to better document the (call it what you will) surge/bubble/wave/wall-of-water experience in the river. Since we are relying upon expert assessments of river conditions, visual information when combined with the water level logger data could be more effective than logger data alone in documenting and evaluating what happens in the river. Perhaps a video component could be accomplished quickly if we were able to schedule one rapid high-flow release event and have cameras deployed at selected points.

This idea could be an option for later consideration under Phase 2 (expert recon) of the study. What do you all think?

**Comments from Malcolm Leaphart:** The draft, including the comments and replies, has evolved to an accurate document of the scope and intentions for the Downstream Flow study as discussed at the past meetings. The disposition of the major issue of future recreational needs is still of key concern. Would you please clarify in the Recreational Flows Plan, exactly what the 'Saluda Recreation Assessment' is, who will be doing it, and when? This is the phrase from the answer you provided to several questions about future recreational needs in the table of comments and responses:

"Future use will be addressed in the Saluda Recreation Assessment"

The concern is that future recreation needs are a major issue because of the inadequate current sites, especially on the lower Saluda, but also on Lake Murray where marinas are closing or have been converted to private use. Most of the stakeholders would have preferred this issue be a starting point for committee efforts, rather than it still not being addressed to date. So, we would appreciate you stating the intentions for an assessment at some future time with some level of certainty and with as much level of detail as you can at this time as to how it will be dealt ultimately in the relicensing. It is certainly much too important an issue to fail to cover or to lose track of...

**Reply from Dave Anderson:** The Recreation Assessment is currently being conducted. The study plan is on the web site:

<http://www.saludahydrorelicense.com/documents/001-SaludaRecreationAssessmentStudyPlanFINAL.pdf>

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

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September 20, 2006**

*final dka 10-20-06*

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**Reply from Malcolm Leaphart:** My request was not for the study details, but to clearly state that the issue of future recreation needs are highlighted as the important issue it is in the draft. So, let me re-state my request and be more specific... The following paragraph from the Downstream Flows does not include any reference to future recreation needs (except the term 'opportunities' which is too vague to infer future needs from). Please add a reference to this paragraph that states that future recreation needs is one of the goals of the Assessment as documented.  
Thanks.

“The 2006 Saluda Project Recreation Assessment is currently being conducted under the Recreation RCG. This study utilizes vehicle counts and on-site interviews of individuals at Project recreation sites to ascertain opportunities, patterns, and levels of use along the lower Saluda River. These data will be reviewed and analyzed to determine what recreation activities are currently supported by access sites along the lower Saluda River, what recreation activities are being participated in by individuals at these sites, how much use the lower Saluda River receives, and any specific comments made by respondents pertaining to safety, river flows, and barriers to access.”

**Reply from Kelly Maloney:** I would agree that future recreation use levels and needs on the lower Saluda River should be addressed in the relicensing process and the Saluda Recreation Assessment (the study plan of which was distributed by Dave) should address all of the concerns that you have raised. Because we are not considering future uses or needs in the Downstream Recreation Flow Assessment Study Plan, however, I do not believe that the flow study is the most appropriate forum to discuss the goals and objectives of Saluda Recreation Assessment. I'm not clear on the reason why we would want to specifically highlight a goal of another study for an issue that is not a part of the study plan at hand.

Future uses are not included as part of the goals of the flow study plan because we are attempting to determine the appropriateness of certain flow levels for certain activities. Irrespective of how use levels increase or change in the future, the flows most appropriate for certain activities would not change. Though use distributions may shift and other access locations utilized in the future, the capacity and condition of existing access sites, as well as the potential for additional sites and improvements which would support recreational use of the lower Saluda River, are wholly addressed in the Recreation Assessment.

As you pointed out, there are two places in the flow study plan that reference the Saluda Recreation Assessment: Section 2.1 and Appendix C. Section 2.1 discusses the aspects of the Saluda Recreation Assessment that will be utilized as part of the Phase I investigation for the flow study. Because the flow study is not considering future uses, I believe it would confuse the issue to discuss details of the Recreation Assessment that are not being used or considered here in the flow study.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCDNR HEADQUARTERS  
September 20, 2006**

*final dka 10-20-06*

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Likewise, I do not believe that Appendix C is the forum to outline the goals and objectives of the Saluda Recreation Assessment. If an issue was raised that we believed to be out of the scope of the flow study but addressed by the Saluda Recreation Assessment, we referenced that document in Appendix C. If you feel it would be helpful to include a hyperlink to the Saluda Recreation Assessment Study Plan (such as the one forwarded by Dave) in Appendix C, we can certainly do that.

**Reply from Malcolm Leaphart:** The reason to expand the statement as I suggested is because it is incomplete in listing all of the goals of the Recreation Assessment that is being summarized by the statement. However, I have no major objection in leaving it as it is since the Recreation Assessment includes the goal of identifying future recreational needs, and the point has been made in our exchanges of the importance of that. Please include our exchanges, including this one, as an addendum to the last meeting summary for the Recreation Flow Assessment TWC.

It is evidently important to further clarify why I made this simple request: There is a concern that the critical issues identified at the beginning of the relicensing process, including in ICD comments from stakeholders, are not the focus and organizational point for the process. Tracking of issues is very difficult as a result, as is keeping up with all the inter-relations between the many issues being dealt with in separate groups. Also, a promised issues spreadsheet for tracking has not been communicated to date and will soon become a moot point. So, any opportunity to emphasize key issues is looked for, such as for the future recreation needs issue which is a very sensitive one. It was originally not even included in the first drafts of the Recreation Assessment, and only added after stakeholder requests. To many of the stakeholders, identifying future recreation needs is a much more important issue and goal worthy of a separate TWC when compared to identifying possible site upgrades which could be done outside of the relicensing process as a maintenance item - much like the recent upgrade to the Hilton boat landing. Will continue to try to participate positively as SCE&G manages the relicensing process, and appreciate the opportunity to express concerns and to try to keep the focus on critical issues.

# **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**SALUDA HYDROELECTRIC PROJECT**  
*(FERC NO. 516)*

**DOWNSTREAM RECREATION FLOW ASSESSMENT  
STUDY PLAN**

**DRAFT**

*SEPTEMBER, 2006*

*Prepared by:*

***Kleinschmidt***  
*Energy & Water Resource Consultants*

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)

DOWNSTREAM RECREATION FLOW ASSESSMENT STUDY PLAN

DRAFT

SEPTEMBER, 2006

Prepared by:

***Kleinschmidt***  
*Energy & Water Resource Consultants*

**SOUTH CAROLINA ELECTRIC & GAS COMPANY**

**SALUDA HYDROELECTRIC PROJECT  
(FERC NO. 516)**

**DOWNSTREAM RECREATION FLOW ASSESSMENT STUDY PLAN**

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# **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

## **SALUDA HYDROELECTRIC PROJECT (FERC NO. 516)**

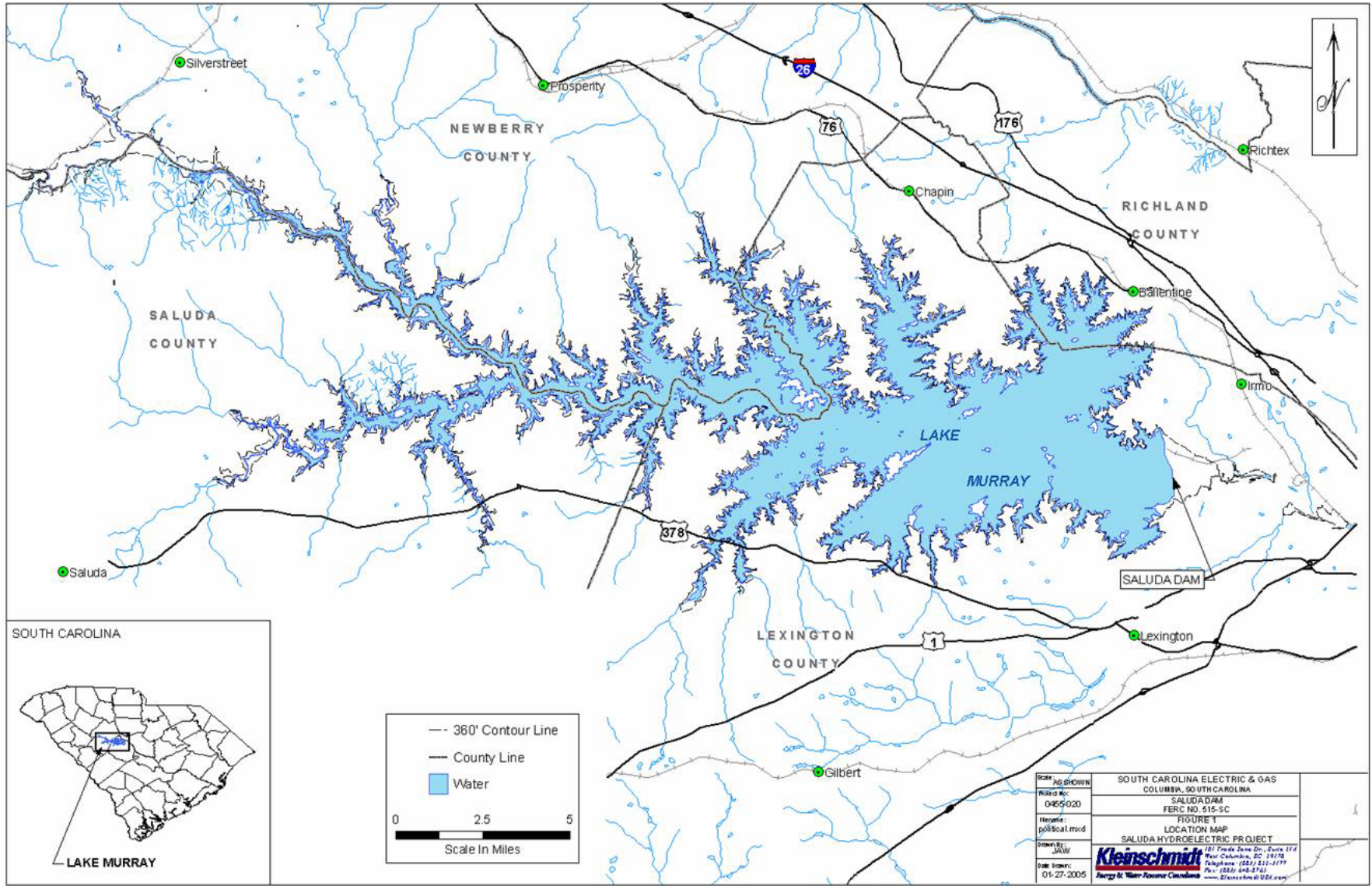
### **DOWNSTREAM RECREATION FLOW ASSESSMENT STUDY PLAN**

#### ***1.0 INTRODUCTION***

The Saluda Hydroelectric Project (Project), is a Federal Energy Regulatory Commission (FERC) licensed project (FERC No. 516), owned and operated by South Carolina Electric & Gas Company (SCE&G), pursuant to the license issued by the FERC in 1984. The Project is located on the Saluda River within Richland, Lexington, Saluda, and Newberry Counties, South Carolina, and situated within proximity of the towns of Irmo, Chapin, and Lexington and within the metropolitan area of the City of Columbia, South Carolina, which is approximately 10 miles east of the Project (Figure 1). The Saluda Project includes Lake Murray, the Saluda Dam and Spillway, the Saluda Berm, Saluda Powerhouse, intake towers, and associated penstocks.

SCE&G is in the process of relicensing the Saluda Project as the current operating license expires on August 31, 2010. This relicensing process involves cooperation and collaboration with a variety of stakeholders, including state and federal resource agencies, state and local government, non-governmental organizations (NGO), and interested individuals, in order to identify and address any operational, economic, and environmental issues associated with a new operating license for the Project. The Downstream Flows Technical Working Committee (TWC) is comprised of interested stakeholders (Appendix A) who are collaborating with SCE&G to identify and make recommendations related to public safety and recreational opportunities associated with downstream project flows to the lower Saluda River. The Downstream Flows TWC has requested that a study be designed and implemented that would assess flows, identify preferred flows for recreational activities, and determine safety issues associated with river flows that may need to be addressed through the work of the Safety Resource Conservation Group (RCG).

**Figure 1: Project Location**



## 1.1 Study Area

SCE&G currently operates the Saluda Project in order to provide reserve capacity for the company's utility obligations, a mode of operation that the company proposes to continue under the new license. Project generators are typically offline, *i.e.*, not operating, but can be started and synchronized to the electrical grid and can increase output immediately in response to a generator or transmission outage on SCE&G's system or in response to a call for reserve power from neighboring utilities, with which the company has reserve agreements and obligations. As a result, flows from the Saluda Project are generally unscheduled. Although there is no minimum flow requirement for the Project, SCE&G has an informal agreement with the South Carolina Department of Health and Environmental Control (SCDHEC) to provide a minimum of 180 cfs at the Project to enhance downstream water quality<sup>1</sup>. The average annual flow from the Saluda Dam to the lower Saluda River is 2,595 acre feet with a minimum average daily flow of 285 cfs. For the purposes of this study, the geographic scope will be from the base of the dam to the confluence with the Broad River (Figure 2).

## 1.2 Purpose and Content of the Study

The Downstream Flows TWC has requested an assessment of recreational flows for the lower Saluda River for different types of recreation at different river reaches under different flow conditions. The assessment is designed to provide information pertinent to optimum and preferred flows for particular recreation activities and any public safety issues associated with recreational use of the river. This study encompasses the following goals and objectives:

*Goal 1: Characterize currently available recreation opportunities on the lower Saluda River. This will be accomplished by meeting the following objectives:*

- i. Utilize the information collected during the Saluda Project Recreation Assessment to identify sites providing recreational access to the lower Saluda River and the recreation activities supported by these sites.

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<sup>1</sup> At certain times of the fall season, SCE&G can not utilize a full range of operations due to dissolved oxygen concerns.

- ii. Utilize the information collected during the Saluda Project Recreation Assessment to identify the patterns of use on the lower Saluda River by type, location, and volume.
- iii. Estimate preferred flows associated with reasonable and safe recreational use of the lower Saluda River for specified activities to serve as input constraints to the HEC Res-Sim model being developed by the Operations RCG.

Goal 2: *Understand the “rate of change” of the lower Saluda River at various flows at various river reaches. This will be accomplished by meeting the following objectives:*

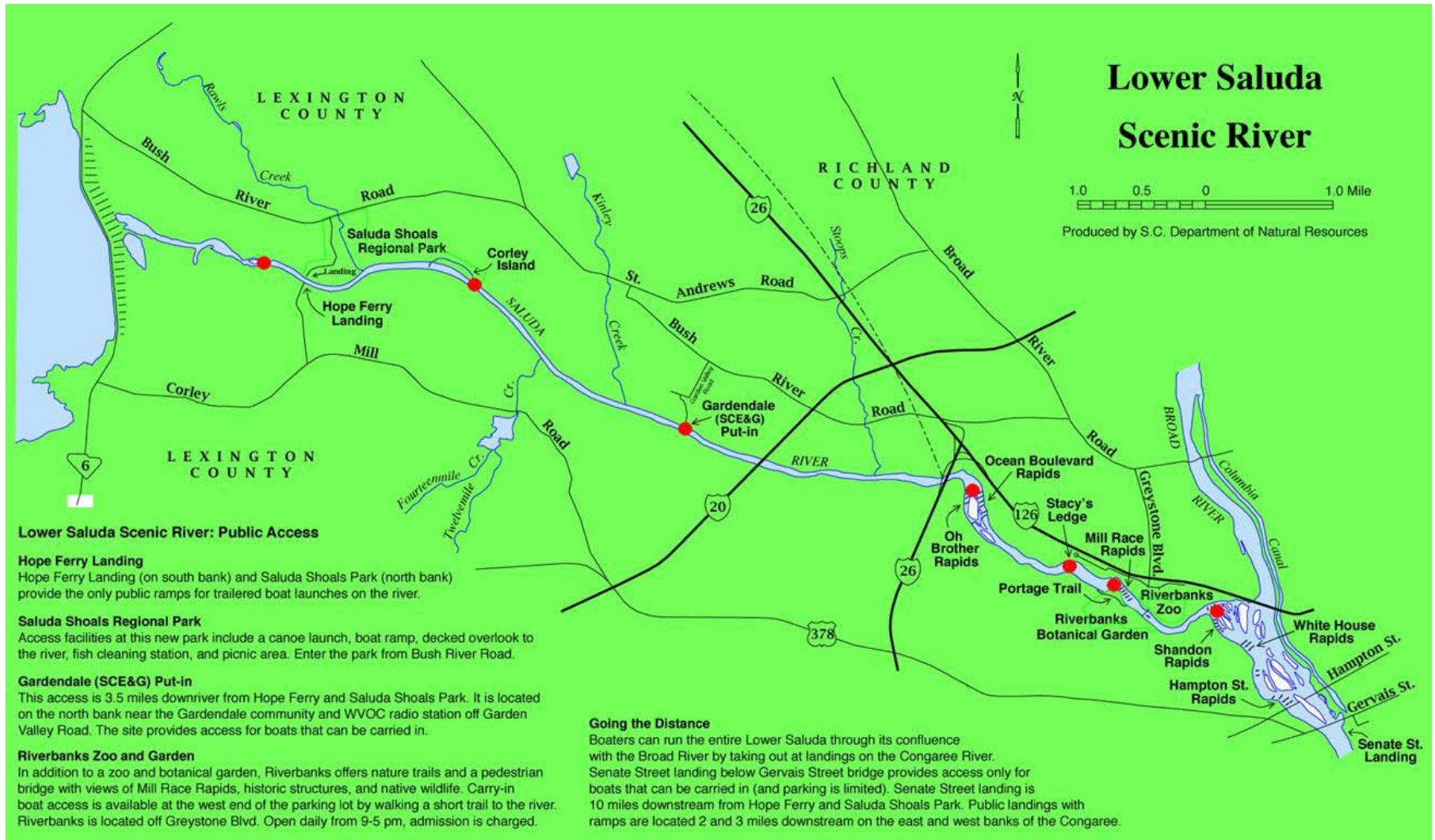
- i. Identify and characterize water level changes at predetermined intervals, encompassing the various river channel types (pools, runs, shoals) along the lower Saluda River from the dam to the confluence with the Broad River, capturing the full range of project operation flow scenarios.

Goal 3: *Identify potential public safety issues associated with lower Saluda River flows. This will be accomplished by meeting the following objectives:*

- i. Identify potential safety issues and barriers on the lower Saluda River.
- ii. Identify potential locations for additional flow release warning systems such as sirens, strobes, and signage on the lower Saluda River.
- iii. Identify locations for ingress and egress on the lower Saluda River as related to the safety of river users.



**Figure 2: Study Area for Downstream Flow Assessment and Approximate Locations for Level Loggers**  
 (Source: South Carolina Department of Natural Resources, as modified by Kleinschmidt)



## **2.0 METHODOLOGY**

Information gathered for this study will be used to examine the suitability of the lower Saluda River for several types of recreation activities as a function of variations in flow levels. This study will take a three-phase approach to meet the goals of the study through the objectives identified above. Phase I will involve a desktop analysis of the recreation opportunities, patterns of use, physical characteristics, and hydrology of the lower Saluda River. Phase II will involve structured surveys and on-site reconnaissance of an expert panel of experienced boaters, recreationists, NGO's, and agency staff familiar with the river to assess the feasibility and potential quality of particular flow ranges for on-water activities. Phase III will involve the deployment of water level data loggers at various predetermined intervals along the lower Saluda River from the dam to the confluence with the Broad River.

### **2.1 Phase 1 – Literature Review and Desktop Analysis**

This task involves compilation and review of existing information about river channel characteristics, hydrology, current and planned recreational opportunities, and flow data for the lower Saluda River.

Literature searches will be conducted via the web, libraries, and SCE&G and agency collections. Consultation may include local paddling clubs, the Irmo Chapin Recreation Commission (ICRC), American Rivers (AR), American Whitewater (AW), Saluda Chapter of Trout Unlimited/Federation of Fly Fishers, the River Alliance, and others to determine if there are current or recent river recreational studies or data pertinent to this effort. South Carolina whitewater, fishing, and outdoor recreation tourism guidebooks will be reviewed in an effort to identify potential boating, angling, and other recreational opportunities on the lower Saluda River. Other relevant documents may include the Three Rivers Greenway plan, South Carolina Statewide Comprehensive Outdoor Recreation Plan (SCORP), and the Lower Saluda Scenic River Corridor Plan and Update.

Relevant summary hydrology data, from SCE&G, United States Geological Survey (USGS), South Carolina Department of Natural Resources (SCDNR), and other state agencies will be collected. In addition, any existing studies on instream flow and

creel surveys will also be reviewed. Historic records of minimum, maximum, and average flow rates will be reviewed and seasonal variations will be noted. These data will be examined to determine the number of days the lower Saluda River may be available for each identified primary recreation activity.

The 2006 Saluda Project Recreation Assessment is currently being conducted under the Recreation RCG. This study utilizes vehicle counts and on-site interviews of individuals at Project recreation sites to ascertain opportunities, patterns, and levels of use along the lower Saluda River. These data will be reviewed and analyzed to determine what recreation activities are currently supported by access sites along the lower Saluda River, what recreation activities are being participated in by individuals at these sites, how much use the lower Saluda River receives, and any specific comments made by respondents pertaining to safety, river flows, and barriers to access.

## 2.2 Phase 2 – Focus Group and Land-Based Reconnaissance

An expert panel will be compiled to collect and disseminate information regarding recreation opportunities and potential flow effects on recreation on the lower Saluda River. The expert panel will consist of the experienced recreational users and resource experts that make up the Downstream Flows TWC and others as needed. A survey (Appendix B) and focus group discussion panel will be conducted to document characteristics of the lower Saluda River with respect to the nature and seasonal distribution of on-water activities; the locations and flows for wading, swimming holes, velocity refuges, rapids and eddies; existing and potential ingress and egress locations; potential locations for additional safety lights/sirens; and any potential safety hazards.

The expert panel will also conduct an on-site reconnaissance. The purpose will be to augment existing information on flows, opportunities, and safety concerns. This will involve a facilitated expert panel site visit led by a principal researcher. The expert panel will observe and assess the lower Saluda at predetermined geographic intervals. Ideally, the land-based reconnaissance will be scheduled when flows are provided in the river reach within an estimated recreational flow range. The expert panel will complete a land-based reconnaissance survey (Appendix C) similar to the focus group survey, which will

solicit additional information on locations and flows for select recreation activities and potential safety hazards.

River flows identified by the expert panel during these efforts will serve as input constraints for the HEC Res-Sim model. The purpose of this model is to determine effects of downstream flows on various resources, based on flow constraints provided by the focus group. The model will determine a series of operational regimes which target the diverse interests of the various resource groups and identify a balance between these interests and project operations with respect to lake levels, generation needs, and project outflows.

### 2.3 Phase 3 – Field Data Collection

To accurately assess the effect of Project generation on water levels in the lower Saluda River, water level data loggers will be deployed at predetermined intervals correlated with the HEC Res-Sim cross-sections along the River from the Saluda Dam to the confluence of the Broad River (Figure 2). Water level loggers will record the barometric pressure, water depth, and temperature once per minute and will be deployed for a total minimum of 180 days. These data will be correlated with hydrologic data (such as from USGS gaging stations) to determine (for the study time period):

- the overall average flow (in cfs);
- daily average flow (in cfs);
- overall average river depth (in feet) for each water level data logger location;
- daily average river depth (in feet) for each water level data logger location;
- average maximum river depth (in feet) for each water level data logger location;
- average time to maximum river depth for each water level data logger location;
- average time to recession for each water level data logger location;
- average rate of change in water level for each water level data logger location;
- maximum river depth (in feet) for each water level data logger location by flow;
- minimum time to maximum river depth for each water level data logger location by flow;
- maximum time to recession for each water level data logger location by flow ; and

- minimum, average, and maximum rate of change in water level for each water level data logger location by flow level.

The information gathered through field reconnaissance, literature review, flow and hydrologic data analysis, and the expert panel will provide a basis by which to identify preferred flows for the lower Saluda River that target particular recreation activities at appropriate locations. These flows will be provided as input constraints to the HEC Res-Sim model to determine the feasibility, suitability, and availability of such flows. Recommendations for special recreational flow releases may be developed from the HEC Res-Sim model analysis of recreational flow inputs.

Likewise, any existing and potential safety issues associated with typical and preferred flows will be identified and recommendations for safety measures to be considered by the Safety RCG will be provided. In particular, the location of the level loggers will assist in determining which sections of the river may be in need of additional safety and protection measures such as additional warning lights/sirens, formal ingress/egress sites, and determine which areas of the river may be suitable as velocity refuges.

### ***3.0 DELIVERABLES***

The Draft and Final Report will be prepared for this effort. The Draft Report will be reviewed internally by the Downstream Flows TWC and Recreation RCG. Comments and edits from the Downstream Flows TWC will be incorporated into a Final Report for Saluda Hydro Relicensing Group. The report will include an executive summary, an introduction, objectives, methods, and results. It will also include recommendations for optimal recreation flows and flow schedules for use as HEC Res-Sim model inputs. The report will also outline safety concerns, including rate of change, and potential measures to enhance public safety.

#### **4.0 SCHEDULE**

The proposed schedule for completion of the Recreation Flow Assessment Study is as follows:

<b>TASK</b>	<b>DATE</b>
Literature Review and Desktop Analysis	Winter 2006
Focus Group and Expert Panel Land-Based Reconnaissance	Spring 2007
Field Data Collection	Fall 2006 – Summer 2007
Submit Draft Report	Fall 2007
Client and TWC Review	Fall 2007
Submit Final Report	Winter 2007

## **5.0 REFERENCES**

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- Whitaker, Doug, Bo Shelby, and John Gangemi. 2005. Flows and Recreation: A Guide to Studies for River Professionals. October 2005.
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APPENDIX A

DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE

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<b>Name</b>	<b>Contact Information</b>	<b>Affiliation</b>
Bill Marshall	marshallb@dnr.sc.gov	Lower Saluda Scenic River Advisory Council, DNR
Charlene Coleman	cheetahrk@yahoo.com	American Whitewater
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Guy Jones	guyjones@sc.rr.com	River Runner Outdoor Center
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Karen Kustafik	kakustafik@columbiasc.net	City of Columbia Parks and Recreation
Malcolm Leaphart	malcolml@mailbox.sc.edu	Trout Unlimited
Patrick Moore	patrickm@scccl.org	SCCCL AR
Tom Eppink	teppink@scana.com	SCANA Services, Inc.

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APPENDIX B

LOWER SALUDA RIVER FOCUS GROUP SURVEY

APPENDIX C

LOWER SALUDA RIVER LAND-BASED RECONNAISSANCE SURVEY

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Patrick Moore	1) The study should address all types of recreation, from the perspective of different skill levels at the full range of operation flows.	The study will cover on-water activities and solicit input on the range of flows appropriate for specific on-water activities. Information on appropriateness of flows for varying skill levels will be captured during focus group discussions and the land-based reconnaissance.
Patrick Moore	2) The study should look at different types of river, i.e. pool, riffle, shoal etc. in its rate of change analysis	These will be captured by the locations of the level loggers, the on-site reconnaissance (some locations of the river better than others for certain activities), etc.
Patrick Moore	The study should address all types of recreation at the full range of operation flows.	The study will address the range of flows experienced during the deployment of the level loggers. The expert panel will be providing information based on their experience with flows in the full range of operation, as appropriate.
Patrick Moore	3) The study should look at different types of river in its rate of change analysis	Expected to be addressed by level logger locations.
Patrick Moore	The study should look at prospective use and associated issues.	This will be addressed by the Saluda Recreation Assessment and is not a component of this study.
Patrick Moore	(the predetermined intervals should be representative of and not just be limited to “rec flow ranges”, this is the only way to capture the impact of actual project operations on the existing and beneficial uses)	The predetermined intervals in this context are spatial intervals, not temporal intervals. The range of flows that are experienced during the deployment of the level loggers are the full range of flows that will be assessed.

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Tony Bebber	<p>i. Identify and characterize potential/anticipated recreation areas on the lower Saluda River.</p> <ol style="list-style-type: none"> <li>1. Identify activities that may be supported by these areas.</li> <li>2. Identify anticipated patterns of use of these areas by type and volume.</li> <li>3. Estimate preferred flows associated with reasonable and safe recreational use.</li> <li>4. Understand the “rate of change” at various flows at these areas.</li> </ol>	<p>With exception of the rate of change and preferred flows, these will be addressed by the Saluda Recreation Assessment.</p>
Patrick Moore	<p>i.e. if it goes to 20,000 unannounced, you need access points much more frequently than if there is an operational ramping, otherwise, you could be forcing people to handle conditions they are not comfortable with or trespass.</p>	<p>This will be taken into consideration in the assessment of ingress, egress, and safety warning devices.</p>
Tony Bebber	<p>Red dots are insufficient areas to consider. These appear to be major kayaking areas. You must consider other recreational activities – wade fishing, bank fishing, swimming, tubing, rock use, sunbathing, picnicking, walking, bicycling, etc.</p>	<p>Red dots correlate with the HEC Res-Sim model cross sections that will be used for assessment of recreational flows and provide a range of hydrological conditions (pools, riffle, shoals). Red dots also correlate with or are within proximity of recreation access sites. Recreational activities are likely concentrated in areas in proximity of these access sites (for example, rock use, sunbathing, etc. occurs frequently at Mill Race, which is also considered a kayaking area).</p>

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Tony Bebber	What about anglers and other users?	<p>Opinions on appropriate flows for anglers will be solicited during focus group discussions and the land-based reconnaissance. However, flows for anglers, for the most part, will likely be determined by the most suitable and appropriate flows for fish habitat. TU advocates for the best flows to be set based on scientific studies for the fish, not for the fishermen or other recreationists. Fish habitat suitability would generally be the limiting factor for optimal flows for any kind of angling (from a canoe, bank angling, wading, etc.). SCDNR has already identified optimum flows for fish habitat on the lower Saluda River.</p> <p>The flow assessment will target on-water activities only. The focus group discussion and land-based reconnaissance will provide information on appropriate flows for other uses. For example, it would seem to me that the optimum flows for rock people are any flows where the rocks are exposed and easily accessible. Likewise, for picnickers, sunbathers, mountain bikers etc. who utilize exposed rocks in the river bed for recreational activities. For swimming, any flow, including no flow, could be appropriate. Individuals have opportunities to swim in eddies at different flows, for example.</p>

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Tony Bebber	What about inexperienced users?	Issues associated with recreational use by inexperienced individuals are expected to be addressed by “optimal” flow recommendations and identification of safety issues provided by the expert panel. Inexperienced users will not be included in the focus group discussions or land-based reconnaissance as these efforts require experience and familiarity to adequately assess flow needs for various activities.
Bill Marshall	The following use of terms needs clarification... sounds like the writer is wanting to understand how rapids and river conditions change with flows???	The focus group discussion and land-based reconnaissance should provide information on what rapids, eddies, etc. are produced under what flows which will contribute to the analysis of preferred flow inputs for the HEC Res-Sim model.
Tony Bebber	How will you anticipate future use associated with Three Rivers Greenway, ICRC greenway extension, park at 12 mile Creek, etc. Also, be aware that much of the recreational activity occurs from private property, such as the Rivers Edge subdivision (near Oh Brother Rapids) and Cornerstone Church.	Future use will be addressed in the Saluda Recreation Assessment.
Patrick Moore	Since operations are required to protect everyone and not just experts, we should get a range of experiences as needed. Liability waivers are an option. The panel should observe the rate of change, if not experience it.	The field reconnaissance will be targeted to observe varying flow conditions on the river. This may or may not encompass a “rate of change” event.



**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Patrick Moore	All operational ranges should be evaluated. This study should evaluate real world operations on recreation, not just limit itself to predetermined “recreational flow ranges”. All recreators currently have to recreate in the full 180-18,000cfs range and the study should reflect that.	The focus group discussion and land-based reconnaissance is expected to provide information on the optimum flows, between 180 and 18,000 cfs, for various recreation activities. The level loggers will provide rate of change information.
Patrick Moore	Part of the study must include assessment of the quality of the recreational experience by people actually boating, tubing, swimming, fishing (wading and from boats and banks), not just stream-side observations	An assessment of crowdedness, condition of recreation facilities, what recreation activities people are participating in, why they chose the site that they did, recommendations for additional facilities and improvements, and an assessment of on-water safety issues will be provided by the Saluda Recreation Assessment.
Bill Marshall	Will water depth (stage as it is termed below) be measured in tenths of feet?? The units need to be detailed, down to 0.25-foot increments or better seems desirable...????)...	Level loggers will measure to 0.10 foot.
Bill Marshall	This time frame (180 days) certainly seems adequate to capture the a normal range of hydro flows under the various power-production demands; however, the last six-months have been abnormal and to my knowledge there have been very few rapid, high-flow release event for hydropower production. We need to capture data for the normal, expected hydro release scenarios or this study will be of little use to us.)	The TWC will determine the schedule for level logger deployment.

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Tony Bebber	Group needs to decide which 6 month period is best.	The TWC will determine the schedule for level logger deployment.
Bill Marshall	the event specific information I am describing above is needed to meet what I think is the main objective behind Goal 2 of this study ... Goal 2: Understand the “rate of change” of the lower Saluda River at various flows at various river reaches. We are trying to better understand an identified safety issue and that issue is connected to specific types of events. The above list of “average” statistics is not very useful to the question in my mind. We need water level change data for distinct hydro operation events (or types of events) that present the potential threat to public safety.	This comment is addressed in the revised study plan. Minimums and maximum rates of change, etc. for different flow releases were added to the bullet list.
Tony Bebber	Be aware that AVERAGE FLOW is not the issue. High flows and sudden rises are of great concern to anglers, sunbathers, tubers, inexperienced paddlers, and others. Low flows are of concern to paddlers.	Included bullets accordingly – see above.
Patrick Moore	The location of ingress egress is intimately related to being on the river when the water begins to rise and figuring out how long different users have to get off before they are out of their league.	This will be taken into consideration in the assessment of ingress, egress and safety warning devices.
Patrick Moore	Rephrase - The study must provide an assurance that specific conditions/flows/rates of change will be observed and a flow schedule will be developed to create these conditions.	Recommendations developed for this study will provide input into the HEC Res-Sim model. This study can not assure that specific flow recommendations will be implemented, but must be balanced with other uses.

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Patrick Moore	I do not understand the idea that specific conditions/flows/rates of change cannot be intentionally created for us to experience for liability purposes. We are being asked to sign off on these same unannounced releases for the next 30-50 years? It is common for applicants to release water for studies and activities like canoeing for kids and rescue training	Rather than depend on water availability, this study provides the opportunity for all flow ranges be considered. It is felt that the expert panel can provide recommendations/observations based on their experiences on the river. These recommendations/observations will be considered equal to the results of a full blown recreational flow study.
Tony Bebber	The study plan seems to be skewed toward recreational boating (primarily paddling) and generally ignores wade fishing, bank fishing, swimming/sunbathing/rock use, tubing, and other uses along the river.	The flow assessment will target on-water activities only. The focus group discussion and land-based reconnaissance will provide information on appropriate flows for other uses.
Tony Bebber	The study plan does not address potential recreation use associated with anticipated new recreation venues (Three Rivers Greenway, Lower Saluda Greenway/Saluda Shoals extension, potential new park at 12 mile creek, etc.) or residential recreational use (Rivers Edge Subdivision and others).	Future use will be addressed in the Saluda Recreation Assessment.
Tony Bebber	I assume the red dots on the map are the locations for testing. These all appear to be paddling areas and have little to do with other activities. You must consider other recreational activities - wade fishing, bank fishing, swimming, tubing, rock use, sunbathing, picnicking, walking, bicycling, etc. Shouldn't the shoreline along Saluda Shoals Park be a prime spot to be considered?	Red dots correlate with the HEC Res-Sim model cross sections that will be used for assessment of recreational flows and provide a range of hydrological conditions (pools, riffle, shoals). Red dots also correlate with or are within proximity of recreation access sites. Recreational activities are likely concentrated in areas in proximity of these access sites (for example, rock use, sunbathing, etc. occurs frequently at Mill Race, which is also considered a kayaking area).

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Tony Bebber	You must also be aware that all current and future users are not "experts" or familiar with the dangers presented by the hydro project river.	These issues are expected to be addressed by “optimal” flow recommendations and identification of safety issues provided by the expert panel.
Bill Marshall	The main concern expressed in my comments is related to the purpose behind Goal 2 ... to understand the “rate of change” of the lower Saluda River at various flows at various river reaches. To better understand the safety issues associated with rapidly rising water, we need to characterize water level change for specific types of hydro events. As the plan currently reads, it appears to miss the specificity needed to really understand this public safety issue. Therefore, I have supplied suggestions for more specific language.	This comment is addressed in the revised study plan. Minimums and maximum rates of change, etc. for different flow releases were added to the bullet list.
Malcolm Leaphart	I endorse and 'second' all of the comments from Tony Bebber listed below and in his redline comments in his response to you of August 18 on the proposed 'Downstream Recreation Flow Assessment Study'. In fact, the draft study as noted could be more appropriately titled a 'Downstream Paddlers Flow Assessment Study'. The inclusions that Tony noted are critical to ensure that other recreation uses are not left out.	The flow assessment will target on-water activities only. The focus group discussion and land-based reconnaissance will provide information on appropriate flows for other uses.
Malcolm Leaphart	Also, the realization of the tremendous increase in usage because of the new river parks and greenways is extremely significant. As the tv ad goes, “This is not your father’s Buick”	Future use will be addressed in the Saluda Recreation Assessment.

**Response to Comments Submitted to Draft Downstream Recreation Flow Assessment Study Plan**

<b>Author</b>	<b>Comment</b>	<b>Response</b>
Patrick Moore	River flows <a href="#">and rates of change</a> identified by the focus group during these efforts will serve as input constraints for the HEC Res-Sim model.	The HEC Res-Sim model will not to model the rates of change. These will be analyzed separate from the model.
Patrick Moore	The purpose of this model is to determine effects of downstream flows on various resources, based on flow constraints provided <a href="#">by the focus group, which will be derived from an analysis of the full range of flows and intended to protect designated and existing uses in a safe manner.</a>	The expert panel will be providing information on the optimum flows based on their experience of the full range of flows but the full range of flows will not likely be provided for observation.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
Downstream Flows Technical Working Committee  
SCE&G's Lake Murray Training Center  
February 25, 2008**

Final JMS 3-21-08

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**ATTENDEES:**

Bill Argentieri, SCE&G	Dave Anderson, Kleinschmidt Associates
Alan Stuart, Kleinschmidt Associates	Tony Bebber, SCPRT
Dick Christie, SCDNR	Harry Tinsley, Cola Fire
Jeni Hand, Kleinschmidt Associates	Travis Carricato, Cola Fire
Mike Weddell, TU	Malcolm Leaphart, TU
Matt Rice, American Rivers	Gerrit Jobsis, American Rivers
Charlene Coleman, American Whitewater	Steve Bell, Lake Watch
Karen Kustafik, City of Cola, Parks	Jim Cumberland, CCL
Vivianne Vejdani, SCDNR	Bill Marshall, LSSRAC

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**ACTION ITEMS**

- Provide Bill Argentieri with a time frame and flows needed for the Columbia Fire Department rescue squad training on the LSR.  
*Harry Tinsley and Travis Carricato*

**NEXT MEETING**

**Downstream Flows TWC  
TBA**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
Downstream Flows Technical Working Committee  
SCE&G's Lake Murray Training Center  
February 25, 2008**

Final JMS 3-21-08

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**MEETING NOTES:**

*These notes serve as a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson of Kleinschmidt Associates opened the meeting at approximately 10:00 AM and welcomed all committee members. Dave noted that American Whitewater and American Rivers will be presenting their proposals for recreational flow recommendations for the lower Saluda River (LSR). Dave noted that once the group has made the recreational flow recommendations, then the group will discuss the next steps to be taken.

*Presentation of American Whitewater Proposal, Charlene Coleman (Attachment A).*

Charlene Coleman noted that American Whitewater submitted flow recommendations for the Saluda Hydro Project before the draft application was submitted to FERC. Charlene explained each of the requested flow events month by month. Specifically she noted that in January they have been hosting the Iceman Race for the past seven years during the first non-holiday weekend. In March, for the past five years they have been hosting the Whitewater Festival, which is a good showcase event. She explained that the flows they are requesting are just a general idea, not in black and white. In the month of May, they requested a flow of 10,000 cfs on Mother's Day weekend for the Canoeing for Kids event. She requested that a Rescue Rodeo be scheduled during the third weekend in June. Charlene noted that currently, there is no rescue rodeo in the southeast for rescue teams. She explained that people would find it interesting to watch and it would also give the Columbia Fire Department an opportunity to demonstrate what kind of funding is needed for the department and ideally it would bring all different squads together.

There was extensive discussion about the flows needed by the Columbia Fire Department for swift water rescue training. Harry Tinsley noted that for technical skill development, they would need a flow of 12,000 cfs, which would allow for a better rescue and explained that different flows provide different risks. Harry explained that they would request to have these flows during early spring before it gets hot and people start recreating on the rocks. He explained that since they have approximately 60 techs to train every year, they would like to have flows between 12,000 and 15,000 cfs for approximately 6 hours per day for five days. They would prefer to have the training start in the early morning around 6:00 am until 2:00 pm. They have to conduct the training for a whole week because they will have six shifts. He further explained that they would need to conduct the training twice a year. Gerrit Jobsis noted that may be it would be possible to conduct one of their rescue trainings during the month of December, when SCE&G draws down the reservoir for the winter.

## ***MEETING NOTES***

### ***SOUTH CAROLINA ELECTRIC & GAS COMPANY SALUDA HYDRO PROJECT RELICENSING Downstream Flows Technical Working Committee SCE&G's Lake Murray Training Center February 25, 2008***

Final JMS 3-21-08

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Charlene continued describing American Whitewater flow requests and noted that for the last weekend in July they would like to have a Whitewater Rodeo. She explained that they use to have this event every year, but took it out. One of the big events that is a big showcase for the City of Columbia is the US Team Jr. Wildwater Racing Practice, which occurs in the month of August. For the month of September, Charlene noted that she put the Columbia Fire Department rescue training in for this month as a starting point for the rescue squad. Finally for the month of October, Charlene noted that they would like to schedule a second canoeing for kids on the third Saturday of the month.

*Presentation of American Rivers Proposal, Matt Rice (Attachment B).*

Matt Rice noted that members of the Downstream Flows Technical Working Committee recommend the listed schedule of planned releases aimed to improving safe wade fishing and whitewater boating to be incorporated into SCE&G's new operating license for the Lake Murray Dam. Matt explained that American Whitewater flows are included in the schedule and are not competing. Matt noted that TWC members recommend 37 days and the corresponding flow releases be dedicated to whitewater recreation on the LRS. He noted that this recommendation is for one weekend a month in the months of December through May and two weekends a month June through November. Matt explained that the two boating flow ranges identified on the schedule attempt to address the recreational needs of all skill levels of whitewater users as well as other activities on the LSR. The low boating flow range (1,800 cfs-2,400 cfs) aims to enhance whitewater recreation for novice to intermediate boaters. The high boating flow range (3,800 cfs - 4,500 cfs) aims to enhance whitewater recreation for intermediate to expert boaters. Matt noted that these flows would be protected against a reserve call. It was also noted that establishing a 2-3 day weekend of flows, rather than just a day, would assist in attracting out-of-town visitors to paddle of fish and stimulate weekend tourism activity.

Matt noted that the wade fishing recreational flow recommendation aims to provide safe scheduled, wadeable flows on 42 weekend days in a one year period. He explained that they would like the wading flows to be protected from reserve calls. He noted that these flow proposals are from the Saluda instream flow recommendations. Wade fishing flows are optimum at 700 cfs and needed at "no more than" 1000 cfs. The recommendation is for two weekends a month dedicated to wade fishing from December through August and one weekend a month September through November. These flows would also be useful for swimming/rock use at Mill Race and other current and future access points during the season for other activities.

Dave asked the group if there was any discussion needed on flooding on the Congaree National Park (CNP). Gerrit noted that he is currently developing flows needed for the LSR to inundate the CNP. He explained that inundation occurs with a flow of 18,000 to 30,000 cfs from the Congaree River and noted that he is examining how much the LSR is contributing to the flooding. Gerrit noted that if SCE&G could provide the Columbia fire department rescue squad with their flows during the time the CNP needs to be flooded in the spring, would be beneficial.



## **MEETING NOTES**

### **SOUTH CAROLINA ELECTRIC & GAS COMPANY SALUDA HYDRO PROJECT RELICENSING Downstream Flows Technical Working Committee SCE&G's Lake Murray Training Center February 25, 2008**

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In regards to the flow recommendations from the group, Dave Anderson noted that since the Saluda Hydro Project is used for reserve capacity, SCE&G is willing to provide one weekend a month for recreational flows. Dave explained to the group that when SCE&G provides these recreational flows, Saluda will not be available for a reserve call. Dave also noted that these recreational flows can not be guaranteed as safe because no flows are guaranteed as safe. Gerrit noted that the boating/fishing organizations should have a caucus to discuss their requests, since SCE&G is providing recreational flows for one weekend a month.

After a brief caucus, the organizations returned with a revised draft recommendations for the recreational flow releases on the LSR. The revised recommendations are as follows:

#### **Boating**

- 39 days dedicated to whitewater boating.
- 32 days will not be protected from reserve operations (operations OK). These days are highlighted in blue on the chart.
- 7 days including the Wildwater training weekend (2 days), the rescue rodeo weekend (2 days), Memorial Day (1 day), Labor Day (1 day), and July 4 (1 day) will be protected from reserve operations (No operations). These days are highlighted in red.
- Flows for Labor Day, Memorial Day, and July 4: 700cfs-1500cfs

#### **Wade Fishing/Swimming**

- 38 days dedicated to wade fishing including MLK Day and Presidents Day
- 38 days protected from reserve operations (No operations)
- Target release window 7:00am-9:00pm (May-October); 7:00am-Noon or Noon-5:00pm, possibly alternating (November-April)
- Make up days: If weather events such as tropical storms make operations necessary on wade fishing days, missed days will be made up in a three month period.

#### **Adaptive management**

- Meet annually to schedule recreation days.
- Meet every 3 years to comprehensively review recreation schedule looking at recreation trends, trout reproduction and holdover etc.

#### **Rescheduling**

- If a scheduled flow release is cancelled or interrupted due to operational requirements such as dam safety or lake level management cause from climatic conditions, then request to have the flow event rescheduled with in a quarter or three months time frame.

#### **Reserve calls**

- During planned operation events, SCE&G should incorporate a rate of change (flow) in the event of a reserve call.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
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**Warning System**

- Request that an advanced warning (strobe lights and sirens) system be placed at the Saluda Spillway, Metts Landing and Corley Island.
- Request that a 10-15 minute warning be given in advance to allow people enough time to get off the river.

**Fire Department Rescue Training**

Not a part of the recreation recommendation

There was a brief discussion about providing the rescue squad the flows needed to train their team. Bill Argentieri noted that SCE&G could come up with an agreement outside of the license to provide flows for training. Bill noted that once the Columbia Fire Department submitted time frames and flows needed then he would discuss this with upper management.

The meeting adjourned at approximately 3:30 pm and Dave noted that he would contact everyone regarding the next meeting date.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
Downstream Flows Technical Working Committee  
SCE&G's Lake Murray Training Center  
February 25, 2008**

Final JMS 3-21-08

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**ATTACHMENT A**

**American Whitewater Proposal for Recreational Flow Releases on the Lower Saluda River**

## Recreation Resource Conservation Group

### **Issue Recommendation Recreational Flow Releases on the Lower Saluda River**

DRAFT

February 5, 2008

#### **Issue:**

SCE&G currently operates the Saluda Hydro Project in order to provide reserve capacity for the company's utility obligations, a mode of operation that the company proposes to continue under the new license. Project generators are typically offline, i.e., not operating, but can be started and synchronized to the electrical grid and can increase output immediately in response to a generator or transmission outage on SCE&G's system or in response to a call for reserve power from neighboring utilities, with which the company has reserve agreements and obligations. As a result, flows from Saluda Hydro to the lower Saluda River (LSR) are generally unscheduled.

Although there is no minimum flow requirement for the Project, SCE&G has an informal agreement with the South Carolina Department of Health and Environmental Control (SCDHEC) to provide a minimum of 180 cfs at the Project to maintain downstream water quality of the LSR. SCE&G typically releases a minimum flow of approximately 500 cfs to enhance water quality during the low dissolved oxygen (DO) season (July – November). The average annual flow from the Saluda Dam to the LSR is 2,595 cfs with a minimum average daily flow of 285 cfs.

The Lower Saluda Scenic River Advisory Council, South Carolina Department of Parks, Recreation and Tourism, South Carolina Department of Natural Resources, American Whitewater, Saluda River Chapter of Trout Unlimited, and Coastal Conservation League/American Rivers have requested instream flows for the LSR to support recreational uses such as small boat navigation, swimming, wade and boat fishing, and other downstream uses.

American Whitewater, the Coastal Conservation League/American Rivers, and the City of Columbia Parks and Recreation Department have also requested scheduled recreational releases for whitewater boating, wade fishing, and special events.

To some degree, any number or all of the most popular on-water activities are available at flows of 4,000 cfs and less. Boating activities are generally available at flows of between 1,000 cfs and 4,000 cfs, whereas, non-boating on-water activities, such as swimming and wade angling, are best suited for flows of 1,000 cfs or less.

Daily average flows of less than 1,000 cfs are generally available 38 percent of the time year-round. Hourly average flows of less than 1,000 cfs are generally available 60 percent of the time year-round.

Daily average flows of less than 4,000 cfs are generally available 83 percent of the time year-round. Hourly average flows of less than 4,000 cfs are generally available 27 percent of the time year-round.

Higher flows, for whitewater activities such as canoeing/kayaking and rafting, of 12,000 cfs or greater are generally only available approximately 2 percent of the time year-round on a daily average and hourly average basis.

**Recreation Resource Conservation Group**

**Issue Recommendation  
Recreational Flow Releases on the Lower Saluda River**

DRAFT

February 5, 2008

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**Recommendation:**

Based on the results of the Downstream Recreation Flow Assessment, the Recreation RCG recommends:

1. SCE&G meets the attached schedule for recreational flow releases in the LSR; and
2. SCE&G hosts an annual meeting the third week of October of each year to review the previous year's flows, set the specific dates for the following year's flows (with the understanding that the volume of water and number of days will remain consistent from year to year, even if the schedule varies), and discuss any outstanding issues with appropriate stakeholders.

**Recreation Resource Conservation Group**

**Issue Recommendation  
Recreational Flow Releases on the Lower Saluda River**

DRAFT

February 5, 2008

**Schedule of Recreational Flow Releases in the Lower Saluda River**

*Flows will be measured at the USGS gage below the Saluda Dam (02168504). Actual flows may vary  $\pm 10\%$ .*

**January**

First non-holiday weekend (Saturday and Sunday) (**Iceman Race**)

- 1,000 cfs or 4,000 cfs from 10:00AM to 4:00PM

**February**

No scheduled flows

**March**

St. Patrick's Day Weekend (Saturday and Sunday) (**Whitewater Festival**)

- 500 cfs from 8:00AM to 11:00AM
- 2,000 cfs from 11:30AM to 1:00PM
- 3,300 cfs from 1:30PM to 3:30PM
- 14,000 cfs from 4:00PM to 6:00PM

**April**

No scheduled flows

**May**

Saturday before Mother's Day (**Canoeing for Kids**)

- 10,000 cfs from 7:30AM to 4:30PM

**June**

Third weekend (Saturday and Sunday) (**Rescue Rodeo**)

- 1,000 cfs from 7:00AM to 11:00AM
- 3,000 cfs from 12:00PM to 4:00PM

**July**

Last weekend (Saturday and Sunday) (**Whitewater Rodeo**)

- 3,300 cfs from 8:00AM to 4:00PM

**August**

**Recreation Resource Conservation Group**

**Issue Recommendation  
Recreational Flow Releases on the Lower Saluda River**

DRAFT

February 5, 2008

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First weekend (Saturday and Sunday) (**US Team Jr. Wildwater Racing Practice**)

- 7,000 cfs from 8:00AM to 4:00PM

September

First consecutive Friday/Saturday/Sunday (**Rescue Training**)

- Friday – 800 cfs from 1:00PM to 5:00PM
- Saturday – 1,500 cfs from 7:00AM to 11:00AM; 3,500 cfs from 1:00PM to 5:00PM
- Sunday – 7,000 cfs from 7:00AM to 12:00PM

October

Third Saturday (**Canoeing for Kids**)

- 1,400 cfs from 7:30AM to 4:30PM

November

No scheduled flows

December

No scheduled flows

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
Downstream Flows Technical Working Committee  
SCE&G's Lake Murray Training Center  
February 25, 2008**

Draft JMS 2-27-08

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**ATTACHMENT B**

American Rivers Proposal of Draft Recommendations for Recreational Flow Releases on the Lower Saluda River



# **DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

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The Lower Saluda Scenic River Advisory Council, City of Columbia Parks and Recreation Department, South Carolina Department of Natural Resources, American Whitewater, the Saluda River Chapter of Trout Unlimited, the Coastal Conservation League, and American Rivers support in-stream flows that enhance safe recreational uses on the Lower Saluda River. Members of the Technical Working Committee recommend the following schedule of planned releases aimed at improving safe wade fishing and whitewater boating be incorporated into SCE&G's new operating license for the Lake Murray Dam. The schedule of planned recreational releases is followed by a justification of the recommended releases.

**Target release ranges unless otherwise noted:**

Boating low: 1,800cfs-2400cfs

Boating high: 3,800cfs-4500cfs

Wade fishing: 700cfs (not to exceed 1000cfs during fishing hours)

**Target release window unless otherwise noted:**

Boating: 12:00PM-6:00PM at Millrace (May-October)

10:00AM-4:00PM at Millrace (November-April)

Wade fishing: 7:00AM-7:00PM (May-October)

7:00AM-12:00PM (November-April)

**January**

Boating: First non-holiday weekend for the Iceman Race (2 days)

Flows: 1,000cfs or 4,000cfs

Wade fishing: Two weekends (4 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**February**

Boating: One weekend (2 days). Schedule and flow release posted on SCE&G website

Flows: Either low boating recreation flow range (1,800-2400cfs) or high flow range (3,800-4,500cfs)

Wade fishing: Two weekends (4 days). Schedule posted on SCE&G website

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**March**

Boating: St. Patrick's Day Weekend for the Whitewater Festival (2 days)

Flows: 8:00AM-11:00AM – 700cfs

11:00AM-1:00PM – 1,800-2,500cfs

1:30PM-3:30PM – 3,800-4,500cfs

3:30PM-6:00PM – 14,000cfs

Wade fishing: Two weekends (4 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE  
LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

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**April**

Boating: One weekend (2 days)  
Flows: Low flow (1,800-2,400cfs) or high flow boating release (3,800-4,500cfs)

Wade fishing: Two weekends (4 days)  
Flows: April 1-15: 1000cfs (higher flows for striped bass passage)  
April 15-30: 1300cfs

**May**

Boating: Weekend before Mothers Day for Canoeing for Kids (2 days)  
Flows: 7:30AM-4:30PM: 10,000cfs

Wade fishing: Two weekends (4 days)  
Flows: May 1-15: 1300cfs (higher flows for striped bass passage)  
May 15-31: 1000cfs

**June**

Boating: Two weekends including the third weekend for the Rescue Rodeo event (4 days)  
Flows: First weekend – low or high boating release  
Third weekend – 7:00AM-11:00AM: 1000cfs  
12:00PM-4:00PM: 3,000cfs

Wade fishing: Two weekends (4 days)  
Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**July**

Boating: Two weekends including the last weekend for the Whitewater rodeo (4 days)  
Flows: High boating flow 3,800cfs-4,500cfs

Wade fishing: Two weekends (4 days)  
Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**August**

Boating: Two weekends including the first weekend for U.S. Team Wildwater Racing practice (4 days)  
Flows: 8:00AM-4:00PM: 7,000-10,000cfs

Wade fishing: Two weekends (4 days)  
Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE  
LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

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**September**

Boating: Two weekends including the first consecutive Friday/Saturday/Sunday for rescue training (5 days)

Flows: Friday-700cfs  
Saturday-7:00AM-11:00AM: low boating flows (1,800-2,400cfs)  
1:00PM-5:00PM: high boating flows (3,800-4,500cfs)  
Sunday- 7:00AM-12:00PM: 7,000cfs

Wade fishing: One weekend (2 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**October**

Boating: Two weekends including the third weekend for Canoeing for Kids (4 days)

Flows: Third weekend-low boating flows (1,800-2,400cfs) additional weekend-low or high boating flows (4 days)

Wade fishing: One weekend (2 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**November**

Boating: Two weekends (4 days)

Flows: Either high (3,800-4,500cfs) or low boating flows (1,800-2,400cfs)

Wade fishing: One weekend (2 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**December**

Boating: One weekend (2 days)

Flows: Either high (3,800-4,500cfs) or low boating flows (1,800-2,400cfs)

Wade fishing: Two weekends (4 days)

Flows: 700cfs (not to exceed 1000cfs during fishing hours)

**Holiday Recreational Flows**

January 1 – Wade fishing 7:00AM-5:00PM flows: 700cfs (not to exceed 1000cfs during fishing hours)

January 21 – Wade fishing 7:00AM-5:00PM

Presidents Day – Wade fishing 7:00AM-5:00PM

Memorial Day – Wade fishing 10:00AM-7:00PM

July 4 – Boating 10:00AM-6:00PM (not to exceed high or low boating flow ranges unless scheduled in advance)

Columbus Day – Boating 10:00AM-6:00PM

Friday after Thanksgiving – Wade fishing 7:00AM-5:00PM

Christmas day – Wade fishing 12:00PM-5:00PM

# **DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE LOWER SALUDA RIVER**

## **Proposed by members of the Downstream Flows Technical Working Committee**

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The Lower Saluda River is a unique and valuable resource for the people of Richland and Lexington Counties. With adequate river flows, the river is regionally known as a productive trout fishery as well as an exciting whitewater destination. These recreational uses of the river compete. According to the Recreational Flow Assessment conducted by Kleinschmidt and experienced local wade fishermen and whitewater boaters, flows between 500cfs and 1000cfs were ideal for wade fishing and swimming where flows between 1000cfs-4000cfs were adequate for boaters. The proposal above is an effort to enhance safe wade fishing/swimming and whitewater boating on the LSR by providing scheduled safe releases for each activity (no reserve peaking operations during scheduled recreational release) while accounting for the overall biological health of the river and other competing uses including Lake Murray management.

### **Whitewater Boating**

Members of TWC recommend 37 days and the corresponding flow releases be dedicated to whitewater recreation on the Lower Saluda River. The recommendation calls for one weekend a month in the months of December through May and two weekends a month June through November. The logic behind this schedule is as follows:

*December through May (one weekend a month)* – This time period is popular for wade fishing because of DNR’s stocking schedule and cooler water temperatures. Recreational releases should favor wade fishing during these months.

*June through August (two weekends a month)* – This time period is popular for boating.

*September through November (two weekends a month)* – This time period coincides with the reservoir draw down, theoretically providing an opportunity to schedule draw down releases to enhance white water recreation.

The group believes the boating flow days should occur on consecutive weekend days to encourage out of town boaters to spend at least one night in the Columbia area to bring valuable tourist dollars to the region.

The two boating flow ranges identified on the schedule attempt to address the recreational needs of all skill levels of whitewater users as well as other activities on the LSR. The low boating flow range recommendation aims to enhance whitewater recreation for novice to intermediate boaters. The high boating flow range aims to enhance whitewater recreation for intermediate to expert boaters. The group recommends equal release days of both the low boating flow and the high boating flow throughout the year depending on water availability.

# DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE LOWER SALUDA RIVER

Proposed by members of the Downstream Flows Technical Working Committee

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## Target Recreational Releases

### Low Boating flow range 1,800cfs-2,400cfs

The final flow assessment identified a flow of 2,272cfs as good to excellent for whitewater boaters, flatwater boaters, swimmers and tubers. This flow, which falls within the low boating flow range, was better suited for novice to intermediate whitewater boaters. This flow range was also identified as a desirable flow by boaters outside of the recreational flow assessment.

### High Boating Flow Range 3,800cfs-4,500cfs

The final flow assessment identified a flow of 3,938cfs as good to excellent for intermediate to expert whitewater boaters as well as flatwater boaters. This flow falls within the high boating flow recommendation and is aimed at enhancing intermediate to expert whitewater recreation.

### High Event Flows 7,000cfs +

The group recommends high releases of 7,000cfs and above five days a year. These flows will benefit specific events; U.S. team Jr. Wildwater Racing Practice, Rescue Training, Whitewater Festival, and Canoeing for Kids. These high flows would also allow local outfitters to run whitewater raft trips. High flows are only recommended if they do not severely degrade trout habitat, inhibit potential trout spawning, or substantially lower Lake Murray in low water years.

**It is critical SCE&G post scheduled boating flows in advance and cease reserve peaking operations at Lake Murray Dam during the target recreational release window on all days dedicated to whitewater recreation in order to ensure the safety of all LSR users.**

## Wade Fishing

The Lower Saluda River is a unique fishery in South Carolina. It is a popular destination for trout fishermen throughout the state. It supports a healthy put, grow, and take rainbow and brown trout fishery. There is anecdotal evidence that increasing numbers of trout are holding over every year. With adequate minimum flows, improved dissolved oxygen, and proper management, there is potential trout will spawn in the future. A “wild” trout fishery will bring greater numbers of anglers to the Columbia area further increasing tourist revenues associated with the LSR.

The wade fishing recreational flow recommendation aims to guarantee safe, scheduled, wadeable flows on 42 weekend days in a one-year period. The recommendation calls for two weekends a month dedicated to wade fishing from December through August and one weekend a month September through November. The logic behind the schedule is as follows:

*December through May (two weekends a month)* - This time period is the most popular and productive for wade fishing. It coincides with DNR’s stocking schedule and water temperatures are cooler.

*June through August (two weekends a month)* - This time period is popular for fishing, swimming, and rock hopping.

## **DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

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*September through November (one weekend a month)* - This time period is less productive for wade fishing because it is pre-stocking. The reservoir is also drawn down during this time theoretically presenting an opportunity to release recreational boating flows.

Wading flows should be released on consecutive weekend days to encourage visits from out of town anglers. Flows during wade fishing days should not exceed 1,000cfs at any time during the target release window (7:00am-7:00pm in the summer months and 7:00am-Noon in winter months) to guarantee angler safety. Currently, anglers wade at their own risk due to Lake Murray Dam operations. **It is critical SCE&G halt reserve peaking operations during the target release window on days dedicated wade fishing to ensure wade fishing safety.**

**DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE  
LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

<b>DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES: LOWER SALUDA RIVER</b>					
<b>MONTH</b>	<b>ACTIVITY AND FLOW</b>	<b>BOATING DAYS</b>	<b>BOATING HOURS</b>	<b>WADE FISH DAYS</b>	<b>WADE FISH HOURS</b>
<b>January</b>	<u>Boating</u> : first non-holiday weekend for Iceman Race (2 days) Flows: 1,000cfs or 4,000cfs	2	12	4	20
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				
<b>February</b>	<u>Boating</u> : one weekend (2 days) Flows: Either low boating recreation flow range (1,800-2,400cfs) or high flow range (3,800-4,500cfs)	2	12	4	20
	<u>Wade fishing</u> : two weekends (4 days) Schedule posted on SCE&G website. Flows: 700cfs				
<b>March</b>	<u>Boating</u> : St. Patrick's Day Weekend for the Whitewater Festival (2 days) Flows: 8:00am-11:00am – 700cfs 11:00am-1:00pm – 1,800-2,500cfs 1:30pm-3:30pm – 3,800-4,500cfs 3:30pm-6:00pm – 14,000cfs	2	20	4	20
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				
<b>April</b>	<u>Boating</u> : one weekend (2 days) Flows: low flow (1,800-2,400cfs) or high flow release (3,800-4,500cfs)	2	12	4	20
	<u>Wade fishing</u> : two weekends (4 days) Flows: April 1-15: 1,000cfs April 15-30: 1,300cfs (higher flows for striped bass passage)				
<b>May</b>	<u>Boating</u> : weekend before Mothers Day for Canoeing for Kids (2 days) Flows: 7:30am-4:30pm – 10,000cfs	2	12	4	48
	<u>Wade fishing</u> : two weekends (4 days) Flows: May 1-15: 1300cfs May 15-31: 1,000cfs (higher flows for striped bass passage)				
<b>June</b>	<u>Boating</u> : two weekends including third weekend for Rescue Rodeo (4 days) Flows: Rescue Rodeo weekend - 7:00am-11:00am – 1,000cfs 12:00pm-4:00pm – 3,000cfs <b>Other weekend – either low flow (1,800-2,400cfs) or high flow (3,800-4,500cfs);</b>	4	30	4	48
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				

**DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE  
LOWER SALUDA RIVER**

**Proposed by members of the Downstream Flows Technical Working Committee**

<b>DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES: LOWER SALUDA RIVER</b>					
<b>MONTH</b>	<b>ACTIVITY AND FLOW</b>	<b>BOATING DAYS</b>	<b>BOATING HOURS</b>	<b>WADE FISH DAYS</b>	<b>WADE FISH HOURS</b>
<b>July</b>	<u>Boating</u> : two weekends including the last weekend for the Whitewater Rodeo (4 days) Flows: high boating flow 3,800cfs-4,500cfs <b>(high on both weekends?)</b>	4	24	4	48
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				
<b>August</b>	<u>Boating</u> : two weekends including the first weekend for U.S. Team Wildwater Racing practice (4 days) Flows: 8:00am-4:00pm - 7,000-10,000cfs; <b>Other weekend – either low flow (1,800-2,400cfs) or high flow (3,800-4,500cfs)</b>	4	28	4	48
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				
<b>September</b>	<u>Boating</u> : two weekends including the first consecutive Friday-Saturday-Sunday for rescue training (5 days). Flows: <b>Rescue training –</b> Friday - 700cfs (7am-5pm??), Saturday - 7:00am-11:00am: low boating flows (1,800-2,400cfs); 1:00pm-5:00pm: high boating flows (3,800-4,500cfs), Sunday - 7:00am-12:00pm: 7,000cfs; <b>Other weekend – either low flow (1,800-2,400cfs) or high flow (3,800-4,500cfs)</b>	5	37	2	24
	<u>Wade fishing</u> : one weekend (2 days) Flows: 700cfs				
<b>October</b>	<u>Boating</u> : two weekends including third weekend for Canoeing for Kids (4 days) Flows: <b>CFK on</b> third weekend - low boating flows (1,800-2,400cfs); <b>Other weekend – either low flow (1,800-2,400cfs) or high flow (3,800-4,500cfs)</b>	4	24	2	24
	<u>Wade fishing</u> : one weekend (2 days) Flows: 700cfs				
<b>November</b>	<u>Boating</u> : two weekends (4 days) Flows: either high (3,800-4,500cfs) or low boating flows (1,800-2,400cfs)	4	24	2	10
	<u>Wade fishing</u> : one weekend (2 days) Flows: 700cfs				
<b>December</b>	<u>Boating</u> : one weekend (2 days) Flows: either high (3,800-4,500cfs) or low boating flows (1,800-2,400cfs)	2	12	4	20
	<u>Wade fishing</u> : two weekends (4 days) Flows: 700cfs				
<b>Totals</b>		<b>37</b>	<b>247</b>	<b>42</b>	<b>350</b>



## REVISED DRAFT RECOMMENDATIONS FOR RECREATIONAL FLOW RELEASES ON THE LSR

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### **Boating**

- 39 days dedicated to whitewater boating.
- 32 days will not be protected from reserve operations (operations OK). These days are highlighted in blue on the chart.
- 7 days including the Wildwater training weekend (2 days), the rescue rodeo weekend (2 days), Memorial Day (1 day), Labor Day (1 day), and July 4 (1 day) will be protected from reserve operations (No operations). These days are highlighted in red.
- Flows for Labor Day, Memorial Day, and July 4: 700cfs-1500cfs.

### **Wade Fishing/Swimming**

- 38 days dedicated to wade fishing including MLK Day and Presidents Day.
- 38 days protected from reserve operations (No operations).
- Target release window 7:00am-9:00pm (May-October); 7:00am-Noon or Noon-5:00pm, possibly alternating (November-April).
- Make up days: If weather events such as tropical storms make operations necessary on wade fishing days, missed days will be made up in a three month period.

### **Adaptive management**

- Meet annually to schedule recreation days.
- Meet every 3 years to comprehensively review recreation schedule looking at recreation trends, trout reproduction and holdover etc.

### **Rescheduling**

- If a scheduled flow release is cancelled or interrupted due to operational requirements such as dam safety or lake level management cause from climatic conditions, then request to have the flow event rescheduled with in a quarter or three months time frame.

### **Reserve calls**

- During planned operation events, SCE&G should incorporate a rate of change (flow) in the event of a reserve call.

### **Warning System**

- Request that an advanced warning (strobe lights and sirens) system be placed at the Saluda Spillway, Metts Landing and Corley Island.
- Request that a 10-15 minute warning be given in advance to allow people enough time to get off the river.

### **Fire Department Rescue Training**

- Not a part of the recreation recommendation.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE**

**SCE&G Training Center  
April 23, 2008**

Final ACG 8-11-08

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates	Bill Argentieri, SCE&G
Alan Axson, Cola. Fire Dept.	Karen Kustafic, Cola. Parks
Bill Marshall, SCDNR	Matt Rice, American Rivers
Jim Cumberland, CCL	Tony Bebbler, SCPRT
Vivianne Vejdani	

**DATE:** April 23, 2008

**ACTION ITEMS**

- Send the updated recreational flow spreadsheet out to committee members  
*Dave Anderson*
- Develop a low inflow protocol for the Saluda Hydro Project  
*Kleinschmidt*
- Determine flows to be eliminated for each stage of drought for the Lower Saluda River  
*Downstream Flows TWC members*

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson opened the meeting and noted that the purpose of the meeting would be to review SCE&G's counter proposal to the stakeholders request for recreational flows for the lower Saluda River (LSR). Bill A. suggested that instead of having predetermined flows each year, maybe it would be better to set aside a predetermined acre/feet in the Lake for the recreational flows and determine flow allocation at the October Downstream Flows Recreation meeting. Bill A. noted that this may work out better if a future event such as an Olympic event comes about and there are no days available for the event, because all recreational flows have been predetermined.

Bill A. discussed SCE&G's responses to the Downstream Flows Recreation TWC stakeholders request for recreational flows. Bill noted that SCE&G has set aside a total of 62 days without Saluda's capacity counted towards their reserve obligation. He further explained that 11 of those days were set aside for swift water rescue, which leaves 51 days for recreational flows. The 51 days are partial days because it is more difficult to take Saluda out for a full day or multiple days. He explained that SCE&G is currently developing a low inflow protocol for the lower Saluda River and

once it has been finalized, SCE&G will follow through with the TWC's critical times. Bill A. noted in regards to the high or low boating flows, that SCE&G would prefer the 10:00 am to 4:00 pm because there is more likely to be a reserve need in the evening. Bill A. also explained that if scheduled recreation days were lost due to inclement weather, then they will not be able to reschedule make-up days.

In response to SCE&G's responses, Matt Rice noted that 51 days for recreational flows was a fair request, but had some concerns with the specific language. Particularly, he noted they were not comfortable with losing recreation days for "any other reason" as stated in SCE&G's response. He explained that they would like to develop acceptable language for this. Matt noted that the group would support up to 5 lost recreational days, but anything over 5 Matt noted should be made up.

In regards to ramping, Matt noted that they were not as concerned about ramping on recreational flows and reserve calls, as they were concerned about ramping for non-reserve operations such as lake level management. He noted that the lights and sirens should be calibrated for small rises and be activated by operations of the hydro with an appropriate lag time for each location. Matt suggested developing enforceable language for the last paragraph on ramping.

Matt requested that the times for wade fishing/swimming hours from May through October be changed to 8:00 am through 6:00 pm. Matt explained that this is when the river will be most heavily used by rock users and tubers etc.. Bill A. noted that earlier times were chosen because fisherman will most likely be on the river during these times. Matt explained he spoke with Mike Waddell and Malcolm Leaphart and they noted that most of the good fishing is in the winter months from November through April. Jim Cumberland requested that the wade fishing/swimming hours in May through October be changed to 8:00 am to 5:00 pm. Bill A. noted that they originally offered the time 6:00 am to 3:00 pm because SCE&G did not want to get too far into the evening hours where there is the possibility of a reserve call. The group noted that that would be acceptable and they also would be fine with boating flows from 10:00 am to 4:00 pm.

The group briefly reviewed the spreadsheet that contained the recreational flows for each month. Changes that were made by the group were highlighted in the spreadsheet. The group then went through the exercise of using allotted acre/feet to accommodate future events. The group agreed that there was a lot more flexibility with having water stored for reserve in Lake Murray for future recreation flows. Jim Cumberland asked if there was any room to add to the 45,000 acre/feet. Bill A. explained that if the water is there then we will try to accommodate the flows needed. Bill Marshall asked if there would be flexibility with the times that the flows are provided. Bill A. noted that it is certainly possible and explained that it would be helpful if committee members had an idea of the times that they want to change and to let SCE&G know before the meetings planned in October so SCE&G can talk with the dispatchers. Dave noted that he would send the excel file with the corrected recreational flows back out to committee members and noted he would develop the wording for the recreation plan.

Alan asked Bill A. if SCE&G was still willing to concede to 51 recreational flow days during a drought when there is a higher strain on the system. Bill A. noted that once a low inflow protocol is created, certain recreational flows and days will be eliminated during specific drought stages. Bill A. noted that the group should determine how they would like the flows to be eliminated at different stages of drought. The group adjourned.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
Downstream Flows Technical Working Committee  
SCE&G's Lake Murray training Center  
June 11, 2008**

**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates	Bill Argentieri, SCE&G
Matt Rice, American Rivers	Dave Anderson, Kleinschmidt Associates
Tony Bebber, SCPRT	Carl Bussells, Kleinschmidt Associates
Randy Mahan, SCANA Services	Ray Ammarell, SCE&G

**ACTION ITEMS:** Determine Recreational Flow Reductions for each of the four Low Inflow Protocol stages.

**MEETING NOTES:**

*These notes serve as a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson of Kleinschmidt Associates opened the meeting around 1:30, and proposed that recreational flows would be reduced by 25% overall with each drought stage, and by Stage IV, all recreational flows would be reduced to the minimum flow of 400 CFS. In other words, the proposed scheme was 100% for normal inflow, 75% for Stage I drought, 50% for Stage II, and so on.

Dave suggested that some non-event boating days should be reduced to 1-day events instead of 2-day for a Stage I drought. Matt, Tony, and Alan concluded that the main priorities for recreational flows should be Canoeing for Kids, Junior Olympics (USTWWR Prac.), Rescue Rodeo, and the Iceman Competition. These events were not reduced for Stage I. Dave and Bill explained that release times for higher flows will depend on where the event occurs because of the time the water takes to reach the event. After editing the spreadsheet tool used for examining different reduction scenarios, the group agreed that a reduction of 20% was agreeable for Stage I.

For Stage II, Bill proposed that recreational flows for a stage 2 event could be at 60% instead of 50%. Randy concurred and stated that a drop from Stage II to Stage III can be greater because a Stage III drought is less likely. In this case, the Low Inflow Protocol (LIP) recreational flow reduction scheme is 100% at normal, 80% at Stage I, 60% at Stage II, 25% at Stage III and 0% at Stage IV. For Stage II, all non-event boating days were removed, the White Water Festival was reduced to 1 day, and the Iceman Race was reduced to 1000 CFS. Bill noted that the spreadsheet will to be used as a guideline

during the annual recreational flows meeting. Matt added that flows should be adjusted depending on event turnout, cancellation, etc. He said that the Rescue Rodeo is a good signature for the Southeast and instigates tourism, and it should be a 2-day event.

Alan called Charlene Coleman for a word on the priority of events. She explained that she would prefer the order of priorities for a Stage III drought be Canoeing for Kids in May, then Junior Olympics, Rescue Rodeo, and Canoeing for Kids in October.

All agreed that all recreational events (except for wade fishing levels) will be cancelled during a Stage IV drought. The group agreed that the 32 “minimum” flow days in a Stage IV drought will still be “non-reserve” days.

In response to a request to provide flow release information on the Lower Saluda River website as soon as SCE&G is aware of a release, Bill noted that flow release information is already provided with as much advance notice as possible. Alan suggested that it would be helpful for the future recreational flow schedule to be available as a PDF. Tony added the recreational flow information could be combined into one page with attachments, informational boxes, or links, so users would only have to check one place.

The group discussed release patterns, and Bill noted that SCE&G has already tried to spread out flows for lake level management releases, such as releasing 4,000 CFS for 5 hours rather than 10,000 CFS for 2 hours. Matt added that this would be much safer and less harmful to wildlife.

Bill noted that ‘ramping’ was not favorable mainly because it could affect the siren system operation and people could be confused by trying to figure if a flow release is going to be ramped or not be ramped depending on the reason for a release. Tony noted that most river accidents and drowning are alcohol related. Everyone agreed that there must be a compromise between the two, so release patterns could be less extreme.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION RCG  
Lake Levels TWC**

**SCE&G Lake Murray Training Center  
February 1 , 2007**

Final acg 3-29-07

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates      Bill Argentieri, SCE&G  
Joy Downs, LMA                                      Steve Bell, Lake Murray Watch  
Bertina Floyd, Lake Murray Homeowners Coalition

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Alison Guth opened the meeting and noted that the discussion would be regarding the Reservoir Levels section of the Recreation Standard Process Form. She asked what additional information was needed to answer the questions specified in the document. The group noted that they would like to go through the questions and update the items when necessary. Bill Argentieri fielded questions on the responses that he provided in the document and the group collectively made additions and wording changes. Steve Bell indicated that he believed more information was needed on how SCE&G makes operation decisions based on the flow forecasting models. He noted that he would not like to see the lake drop in September unless there was an approaching hurricane. Bill replied that in the fall they usually aim for an elevation based on the flow model and generate in a systematic manner to reach the desired elevation. He continued to explain that in the spring the dispatchers prefer the lake level to be around 3 0' to 3 2' in order to prepare for the spring rain events.

In addition to discussion on the Standard Process Form, the group had brief discussion on the operations model. It was noted that this group would make lake level recommendations back to the Recreation RCG, which would then make lake level recommendations to the Operations group for input into the HEC ResSim model. The group noted that there would be other factors that would help determine what the lake level would be best, such as the results from the IFIM studies. Joy noted that according to the Lake Murray Association user surveys, an elevation of 3 4' would meet the recreation needs of most of the individuals surveyed.

The group concluded the additions and changes to Standard Process Form and adjourned. The group would meet again when necessary.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER  
March 3, 2006**

*final dka 03-22-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
David Hancock	SCE&G	George Duke	LMHC
Dave Anderson	Kleinschmidt Associates	Tim Vinson	SCDNR
Tommy Boozer	SCE&G	Tony Bebber	SCPRT
Steve Bell	Lake Murray Watch	Jennifer Summerlin	Kleinschmidt Associates

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**HOMEWORK ITEMS:**

- Tommy B. – send out acreage of current management prescriptions
- All – research dock restrictions and any boating capacity studies the USACE used on Lake Lanier
- Dave – scan and email existing boating use study
- Tim – send Dave questions used by DNR during previous surveys
- Dave – draft inventory form and inventory database

**PARKING LOT ITEMS:**

- Discussion of shoreline classifications

**DATE OF NEXT MEETING:**

**March 17, 2006 at 10:00 a.m.  
Conference Call**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**March 3, 2006**

*final dka 03-22-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave A. opened the meeting by briefly going over the objectives of the TWC and what the committee needs to accomplish by the start of the recreation season. The first thing that the committee went over is the facility inventory that has been discussed in the Recreation RCG meetings. Dave reminded the group that they need to have the complete list of amenities by the end of the day in order to complete the facility inventory.

There was some discussion as to how the information would be maintained after it was collected. Dave explained the benefits of storing the information in a database, which would allow SCE&G to easily update the information, and will allow the data to be used in a variety of ways (GIS, brochure, website, etc.). Tommy reminded the group that SCE&G goes through the updating process when it is time to submit their Form 80s and also during the 5-year review of the lake management plan. Tommy noted that the 5-year review was originally a recreational review and has evolved to encompass the entire lake and land management program. The group also discussed how this information would be available on a website.

Dave reminded the group that a website is peripheral to collecting the information; we need to focus since the recreation season is approaching. There was a group discussion of additional variables that need to be collected for purposes of a complete facility inventory. One of the main points from this discussion focuses on ADA compliance. The group agreed that we must contact the Department of Vocational Rehabilitation and have them evaluate all of SCE&G's park sites as part of the facility inventory. The group agreed to a final set of variables (to be shown on the inventory form—attached) that must be collected as part of the inventory. Dave will send out a draft form with the information to be collected prior to next meeting and will also begin to design the database that will store the information.

Steve B. indicated that shorelines in the forest management and future development classification and buffer zones are open to the public for passive recreational uses and should be included in the inventory of areas available for public use. Tommy Boozer indicated that he did not want to include these in the inventory of areas "designated" as recreational sites. Steve B. noted that the islands, which have no amenities, are included, so why not the forest management lands, future development, and buffers. David H. and Tommy expressed their concern about advertising buffer zones as designated recreational sites due to the potential for conflict it may create. Steve B indicated that members of the Recreational Resource Group should be aware that these shorelines, while not designated as recreational sites, are available for public use, noting that the FERC recently



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**March 3, 2006**

*final dka 03-22-06*

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ruled that public access paths to the buffers should be provided as needed. Steve B. suggested that, for the purpose of inventory, forest management, future development, and buffers should be listed as a separate category (i.e., non designated areas, impromptu, passive) and included as part of the recreational resource inventory. The group agreed to further discuss this issue at a later time.

The group briefly returned to the discussion of facility inventory. Dave wanted to make sure that the list of amenities the group has agreed to will satisfy the comments from the SCPRT on the Initial Consultation Document. Tony B. indicated they would, but he would like to see numbers with those variables where a count makes sense (parking spaces, tables, etc.). Dave also wanted to make sure the group agreed that this information would only be collected for SCE&G public areas and not for private or commercial areas. The group agreed, but wanted to make sure the information we already have on private/commercial facilities is not lost.

There was some discussion as to whether the islands need to be taken off the SCE&G facilities list. Tommy wants them to stay on the list because they are an important part of recreational use on the lake. The group agreed to leave the islands on the list and indicate they can be used for primitive camping. Dave questioned the numbers assigned to some private facilities and not others. David H. replied they have not updated the numbers and need to do so as part of this exercise.

After lunch, the group concentrated on existing use data and the need to collect additional data for purposes of relicensing. Dave summarized the study request for recreation and went over the studies that need to be in place by the start of recreation season. Dave asked the group if a carrying capacity study was necessary given SCE&G cannot regulate the numbers of boats on the lake. Dave preferred the term boat density study and reminded the group that SCE&G has conducted this type of study in 2001. There was some discussion as to how the boat counts provide useful information and possible uses of this information in analyses of crowding on the lake. The group agreed to look at the existing boating count study and make a determination if this type of study needs to be conducted again. Dave will scan the report and send to the group so they can make a determination by Friday, March 10.

The group then discussed some of the studies done in support of the Catawba-Wateree relicensing for Duke Power. Tony pointed out the user surveys they conducted at existing sites as well as the surveys done of the surrounding region to determine the need for more access sites. Tommy B. questioned if this information was useful for locating new recreation sites. Tony replied that not only did the surveys do that, but also provided information as to satisfaction with existing facilities. Tommy reminded the group that the main determination they will use in deciding locations of new sites is whether SCE&G owns the property—it is highly unlikely that SCE&G will purchase additional properties for future sites.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**March 3, 2006**

*final dka 03-22-06*

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Dave questioned the group if it would be possible to use counts conducted during the remediation project to estimate use at recreation facilities. The group agreed this information might prove useful, but is probably not an accurate reflection of use. The group discussed doing a use estimate of SCE&G facilities as well as conducting a survey of users at these sites. Tim mentioned the DNR has some questions they use for these types of surveys and he will send the questions to Dave. Dave will also look at the Catawba-Wateree study and see if there are any applicable questions the group can use. Dave will draft a questionnaire for the group's consideration at the next meeting.

Dave reminded the group that we must reach a decision on the boat density study as soon as possible so the group can finalize plans for the recreation season. Tony pointed out the season starts on April 1 and he would like to see the survey conducted over an entire year. The group examined the calendar for the coming weeks and agreed to have conference call on March 17 to talk about a user questionnaire. Dave reminded the group that the LSR needs to be included in any studies. After reviewing the homework items, the meeting adjourned.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**March 3, 2006**

*final dka 03-22-06*

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Additional Comments Received

**Charlene Coleman:** Well as a comment. I'd have to say Steve Bell raises a valid point, that I also questioned. I too believe there should be an acknowledgement of public ownership of such areas. The ostrich never saw anything with his head stuck in the sand. I see this inventory as a great asset in pursuing restoration of damaged buffers by "undetermined", sudden plant death by shore fronting landowners. Some of the islands I know are private and should be documented as such. I feel certain they do not pay taxes on this land. A public trail around the lake would be an awesome project too. Also, I'm pretty tired of people clearing all the way to the river too.

**Patrick Moore:** The Coastal Conservation League and American Rivers support including project lands open to public recreation in the recreation inventory. These lands have existing recreational uses that will probably only increase in the future. To get the full picture of current and future recreational use on Lake Murray it would be useful to know who uses these lands now, who is likely to use them in the future, which ones have public access from roads/other public lands etc. We can figure out a way to include these project lands open to public recreation and avoid advertising them as public recreation areas. I am under the impression that part of our job is to make a recommendation to the L&LM RCG about the current and future shoreline classifications based on our recreation studies.

## Site Visit/Inventory Forms

Inspected by: \_\_\_\_\_

Date: \_\_\_\_\_

Site Name/Code: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

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### Facility Type:

\_\_\_\_ Campground/Campsites      \_\_\_\_ Picnic Area      \_\_\_\_ Day Use  
\_\_\_\_ Overlook Site      \_\_\_\_ Informal Site

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### Access:

\_\_\_\_ Paved access      \_\_\_\_ # of lanes  
\_\_\_\_ Unpaved access      \_\_\_\_ # of lanes

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### Operations:

\_\_\_\_ Manned      \_\_\_\_ Seasonal  
\_\_\_\_ Unmanned      \_\_\_\_ Year Round  
\_\_\_\_ Fee (\$)

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### Site Facilities:

#	Type	#	Type
____	Picnic Tables	____	Potable Water
____	Grills	____	Dumping Station
____	Firepit/ring	____	Boat Ramp (____ # of lanes)
____	Sanitation	____	Docks
____	Trails (specify use _____)	____	Playground
____	Shelter	____	Showers
____	Designated Swim Area	____	Food
____	Store	____	Marina
____	Fuel		

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**Parking Lots:**

\_\_\_\_\_ # \_\_\_\_\_ Type \_\_\_\_\_

\_\_\_\_\_ ADA spaces

\_\_\_\_\_ Spaces delineated?

\_\_\_\_\_ Regular spaces

\_\_\_\_\_ Curbs?

\_\_\_\_\_ Vehicle & trailer spaces

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**Sanitation Facilities:**

Type:	# Unisex	# Women	# Men
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Flush	_____	_____	_____
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Portable	_____	_____	_____
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**Campground/Campsite:**

	RV sites	Cabin sites	Tent sites	Wilderness sites
# of sites	_____	_____	_____	_____
On site parking	_____	_____	_____	_____
Water front	_____	_____	_____	_____
ADA compliant	_____	_____	_____	_____

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**Boat Launch Facilities:**

\_\_\_\_\_ Hard surface

\_\_\_\_\_ Unimproved

\_\_\_\_\_ Gravel

\_\_\_\_\_ Carry In

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**Courtesy/Fishing Docks:**

Courtesy/Fishing	Dimensions	ADA Compliant
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_____	_____	_____
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_____	_____	_____
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**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 17, 2006**

*final dka 04-05-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Malcolm Leaphart	Trout Unlimited	Tim Vinson	SCDNR
Tommy Boozer	SCE&G	Steve Bell	Lake Murray Watch
Van Hoffman	SCE&G	Tony Bebber	SCPRT
David Hancock	SCE&G	Dave Anderson	Kleinschmidt Associates

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**HOMEWORK ITEMS:**

- Tommy B. – locate photographs from boating use study
- Dave A. – finish and distribute site inventory form
- All – review draft site user questionnaire and provide feedback to Dave A.
- Tommy B. – review lease agreements for Dreher Island and Saluda Shoals
- Tim V. – provide group with number and location of regatta permits

**PARKING LOT ITEMS:**

- Discussion of project lands open to the public

**DATE OF NEXT MEETING:**

**March 24, 2006 at 9:30 a.m.  
Conference Call**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 17, 2006**

*final dka 04-05-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

After working out a few bugs with the conference call system, the meeting began with a discussion of the draft inventory form to be used to collect information from SCE&G public sites (attached). There was some discussion on whether Dreher Island and/or Saluda Shoals would be included in the inventory, mainly centering on if SCE&G would be able to fund any improvement projects at these sites. Tommy B. said they would have to review the lease agreements for these two facilities and see what kind of arrangement is currently in place.

There was some discussion on the ADA assessment for the park sites. David H. has not had a chance to contact the Department of Vocational Rehab, but will do so. Someone questioned if all the sites would have to be brought into compliance as a result of the assessment. Dave A. replied that no, they would not have to be, but upgrading existing facilities may be part of a mitigation package for the license application.

The group then proceeded to go through each section of the inventory form. Tommy and David H. agreed that there are no "Campsite" facility types on Lake Murray and the group agreed to drop this type. We will add "Launch Ramp" and "Primitive Camp" to this section. There were some questions on the "Access" section; the group agreed that changing this to "Road Access" would make the intention of this section more clear. The group agreed to change the heading from "Site Facilities" to "Site Amenities" to avoid confusion. There were some suggested changes to this section, including dropping "Sanitation", "Boat Ramp", and "Showers". These amenities are covered in other sections of the form. The group agreed to add "Trash Cans", "Pump Out", and "Trail Mileage" to this section. The group agreed to add "estimated" to the "Parking Lots" section to account for unimproved parking lots. "Showers" will be added to the "Sanitation Facilities" section, along with "ADA Compliance". Under "Campground/Campsites", the word "wilderness" will be changed to "primitive". Finally, "# of lanes" will be added to "Boat Launch Facilities". There was some discussion about inventorying the signs going into and at the sites; Dave A. said that this was a section he had deleted from the form, but would add it back. After this review of the inventory form, Dave A. agreed to modify the form and redistribute to the TWC for approval.

The discussion turned to the report "Investigation of Boating Use on Lake Murray" and some of the comments received from its email distribution. There was some discussion of whether the revised lake section map (attached) that Dave distributed correctly identified the sections used in the report. Tommy B. said the sections appeared correct. Someone asked about the time of day the photographs were taken. Tommy B. didn't remember exactly, but will investigate this. Tommy

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

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does have the photo set from some of the dates and will distribute these for the TWC to examine. Tommy will also locate the rest of the photos for use by the committee. Steve B. indicated he was fine with using these photos in lieu of conducting another boating density studies. Pending an examination of the actual photos, the group agreed that additional boat counts were not necessary.

The discussion then turned to the draft "Public Access Site Questionnaire" distributed by Dave A. prior to the meeting (attached). Dave explained that the questionnaire as written was meant to be filled out on-site by site users. There was some discussion about the pros and cons of using this method versus doing an interview type questionnaire. The group agreed that they would like to use the interview type questionnaire. Dave A. explained that this type of survey would mean that the group would have to delete about five questions from the questionnaire and that the wording of the questions would have to be modified to be more conducive to a spoken interview. Tony mentioned that perhaps we could offer some type of "give-away" for completing the interview. The group also decided the sampling period should be from sun-up to sun-down in order to include all users of the sites. There was some discussion of the individual questions; these remarks will be captured in actual changes to the questionnaire.

Since the meeting was running long, the group agreed to table the discussion on project lands open to the public. Homework assignments were reviewed and the meeting adjourned.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
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*final dka 04-05-06*

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**Saluda Hydro Relicensing  
Recreation Management Technical Working Committee**

**Meeting Agenda**

**March 17, 2006  
10:00 AM  
Conference Call**

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- **10:00 to 10:10** Review Inventory Form and Approve Final Version
- **10:10 to 10:20** Discussion of “Investigation of Boating Use on Lake Murray”
- **10:20 to 10:35** Discussion of Public Site User Questionnaire
- **10:35 to 10:45** Discussion of Project Lands Open to the Public
- **10:45 to 11:00** Moving Forward



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

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**Additional Comments Received**

**Tim Vinson:** Tommy asked me at our last meeting together if the ski and boating courses have to be permitted by DNR. I think it was understood that DNR does not have any regulation on these, but I found out today the DHEC does require persons to get Navigable Waters Permits for the installation of such devices.

Also, I have found out the number of regatta permits for Lake Murray in the year 2004. Not sure if anything is published on the year 2005, still checking into that and the locations of these events.

**Malcolm Leaphart:** Maybe we did not cover the following questions last week since we 'tabled' the discussion of "Project Lands Open to the Public"; but, would like to discuss these during the TWC conference call tomorrow. My suggested agenda topic is: 'Public access plans for the lower Saluda River Corridor'.

Also, I am assuming that more studies are not needed to show that more access needs to be provided on the river, right?? Additional studies should not be needed either for a river trail along the entire corridor as that was documented in the SC DNR Charrette which included landowners and broad public interest groups, including individual citizens (reference with Bill Marshall who led that effort and can supply plan copies). Thanks.

Q. What additional public access is planned for the new license plan along the lower Saluda River?

Q. Will consideration be given to expanding the Gardendale throw-in landing to a ramp suitable for small trailered boats? Or, if that is not a suitable site for a trailer launch because of hydraulics, where can a ramp suitable for small trailered boat launchings be located so that most of the river above I20 is accessible upstream? An upstream trip from there, especially by motor boat, is much safer for the public in that it allows for a downstream return to the landing in case of problems with motors, handling very high or very low flows, etc. Making the safer upstream trip from the Hopes Ferry landings only gives access to the short stretch to the dam - and that stretch is often not navigable at low flows at the sandy island a short distance upstream.

Q. What plans are being considered to make a riverfront trail from Saluda Shoals to the Riverbanks Zoo a reality? That is, will SCE&G help by developing trails or 'cluster parks', including parking, on their river corridor property, including along the stretch just below I-20 above the asphalt plant.

Q. Was a right of way for a public trail provided for in the property sale to a private party for the land sold between the Zoo and I-26 (the old Columbia Police Club property)? If not, what is the

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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mitigation for not keeping that land and providing public access to that critical stretch just above the Mill Race Rapids and Zoo where public access and recreation demands are the highest?

Q. Will SCE&G support the River Center' and help to develop it as envisioned by the River Alliance?

Q. Will any access be provided, through a small ramp and/or cluster park in the stretch between the old trestles where the scenic river corridor begins and the sandy island upstream from Saluda Shoals Park? That is prime fishing water due to the location near the dam. While security concerns may not allow public facilities at the dam, facilities near the beginning of the scenic river corridor should be feasible and an acceptable substitute site.

## Site Visit/Inventory Forms

Inspected by: \_\_\_\_\_

Date: \_\_\_\_\_

Site Name/Code: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State: \_\_\_\_\_ Zip Code: \_\_\_\_\_

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### Facility Type:

\_\_\_\_ Campground/Campsites      \_\_\_\_ Picnic Area      \_\_\_\_ Day Use  
\_\_\_\_ Overlook Site      \_\_\_\_ Informal Site

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### Access:

\_\_\_\_ Paved access      \_\_\_\_ # of lanes  
\_\_\_\_ Unpaved access      \_\_\_\_ # of lanes

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### Operations:

\_\_\_\_ Manned      \_\_\_\_ Seasonal  
\_\_\_\_ Unmanned      \_\_\_\_ Year Round  
\_\_\_\_ Fee (\$)

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### Site Facilities:

#	Type	#	Type
____	Picnic Tables	____	Potable Water
____	Grills	____	Dumping Station
____	Firepit/ring	____	Boat Ramp (____ # of lanes)
____	Sanitation	____	Docks
____	Trails (specify use _____)	____	Playground
____	Shelter	____	Showers
____	Designated Swim Area	____	Food
____	Store	____	Marina
____	Fuel		

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**Parking Lots:**

\_\_\_\_\_ # \_\_\_\_\_ Type \_\_\_\_\_

\_\_\_\_\_ ADA spaces

\_\_\_\_\_ Spaces delineated?

\_\_\_\_\_ Regular spaces

\_\_\_\_\_ Curbs?

\_\_\_\_\_ Vehicle & trailer spaces

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**Sanitation Facilities:**

Type:	# Unisex	# Women	# Men
-------	-------------	------------	----------

Flush	_____	_____	_____
-------	-------	-------	-------

Portable	_____	_____	_____
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**Campground/Campsite:**

	RV sites	Cabin sites	Tent sites	Wilderness sites
# of sites	_____	_____	_____	_____
On site parking	_____	_____	_____	_____
Water front	_____	_____	_____	_____
ADA compliant	_____	_____	_____	_____

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**Boat Launch Facilities:**

\_\_\_\_\_ Hard surface

\_\_\_\_\_ Unimproved

\_\_\_\_\_ Gravel

\_\_\_\_\_ Carry In

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**Courtesy/Fishing Docks:**

Courtesy/Fishing	Dimensions	ADA Compliant
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_____	_____	_____
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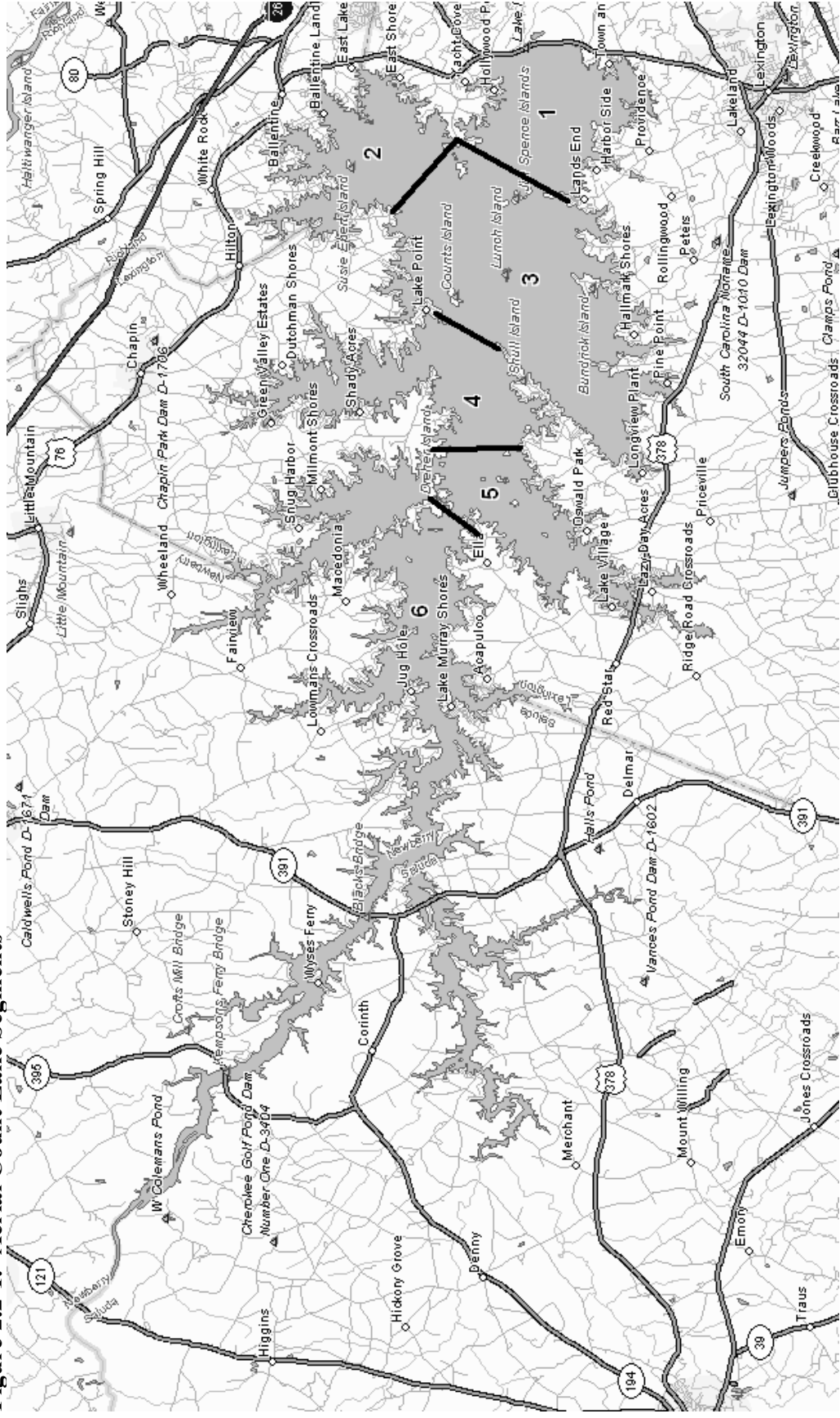
_____	_____	_____
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_____	_____	_____
-------	-------	-------

_____	_____	_____
-------	-------	-------

_____	_____	_____
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Figure 2.2-1. Aerial Count Lake Segments



## Lake Murray and Lower Saluda River Recreation Study Public Access Site Questionnaire

**IN QUESTIONS 1 THROUGH 8, WE'D LIKE TO LEARN ABOUT YOUR TRIP TODAY:**

1. What recreational activities did you participate in today at **Lake Murray/Lower Saluda River**? (Please check only one main activity in the first column and all other secondary activities in the second column.)

Check only one main activity	Check all other activities	Types of Activities
		<b>FISHING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	boat fishing
<input type="checkbox"/>	<input type="checkbox"/>	bank/pier/dock fishing
<input type="checkbox"/>	<input type="checkbox"/>	stream fishing
<input type="checkbox"/>	<input type="checkbox"/>	tailrace/river fishing
		<b>BOATING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	motor boating
<input type="checkbox"/>	<input type="checkbox"/>	pontoon
<input type="checkbox"/>	<input type="checkbox"/>	water skiing/tubing/other tow
<input type="checkbox"/>	<input type="checkbox"/>	jet skiing
<input type="checkbox"/>	<input type="checkbox"/>	sailing
<input type="checkbox"/>	<input type="checkbox"/>	lake canoeing/kayaking
<input type="checkbox"/>	<input type="checkbox"/>	river canoeing/kayaking
		<b>OTHER:</b>
<input type="checkbox"/>	<input type="checkbox"/>	bicycling
<input type="checkbox"/>	<input type="checkbox"/>	tent or vehicle camping
<input type="checkbox"/>	<input type="checkbox"/>	hiking/backpacking
<input type="checkbox"/>	<input type="checkbox"/>	sightseeing
<input type="checkbox"/>	<input type="checkbox"/>	hunting
<input type="checkbox"/>	<input type="checkbox"/>	nature study/wildlife viewing
<input type="checkbox"/>	<input type="checkbox"/>	lake swimming
<input type="checkbox"/>	<input type="checkbox"/>	picnicking
<input type="checkbox"/>	<input type="checkbox"/>	other: _____

2. Including yourself, how many people are in your party today? (Please fill in blank.)

\_\_\_\_\_ people in party

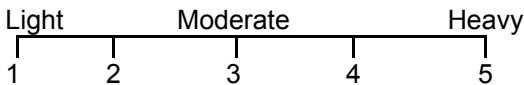
3. Today, how many hours did you visit **Lake Murray/Lower Saluda River** for recreational purposes? (Please fill in blank.)

\_\_\_\_\_ hours

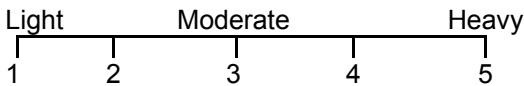
4. In total, how many days will you be visiting **Lake Murray/Lower Saluda River** on this trip? (Please fill in blank.)

\_\_\_\_\_ days

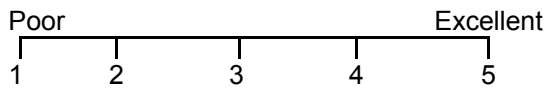
- 5a. How would you rate the crowdedness **on the water on Lake Murray/Lower Saluda River** today? (Please circle one number.)



- 5b. How would you rate the crowdedness **at the particular recreation site you are at** today? (Please circle one number.)



6a. How would you rate the overall condition **at the particular recreation site you are at** today? (Please circle one number.)



6b. Please rate the condition of the facilities **at the particular recreation site you are at** today. (Please circle all that apply. If a facility is not available at this site, please indicate whether or not it is needed.)

	Poor					Excellent					Is Facility Needed at this Site?	
	1	2	3	4	5	1	2	3	4	5	Yes	No
restrooms	1	2	3	4	5	1	2	3	4	5	Yes	No
swimming area	1	2	3	4	5	1	2	3	4	5	Yes	No
fishing pier/dock	1	2	3	4	5	1	2	3	4	5	Yes	No
picnic tables/shelter	1	2	3	4	5	1	2	3	4	5	Yes	No
trash cans	1	2	3	4	5	1	2	3	4	5	Yes	No
boat launch	1	2	3	4	5	1	2	3	4	5	Yes	No
boat dock	1	2	3	4	5	1	2	3	4	5	Yes	No
camping area	1	2	3	4	5	1	2	3	4	5	Yes	No
signs	1	2	3	4	5	1	2	3	4	5	Yes	No
lighting	1	2	3	4	5	1	2	3	4	5	Yes	No
fish cleaning station	1	2	3	4	5	1	2	3	4	5	Yes	No
access road	1	2	3	4	5	1	2	3	4	5	Yes	No
parking lot	1	2	3	4	5	1	2	3	4	5	Yes	No

6c. Please indicate which additional facilities are needed **at the particular recreation site you are at** today. (Please check all that apply.)

- better access road
- paving/grading of parking area or access road
- increased security/patrolling
- other - (please describe \_\_\_\_\_)
- better lake/river access
- better maintenance (emptying trash cans, cleaning restrooms, etc.)
- ADA compliant facilities

7a. Have you had any negative experiences while participating in recreational activities at **Lake Murray/Lower Saluda River** on this trip? (Please check one box.)

- Yes
- No → (If no, skip to Question 8.)

7b. If yes, please indicate the types of issues experienced at **Lake Murray/Lower Saluda River** on this trip. (Please check all that apply.)

- too much litter/trash
- too crowded
- water levels too high
- poor weather
- other - (please describe \_\_\_\_\_)
- reckless boaters
- boating hazards
- water levels too low
- water temperature
- boats too noisy
- people too noisy
- poor site conditions
- difficult access

8. In preparing for and making this trip to **Lake Murray/Lower Saluda River**, about how much money did you spend on each of the following items before you got home? (If you live in this area and/or didn't spend anything for certain items, write \$0. If you paid for other members of your party, please include these costs in your costs. Please fill in the blank, providing your best estimate rounded to the nearest dollar.)

- \$ \_\_\_\_\_ Food & Drink
- \$ \_\_\_\_\_ Hotel/Motel/Lodging
- \$ \_\_\_\_\_ Boating Rentals, Bait and Tackle and Other Recreational Supplies
- \$ \_\_\_\_\_ Gasoline (auto and boat)
- \$ \_\_\_\_\_ Guide Fees or User Fees (parking/entrance/admission)
- \$ \_\_\_\_\_ Other (\_\_\_\_\_)
- \$ \_\_\_\_\_ TOTAL



**IN QUESTIONS 9 THROUGH 14B, WE'D LIKE TO LEARN ABOUT YOUR TRIPS  
TO LAKE MURRAY/LOWER SALUDA RIVER IN GENERAL:**

9. During what **one** season do you spend the most time participating in recreational activities at **Lake Murray/Lower Saluda River**? (Please check only one.)

- Winter (Dec.-Feb.)
- Spring (March-May)
- Summer (June-Aug.)
- Fall (Sept.-Nov.)
- Except for this trip, I haven't participated in recreation activities at Lake Murray/Lower Saluda River. → (Skip to Question 15)

10. In an average year, approximately how many days do you spend at **Lake Murray/Lower Saluda River** for recreational purposes? (Please fill in the blank for each month; if you do not visit Lake Murray/Lower Saluda River in a specific month, write 0.)

Number of Trips	Number of Trips	Number of Trips
_____ January	_____ May	_____ September
_____ February	_____ June	_____ October
_____ March	_____ July	_____ November
_____ April	_____ August	_____ December

11a. During the past 5 years, has the number of visits you have made to **Lake Murray/Lower Saluda River** increased, decreased, or stayed about the same? (Please check one box.)

- increased
- decreased
- stayed about the same → (Skip to Question 12a.)
- I live here year round → (Skip to Question 12a.)

11b. If the number of trips has increased or decreased, what is the major reason for this change? (Please fill in blank.)

\_\_\_\_\_

12a. Do you ever go boating (including boat fishing) on **Lake Murray/Lower Saluda River**? (Please check one box.)

- Yes
- No → (If no, skip to Question 13.)

12b. When you are boating and/or boat fishing on **Lake Murray/Lower Saluda River**, what is the average amount of time you spend on the water during an average day, not including time spent launching or trailering your boat? (Please fill in blanks, as appropriate.)

Boating: \_\_\_\_\_ average hours/day      Boat Fishing: \_\_\_\_\_ average hours/day

12c. When you are boating and/or boat fishing on **Lake Murray/Lower Saluda River**, what is the average number of people in your party, including yourself? (Please fill in blanks, as appropriate.)

Boating: \_\_\_\_\_ average group size      Boat Fishing: \_\_\_\_\_ average group size

12d. What is the name of the launch site or access area that you typically use for boating and/or boat fishing on **Lake Murray/Lower Saluda River**? (If you use your own pier/dock as the typical access site, please write 'own dock' under name of launch site.)

Boating launch site/access area: \_\_\_\_\_

Boat Fishing launch site/access area: \_\_\_\_\_

13a. Overall, are the number and types of existing recreational facilities and activities at **Lake Murray/Lower Saluda River** adequate to meet your needs? (Please check one box.)

- Yes → (If yes, skip to Question 14a.)
- No

13b. If no, please write in the name of the **Lake Murray/Lower Saluda River recreation sites** where additional facilities are needed and check the types of facilities needed at each site. *(Please check all that apply.)*

(1) Name of Site:	(2) Name of Site:	(3) Name of Site:
<input type="checkbox"/> restrooms	<input type="checkbox"/> restrooms	<input type="checkbox"/> restrooms
<input type="checkbox"/> swimming area	<input type="checkbox"/> swimming area	<input type="checkbox"/> swimming area
<input type="checkbox"/> fishing pier/dock	<input type="checkbox"/> fishing pier/dock	<input type="checkbox"/> fishing pier/dock
<input type="checkbox"/> picnic shelter	<input type="checkbox"/> picnic shelter	<input type="checkbox"/> picnic shelter
<input type="checkbox"/> boat launch	<input type="checkbox"/> boat launch	<input type="checkbox"/> boat launch
<input type="checkbox"/> boat dock	<input type="checkbox"/> boat dock	<input type="checkbox"/> boat dock
<input type="checkbox"/> better lake/river access	<input type="checkbox"/> better lake/river access	<input type="checkbox"/> better lake/river access
<input type="checkbox"/> paving/grading	<input type="checkbox"/> paving/grading	<input type="checkbox"/> paving/grading
<input type="checkbox"/> trash cans	<input type="checkbox"/> trash cans	<input type="checkbox"/> trash cans
<input type="checkbox"/> lighting	<input type="checkbox"/> lighting	<input type="checkbox"/> lighting
<input type="checkbox"/> camping area	<input type="checkbox"/> camping area	<input type="checkbox"/> camping area
<input type="checkbox"/> signs	<input type="checkbox"/> signs	<input type="checkbox"/> signs
<input type="checkbox"/> other – <i>(please describe</i> _____ )	<input type="checkbox"/> other – <i>(please describe</i> _____ )	<input type="checkbox"/> other – <i>(please describe</i> _____ )

14a. Have you had any negative experiences while participating in recreational activities at **Lake Murray/Lower Saluda River**? *(Please check one box.)*

- Yes  
 No → *(If no, skip to Question 15.)*

14b. If yes, please indicate the types of issues experienced while participating in recreational activities at **Lake Murray/Lower Saluda River**. *(Please check all that apply.)*

- too much litter/trash       reckless boaters       boats too noisy  
 too crowded                 boating hazards         people too noisy  
 water levels too high       water levels too low     poor site conditions  
 poor weather                 water temperature       difficult access  
 other - *(please describe* \_\_\_\_\_ )

**IN QUESTIONS 15 THROUGH 19, WE'D LIKE TO LEARN A LITTLE BIT ABOUT YOU:**

15. Do you have a seasonal or permanent home in either Richland, Lexington, Saluda, and Newberry Counties, South Carolina? *(Please check one box.)*

- Yes  
 No

16. What is your zip code? If you are a seasonal resident, please provide the zip code of your seasonal home? *(Please fill in the blank.)*

\_\_\_\_\_ zip code

17. Are you . . . ? *(Please check one.)*

- male  
 female

18. In what year were you born? *(Please fill in blank.)* \_\_\_\_\_

19. Do you have any additional comments? *(Please be as specific as possible.)* \_\_\_\_\_

**Thank you for your help with this important study! We appreciate your time today.**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MMANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 24, 2006**

*final dka 03-28-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Malcolm Leaphart	Trout Unlimited	Tim Vinson	SCDNR
Tommy Boozer	SCE&G	Steve Bell	Lake Murray Watch
Van Hoffman	SCE&G	Tony Bebbber	SCPRT
David Hancock	SCE&G	Dave Anderson	Kleinschmidt Associates
Lee Barber	LMA	Marty Phillips	Kleinschmidt Associates
Kelly Maloney	Kleinschmidt Associates	George Duke	LMHC
Patrick Moore	AR/CCL		

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**HOMEWORK ITEMS:**

- Tommy B. – review lease agreements for Dreher Island and Saluda Shoals
- Tim V. – provide group with number and location of regatta permits and regatta form
- Dave A. – email Malcolm recreation site spreadsheets
- Dave A. – locate and distribute recreation site maps and future recreation properties
- Dave A. – distribute revised lake questionnaire and river questionnaire
- Dave A. – distribute draft study plan

**PARKING LOT ITEMS:**

- Discussion of project lands open to the public

**DATE OF NEXT MEETING:**

**April 7, 2006 at 9:30 a.m.  
Conference Call**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 24, 2006**

*final dka 03-28-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave A. opened the meeting by conducting a “roll call” to see who was on the conference call. After establishing who was on the call, Dave introduced Marty and Kelly, who are helping write the study plan for estimating use at SCE&G owned recreation sites. After the introductions, Dave pointed the group to the draft inventory form (attached) he sent for final review. There were very few comments on the form and Dave will finalize the form for inclusion in the study plan. George D. asked if the inventory will include commercial sites. Someone replied that the group had agreed to not include the commercial sites in the inventory, but we will retain the information we have already collected on these commercial sites.

Malcolm commented that we need to list out the objectives of the TWC and asked about the purpose of the surveys being proposed. The group agreed this would be a useful exercise. Steve B. agreed that we need to review the issues that are supposed to be dealt with in the TWC and make sure we have not forgotten anything. The group discussed when this could take place and agreed it is something they could do before or after the next RCG meeting on April 17.

Malcolm asked about the sites where we are conducting the inventory. Tommy explained that they had passed out a spreadsheet with SCE&G Public Sites, Public Landings and Marinas, and Private Marinas listed on them. Malcolm had not received a copy of that and requested a copy. Dave will send him the spreadsheet. Malcolm also asked about designated future sites and how he could find out where these are located. Someone pointed out that Tommy B. had brought these to a previous meeting. Malcolm requested a copy of these maps; Dave agreed to locate better copies and distribute them.

Dave A. introduced the second version of the user questionnaire, pointing out that the questionnaire has been changed to be more conducive to an interview type format. Dave told the group that he had received comments on the previous version from SCPRT and SCE&G. The current questionnaire (attached) takes into account these comments, but also is much shorter to accommodate user interviews. Dave also noted that there will be two versions of the questionnaire—for the lake and river. The version the group discussed is for the lake; a version for the river will be distributed next week. The group then proceeded to go over the questionnaire.

There were no comments on the first two questions—these are necessary for estimating use. The group talked about why Question Three had gone from listing all activities (along with primary activity) to just listing the primary activity. Someone commented that not asking about all activities

## **MEETING NOTES**

### **SOUTH CAROLINA ELECTRIC & GAS COMPANY SALUDA HYDRO PROJECT RELICENSING RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

#### **CONFERENCE CALL**

**March 24, 2006**

*final dka 03-28-06*

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was for time consideration and did not provide useful information for management of the recreation sites. The group then discussed the benefits of knowing all activities participated in, including recognizing there are “secondary” activities that take place. The group agreed to reword the question to include responses for additional activities. The group also agreed to take out “stream fishing” from the list since the questionnaire is dealing with lake users.

There was some discussion on Question 5A. Tommy and David H. want to keep the question in, but the group decided that asking about mileage on the water would lead to bad information. The group decided to explore using a handout for respondents to point to their boating destination. Someone also mentioned it would be nice to know motivations for going to specific places on the lake (i.e., less crowded). The group agreed to consider this, but Dave is not willing to add additional questions in consideration of the interview length. Once a final version of the questionnaire is available, the group can decide if knowing these motivations is more important than any of the questions on the questionnaire. There was also some discussion on asking about how far people traveled to get to a particular recreation site. Someone mentioned that we are asking for ZIP codes and could estimate distance with that information. Someone also mentioned that we could add “Location” to Question 6B to gauge whether there were any problem with the location of the sites. There was also some discussion on Question 5B; someone mentioned that responses to that are very subjective. Kelly M. acknowledged that it is subjective, but this question is necessary for dealing with issues of boat densities.

There was considerable discussion on Question 6B. Tommy and David H. had suggested this question be removed. They felt that one bad experience with a dirty restroom (when several people before that had experienced a clean restroom) could skew the results. The group agreed that this is useful information to have when considering site expansion or new facilities. The group decided to look at this question again, perhaps rewording it to an open-ended format (e.g., What additional amenities are needed at this site? What is your favorite part about this site? What is your least favorite part?). There was also some discussion on turning Question 7B into an open-ended question.

There were a few comments on Questions 8-12. Someone suggested asking for ZIP codes for both the permanent home and the seasonal home; the group agreed this would be better than the current version. We also need to look at changing this question to say “waterfront” or something like that. Someone also suggested adding “about this recreation facility” to the end of Question 11. There was some discussion about recording race of the respondent. Dave commented that he could not trust an interviewer to accurately record race without asking the question. The group talked about adding questions on race, which we will explore. Someone commented that we may need bilingual signs at the facilities; other comments talked about having bilingual interviewers because of the large Hispanic population. There was also some discussion about providing incentives for

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 24, 2006**

*final dka 03-28-06*

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completing the survey; Marty agreed to look at how much something like this would cost—specifically cold water bottles. Marty commented that incentives work in other types of surveys but she was not aware of any research using incentives for interviews.

The group then discussed the schedule for the study. Dave told the group that considering everything we have to accomplish before the survey starts (inventory, pre-test, training) that is impossible to start on April 1. He proposed that we conduct the interviews and counts from Memorial Day to Labor Day to capture peak recreation use. Someone commented that the recreation season is defined as April 1 to late September. Someone mentioned that peak fishing times are in March, April, and the fall months and that waterfowl hunting takes place in the winter. The group was concerned that we will miss these activities if we just survey the summer months. When revising the study plan, Kleinschmidt will consider how we could address some of the off season activities.

Dave told everyone that they will be getting a revised draft lake questionnaire, a draft river questionnaire, and a draft study plan the following week. The group set April 7, 2006 at 9:30 am for their next meeting.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL**

**March 24, 2006**

*final dka 03-28-06*

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**Saluda Hydro Relicensing  
Recreation Management Technical Working Committee**

**Meeting Agenda**

**March 24, 2006**

**9:30 AM**

**Conference Call**

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- **9:30 to 10:00** Review and Finalize SCE&G Public Site Inventory Form
- **10:00 to 10:30** Review Public Access Site Questionnaire
- **10:30 to 11:00** Discussion of Recreation Site Assessment Schedule
- **11:00 to 11:15** Schedule Next Meeting and Moving Forward



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
March 24, 2006**

*final dka 03-28-06*

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**Additional Comments Received**

**Patrick Moore:** I listened in on my first rec management TWC this morning and was surprised to hear we are not dealing with Mill Race.

Doesn't SCE&G own the access areas? While it may be outside the project boundary and thus outside our inventory and rec user study, project impacts are present and at their most dangerous to users at Mill Race. This more than a safety issue, it is a rec issue and we should be able to report to the rec RCG on user demographics. How do ya'll plan to address this within recreation RCG? This is ongoing recreation on SCE&G land that is impacted by the project. It seems like we need to address it considering it is where such a large portion of the rec on the LSR takes place.

**Karen Kustafik:** I am curious about how locations will be selected for the survey, because many of those activities are location dependent.

I assume both official and unofficial access sites will be surveyed? Tony--is this your effort? I had to depart yesterday's meeting and meant to catch up with you when we resumed after break. Was there further discussion about the survey, and possible integration of safety concerns?

It may be informative to note whether the participant had alcoholic beverages with them. Randy mentioned the possibility of pushing for legislative change re PFDs, and data collected on the percentage of river users using PFDs may be useful to make that case.



## SCE&G Public Site Inventory Form

Inspected by: \_\_\_\_\_

Date: \_\_\_\_\_

Site Name: \_\_\_\_\_

Site Code: \_\_\_\_\_

Site Address: \_\_\_\_\_

City: \_\_\_\_\_

State: \_\_\_\_\_

Zip Code: \_\_\_\_\_

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### Facility Type:

\_\_\_\_ Primitive Camp

\_\_\_\_ Picnic Area

\_\_\_\_ Day Use

\_\_\_\_ Overlook Site

\_\_\_\_ Informal Site

\_\_\_\_ Launch Ramp

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### Road Access:

\_\_\_\_ Paved access..... # of lanes

\_\_\_\_ Unpaved access..... # of lanes

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### Operations:

\_\_\_\_ Manned

\_\_\_\_ Seasonal (From \_\_\_\_ To \_\_\_\_)

\_\_\_\_ Unmanned

\_\_\_\_ Year Round

\_\_\_\_ Fee (\$)..... (Site \_\_\_\_; Parking; \_\_\_\_)

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### Site Amenities:

#	Type	#	Type
____	Picnic Tables	____	Potable Water
____	Grills	____	Boat Fuel
____	Firepit/ring	____	Trash Cans
____	Boat Pump Out	____	Docks
____	Trails (specify use _____: Miles _____)	____	Playground
____	Shelter	____	Showers
____	Designated Swim Area	____	Concession
____	Store	____	Marina (# of slips _____)
____	Dumping Station		

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**Parking Lots:**

Type	Estimated # Paved	Estimated # Gravel	
ADA Spaces	_____	_____	_____ Spaces delineated?
Regular Spaces	_____	_____	_____ Curbs?
Vehicle & trailer spaces	_____	_____	

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**Sanitation Facilities:**

	Flush	(ADA?)	Portable	(ADA?)	Showers	(ADA?)
Unisex	_____	(____)	_____	(____)	_____	(____)
Women	_____	(____)	_____	(____)	_____	(____)
Men	_____	(____)	_____	(____)	_____	(____)

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**Campground/Campsite:**

	RV sites	Cabins	Tent sites	Primitive sites
# of sites	_____	_____	_____	_____
On site parking	_____	_____	_____	_____
Water front	_____	_____	_____	_____
ADA compliant	_____	_____	_____	_____

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**Boat Launch Facilities:**

_____ Hard surface	_____ Unimproved	_____ # of Lanes
_____ Gravel	_____ Carry In	_____ Boat Prep Area?

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**Courtesy/Fishing Docks:**

Courtesy/Fishing	Dimensions	ADA Compliant
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

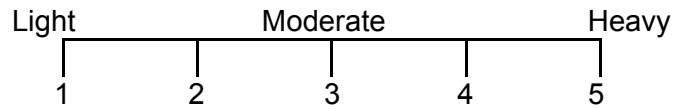
Notes: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Picture Number From \_\_\_\_\_ To \_\_\_\_\_

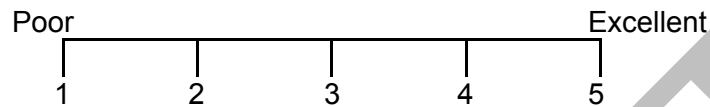
DRAFT



5C. On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness **at this recreation site** you are at today? *(Please circle one number.)*



6A. On a scale from 1 to 5, with 1 being poor and 5 being excellent, how would you rate the overall condition **at this recreation site** today? *(Please circle one number.)*



6B. Using the same scale, with 1 being poor and 5 being excellent, please rate the condition of the facilities **at this recreation site** today. *(Please circle all that apply. If a facility is not available at this site, please indicate whether or not it is needed.)*

						<b>Is Facility Needed at this Site?</b>	
	<b>Poor</b>		<b>Excellent</b>				
restrooms	1	2	3	4	5	Yes	No
swimming area	1	2	3	4	5	Yes	No
fishing pier/dock	1	2	3	4	5	Yes	No
picnic tables/shelter	1	2	3	4	5	Yes	No
trash cans	1	2	3	4	5	Yes	No
boat launch	1	2	3	4	5	Yes	No
boat dock	1	2	3	4	5	Yes	No
camping area	1	2	3	4	5	Yes	No
signs	1	2	3	4	5	Yes	No
lighting	1	2	3	4	5	Yes	No
fish cleaning station	1	2	3	4	5	Yes	No
access road	1	2	3	4	5	Yes	No
parking lot	1	2	3	4	5	Yes	No
lighting	1	2	3	4	5	Yes	No
boat fueling	1	2	3	4	5	Yes	No
pump outs	1	2	3	4	5	Yes	No
trails	1	2	3	4	5	Yes	No

7A. Are there any additional facilities or improvements needed at this recreation site? *(Please fill in the blank.)*

- YES  
 NO *(If no, skip to Question 8.)*

7B. Please indicate which additional improvements are needed at the particular recreation site you are at today. *(Please check all that apply.)*

- better access road
- better lake access at low water
- paving/grading of parking area
- navigation aids
- paving/grading of access road
- better maintenance *(emptying trash cans, cleaning restrooms, etc.)*
- increased security/patrolling
- ADA compliant facilities
- other – *(please describe \_\_\_\_\_)*

**WE'D LIKE TO LEARN A LITTLE BIT ABOUT YOU:**

8. Do you own a permanent or seasonal home on Lake Murray? *(Please check one box.)*

- YES – Permanent Home
- YES – Seasonal Home
- NO

9. What is your zip code? If you are a seasonal resident, please provide the zip code of your seasonal home. *(Please fill in the blank.)*

\_\_\_\_\_ ZIP CODE

10. In what year were you born? *(Please fill in blank.)*

\_\_\_\_\_ YEAR

11. Do you have any additional comments? Please be as specific as possible.

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**Thank you for your help with this important study! We appreciate your time today.**

12. *Please record gender of respondent. (Please check one box.)*

- MALE
- FEMALE

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL  
April 7, 2006**

*final dka 04-25-06*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Tommy Boozer	SCE&G	Steve Bell	Lake Murray Watch
Van Hoffman	SCE&G	Tony Bebbber	SCPRT
David Hancock	SCE&G	Dave Anderson	Kleinschmidt Associates
Kelly Maloney	Kleinschmidt Associates	Marty Phillips	Kleinschmidt Associates
Patrick Moore	AR/CCL	Jennifer Summerlin	Kleinschmidt Associates

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**HOMEWORK ITEMS:**

- Tommy B. – review lease agreements for Dreher Island and Saluda Shoals
- Tim V. – provide group with number and location of regatta permits
- Dave A. – locate and distribute recreation site maps and future recreation properties
- Dave A. – distribute draft study plan
- Dave A. – check with Malcolm about next meeting date

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**

**April 17, 2006 at 2:00 p.m.  
Lake Murray Training Center**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL**

**April 7, 2006**

*final dka 04-25-06*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave A. opened the meeting by mentioning that Tommy B. had provided an updated map of existing recreation sites and future recreation lands and that he would be distributing the map to the group and posting it to the web site. Dave then directed attention to the draft Lake Murray Public Access Site Questionnaire (attached). Someone asked about the time frame the surveys would be conducted. Dave replied that the study is being planned for Memorial Day to September 30<sup>th</sup>. There was some discussion as to how we would collect information from waterfowl hunters, who typically use access areas during the winter. Dave replied that it is being proposed to conduct a focus group with selected waterfowl hunters, where the same type of information would be collected. There was some discussion about whether the on-site surveys should be conducted for an entire year. Dave felt that concentrating effort during the peak recreation season provided the best information for the money expended. Tony thought that missing the March/April timeframe would skew the results towards skiers and boaters. After this discussion, the group agreed to keep the time frame as it currently stands, but to examine the data next fall to see how many anglers were interviewed. If the group decides that there were not enough anglers surveyed during the peak recreation season, the sampling frame could be modified to “pick up” March and April of next year.

The group then examined specific questions on the Lake Murray questionnaire. David H. asked if we could ask a question about off season usage to deal with the sampling frame issue. Dave A. said we could, but the questionnaire is at the maximum length. There was some discussion about the time of day the interviews would take place. Kelly M. replied that the day was defined as 6:00 am to 7:00 pm. The group agreed this was good since anglers typically use the lake during the early morning hours.

Steve B. asked if we could record if the respondent was disabled to get an idea of how many disabled people are using the sites. Marty replied that this could lead to assumptions about what is and what is not a disability, and that we will not be able to tell whether some people have them or not. She would not feel comfortable with letting the interviewers make this determination.

Steve B. asked about Question 5A and if we could get respondents to specifically locate where they went. Kelly M. replied that we could try it in the pretest. Marty replied that we could break out the lake into smaller segments, as long as the segments lined up with the segments used in the boating density study. Kelly also talked about how many on-the-water activities take place over large geographic areas and a dot might not really mean anything. Dave A. mentioned that we could get some of this same information from the aerial photographs, but we would not know where the boats



## **MEETING NOTES**

### **SOUTH CAROLINA ELECTRIC & GAS COMPANY SALUDA HYDRO PROJECT RELICENSING RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

#### **CONFERENCE CALL**

**April 7, 2006**

*final dka 04-25-06*

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came from. Tony B. thought the individual maps would be most useful. Marty stated that we could obtain the information but would not be able to correlate individual responses to dots on a map. The group agreed to try having respondents indicate their location on the lake by placing a dot on a map during the pre-test and see if this format works.

Tony B. had a couple of specific suggestions for the questionnaire. He wanted to change "Tent or Vehicle Camping" to "Camping," take out "Hunting" and move "Swimming," "Picknicking," and "Sunbathing" to the top of the list (Question 3). For Question 7D, he thought "Tent Camping" and "RV Camping" should be separate items and the "Bilingual Signs" should be added to the list. Tony also suggested combining Questions 7E and 7F. Marty replied that we need to keep 7E and 7F the way they are to tell the difference between a non-response and a "no."

Kelly M. mentioned that Karen K. had submitted comments about asking if the respondents have alcoholic beverages with them. Tommy replied that we should not consider it. Kelly mentioned that this would likely shut off the interview process because of the nature of the question. Steve B. stated that it would gather information about people drinking on the rocks on the LSR. Tommy replied that it is an issue that SCE&G can not do anything about. Steve replied that it is an issue that SCE&G brings up when they discuss the safety issues on the LSR. Dave A. suggested that it is not an issue for this TWC and he thinks we should refer the issue to the Safety RCG.

Dave then focused attention on the Lower Saluda River Public Access Site Questionnaire (attached). He mentioned that it is very similar to the Lake questionnaire, except for a few questions about the sirens on the river. Patrick M. liked the questions on the siren and asked if we could ask about behavior associated with the sirens. Marty said they could try to develop a question concerning how people typically behave when the sirens go off.

Dave A. asked if the siren questions are applicable at the other sites being sampled on the river (besides the Zoo). The group thought they were. Patrick M. asked where people would be intercepted at the Zoo. Dave replied that they would be intercepted by the west parking lot. Patrick mentioned that there is another access site at the opposite side of the parking lot. Dave agreed that the best way to intercept people would not be determined until the pre-test and site inventories are completed. Dave questioned if the same recreation season would capture most of the use in this area. Patrick thought a lot of use occurred during April and May. The group agreed that they can reexamine this area once the peak recreation results are available to determine if we need to complete more interviews next year.

There was some further discussion about asking about safety issues on the LSR. Tony wondered if we could ask if people have enough time to get off the river. Marty wondered if we just need to observe behavior associated with the sirens. Patrick mentioned this is something he suggested but

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL**

**April 7, 2006**

*final dka 04-25-06*

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the logistics were too many to overcome. There was some discussion about other possible questions such as “Did you feel safe on the river today” (which would then be tied to flow conditions), or “Did flows impact your experience today.” Dave suggested that Kleinschmidt craft new questions about safety on the LSR and distribute a new questionnaire for review. Dave mentioned that we don’t need to meet face-to-face to take comments, we need to get this done as soon as possible so that we can get the study in place. The group agreed to make electronic comments to the questionnaire after Kleinschmidt distributes it.

Dave directed attention to the remaining agenda items and suggested we postpone the other topics (due to time). Steve B. mentioned that the “Public Lands Open to the Public” did not need to be discussed as long as the group has listing of public access and that these areas would be indicated on classification maps. The group agreed to table this discussion. Steve also asked about remaining issues to be dealt with in this TWC/RCG. Dave pointed him to the “Cataloged Study Request” document available on the web site. Steve expressed his concern that we might be missing some issues. The group agreed to review the “Cataloged Study Request” document and make any comments on other issues to Dave. Dave indicated he would send out the draft study plan after the call and the TWC needed to meet to finalize the plan. The group agreed to meet after the RCG meeting on the 17<sup>th</sup> and would attempt to accommodate Malcolm and meet later in the day. Dave agreed to contact Malcolm before setting the next meeting date.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL**

**April 7, 2006**

*final dka 04-25-06*

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**Saluda Hydro Relicensing  
Recreation Management Technical Working Committee**

**Meeting Agenda**

**April 7, 2006**

**9:30 AM**

**Conference Call**

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- **9:30 to 10:00** Discussion of User Questionnaires
- **10:00 to 10:30** Discussion of “Project Lands Open to the Public”
- **10:30 to 10:45** Identifying Other Issues
- **10:45 to 11:00** Setting Next Meeting Date and Moving Forward



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**CONFERENCE CALL**

**April 7, 2006**

*final dka 04-25-06*

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**Additional Comments Received**

**Malcolm Leaphart:** Sorry I could not participate in the teleconference call last Friday when I was out of town, and also this morning when I have conflicting meetings at work (between them at this moment in fact...). I suggest a face-to-face session next, and a late afternoon or evening time would be appreciated as morning meetings are difficult to get away from work for.

I am honestly anxious for the TWC to get past the survey preparations and to begin to address key project recreational access issues, especially those for the lower Saluda River. In my absence, I defer to Tony Bebber's expertise and support whatever recommendations he makes in getting the surveys wrapped up. As for the river recreational management issues, I will follow up as soon as I can with a list of those items that need to be discussed. Hopefully that will be helpful as a starting point for discussions of improved access and recreational sites along the lower Saluda. As a lake user, I am also concerned that the recreational and access sites there are inadequate and look forward to participating in discussing those.

**Tony Bebber:** Here's some additional comments on the LSR draft. When looking through it, I realized that we have only asked about the specific site. Don't we want to ask if there are other recreational needs on Lake Murray or Lower Saluda, sort of like 7A on the LSR form? Maybe I'll know for sure after I see the study plan? Will it include a mail or phone survey of area residents (4+ counties)?

**Steve Bell:** I agree with Tony, that while the site surveys will provide some useful information, additional studies and/or information will be needed to address specific stakeholder issues. As I explained at the end of the meeting, we need to review all issues to determine what if any additional studies or info is needed to address stakeholder concerns. The study plan will have to be amended at that time.

**Malcolm Leaphart:** Please clarify for me how we are going to identify NEW recreation sites since neither of the questionnaires ask those surveyed 'if' and 'where' they would like to see some on the river and the lake? This is of course a key issue for the Rec RCG and committees and I want to make sure that we do fail to address it... Thanks.

**Lake Murray Recreation Study  
Public Access Site Questionnaire**

Clerk: _____	Site: _____	Date: _____	Time: _____ am/pm
Weather: _____ (Check all that apply)	<input type="checkbox"/> Sunny <input type="checkbox"/> Cloudy <input type="checkbox"/> Heavy Rain	<input type="checkbox"/> Partly Cloudy <input type="checkbox"/> Light Rain <input type="checkbox"/> Windy	Record Respondent Gender: <input type="checkbox"/> Male <input type="checkbox"/> Female RESPONDENT REFUSED INTERVIEW: <input type="checkbox"/> RESPONDENT DOES NOT SPEAK ENGLISH: <input type="checkbox"/>

**THE FIRST FEW QUESTIONS ASK ABOUT YOUR EXPERIENCE HERE TODAY**

1. Including yourself, how many people are in your party today? *(Fill in blank.)*  
       \_\_\_\_\_ people in party

2. What time did you arrive **at Lake Murray** today? *(Fill in blank.)*  
       \_\_\_\_\_ am / pm

3. What is the primary recreation activity that you participated in today **at Lake Murray**?  
*(Read the list to respondents. Check only one main activity in the first column.)*

What other activities did you participate in today? *(Check all that apply in the second column. If boating or fishing from a boat are indicated as primary activities, skip to Question 5A.)*

Check only one main activity	Check all other activities	Types of Activities
		<b>FISHING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	boat fishing
<input type="checkbox"/>	<input type="checkbox"/>	pier/dock fishing
<input type="checkbox"/>	<input type="checkbox"/>	bank fishing
		<b>BOATING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	motor boating
<input type="checkbox"/>	<input type="checkbox"/>	pontoon/party boating
<input type="checkbox"/>	<input type="checkbox"/>	water skiing/tubing/other tow
<input type="checkbox"/>	<input type="checkbox"/>	jet skiing
<input type="checkbox"/>	<input type="checkbox"/>	sailing
<input type="checkbox"/>	<input type="checkbox"/>	canoeing/kayaking
<input type="checkbox"/>	<input type="checkbox"/>	windsurfing
		<b>OTHER:</b>
<input type="checkbox"/>	<input type="checkbox"/>	bicycling
<input type="checkbox"/>	<input type="checkbox"/>	tent or vehicle camping
<input type="checkbox"/>	<input type="checkbox"/>	horseback riding
<input type="checkbox"/>	<input type="checkbox"/>	walking/hiking/backpacking
<input type="checkbox"/>	<input type="checkbox"/>	sightseeing
<input type="checkbox"/>	<input type="checkbox"/>	hunting
<input type="checkbox"/>	<input type="checkbox"/>	nature study/wildlife viewing
<input type="checkbox"/>	<input type="checkbox"/>	swimming
<input type="checkbox"/>	<input type="checkbox"/>	picnicking
<input type="checkbox"/>	<input type="checkbox"/>	sunbathing
<input type="checkbox"/>	<input type="checkbox"/>	other: _____
	<input type="checkbox"/>	None



7C. Are there any additional facilities needed **at this recreation site**? (Check one box.)

- YES
- NO (If no, skip to Question 8.)

7D. What do you recommend? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blanks.)

<input type="checkbox"/> access road	<input type="checkbox"/> camping area	<input type="checkbox"/> rest rooms
<input type="checkbox"/> bank fishing area	<input type="checkbox"/> fish cleaning station	<input type="checkbox"/> signs & information
<input type="checkbox"/> boat dock	<input type="checkbox"/> fishing pier/dock	<input type="checkbox"/> swimming area
<input type="checkbox"/> boat fueling	<input type="checkbox"/> lighting	<input type="checkbox"/> trails
<input type="checkbox"/> boat launch	<input type="checkbox"/> parking lot	<input type="checkbox"/> trash cans
<input type="checkbox"/> boat pump outs	<input type="checkbox"/> picnic tables/shelter	<input type="checkbox"/> RV camping
<input type="checkbox"/> other (please specify: _____)		

7E. Are there any other improvements that you would recommend for this site? (Check one box.)

- YES
- NO (If no, skip to Question 8.)

7F. What improvements do you recommend? (Fill in the blank.)

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**I HAVE JUST A FEW MORE QUESTIONS**

8. Do you own a permanent or seasonal lakefront home or condominium **on Lake Murray**? What is your zip code? (Check one box and fill in the blank for zip code.)

- YES – Permanent Home → ZIP CODE: \_\_\_\_\_
- YES – Seasonal Home → ZIP CODE: \_\_\_\_\_
- NO - Non-lakefront resident → ZIP CODE: \_\_\_\_\_

9. In what year were you born? (Fill in blank.)

\_\_\_\_\_ YEAR

10. Do you have any additional comments about the recreation facilities at **Lake Murray**? (Fill in blank and be as specific as possible.)

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**THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY!**

**Lower Saluda River Recreation Study  
Public Access Site Questionnaire**

Clerk: _____	Site: _____	Date: _____	Time: _____ am/pm
Weather: <input type="checkbox"/> Sunny	<input type="checkbox"/> Partly Cloudy	Record Respondent Gender: <input type="checkbox"/> Male	<input type="checkbox"/> Female
(Check all <input type="checkbox"/> Cloudy	<input type="checkbox"/> Light Rain	RESPONDENT REFUSED INTERVIEW: <input type="checkbox"/>	
that apply) <input type="checkbox"/> Heavy Rain	<input type="checkbox"/> Windy	RESPONDENT DOES NOT SPEAK ENGLISH: <input type="checkbox"/>	

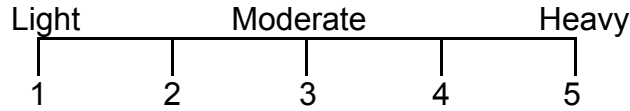
**THE FIRST FEW QUESTIONS ASK ABOUT YOUR EXPERIENCE HERE TODAY**

- Including yourself, how many people are in your party today? *(Fill in blank.)*  
\_\_\_\_\_ people in party
- What time did you arrive **at the Lower Saluda River** today? *(Fill in blank.)*  
\_\_\_\_\_ am / pm
- What is the primary recreation activity that you participated in today **at the Lower Saluda River**? *(Read the list to respondents. Check only one main activity in the first column.)*  
What other activities did you participate in today? *(Check all that apply in second column.)*

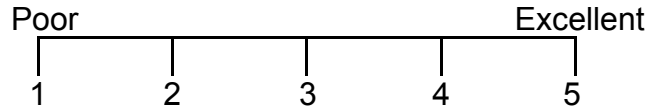
Check only <u>one</u> main activity	Check all other activities	Types of Activities
		<b>FISHING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	boat fishing
<input type="checkbox"/>	<input type="checkbox"/>	pier/dock fishing
<input type="checkbox"/>	<input type="checkbox"/>	wading fishing
<input type="checkbox"/>	<input type="checkbox"/>	bank fishing
		<b>BOATING:</b>
<input type="checkbox"/>	<input type="checkbox"/>	tubing/floating
<input type="checkbox"/>	<input type="checkbox"/>	flatwater canoeing/kayaking
<input type="checkbox"/>	<input type="checkbox"/>	whitewater canoeing/kayaking
<input type="checkbox"/>	<input type="checkbox"/>	rafting
		<b>OTHER:</b>
<input type="checkbox"/>	<input type="checkbox"/>	bicycling
<input type="checkbox"/>	<input type="checkbox"/>	tent or vehicle camping
<input type="checkbox"/>	<input type="checkbox"/>	horseback riding
<input type="checkbox"/>	<input type="checkbox"/>	walking/hiking/backpacking
<input type="checkbox"/>	<input type="checkbox"/>	sightseeing
<input type="checkbox"/>	<input type="checkbox"/>	hunting
<input type="checkbox"/>	<input type="checkbox"/>	nature study/wildlife viewing
<input type="checkbox"/>	<input type="checkbox"/>	swimming
<input type="checkbox"/>	<input type="checkbox"/>	picnicking
<input type="checkbox"/>	<input type="checkbox"/>	sunbathing
<input type="checkbox"/>	<input type="checkbox"/>	other: _____
	<input type="checkbox"/>	None



4. On a scale from 1 to 5, with 1 being light, 3 being moderate, and 5 being heavy, how would you rate the crowdedness **at this recreation site** today? (Circle one number.)



- 5A. On a scale from 1 to 5, with 1 being poor and 5 being excellent, how would you rate the overall condition **of this recreation site** today? (Circle one number.)



- 6A. Why did you choose to come to this site today? (Fill in the blank.)

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- 7A. Are there any additional facilities needed **at this recreation site**? (Check one box.)

- YES  
 NO (If no, skip to Question 8.)

- 7B. What do you recommend? (Do not read this list. Allow respondent to answer and check all that apply and/or fill in the blank.)

<input type="checkbox"/> access road	<input type="checkbox"/> camping area	<input type="checkbox"/> rest rooms
<input type="checkbox"/> bank fishing area	<input type="checkbox"/> fish cleaning station	<input type="checkbox"/> signs & information
<input type="checkbox"/> boat dock	<input type="checkbox"/> fishing pier/dock	<input type="checkbox"/> swimming area
<input type="checkbox"/> picnic tables/shelter	<input type="checkbox"/> lighting	<input type="checkbox"/> trails
<input type="checkbox"/> boat launch	<input type="checkbox"/> parking lot	<input type="checkbox"/> trash cans
<input type="checkbox"/> other (please specify: _____)		

- 7C. Are there any other improvements that you would recommend for this site? (Check one box.)

- YES  
 NO (If no, skip to Question 8.)

- 7D. What improvements do you recommend? (Fill in the blank.)

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- 8A. Are you aware of the siren on **the Lower Saluda River**? (Check one box.)

- YES  
 NO (If no, skip to Question 9.)

8B. Do you know what the siren is for? (Check one box.)

- YES
- NO (If no, skip to Question 9.)

8C. What do you think the siren is for? (Fill in the blank.)

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**I HAVE JUST A FEW MORE QUESTIONS**

9. Do you own a permanent or seasonal lakefront home or condominium **on Lake Murray**? What is your zip code? (Check one box and fill in the blank for zip code.)

- YES – Permanent Home → ZIP CODE: \_\_\_\_\_
- YES – Seasonal Home → ZIP CODE: \_\_\_\_\_
- NO – Non-lakefront resident → ZIP CODE: \_\_\_\_\_

10. In what year were you born? (Fill in blank.)

\_\_\_\_\_ YEAR

11. Do you have any additional comments about the recreation facilities at **the Lower Saluda River**? (Fill in blank and be as specific as possible.)

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**THANK YOU FOR YOUR HELP! WE APPRECIATE YOUR TIME TODAY!**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**April 17, 2006**

*final dka 05-15-2006*

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Dave Anderson	Kleinschmidt Associates	Randy Mahan	SCANA Services
Jeni Summerlin	Kleinschmidt Associates	David Hancock	SCE&G
Marty Phillips	Kleinschmidt Associates	Tom Eppink	SCANA Services
Kelly Maloney	Kleinschmidt Associates	Tommy Boozer	SCE&G
Tim Vinson	SCDNR	Patrick Moore	CCL/AR
Bill Marshall	SCDNR & LSSRAC	Steve Bell	Lake Watch
Malcolm Leaphart	Trout Unlimited	Tony Bebbber	SCPRT
George Duke	LMHOC		

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**HOMEWORK ITEMS:**

- Dave Anderson – draft a study plan for the analysis of Lake Murray aerial photographs
- Dave Anderson – draft a “straw man” of the Saluda Project Recreation Plan

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:**                      **TBA**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**April 17, 2006**

*final dka 05-15-2006*

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Shortly after the Recreation Resource Conservation Group (RCG) meeting, the group agreed to proceed with the Recreation Management Technical Working Committee (TWC) meeting. Dave Anderson opened the meeting by discussing the Recreation Assessment Study Plan. Dave A. noted that the purpose of this and other study plans is to address the current recreational needs and accommodate the future use of the Project for recreation. Marty noted that this TWC needs to remember another RCG is presently working on a lake and shoreline management plan. She mentioned that we are also working on a recreation user study and boat density study. She added that the combination of these two studies will be used to obtain the information necessary to address the objectives of the TWC. Marty mentioned that Table 2-1 in the Recreation Assessment Study Plan has not been completely written because some information is not available at this time.

There was a brief discussion about shoreline management and Steve B. asked if we could put together a survey to determine the amount of project lands that should be set aside for the future. Marty replied that we will be able to determine this with the studies that we already have planned and input from the RCG. Steve B. also mentioned that the studies we are focusing on are for formal recreation sites and asked how we can focus on non-formal recreation sites. Patrick noted that Catawba-Wateree had a recreation survey that found most people are involved in non-traditional recreational use. Tony B. noted that Catawba-Wateree conducted their survey through the mail and got a high response.

Steve B. noted that a list of questions should be developed to ask the public what they want to do with the undeveloped shoreline. There was some further discussion about protecting additional shoreline for the future and Dave H. noted that SCE&G's management will decide what to do with the land. The group decided that most people would prefer to set aside additional undeveloped land for recreation and the Recreation RCG, acting as a focus group, would make recommendations to the Lake and Land Management RCG to set aside land for future recreational use.

George mentioned that we need to look at people who are not passionate lake users and find out what they want and how we can make the land more usable to them. The group agreed and Dave A. noted that he will send out a draft "straw man" for the Saluda Project Recreation Plan to spell out the how we will determine future recreational needs of the Project.

Dave A. then focused attention on the Lake Murray questionnaire. The group briefly examined comments made by Tony B. Dave then went over the lower Saluda River questionnaire and the

**MEETING NOTES**

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SALUDA HYDRO PROJECT RELICENSING  
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**April 17, 2006**

*final dka 05-15-2006*

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group discussed questions pertaining to sirens on the river. Through some discussion, the group agreed to the changes made pertaining to the siren questions.

Dave A. noted that he would like to draft out the “straw man” before scheduling the next TWC meeting and the group agreed. He added that he would examine the aerial photographs of Lake Murray and would draft a study plan for the boat density analysis.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

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**April 17, 2006**

*final dka 05-15-2006*

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**Saluda Hydro Relicensing  
Recreation Management Technical Working Committee**

**Meeting Agenda**

**April 17, 2006**

**2:30 pm**

**Lake Murray Training Center**

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There was no set agenda for this meeting as it was intended to finalize comments on the Recreation Assessment Study Plan.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER  
July 19, 2006**

final dka 08-14-06

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**ATTENDEES:**

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<b>Name</b>	<b>Organization</b>	<b>Name</b>	<b>Organization</b>
Alison Guth	Kleinschmidt Associates	David Hancock	SCE&G
Dave Anderson	Kleinschmidt Associates	Steve Bell	Lake Watch
Bill Argentieri	SCE&G	Regis Parsons	landowner
Alan Stuart	Kleinschmidt Associates	Marty Phillips	Kleinschmidt Associates (by phone)
Tom Eppink	SCANA Services, Inc.	Tony Bebbber	SCPRT
Tommy Boozer	SCE&G	Joy Downs	LMA

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**HOMEWORK ITEMS:**

- Tommy Boozer – contact Berger for study information
- Joy Downs – distribute LMA survey results to group

**PARKING LOT ITEMS:**

- None

**DATE OF NEXT MEETING:** TBA

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**July 19, 2006**

final dka 08-14-06

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**MEETING NOTES:**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave welcomed the group and noted that the sole purpose of the meeting would be to discuss the Boat Density Study Plan. He explained that the goal for the meeting would be to leave with a very near final version of the plan. The group began an interactive session reviewing the document as it was projected on the screen and changes were made in real time.

As the group reviewed the document, Tommy Boozer asked how future boat densities would be determined. Dave noted that although they were only examining current boat densities they would be able to make some estimates regarding future densities. Dave continued to explain that future boat densities are very difficult to predict due to the many factors that could affect them. In reference to the study in general, Steve Bell asked how the information was going to be used. Dave replied that it will be useful in discussions on the future development of lands. Tony agreed and added that it will be helpful in determining where new access points should be located. Marty Phillips further pointed out that the information that comes out of this analysis is really just one factor of many that SCE&G will be using to make management decisions in the future. Tommy Boozer asked if this study would provide information on whether Lake Murray was at optimum levels of recreation, or below. Dave noted that it would, using standards commonly used in FERC relicensing.

Dave took this opportunity to explain a little about the study to the group. He noted that they would be using aerial photography from 2001 and classify different types of activities on the Lake. Dave pointed out that jet skiing would be considered under the water skiing classification. It was noted that in the Berger study, which used the same 2001 photographs in the analysis, boat counts were broken down into smaller segments. Tommy agreed to call Berger to see if more detailed information is still available. Marty agreed to send Tommy an email describing the information needed from Berger.

Tony asked if there was any way to extrapolate 2006 data from the 2001 photographs by looking at boater registrations. Marty noted that Kleinschmidt had considered that possibility but concluded that we have no way to determine whether those individuals with boats registered in the vicinity of Lake Murray actually boat on Lake Murray. She stated that it has been documented that changes in recreation participation is influenced by population growth. Marty suggested that the 2001 information could be combined with the SCORP data and population growth estimates to provide a range of boating estimates that would likely approximate current levels of boating. The group



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TECHNICAL WORKING COMMITTEE**

**LAKE MURRAY TRAINING CENTER**

**July 19, 2006**

final dka 08-14-06

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agreed that this was acceptable. Tony also noted that he would try to break the SCORP information down by county.

The group continued through the document making changes interactively. Steve Bell noted that he would be especially interested in knowing the counts in the cove and creek areas. Dave continued to explain the calculations to the group. Joy Downs noted that the LMA received results of the survey they implemented last year and shared that fishing was listed as the recreation activity with the highest rates of participation around the lake. She noted that she would distribute this information to the group.

The group reviewed the schedule and concluded the meeting. The group agreed to continue with the course of the study.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

***Panera Bread  
September 13, 2007***

Final JMS 10-29-07

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***ATTENDEES:***

Bill Argentieri, SCE&G  
Alan Stuart, Kleinschmidt Associates  
Bill Marshall, SCDNR  
Tony Bebber, SCDRT  
Suzanne Rhodes, SCWF  
Tommy Boozer, SCE&G  
George Duke, LMHC

Randy Mahan, SCANA  
Regis Parsons, Private Land Owner  
Steve Bell, Lake Watch  
Joy Downs, LMA  
Dave Anderson, Kleinschmidt Associates  
Jeni Hand, Kleinschmidt Associates

***DATE:*** September 13, 2007

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**DATE OF NEXT MEETING:** TBA

**HOMEWORK ITEMS:**

- Make CD's that contain example recreation plans and send them to committee members that request them.

*Dave Anderson*

- Distribute a strawman to committee members that will describe subjects that will be covered in the Saluda Recreation Plan.

*Dave Anderson*

- Send Dave A. the Saluda recreation maps that contain marinas and informal sites that SCE&G has identified.

*Tommy Boozer*

- Find out who owns the islands in the vicinity of Ocean Boulevard area on the LSR.

*Tommy Boozer*

- Incorporate changes into the Standard Process Form and send out to committee members for final comments.

*Dave Anderson*

- Draft the Saluda Recreation Plan and send out to committee members for review and comment.

*Dave Anderson*

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

***Panera Bread  
September 13, 2007***

Final JMS 10-29-07

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- Draft a recommendation for protection of lands in the future development for protection. The recommendation will be sent to the LLM TWC

*Dave Anderson*

**DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson of Kleinschmidt Associates welcomed everyone and noted that the purpose of this meeting was to review and discuss: (1) the Saluda recreation studies (recreation assessment, boat density, draft spring addendum); (2) the example recreation plans; (3) standard process questions 6 through 11; and (4) the draft recreation plan.

*Saluda Recreation Studies*

Dave A. welcomed the group and directed attention to the Saluda Recreation Assessment study and noted that responses to comments received from committee members will be included in a revised version as an appendix to the report. Steve Bell reminded the members that the committee had a responsibility to evaluate all project lands and make recommendations back to the Lake and Land Management TWC on which lands should be set aside for “informal” recreation areas. Tommy Boozer noted that the LLM Natural Resource sub-committee had evaluated undeveloped tracts in the “future development” classification” and had scored the tracts on their informal recreational values. Dave A. noted that he would draft a recommendation to protect natural undeveloped lands at the project.

Dave A. noted that the Saluda Boat Density Study report was finalized in July and posted to the Saluda Hydro relicensing website. He noted that after it was posted to the website, there were some concerns about how the report was written. To address these concerns, he explained that a few changes were made in the methods and conclusions sections of the report, but the results did not change. There was a brief discussion on future recreation facilities and Tommy B. noted that Bundrick Island may possibly support boat launching facilities in the future. Tony B. explained that boat access for Lake Murray is sufficient, however, there should be more recreational areas for non-boaters. Tommy B. noted that an island on Lake Murray has been set aside for pier fishing and explained that it would not have boat launching. Dave A. explained to the group that during the first three to five years of the new license, the recreation plan will concentrate on enhancing existing

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

***Panera Bread  
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Final JMS 10-29-07

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recreational facilities. Tommy B. noted that the most important thing will be to set aside land for recreational use for the next 40 to 50 years.

Dave A. noted the Spring Addendum Study is the only report in draft form and is currently out for review and comment. He explained that recreation for the Saluda Project follows the Bell Curve during peak season. Dave mention that remaining issues that still need to be addresses are striped bass fishing on Lake Murray and trout fishing on the lower Saluda River.

*Review of Example Recreation Plans*

After a short break, Dave A. noted that the group should have enough information to draft a recreation plan for the Saluda Project. Tony B. noted that the Lake Murray Association's Study may also be used for informational purposes during the development of the Saluda recreation plan. Dave A. noted that to give the group an idea of what a recreation plan should look like, he put together 10 example recreation plans that had been approved by the FERC. Dave A. explained that these example recreation plans contain descriptions of recreation site improvements, scheduling, and a record of consultation. Dave A. noted that he would distribute a strawman to committee members that will describe subjects that will be covered in the recreation plan for the Saluda Hydro Project. Steve Bell noted that the FERC guideline "Recreation Development at Licensed Hydro Projects" has recommendations on developing a plan and suggest that all project lands and other recreation sites be listed in the inventory and project safety issues should be included as part of the plan. Dave A. noted by the end of 2007, a description of improvements needed for each recreation site will be distributed to committee members. Tony B. noted that canoe access sites in the upper creeks of Lake Murray should be included in the recreation plan.

*Review of Standard Process Questions 6 through 11*

The group began reviewing the Standard Process Form and Dave A. noted that it was updated on September 10, 2007 and it included comments from February of this year. Dave informed the group that questions from Step 1 are considered to be final. The group reviewed and discussed pages 3 through 12 of the Standard Process Form (the Standard Process Form used during the meeting may be viewed in Attachment A). The group requested that courtesy rules should be established for boaters on Lake Murray. Dave noted that he would make changes to the Standard Process Form and send out to committee members for review.

*Draft Recreation Plan*

Dave A. noted that Kleinschmidt will write up a draft recreation plan and will distribute to committee members by the end of December 2007. Dave noted that the plan will include

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

***Panera Bread  
September 13, 2007***

Final JMS 10-29-07

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recreational flows for the lower Saluda River . Dave mentioned that committee members will have 30 days to review and comment and a meeting will be scheduled to discuss changes and/or additions to be made to the recreation plan.

*Additional Comments by Lake Murray Watch*

So far the group has focused primarily on assessing the project's formal recreational facilities. I think we should now take time to look at the other issues relating to recreation:

An assessment of informal recreational resources and opportunities which would include an evaluation of the inventory of undeveloped projects lands. (note a survey of these lands is available from the LLM TWC) Recommendations should be provided to the LLM TWC

An assessment of impacts lake level management has on recreational resources. A recommendation should be made to Operations.

An assessment of buffer zones to determine whether these areas are available for public access and protect the recreational and aesthetic values of the project. Recommendations should be made to the LLM TWC

An assessment of developed and undeveloped easement lands to evaluate public access and recreational opportunities. Recommendations regarding better protection in these areas be provided to LLM TWC.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

**SCE&G Training Center  
February 20, 2008**

Final acg 4/15/08

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates  
Randy Mahan, SCANA Services, Inc.  
Tommy Boozer, SCE&G  
Alan Stuart, Kleinschmidt Associates  
Joy Downs, LMA  
Jim Cumberland, CCL

Dave Anderson, Kleinschmidt Associates  
Dave Landis, LMA  
Steve Bell, Lake Watch  
Dick Christie, DNR  
Tony Bebbber, SCPRT

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**MEETING NOTES:**

Dave opened the meeting and noted the first item on the agenda would be to review the memo from the Recreation Focus Group. Jim Cumberland led the discussions from the Recreation Focus Group. Jim presented the group with a PowerPoint of the proposal from the Recreation Focus Group. He explained that they were putting this out for the Recreation Management TWC's consideration and requested that the Recreation Management TWC forward the recommendations in the memo to the Lake and Land TWC for consideration in rebalancing.

Jim began the presentation and discussed background information with the group. Jim noted the importance of passive recreational values, such as hiking, walking, and nature watching. He explained that as the Recreation Management TWC reviewed through issues, they began with the natural resource subcommittee's review of future development lands. He pointed out that there was a need to educate property owners on the public's right to access fringelands. Jim also noted that they wanted to see priority given to one multi-slip docking facility for a community over multiple individual docks. Jim explained that they were also looking at enhancing the scenic values of the shoreline by implementing vegetation restoration.

On future development lands, Jim explained, that they would like a plan developed to establish nature trails, informal picnic areas, etc. Jim noted that the tracts that scored 3 or higher in the shoreline survey should be reclassified as recreation lands and included in the recreation plan. He explained that lands that scored a 1 should be protected for their scenic values by reclassifying them to natural areas. Jim continued to note that under their proposal, the lands that did not receive a score would be okay to sell.

For forest and game management lands, Jim noted that they would like to encourage recreational use, and on parcels adjacent to public roads, provide informal parking areas with paths leading to the shoreline. Jim also explained that one thing that was important for the CCL and American Rivers was the lands along the lower Saluda River. He continued to note that they would like all

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
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SCE&G owned lands along the river that are not required for power production to be classified as natural/recreation lands.

Jim concluded the presentation and the TWC began to discuss the topic. Steve noted that he would like to see the Recreation TWC make a recommendation to the Lake and Land TWC on shoreline protection. Dave asked what the recreation focus group hoped to gain by sending this from the Recreation TWC to the Lake and Land Management TWC, instead of simply issuing it from the focus group. Jim responded that they hoped that if it was sent from the Recreation TWC it would have a greater weight with the Lake and Land Management TWC.

Tommy Boozer pointed out that there were many things in the presentation that were similar to what has already been recommended, however, it eliminates SCE&G's ability to make revenue off of land sales. Dave noted that he was concerned that sending the proposal from the TWC would imply that it has SCE&G support. Randy Mahan pointed out that he did not see a problem with the Recreation Management TWC sending this on to the Lake and Land group, however recommending it for adoption would not be something the whole group could agree to. Jim replied that they were not looking for the group to endorse this proposal in its entirety; it would be more of a procedural motion than a substantive motion.

Dick Christie asked if the Recreation Management TWC could add caveats to the proposal for clarification. Dick also noted that during the scoring process in the natural resources subcommittee, the tracts were often scored 1-5 based on their proximity to a road and not necessarily if they were adequate for hiking, birding, and fishing. Dick further suggested that it be clarified that these tracts may have recreation potential, possibly unevaluated potential.

Jim clarified that he believed as long as the potential was there it was important to conserve the lands. He noted that the lake was a great public resource and he was concerned that it was becoming a closed, private lake. Steve Bell noted that at some point there are going to be no more places to build on the lake, so why not stop at this point.

Tommy presented information on SCE&G's proposal to the group (presentation is attached to the December 14, 2007 and January 22, 2008 meeting notes). There was discussion on docks and Randy noted that SCE&G would prefer to allow individuals to choose whether they would prefer a common dock, multi-slip or individual dock. The group also discussed the proposed dock policy on forest management lands.

After lunch the group went through the Recreation Focus group's proposal. Dave noted that it was up to the focus group as to whether they wanted to send this to the Lake and Land Management TWC as is, or try to find some common ground with the Recreation Management TWC. The group discussed making multi-slips mandatory over individual docks. Tommy pointed out that there are incentives in SCE&G's proposal that would encourage a developer to put in multi-slips.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

**SCE&G Training Center  
February 20, 2008**

Final acg 4/15/08

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The group continued discussions on the Recreation Focus Group proposal and discussed the identification of recreation areas. Dave noted that they had discussed a map that identifies recreation areas. Tommy explained that they currently have signage from the property owner's side identifying fringelands, but not from the lake side. The group discussed the best ways to identify recreation lands. Joy Downs noted her concern with publishing and encouraging the use of fringelands in front of back property owners. Dave Landis suggested accentuating the lands that should be encouraged for public use. Dave Anderson noted that the compromise would be to not publicize the fringelands, or place them on a map, but to let the public know they are available for use. Steve Bell suggested marking the trees. Tommy noted that putting signage up was a maintenance issue.

Collectively the group edited the memo proposal from the Recreation Focus Group. With some minor modifications the group could send it to the Lake and Land Management TWC with neither endorsement nor objection, noting that the Recreation Management TWC has addressed it, and edited it as a group. Randy added that an official recommendation from the TWC implies consensus. SCE&G, being a member of the TWC, does not believe that this recommendation is best, and that stopping all land sales goes too far. Dave noted he would draft up a memo that included the Recreation Focus Group's proposal.

The group also discussed lake level recommendations. Dave addressed Steve Bell and asked if a compromise had been reached on lake levels. Steve noted that the recommendation as provided by Lake Watch would be to have an optimum of 356 to 354.

The group discussed and modified the TWC recommendation. Joy Downs noted that there was specific wording in the LMA recommendation that could be used. The group worked to incorporate the wording from LMA into the recommendation. It was also suggested that the LMA lake user survey be referenced in the recommendation. Dave noted that he would make the recommended changes and send it back out to the group.

The group briefly touched on the coldwater trout fishery. Dave noted that the recommendation was not very extensive. After discussion, the group decided to leave the document fairly unchanged, with a few edits to the title and to the specific wading flows.

The group wrapped up discussions and Dave pointed out that the next meeting would be on March 3.



**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

**SCE&G Training Center  
March 3, 2008**

Final acg 8/11/08

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates  
Randy Mahan, SCANA Services, Inc.  
Bill Argentieri, SCE&G  
Tommy Boozer, SCE&G  
Alan Stuart, Kleinschmidt Associates  
Joy Downs, LMA  
Jim Cumberland, CCL  
Suzanne Rhodes, SCWF

Dave Anderson, Kleinschmidt Associates  
Mark Davis, SCPRT  
Malcolm Leaphart, TU  
Steve Bell, Lake Watch  
Dick Christie, DNR  
Tony Bebber, SCPRT  
Vivianne Vejdani, SCDNR  
Bill Marshall, LSSRAC, SCDNR

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**MEETING NOTES:**

*These notes serve as summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson opened the meeting and noted that the main purpose of the meeting was to review the draft Recreation Plan and Tommy Boozer would lead discussions on specific recreation sites included in the plan. Dave noted that the group would also review the trout fishery and lake level recommendation. Dave further explained the main meeting purpose would be to provide a forum to clear up any questions with the plan. It was noted that any written comments or alternative proposals were due by March 14<sup>th</sup>.

Tommy began the presentation on existing, future and proposed recreation sites. During the review, it was noted that the terms “existing”, “undeveloped” and “future” recreation could get confusing. It was also suggested that the terms “existing informal” and “existing undeveloped” recreation be used. The group reviewed through Park Site and Bundrick Island. Tommy noted that at Bundrick Island, their current plans are to leave it as it is. Steve Bell noted that he believes Bundrick Island would be a good area for parking and passive recreation.

Tommy continued to review the existing recreation sites and future recreation sites (those sites that have been classified for recreation but are not yet developed at this time). The group reviewed Shull Island and it was noted that it was one of the most heavily used facilities on the lake. As the group continued to review through the sites, the group reviewed Dreher Island State Park. Tommy noted that Dreher Island State Park would be a good site for a larger marina. Tommy also explained that Long Pine recreation area would be a good place for nature trails. The group also discussed the islands, and lower Saluda River. It was noted that 9 miles of the lower Saluda river shoreline was in the state scenic river program. Tommy described Metts Landing and it was noted that this was one

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
RECREATION MANAGEMENT TWC**

***SCE&G Training Center  
March 3, 2008***

Final acg 8/11/08

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of the few areas on the LSR that one can put in a boat with an outboard motor. Tommy also explained that there were additional areas on the lower Saluda that were proposed for future recreation sites. It was noted that there was a proposed area along Candy Lane that would be a good take-out for canoes and kayaks above the Millrace rapids.

Steve Bell asked if the sites that are designated for future development in the relicensing will be developed right away. Dave noted that they would not be developed within the first 10 years; however they will be reevaluated during the 10 year review.

In review, Tommy presented a table of existing park sites, existing future development park sites and proposed future development park sites. After the presentation, Dave went through the recreation plan with the group. The group reviewed through each of the existing sites noting improvements or changes, as well as the existing sites for future recreational development. After reviewing the sites, Steve noted that he would like to see signage placed on future recreation sites. Tommy noted that they would be identified on a map.

After lunch the group discussed the trout fishery recommendation. The group reviewed through the document and discussed changes. Malcolm Leaphart of Trout Unlimited had made a few changes to the document and the group discussed those. Dave explained that when discussing protecting the trout fishery, this memo looks at the human side of the resource rather than the ecological side. The group continued to edit the document and Dave noted he would clean it up and send it around for final comments. It was explained that it would be included in a memo issued to the Fish and Wildlife RCG as well as SCE&G on the Recreation TWC's recommendation on how to protect the trout fishery.

The group also discussed the lake level recommendation. Dave asked the group how the recommendation will account for minor fluctuations in water levels. It was noted that the recommendation would simply be an input for the model and not account for fluctuations. LMA and Lake Watch expressed that the model input should include a minimum of 354' Plant Datum (PD), with a preferred level of 356' PD.

During discussions, Steve also recommended that a white paper be written by SCE&G on how the lake level is managed, and what levels would be of concern.

As the group closed, Dave reminded everyone that written comments or emails on the Recreation Plan were due by March 14<sup>th</sup>. Steve noted that they would like to provide comments on the recreation plan regarding lake level fluctuations. Steve also noted that he believed safety issues should be referenced in the Recreation Plan.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO RELICENSING PROJECT  
RECREATION TECHNICAL WORKING COMMITTEE MEETING**

**SCE&G Training Center  
March 20, 2008**

final JSH 3-24-08

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**ATTENDEES:**

Bill Argentieri, SCE&G	Tony Bebber, SCPRT
Alan Stuart, Kleinschmidt Associates	Alison Guth, Kleinschmidt Associates
Dave Anderson, Kleinschmidt Associates	Vivianne Vejdani, SCDNR
Dick Christie, SCDNR	Tim Vinson, SCDNR
Bill Marshall, SCDNR	Steve Bell, Lake Watch
Jim Cumberland, CCL	Joy Downs, Lake Murray Association
Tommy Boozer, SCE&G	Randy Mahan, SCE&G
Malcolm Leaphart, Trout Unlimited	

**DATE:** *March 20, 2008*

**ACTION ITEMS**

- Seek additional sites nearby as well as the additional parking for Larry Koon Landing  
*SCE&G*
- Develop a list of agency proposals and cost estimates to be included in the Recreation Plan  
*Dave Anderson*
- Send Dave Anderson proposals on buffer zones  
*Steve Bell and Jim Cumberland*

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Dave Anderson of Kleinschmidt Associates opened the meeting and welcomed everyone. He noted that the purpose of today's meeting was to have a true working meeting to discuss and address comments on the draft recreation plan. He explained that he wanted to go through each recreation site in the plan to discuss individual comments.

**SCE&G's Public Recreation Sites**

*Larry Koon Landing*

The group began discussing issues with SCE&G's Larry Koon Landing recreation site. It was noted that people would park at the Shull Island site if there were no available parking spaces at

Larry Koon Landing. There was discussion on the need to figure out how to alleviate congestion at Larry Koon Landing. Tommy noted that there was a lot of opposition to development of this site and explained that they could implement a buffer zone. Tommy noted that there is a pine beetle problem at this site, which means that there would be very few trees. Steve Bell asked if the county or the residents in that area would come into agreement about developing it into a park. Tommy noted about 15 years ago the county wanted to put tennis courts in this area and there was so much opposition to it that they did not build them. Steve noted that maybe the homeowners could come into an agreement about putting in some sort of walking paths. Steve asked how many additional parking spaces would be needed for Larry Koon. Tim Vinson noted that overflow parking will work. Tony Bebbler suggested making an action item for Larry Koon to seek additional sites nearby as well as the additional parking for this recreation area. Steve noted that if Larry Koon is getting crowded, then SCE&G may want to look at developing Bundrick Island. Tony noted that Shealy Tract and Shealy Point would be the next closest recreation site. Dick Christie noted that five acres should be set aside as future recreation, even though it may not be high in priority for development at this point. Dave asked the group if this was an immediate need. Jim Cumberland noted that it is something that needs to be looked at fairly quickly.

There was discussion about widening the entrance/exit to the recreation area. Tommy noted that SCE&G could discuss options with the county and go from there.

Dave noted that the other issue was whether or not to put in a fishing pier. Tommy noted that there is not a lot of room for a pier and that people currently fish off the bank. He further explained that it probably would not be feasible because of the amount of activity at that site.

#### *Shull Island*

For the Shull Island recreation site, SCE&G is proposing to add picnic tables. The SCDNR is suggesting to pave and delineate the parking area. Jim and Joy Downs suggested incorporating impervious parking. Dave asked if overflow parking was provided offsite at Larry Koon, would it be more beneficial to take the parking away and make it just a boat ramp. Tommy noted that it is a good facility and the ramp does need to be widened a little bit.

#### *Murray Shores*

The group moved the discussion to Murray Shores recreation site and Dave listed SCE&G's proposal. Tommy noted that he looked into this proposal but the area is solid rock and there is no sewer nearby. Tim noted that if an ADA accessible fishing pier is built at this recreation site, then you will need access to get to it.

#### *River Bend*

Dave reviewed SCE&G's proposal for River Bend. SCDNR requested paving the overflow parking lot for that site. Tommy noted that this is one of the parks that camping is permitted in and SCE&G would like to have the overflow parking paved because it is typically used on the weekends.

#### *Sunset*

The group discussed suggestions and proposals for Sunset recreation site. It was noted that it was a well used site. Tony pointed out that there may be areas behind the site that could be used for overflow parking. Dave suggested that if the parking lot is paved and striped, then more spaces may be attained.

### *Hilton*

The group then discussed the Hilton recreation site. Tony recommended making the ADA restrooms for this site a low priority. He explained that improvement or installation of ADA restrooms at other recreation sites should be a higher priority. Tommy noted that ADA restrooms will be included in any new parks that are built as long as there is a sewer near the site. Dick mentioned that he thought there was some kind of ditch that catches runoff from this site and directs it into Lake Murray.

### *Dam Site*

The group discussed the Dam Site recreation area. Dave asked if this recreation area received most of its use from people using the boat ramp and picnic area. Tommy noted people will use the boat ramp and will come back later that day to picnic at this site. Tommy explained that after looking at the expansion, they have created a wide enough space for people to get out of this area. Tommy noted that starting April 1<sup>st</sup> people will have to pay a fee to use this site. Tommy explained that if they get there before 10 am or after 8 pm they won't have to pay. Dave noted that the other recommendation for this site is providing a paved path to the restrooms. There was a brief discussion on rehabilitating the floating courtesy dock and fishing pier to allow deep water access down to 345'. Tommy noted that this may not be possible. Tommy explained that there is 8-10 ft of water right now and SCE&G is not able to put a floating dock out there at this time. He added that the dock needs to be repaired.

### *Higgins Bridge*

Dave briefly explained the proposals for Higgins Bridge. Dave asked if paving the access drive to this recreation area was something that SCE&G could do. Tommy noted that SCE&G does not own it, it is a private road. Dave asked if the agencies wanted to designate this site as a canoe portage. Dick noted that SCDNR is not set on designating it as a canoe portage, but that area could be emphasized for paddling. He added that they are not proposing to eliminate outboard motor boats. Dick further proposed to restrict upstream development for boat access. He explained that if any upstream access is made, it should be designated as canoe portage.

### *Kempson Bridge*

Tommy noted that it would cost more in comparison to other recreation sites to make Kempson Bridge ADA compliant because of the slope. Tommy explained that he would rather pick another recreation site and concentrate on that because this area is too challenging. Dick asked if a courtesy dock would be feasible. Tommy noted that because of the slope at this site, it would be too difficult to make the dock ADA compliant.

### *Clouds Creek*

Tony noted that his only comment was to make sure parking was sufficient so canoe trailers could turn around in this site.

### *Little Saluda Point*

It was noted that more acres would be added into the property, which is to be completed in the first five years.

### *Shealy Point*

Steve suggested adding public access around this area. It was noted that back property will be added into the project, and public access is something that can be evaluated .

It was noted that all of the formal improvements will take place within the first 10 years of the new license as proposed by SCE&G.

#### *Other Sites on Lake Murray*

The group discussed future recreation lands, which include Shealy Recreation Area, Craynes Bridge, etc. It was noted that there are existing sites with no plans. The group discussed these sites in reference to comments by SCPRT. It was noted that there is a possibility of designating a spot near Dreher Island as mooring for sailboats. Steve suggested getting away from any sort of designation. Tony noted that because of the congested area at the upper end of the lake, it seems that Bundrick Island may need to be developed into some sort of a recreation area. Tommy recommended leaving Bundrick Island undeveloped, so boaters are able to enjoy it. Randy Mahan noted that SCE&G may have to put some sort of restroom facilities out there. Tony suggested not putting in a boat ramp at this site.

#### *Mett's Landing*

Tim noted that for Mett's Landing, SCDNR suggests incorporating some sort of designated fishing area away from the ramp. Bill M. noted that this site receives a lot more use than Kempson's Bridge and suggested restroom facilities at this site. Dave suggested costing out the addition of a bathroom to this site, take it to Lexington County, and let them know we have identified the need.

#### *Gardendale*

The group began discussing SCE&G's Gardendale recreation site, and it was noted that SCE&G would like to lease this site to the Irmo-Chapin Recreation Commission. Jim asked if enhancements to this site would be paid for by SCE&G. Dave noted that it would be negotiated and that there would be cost sharing opportunities. Malcolm noted that if the ramp was widened, then it would be easier to carry in a canoe. Randy noted that the only problem is if it is in the scenic river easement, it would have to have a 100 ft setback. Bill M. noted that if recreational flows were provided by SCE&G, the use numbers will go up for this site.

#### *Twelvemile Creek*

It was noted that this site is proposed to be a riverside park, but at the moment it will be placed in recreation and developed later.

#### *Candy Lane*

Dave discussed the proposal for this site and noted that there would be a takeout area provided for this recreation site.

It was recommended by SCDNR to add another bank access area for deep water fishing upstream around Sandy Beach. They would also like to add an ADA accessible fishing pier downstream of existing ADA fishing pier at Saluda Shoals. Malcolm noted that there doesn't seem to be a need for another ADA fishing pier. Dave noted that realistically, if a handicapped individual parks in the parking lot, they will probably not want to go very far to get to a fishing pier.

Malcolm asked about opening up the area by the spillway and Randy noted that they would not be able to open up Project works property.

Dave asked the group if there were any more items to discuss on the areas inside the Project Boundary Line. Jim asked if there were any other company owned lands on the LSR. Dave explained that in the focus group proposal, they suggest reclassifying all project lands on the LSR as recreation and wanted to know if there is any benefit to classifying it as such. Dick noted that SCDNR recommends widening the buffer zone.

Malcolm noted that he feared development around the LSR and would like to put the lands around the LSR in a protected status. Randy noted that for the most part it is in a protected status and 90 plus percent of what SCE&G owns is in the State Scenic River classification.

Steve recommended putting a 200 ft buffer zone on the river. Malcolm noted that he agreed with Steve, because he does not want what happened on the lake to happen on the river. Randy explained that with the scenic easement, property owners must take care of the shoreline. Dick noted that SCE&G could possibly classify all the properties on the LSR as recreation. The group discussed classifying the lands according to the Shoreline Management Plan (SMP) classifications. Dick noted that by formally classifying the lands around LSR, SCE&G would gain credit and also protect the lands. The group continued discussing classification of LSR shorelines and it was agreed that verbiage on land classification should be added to the SMP. It was also agreed that the lands would be dealt with in the recreation plan as properties.

Steve noted that this group has looked at formal recreation sites, but have not looked at other project lands and their values as far as recreation. Steve noted that this committee needs to discuss and evaluate the need to do more with these informal recreation sites. Steve noted that this committee needs to evaluate whether these areas are important, whatever is necessary to ensure that the public has use of the shorelines, and can enjoy it without too many private amenities. He recommended setting up a time and agenda for having a meeting to discuss these issues. Dave noted that these issues should have been discussed under the Lake and Land Management Technical Working Committee. Steve noted that he thinks this committee should be dedicated to looking at recreation. He explained that he thinks there are a lot of recreation areas that have not been looked at, so the group needs to evaluate them and the access to shoreline. Tommy noted that SCE&G is coming up with a plan that is significant to recreation. Steve noted that he has concerns about buffer zones and widening the buffer zones and spacing of docks. Dave noted that the mission statement of the group does not include these issues. Dave noted that if there are specific properties that a group member is concerned about then they should identify those and bring them forward. Dave noted that an action item for Steve and Jim is to go through the issues and make a proposal to SCE&G. Dave noted that he would like to see these issues as soon as possible, as they will be putting together costs in the near future.

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
LAKE AND LAND MANAGEMENT TWC**

**SCE&G Training Center  
June 10, 2008**

final ACG 8-11-08

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates  
Alison Guth, Kleinschmidt Associates  
Tommy Boozer, SCE&G  
David Hancock, SCE&G  
Regis Parsons, Landowner  
Ron Ahle, SCDNR  
Randy Mahan, SCANA Services  
Dick Christie, SCDNR  
John Frick, Landowner  
Jim Cumberland, SCCCL  
Amanda Hill, USFWS  
Mike Summer, SCE&G  
Bob Perry, SCDNR

Steve Bell, LW  
Bill Argentieri, SCE&G  
Tony Beber, SCPRT  
Van Hoffman, SCANA  
Phil Hamby, Landowner  
Mark Davis, SCPRT  
Vivianne Vejdani, SCDNR  
Roy Parker, LMA  
James Leslie, Lake Murray Docks  
Suzanne Rhodes, SCWF  
Dave Anderson, Kleinschmidt Associates  
Tim Vinson, SCDNR

**DATE:** June 10, 2008

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Alan opened the meeting and noted that the purpose of the meeting would be to review the new proposal for future development lands and rebalancing that was being presented by SCE&G. Alan explained that SCE&G had given consideration to the proposals that had been presented thus far by stakeholders for rebalancing.

Randy Mahan began with the introduction to the presentation. He noted that he hoped that the group would find that SCE&G had listened to what has been requested. Randy further noted that although this proposal may not satisfy the desires of everyone, he hoped that this would help them achieve a consensus. Randy further explained that, considering all of the competing desires, SCE&G feels that this is the best that they can do, and what they will submit to the FERC. As the lake and land issues were also tied in with other issues in the relicensing, Randy noted that if for



some reason a comprehensive settlement is not reached, then there may be some push-back from management on the level proposed in this current plan.

Tommy Boozer and David Hancock began the presentation. David noted that in reference to rebalancing, they would be proposing both Project and non-Project lands. David initially began by showing the total number of acres that SCE&G was proposing to protect, which was 9204.24 acres and 184.74 miles of shoreline.

David then began explaining how this number was achieved. He noted that this included current Project lands, which are future development lands, recreation lands (both Project and non-Project), lands inside the PBL on the LSR, and large, non-Project lands adjoining the lake. To begin, David discussed Project lands for future development. David reviewed the current management prescriptions and the current acreage and shoreline miles associated with the prescriptions. He also pointed out that there were currently 763.61 acres of land associated with public recreation, which included the islands.

The group also reviewed the future development lands spreadsheet that was utilized during the rebalancing exercises. David noted that 299 tracts were evaluated during the process. Of the 299 tracts, David pointed out that SCE&G was proposing that a portion or all of 83 tracts go to natural areas, a portion or all of 15 tracts go to recreation, and a portion or all of 14 tracts go to Forest Management.

The group reviewed several tables depicting what was proposed and what the current numbers were for the particular land classifications. David again point out that this was strictly evaluating only the future development lands inside the PBL, which was evaluated during the rebalancing exercise.

Next, Tommy began to discuss the recreation lands with the group. He presented the group with a brief recap of current recreation lands that included existing developed sites, and those set aside for recreation that were yet undeveloped. Tommy also listed the acreage and shoreline miles associated with each site. The islands on Lake Murray were also included, along with the lands that were on the lower Saluda River.

After the review of the current recreation sites, Tommy reviewed the proposed recreation sites with the group. Tommy explained that there were a few sites, such as Sunset, where they were proposing to add property that was outside the PBL into the Project for recreation. The group reviewed the aerial views of each tract and Tommy presented the group with a summary of the proposed future recreation sites. Tommy also briefly reviewed the Lake Murray state and regional parks. In reference to Bundrick Island, he noted that their proposal is to currently leave it as it is. At some future date, Tommy explained, this island may be developed a little more with parking and such.

Tommy also discussed the SCE&G Saluda River Property, which include scenic river easements and SCE&G properties. Tommy explained that in the late 1980's, SCE&G placed much of the LSR shoreline that they owned into a Scenic River Easement. Tommy noted that SCE&G is further proposing to classify 14 tracts, totaling 275.14 acres, plus the 45.04 acres already in the Scenic River, as recreation. It was pointed out that this would bring the grand total of these tracts to 320.18 acres along the Lower Saluda River.

The next item the group discussed was non-Project timber tracts. Tommy explained that SCE&G plans to continue to manage the timber on these tracts under the BMPs; however they are proposing to lease these tracts to SCDNR for the life of the license. Tommy continued to note that DNR could put these parcels into the WMA, and all but one of these tracts were adjacent to the lake. Bill Argentieri pointed out that these areas were outside the Project boundary; therefore, SCE&G was not proposing to bring them into the Project boundary. Ron Ahle noted that DNR currently has WMA leases on much of these lands. Randy replied that those leases can be pulled within 30 days, and this proposal was granting a lease for the life of the license.

The group again reviewed the summary tables showing the acreage and shoreline miles associated with the proposal, showing how the 9204.24 acres was achieved.

After a short break the group discussed what recommendations from stakeholder groups SCE&G has incorporated into the proposal for future development lands. Tommy also pointed out that the proposal for the future development lands does not apply to easement property.

Tommy reviewed a few of the recommendations, which are listed below.

- Increase Lot Size
- Multi-slip docks in lieu of individual docks
- Non disturbance buffer zone
- Establish a full 75' Buffer Zone
- Establish Natural Areas
- Restrict development within the PBL
- Protect additional Forest Management & Recreation Lands
- Manage remaining Future Development Property under restrictive and protective plan
- Dock Policy for Forest Management Lands
- Support Hunting by participating in the SCDNR WMA program
- State Park on the Lexington Side of Lake Murray
- Protect property on Lower Saluda River
- Provide additional recreational properties on Lake Murray and the lower Saluda River
- Update and improve existing Park Sites

Tommy then explained the land sales and dock permitting policies that were being proposed for the remaining future development lands. The group reviewed through these policies and commented. Tommy pointed out that there were requirements for a multi-slip dock if the landowner had over 400 ft of shoreline. However, there was still flexibility for exceptions if the landowner only wanted a single dock on the property, as opposed to a multi-slip. The group also reviewed figures depicting the proposed policy. It was noted that SCE&G was proposing that deed restrictions be placed on the property that would not allow development below the PBL and require special vegetation protection and maintenance conditions on purchased property. Ron pointed out that he believed the true value of this proposal was the deed restriction that was placed on this area above the 75 ft. Ron also noted that there should be a definition for limited brushing. Ron further suggested using the current criteria for limited brushing that was in the Buffer Zone management plan that was approved by the FERC.

There was some concern that was expressed regarding the enforcement of the deed restrictions. Randy explained that the restrictions would be tied to the property itself and SCE&G would have the enforcement authority because the de-vegetation were to the detriment of the company.

The group continued to ask questions regarding the proposal, and Suzanne Rhodes asked if boat lifts would be permitted. David noted that they were still in discussion regarding this issue as they were having some problems with common dock owners and boatlifts. As the group continued to ask questions, Randy pointed out that SCE&G would prefer to send this out to the TWC to review and comment on; however, he believed that it may be a little premature to place on the website. Randy noted that they would like the TWC members to go to their constituents to discuss the proposal; however it was important to point out that this was still being discussed and reviewed.

Phil Hamby asked if the back property owners behind the property that changes were proposed on had been notified. If they have not been notified, Phil noted that he believed that this presentation should be placed on the website. Randy noted that this presentation would be placed on the website at some point, however not until there was more discussion among the group. Regis Parsons and Phil noted that they believed that it was very tough for an individual property owner to have a say in the decisions of the TWC. Dick Christie asked the group to keep in mind that this was at minimum a 5 year process, where they were closing in on the first 3 years, where a stakeholder group has made a recommendation that is going to go to FERC. Dick further explained that FERC will conduct its own evaluation where input from individuals would also be taken account through scoping meetings.

John Frick noted that he believed that there were a lot of designations on the lake that were not appropriate, such as areas that are classified as shallow coves, when he considers that they are not shallow coves. On the issue of sensitive areas, Ron added that classifying the ESA areas has been a dynamic process, and changes have been made when discrepancies were found.

After lunch, David noted that there needed to be one correction to the spreadsheet; FDID 337 was supposed to be classified as natural areas. Therefore, all of the numbers needed to be updated and the spreadsheet would be re-sent out.

Steve Bell noted that he needed to bring this proposal back to his organization. Alan concurred and noted that they would certainly like to get comment on the proposal into the record.

Bill then noted that the SCE&G technical services and fossil hydro management has asked that an acknowledgement sheet be passed around for individuals to sign to acknowledge that they will take this proposal back to their constituents. Bill further noted that signing this document would not be an agreement to the proposal, simply an acknowledgement that the individual would bring it back for consideration.

Ron noted that there may be more detail that the group needed to consider, such as the protection of the lands above the 75 ft to the PBL. Ron further noted that he would need to know that the deed covenants have enforceable rights, and what is going to be maintained and allowed in these areas. Ron added that he believed that the best approach may be to take the plans that have already been developed and apply them to this land.

Jim Cumberland also asked if permanent structures could be further defined and Tommy noted that they would put together a list on what was prohibited. Phil also asked if there was a way to see how the value of a dock was offset by the lack of a lake view. Phil added that this was a significant devaluation of the property. Tommy pointed out that the current status of the land was non-disturbance. He further pointed out that the property may not have a view, but there was still lake access.

Phil further asked if there has been any consideration for a compromise between non-disturbance and limited brushing. Randy noted that that is what they had in place before, however the FERC ruled that there should be total non-disturbance. Phil noted that he does believe there is quite a bit of public access being proposed that far exceeds what is needed. Tommy noted that although it is a good point, they were looking at access for the next 30 or 40 years. Phil also noted that providing the public with access to restaurants, coffee shops, and bed and breakfasts on the lake was an important component as well, that may not be available with new restrictions.

Alan then asked the group if there were any further comments on the proposal that was presented. Jim Leslie added that he believed the concept of limited brushing from the 75 ft setback to the PBL was a good plan. Steve noted that he believed the proposal was something that he would take back to the group for consideration. Randy replied that they understood that there were specific aspects that individuals are not going to be agreeable to. Jim Leslie noted that although he would not like to see any more fringelands sold, if SCE&G was going to sell land, he believed this was a good way to do it.

Alan noted that the group would see preliminary recommendations in the license application in some areas such as instream flows. However this will all be tied together as the group goes through settlement negotiations, which will probably begin in August or September.

The group brought discussions to a close and decided that the TWC would reconvene to discuss this proposal on July 14<sup>th</sup>. Specific information requests on the proposal were due to Alison by June 24<sup>th</sup>.

APPENDIX C

RECREATION RESOURCE CONSERVATION GROUP WORKING DOCUMENTS

# Recreation Resource Conservation Group

## Working Documents

FINAL



# Recreation Resource Conservation Group Work Plan

FINAL

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**Facilitator:**

Dave Anderson	Kleinschmidt Associates	dave.anderson@kleinschmidtusa.com
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**Members:**

Name	Organization	E-mail
Alan Axson	Columbia Fire Department	cfdwaxson@columbiasc.net
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Alison Guth	KA	alison.guth@kleinschmidtusa.com
Amanda Hill	USFWS	amanda_hill@fws.gov
Bill Argentieri	SCE&G	bargentieri@scana.com
Bill Marshall	Lower Saluda Scenic River Advisory Council, DNR	marshallb@dnr.sc.gov
Charlene Coleman	American Whitewater	cheetahrk@yahoo.com
Charles (Charlie) Rentz		flyhotair@greenwood.net
David Hancock	SCE&G	dhancock@scana.com
Dick Christie	SCDNR	dchristie@infoave.net
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# Recreation Resource Conservation Group Work Plan

FINAL

## Mission Statement

The mission of the Recreation RCG is to ensure adequate and environmentally-balanced public recreational access and opportunities related to the Saluda Hydroelectric Project for the term of the new license. The objective is to assess the recreational needs associated with the lower Saluda River and Lake Murray and to develop a comprehensive recreation plan to address the recreation needs of the public for the term of the new license. This will be accomplished by collecting and developing necessary information, understanding interests and issues, and developing consensus-based recommendations.

## Identified Issues

- ensure that recreational facilities and opportunities are protected and enhanced for current and future users, on and near the lake and river
  - boating access, including future access on Lexington side of lake
  - non-boating access
  - paddling access
  - security at recreation facilities
  - sufficient egress points on lower Saluda River
  - fishing opportunities for non-boaters
- conservation of lands
  - protect the scenic integrity of the Project
  - provide wildlife habitat areas
  - provide formal and informal (impromptu areas) recreational opportunities
    - consideration of special recreation designation areas classification (e.g., Two Bird Cove and Hurricane Hole)
- using the concept of adaptive management in future recreation planning
- river flows
  - safe recreational opportunities should be available on the lower Saluda River through daily flow release schedules and consensus-based flow rates
  - lack of scheduled recreation flows for the lower Saluda River
  - management of river flows to improve safety for river users (coordinate with Safety RCG)
  - minimum flows to provide for recreational navigation and to protect and enhance aquatic life in river (coordinate with Fish and Wildlife RCG)
- lack of a communication system that would encompass information to better inform the public of existing and projected conditions regarding lake levels and river flows as related to anticipated hydro operations and maintenance
- protection of the cold water fishery on the lower Saluda River
- impacts of lake level on recreational use of the lake
- consideration of The Lower Saluda River Corridor Plan and the Lower Saluda Scenic River Corridor Plan Update and their related public access sites and greenway-trail concepts



# Recreation Resource Conservation Group Work Plan

FINAL

## RCG Responsibilities

- Utilizing and modifying the Standard Process for evaluating and addressing recreation management and access issues specific to the Saluda Project, including developing a vision statement for the Project.
- Identifying specific areas where lake and river levels, river flows, and/or lake and river level fluctuations may be adversely affecting recreation including the nature and timing of the effect (e.g., access to sections of water, access to facilities, and aesthetics).
- Working with the Operations Resource Conservation Group to identify “reasonable” (based on hydrologic, structural, and other limitations identified) changes in Project operations that would benefit recreation.
- Working with appropriate RCGs to coordinate actions on issues of mutual interests such as river flows, lake levels, conservation of lands, and the siting and management of recreational facilities.
- Identifying any studies, if applicable, that need to be performed for identifying and/or evaluating (1) changes to Project operations, (2) enhancements to existing facilities, and (3) creation of new facilities to provide for public recreational access and opportunities.
- Presenting a range of reasonable alternatives or recommendations to the Saluda Hydro Relicensing Group (SHRG) regarding modifications to facilities or current Project operations, and provide recommendations for future recreation access and facilities.

## Tasks and Products

- **Task 1** – Utilize the stepwise process diagram and solution principles to guide the planning process for addressing recreation management issues at the Saluda Project.
  - Final Process Diagram and Solution Principles
- **Task 2** – Develop a Vision Statement for the Saluda Project.
  - Final Vision Statement
- **Task 3** – Review the operational constraints and current operations of the Saluda Project (see Initial Consultation Document).
- **Task 4** – Answer the list of questions on the Standard Process Form in order to characterize the existing and potential future condition of access and lake levels and river flows – from a recreation setting perspective.
  - Final Standard Process Form
- **Task 5** – Review stakeholder requests for particular studies and/or enhancement measures to ensure that these are incorporated into study planning, if applicable
  - Final Study Plans and Possible Mitigation Measures
- **Task 6** – Develop and recommend operation scenarios to the Operations RCG for analysis. These scenarios should reflect initial thinking on potential solutions and be designed to narrow the focus of Task 10 below. Analysis by the Operations RCG will focus on an assessment of potential recreational impacts associated with any suggested changes to operations.
  - RCG Recommendations
- **Task 7** – Discuss results of the Operations RCG analyses.

## Recreation Resource Conservation Group Work Plan

FINAL

- **Task 8** – Develop study designs/methods/plans and review agreed upon studies, literature reviews, etc.
  - Final Study Plans
- **Task 9** – Check the solution principles to ensure proposed study plans are consistent.
  - Final Study Plans
- **Task 10** – Provide recommendations for Project operations and recreation access and facilities to be considered in conjunction with all ecological (including water quality), recreational, and safety issues.
  - RCG Recommendations
- **Task 11** – Develop a consensus based Recreation Plan for the Saluda Project that addresses all of the issues and tasks identified above.
  - Final Recreation Plan

### Schedule

**Late 2005/Early 2006**—Finalize Mission Statement, Standard Process Form, Solution Principles, and Work Plan

**Mid-2006**—Complete identification of studies, literature reviews, etc. that need to be completed to address issues and tasks identified in the Work Plan

**Late 2006**—Begin compilation of existing information, review preliminary study results, and draft an outline of the Recreation Plan

**2007**—Complete any studies identified in Task 8 and review results; draft recommendations to SHRG, complete draft Recreation Plan

**2008**—Finalize Recreation Plan and provide comments on Draft License Application

### Possible Mitigation Measures to be Considered

- creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on the north bank of the river connecting Saluda Shoals Park to Gardendale Landing and Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek
- creation of a state park on the south side of the reservoir
- creation of a multi-lane boating facility that can accommodate large tournaments
- consideration of a boat ramp for small trailered boats at Gardendale or further downstream, but above I26, to allow safer upstream motoring towards Hopes Ferry. Many boaters have carried in their heavy rigs for years at the Gardendale 'throw-in' to be able to more safely boat the Saluda.
- consideration of conservation easements on large tracts of land within the PBL

## Recreation Vision Statement for the Saluda Project

FINAL

The long-term vision for the Saluda Project is to recognize, protect, and enhance the fishery, water quality, aesthetic values, cultural resources, and public recreational opportunities on the reservoir and the lower Saluda River, while recognizing the need to protect habitat supporting threatened, endangered, and sensitive species of Lake Murray and the lower Saluda River, and ensure adequate facilities and public access are provided. Given the size of the reservoir/hydro-project area, it is felt that it can continue to support a diversity of recreation opportunities. Recognizing that needs and demands will change, recreational uses will be monitored and managed to balance access/uses with the protection of natural resources and environmental quality; and planning for new facilities and management schemes will remain adaptive to changes.

Recreational opportunities for Lake Murray and the lower Saluda River over the next 30 to 50 years of the pending new FERC license for SCE&G should incorporate the following attributes:

- Recreational sites and access areas on the lake and the river should be adequate to allow for the continued rapid population growth in the Midlands over the term of the new license based on surveys of the public and input from the stakeholders and public.
- Sites should be spaced around the lake and along the river corridor to provide legal public access to the different geographic sections of both.
- Uncrowded conditions should be available most of the time at the sites, with natural viewscapes and provisions for most of the current and anticipated popular recreational activities incorporated into the overall provisions.
- Patrols and/or assistance for emergencies should be provided, though not necessarily manned, such as adequate phone boxes.
- Safe recreational opportunities should be available for boaters on the lake with adequate lake levels for the navigational markers, and on the river with release levels that are not life-threatening to the average person.
- The recommendations of the Lower Saluda Scenic River Advisory Council should be implemented to reflect the broad community-based consensus for river access, with consideration of additional river access to areas where trespassing is now the only way to enter an area.

Improvements to be considered at the Saluda Project include:

- Evaluation of SCE&G-owned Project lands for possible reclassification for recreation activities.
- Providing appropriate operations and maintenance of public recreation facilities.
- Optimizing the capacity of existing public recreation facilities to accommodate existing and future demand.

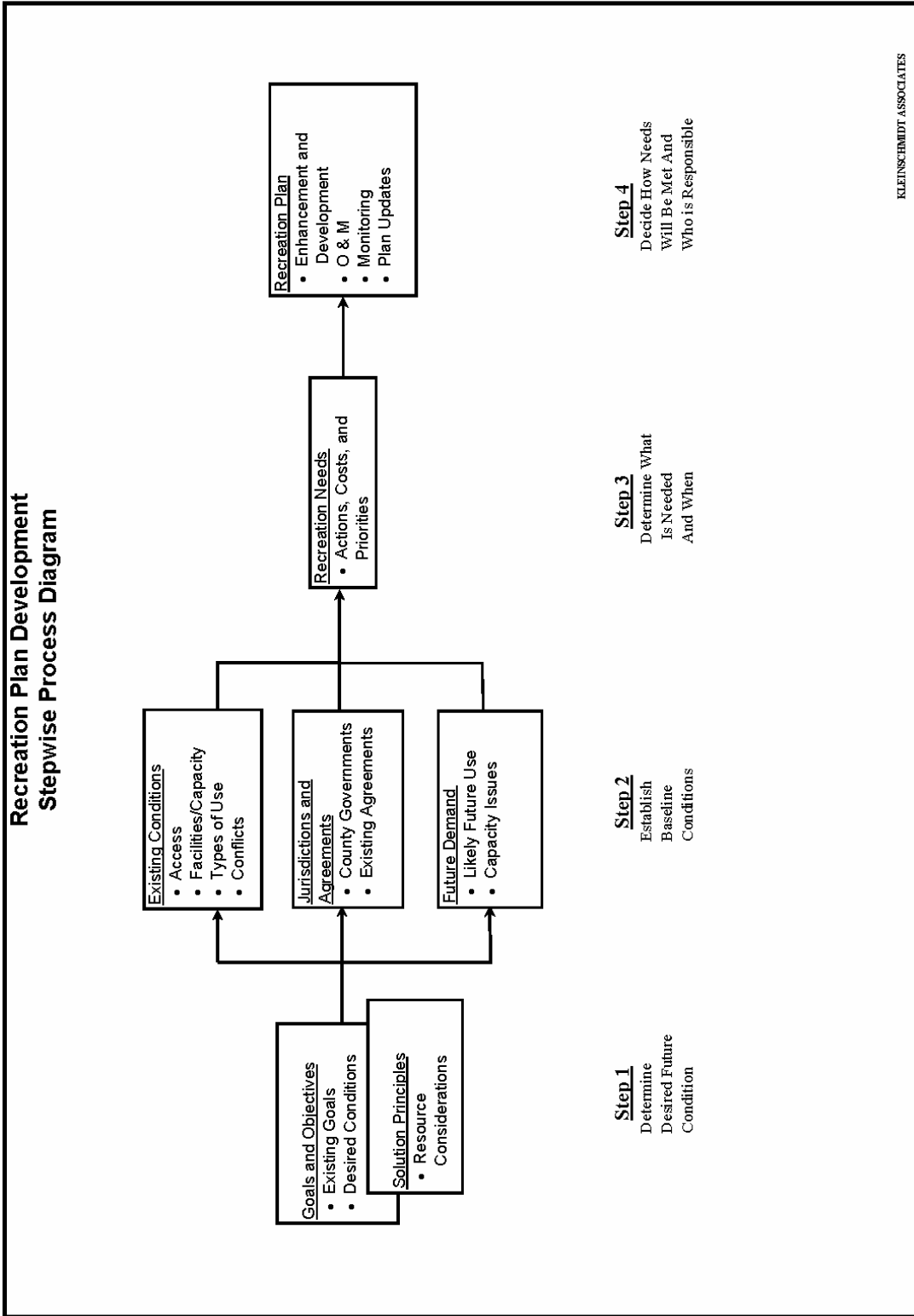
## Recreation Vision Statement for the Saluda Project

FINAL

- Improving access and safety in the public waters below the dam and minimizing impacts of project operations on downstream recreation, recognizing the need to meet power generation, and downstream flow responsibilities of Saluda.
- Managing lake level drawdowns so as to optimize safety and recreational opportunities.
- Managing river flows so as to optimize safety and recreational opportunities.
- Ensuring public access areas for the non-boating public remain available along the lake and river shorelines.
- Development of new facilities in accordance with the comprehensive plan as the need arises.
- Evaluation of other properties and potential partnerships as needed to meet the mission statement.

# Stepwise Process Diagram

FINAL



## Solution Principles

FINAL

Consideration of new recreational facilities should be based on demonstrated need and the potential impact on existing facilities.

1. Priority should be given to demonstrated need within the FERC project boundary.
2. Priority should be given to recreational proposals where multiple stakeholders offer significant participation.
3. Recreational facilities should appeal to a broad public.
4. Reasonable access for the disabled should be provided.
5. Recreational needs should be prioritized for the project including a schedule of proposed improvements so that all costs are not in the first few years of the new license.
6. The improvement or expansion of existing recreational facilities should be considered first.
7. Additional recreational studies (if needed) should be only of sufficient scope and duration to provide necessary information to develop issue solutions.
8. Consensus based solutions are preferred over studies, unless solutions cannot be developed with existing information.
9. A process should be developed to adjust proposed improvements over the 30+ year time frame approximately every 7 to 10 years to account for changing needs. This should include the ability to trade a new needed facility for a proposed (but not built) facility of approximately the same cost.
10. Sufficient “future recreational” land should be set aside now to handle the recreational needs of 30+ years.

Preferred consideration will be given to ideas that:

- do not promote facilities that would adversely impact existing commercial operations;
- identify actual recreational needs that are not filled by existing facilities;
- receive broad public support;
- expand existing recreational facilities prior to developing green field sites;
- require doing recreational studies only if consensus cannot be reached with existing information (It is preferred to put financial resources into recreational facilities and opportunities that benefit the overall Project, rather than fund unnecessary/subjective studies).

## Standard Process Form

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The following is a list of standard questions designed to help characterize existing recreation resources and aid in development of an appropriate recreation plan for the Saluda Project. Questions pertaining to recreation management are categorized according to the four-step recreation plan stepwise process diagram developed for the project. Questions pertaining to reservoir levels and downstream flows are listed following the facility management material.

### **STEP 1 – DETERMINE DESIRED FUTURE CONDITION**

1. *Identify Lake Murray and/or Lower Saluda River (LSR) qualities important to keep and any qualities that need changes.*

Qualities to keep include the fishing, hunting, and wildlife watching opportunities associated with the Project. The presence of natural shoreline, islands, and riverbanks are aesthetically pleasing and promote a sense of solitude. The balance between public/private recreational access to the project should be maintained. The shoreline management program is an important means of protecting these qualities and should continue for the term of the new license. The safety and security of recreational users should also be preserved as part of the overall recreational experience. While the lake has good water quality at the present time, we should strive to maintain and improve the water quality of the lake.

There are other qualities that some stakeholders would like to change. These include the water level stability on the lake to provide year-round access to a majority of shoreline property owners. The quality of amenities and access should be improved for recreational users. The recreational experience on the lower Saluda River could also be enhanced by providing minimum flows to protect the health of the river. These flows should be targeted at meeting state standards for dissolved oxygen in the tailrace and river and providing aquatic habitat. The impacts of unscheduled releases from the Project should also be addressed through some combination of providing more predictable flows, managing the rate of water level rise, and/or improving the warning system on the river.

The Project should also continue to provide reasonably affordable, reliable energy to SCE&G's service area.

2. *Are there unique characteristics of Lake Murray and/or the LSR relative to other reservoirs/tailraces in the area?*

The location of Lake Murray and the lower Saluda River near the metropolitan area of Columbia, SC is a unique characteristic of the Project. Due to the extensive shoreline of the reservoir and the amount of Project lands, the Shoreline Management Plan provides a variety of recreational access. The reservoir is also relatively uninterrupted by bridges, unlike other lakes in the vicinity.

Other distinguishing characteristics of the Project include the purple martin habitat on Lunch Island and the trout and striped bass fishery and whitewater paddling opportunities in the lower Saluda River.

## Standard Process Form

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3. *What is the overall vision for Lake Murray and/or the LSR, in terms of recreation experiences and opportunities?*

The long-term vision for the Saluda Project is to recognize, protect, and enhance the fishery, water quality, aesthetic values, cultural resources, and public recreational opportunities on the reservoir and the lower Saluda River, while recognizing the need to protect habitat supporting threatened, endangered, and sensitive species of Lake Murray and the lower Saluda River, and ensure adequate facilities and public access are provided. Given the size of the reservoir/hydro-project area, it is felt that it can continue to support a diversity of recreation opportunities. Recognizing that needs and demands will change, recreational uses will be monitored and managed to balance access/uses with the protection of natural resources and environmental quality; and planning for new facilities and management schemes will remain adaptive to changes.

4. *Are there sensitive biological or cultural resources associated with the Project that need to be considered? Where are these resources located and are there seasonal sensitivities (e.g., nesting or spawning times, etc.)?*

There lands in environmentally sensitive areas that have been identified in the current shoreline management plans. There are also natural/undeveloped lands that provide valuable wildlife habitat.

There is some concern over migrating fish on the lower Saluda and Congaree Rivers. A unique cold water fishery also exists in the lower Saluda River. Rocky shoals spider lilies have also been located in the confluence area. There are also bald eagles, woodstorks, and purple martins in the vicinity of the Project.

Numerous cultural resources also exist in the Project vicinity.

Details about these resources will be described in the various resource conservation groups.

5. *Identify specific goals and objectives for managing recreation at Lake Murray and/or in the LSR.*

Recreational sites and access areas on the lake and the river should be adequate to allow for the continued rapid population growth in the Midlands over the term of the new license based on surveys of the public and input from the stakeholders and public.

Sites should be spaced around the lake and along the river corridor to provide legal public access to the different geographic sections of both.

Uncrowded conditions should be available most of the time at the sites, with natural viewsapes and provisions for most of the current and anticipated popular recreational activities incorporated into the overall provisions.



## Standard Process Form

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Patrols and/or assistance for emergencies should be provided, though not necessarily manned, such as adequate phone boxes.

Safe recreational opportunities should be available for boaters on the lake with adequate lake levels for the navigational markers, and on the river with release levels that are not life-threatening to the average person.

The recommendations of the Lower Saluda Scenic River Advisory Council should be implemented to reflect the broad community-based consensus for river access, with consideration of additional river access to areas where trespassing is now the only way to enter an area.

### **STEP 2 – ESTABLISH BASELINE CONDITIONS**

6. *What is the nature of existing recreational access to Lake Murray and the LSR?*  
a. *How many publicly accessible, developed recreation sites are there?*

As of 2007, there are 14 SCE&G owned “Existing Recreation Sites” and 31 public marinas on Lake Murray.

As of 2007, there are 3 SCE&G owned “Existing Recreation Sites” on the lower Saluda River. There are an additional 2 public sites outside the project boundary (the Mill Race sites).

- b. *Where are they located/how are they distributed around the Project?*

See the Saluda Hydro Project Existing Recreation Sites Map

- c. *Of these publicly accessible access sites how many are owned and operated by public versus private entities and how are they supervised?*

2 of the SCE&G owned “Existing Recreation Sites” on Lake Murray are managed by other entities: Dreher Island State Park is managed by South Carolina Parks, Recreation and Tourism and Larry L. Koon Boat Landing is managed by the Lexington County Recreation and Aging Commission.

2 of the SCE&G owned “Existing Recreation Sites” on the LSR are managed by other entities: Saluda Shoals Regional Park is managed by the Irmo-Chapin Recreation Commission and Mett’s Landing is managed by the Lexington County Recreation and Aging Commission.

The 31 public marinas are managed by various commercial entities.

## Standard Process Form

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- d. How many sites, open to the public, provide boat access to the reservoir and the LSR?*

12 of the SCE&G owned “Existing Recreation Sites” on Lake Murray provide boat access; 21 of the public marinas provide boat access.

3 of the sites on the LSR provide boat access.

- e. How many provide shoreline fishing?*

6 of the SCE&G owned “Existing Recreation Sites” on Lake Murray have formal fishing docks/piers.

1 of the SCE&G owned sites on the LSR has a formal fishing dock/pier.

- f. Identify the most heavily used facilities.*

The most used “Existing Recreation Sites” (plus Bundrick Island) during the 2006 recreation season were Dreher Island State Park (116,670 recreation days or 25 percent of total use), Bundrick Island (94,570 recreation days or 20 percent of total use), Dam Site (54,460 recreation days or 12 percent of total use), and Larry Koon (54,080 recreation days or 12 percent of total use).

The most used “Existing Recreation Sites” (including the Mill Race sites) on the LSR were Saluda Shoals Park (135,050 recreation days or 58 percent of total use on the lower Saluda River), Mill Race B (37,950 recreation days or 16 percent of total use), Metts Landing (24,520 recreation days or 11 percent of total use) and Mill Race A (22,980 recreation days or 10 percent of total use).

- g. Are there informal, undeveloped use areas? Where are they?*

There are 10 informal sites on Lake Murray. There are also 64 islands (100 acres) available for public recreation on Lake Murray. In addition, there are 1.57 shoreline miles (42.17 acres) classified as Conservation Areas in the Lake Murray Shoreline Management Plan available for passive public recreation. The 10 “Existing Future Sites” are also available for passive public recreation.

There are 2 informal access areas on the LSR, but they are located outside the project boundary. They are located upstream of the Riverbanks Zoo (Mill Race A) and downstream of the Zoo (Mill Race B).

## Standard Process Form

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7. *What types of existing developed facilities are there?*

a. *Enumerate boat ramps, restrooms, docks, and other facilities.*

There are a total of: 351 picnic tables, 201 grills, 55 shelters, 44 trash cans, 38 toilets (34 permanent), 12 boat launches (with 24 lanes), 10 courtesy docks and 6 fishing piers at “Existing Recreation Sites” on Lake Murray.

There are a total of: 50 picnic tables, 6 grills, 4 shelters, 21 trash cans, 6 toilets (6 permanent), 2 boat launches (with 3 lanes), 3 carry-in launches, and 1 fishing pier within the project boundary at “Existing Recreation Sites” on the LSR.

b. *What is the existing capacity at each site?*

<b>Public Access Sites</b>	<b>Vehicle Spaces</b>	<b>Vehicle/Trailer Spaces</b>	<b>ADA Spaces</b>	<b>Total Number of Parking Spaces</b>
Dam	72	106	3	181
Parksite	339	0	4	343
Larry Koon	8	39	2	49
Shull Island*	0	8	0	8
Murray Shores*	26	24	0	50
Riverbend*	49	35	0	84
Higgins Bridge*	0	8	0	8
Kempson Bridge	16	16	0	16
Lake Murray Estates Park	0	22	0	22
Macedonia Church	12	0	0	12
Sunset*	12	14	0	28
Rocky Point	2	1	0	3
Dreher Island State Park	418	177	14	619
Hilton	8	27	2	37
Saluda Shoals Park	435	10	18	463
Mett's Landing	5	18	2	25
Gardendale*	40	0	0	40
Millrace A	45	0	0	45
Millrace B*	64	0	0	64

\* estimated

c. *What is the general condition of each site and its facilities?*

Condition at SCE&G owned sites were rated by public access sites users on a scale from 1 to 5 where 1 equals “poor” and 5 equals “excellent”.

## Standard Process Form

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<b>Public Access Sites</b>	<b>Poor</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>Excellent</b>
Dam	2%	3%	29%	31%	35%
Parksite	5%	5%	22%	36%	31%
Larry Koon	4%	2%	17%	28%	50%
Shull Island	8%	5%	10%	29%	48%
Bundrick Island	6%	12%	33%	28%	22%
Murray Shores	1%	6%	25%	39%	30%
Riverbend	5%	7%	25%	35%	29%
Higgins Bridge	3%	11%	49%	24%	14%
Kempson Bridge	0%	0%	0%	18%	82%
Lake Murray Estates Park	0%	0%	6%	51%	43%
Macedonia Church	0%	0%	17%	8%	75%
Sunset	0%	0%	5%	32%	63%
Rocky Point	0%	0%	0%	100%	0%
Dreher Island State Park	1%	3%	6%	20%	71%
Hilton	0%	1%	0%	11%	88%
Saluda Shoals Park	0%	0%	5%	17%	78%
Mett's Landing	0%	1%	17%	48%	34%
Gardendale	3%	7%	34%	38%	17%
Millrace A	17%	8%	43%	19%	13%
Millrace B	6%	13%	40%	27%	14%

*d. Ideas for improving existing facilities.*

### **Parksite (1-01)**

- Expand the parking area (**Lake Murray Watch**)

### **Larry L. Koon Boat Landing (1-02)**

- Evaluate alternatives to increase parking capacity (**SCE&G**)
  - overflow parking at Shull Island (1-02A)
- Identify substitute sites through education (web site, maps, etc.) (**SCE&G**)
- Improve barrier free access (**SCE&G**)
  - restroom facilities
- Provide ADA accessible fishing pier with hard surfaced walkway from parking area to fishing pier that meets ADA Standards (**SCDNR**)

## Standard Process Form

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- Widen existing driveway entrance to eliminate the “trailer drop” into the drainage ditch **(SCDNR)**
- Expand the parking area **(Lake Murray Watch)**

### **Shull Island (1-02B)**

- Add two picnic tables **(SCE&G)**
- Rehabilitate existing ramp to provide steeper slope and access deeper water **(SCDNR)**
- Provide an ADA accessible floating courtesy dock system to allow use at low lake levels **(SCDNR)**
- Pave and delineate parking area to eliminate the migration of sediments into the lake and to provide organized traffic flow and parking **(SCDNR)**
- Expand the parking area **(Lake Murray Watch)**

### **Murray Shores (1-03)**

- Improve directional signs to the site (working with Lexington and/or Saluda counties) **(SCE&G)**
- Improve barrier free access **(SCE&G)**
  - courtesy dock not ADA - too high at low water, gaps between ramp and dock/pier, etc.
- Stripe parking lot **(SCE&G)**
- Improve lighting **(SCE&G)**
- Add restroom facilities (ADA compliant) **(SCE&G)**
  - Depending on availability of sewer
- Provide ADA accessible fishing pier with hard surfaced walkway from parking area to fishing pier that meets ADA Standards **(SCDNR)**
- Improve access drive by paving to eliminate the migration of sediments into the lake and control dust **(SCDNR)**
- Expand the parking area or add additional overflow parking **(Lake Murray Watch)**

## Standard Process Form

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### **River Bend (1-04)**

- Improve barrier free access (**SCE&G**)
  - fishing pier not ADA - no trail, rails too high, etc.
  - courtesy dock not ADA - too high at low water, gaps between ramp and dock/pier, etc.
- Add 5.6 acres for future use (**SCE&G**)
- Pave and delineate parking areas to eliminate the migration of sediments into the lake and to provide organized traffic flow and parking (**SCDNR**)
- Expand the parking area or add additional overflow parking (**Lake Murray Watch**)

### **Sunset (1-05)**

- Improve barrier free access (**SCE&G**)
  - fishing pier not ADA - no trail, rails too high, etc.
  - courtesy dock not ADA - too high at low water, gaps between ramp and dock/pier, etc.
- Stripe parking lot (**SCE&G**)
- Add restroom facilities (ADA compliant) (**SCE&G**)
- Pave parking lot (**SCE&G**)
- Expand parking lot (**SCE&G**)
- Add approximately 31.7 acres for future use (**SCE&G**)
- Eliminate drop-off conditions on sides of ramp either by adding stabilization material of rehabilitating the ramp (**SCDNR**)

### **Rocky Point (1-06)**

- Monitor site conditions over time to check on user perceptions of the condition ratings (**SCE&G**)
- Expand the parking area (**Lake Murray Watch**)

## Standard Process Form

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### Hilton (1-07)

- Improve barrier free access (**SCE&G**)
  - courtesy dock not ADA - too high at low water, gaps between ramp and dock/pier, etc.
- Add restroom facilities (ADA compliant) (**SCE&G**)
- Improve lighting (**SCE&G**)
- Add ADA compliant fishing pier (**SCE&G**)
- Provide hard surfaced walkway from parking area to fishing pier that meets ADA Standards (**SCDNR**)
- Improve access drive by paving to eliminate the migration of sediments into the lake and control dust (**SCDNR**)
- Expand the parking area or add additional overflow parking (**Lake Murray Watch**)

### Dam Site (1-08)

- Increase and/or expand courtesy docks (**SCE&G**)
- Improve barrier free access (**SCE&G**)
  - pier (by launch) - ADA access trails but railings high - would depend on use
  - courtesy dock not ADA - too high at low water, gaps between ramp and pier/dock
  - fishing pier not ADA - trail access but railing too high, etc.
- Pave path to restroom (**SCE&G**)
- Provide ADA accessible fishing pier to allow deep-water fishing during lake drawdowns to level 345' (**SCDNR**)

### Saluda Shoals Park (1-09)

- Provide bank access area to deep water for fishing opportunities up-stream (**SCDNR**)
- Provide ADA accessible fishing pier with a hard surface area ADA accessible (**SCDNR**)
- Extend the trail network into the additional property recently acquired by ICRC (**SCPRT**)

## Standard Process Form

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- Expand the parking area (**Lake Murray Watch**)

### **James R. Metts Landing (1-10)**

- Add two picnic tables (**SCE&G**)
- Provide bank access area to deep water for fishing opportunities (**SCDNR**)
- With the cooperation of the LCRAC, add restroom facilities that meet ADA Standards (**SCDNR**)
- Expand the parking area (**Lake Murray Watch**)

### **Dreher Island State Park (1-11)**

- Install additional slips at marina (**SCPRT**)
- Create a sailboat mooring area (**SCPRT**)
- Install fishing piers (**SCPRT**)
- Expand the parking area (**Lake Murray Watch**)
- Expand wet storage to accommodate 200 slips (**Lake Murray Watch**)

### **Macedonia Church (1-12)**

- Expand the parking area or add additional overflow parking (**Lake Murray Watch**)

### **Higgins Bridge (1-13)**

- Add two picnic tables (**SCE&G**)
- Pave access drive and existing parking area to eliminate the migration of sediments into the lake and to provide organized parking and traffic flow (**SCDNR**)
- Access drive should allow for two-way traffic flow for safety concerns (**SCDNR**)
- Expand the parking area (**Lake Murray Watch**)



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### **Kempson Bridge (1-14)**

- Add restroom facilities (ADA compliant) **(SCE&G)**
- Add two picnic tables **(SCE&G)**
- Provide hard surfaced walkway from parking area to fishing pier that meets ADA Standards **(SCDNR)**
- Provide additional paved, organized parking for vehicle/trailer use **(SCDNR)**
- Provide proper number of handicap parking spaces for both vehicle/trailers and car only spaces. There are currently none provided **(SCDNR)**
- Expand the parking area or add additional overflow parking **(Lake Murray Watch)**

### **Gardendale (1-15)**

- Explore lease to the Irmo-Chapin Recreation Commission with the following conditions: **(SCE&G)**
  - Pave access road
  - Add picnic tables
  - Add restroom facilities (ADA compliant)
  - Increase capacity
  - Pave parking lot
  - Improve carry-in access (reduce distance from parking area to launch)
- Share cost with ICRC **(SCPRT)**
- Expand the parking area **(Lake Murray Watch)**

### **Lake Murray Estates Park (1-22)**

- Improve directional signs to the site (working with Saluda County) **(SCE&G)**
- Add restroom facilities (ADA compliant) **(SCE&G)**
- Pave parking lot **(SCE&G)**
- Expand parking lot **(SCE&G)**

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- Provide hard surfaced walkway from parking area to fishing pier that meets ADA Standards (**SCDNR**)
- Rehabilitate the existing floating courtesy dock system to comply with ADA Standards for use at low lake levels (**SCDNR**)

8. Describe notable recreation activities on Lake Murray and/or the LSR.
- a. List recreation activities currently occurring and identify most prominent activities.

The distribution of activities taking place at SCE&G owned “Existing Recreation Sites” (including Bundrick Island) on Lake Murray is as follows:

Activity	% of Use
<b><i>Water-Based Activities</i></b>	
Bank Fishing	14%
Boat Fishing	37%
Pier/Dock Fishing	2%
Canoeing/Kayaking	0%
Jet Skiing	3%
Motor Boating	8%
Pontoon/Party Boating	6%
Sailing	0%
Waterskiing/Tubing/Tow	2%
Swimming	8%
<b><i>Water-Based Activities Total</i></b>	<b><i>80%</i></b>
<b><i>Land-Based Activities</i></b>	
Bicycling	0%
Camping	3%
Event	0%
Picnicking	5%
Playground	0%
Sightseeing	3%
Sunbathing	1%
Walking/Hiking/Backpacking	2%
Other	4%
<b><i>Land-Based Activities Total</i></b>	<b><i>20%</i></b>

Other activities that were not seen at public recreation sites, but occur on the reservoir include sailing and waterfowl hunting.

The Lake Murray Association also identified fishing, pleasure boating, and swimming as significant activities participated in by shoreline residents.

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Upon completion of the renovation of Parksite (Lexington Side), a walking trail across the Saluda Dam has been completed and appears to be used well.

The distribution of activities taking place within the project boundary at SCE&G owned “Existing Recreation Sites” on the LSR is as follows (does not include Mill Race A and Mill Race B, which are outside the project boundary):

<b>Activity</b>	<b>% of Use</b>
<b><i>Water-Based Activities</i></b>	
Bank Fishing	9%
Boat Fishing	11%
Pier/Dock Fishing	1%
Wading Fishing	0%
Flatwater Canoe/Kayak	13%
Rafting	0%
Tubing/Floating	5%
Whitewater Canoe/Kayak	7%
Swimming	4%
<b><i>Water-Based Activities Total</i></b>	<b><i>51%</i></b>
<b><i>Land-Based Activities</i></b>	
Bicycling	3%
Camping	0%
Dog Walking	7%
Event	3%
Nature Study/Wildlife	1%
Picnicking	1%
Playground/Spraypark	6%
Sightseeing	12%
Sunbathing	0%
Walking/Hiking/Backpacking	5%
Other	9%
<b><i>Land-Based Activities Total</i></b>	<b><i>49%</i></b>

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The distribution of activities taking place at Mill Race A and Mill Race B is as follows:

<b>Site</b>	<b>Activity</b>	<b>Total</b>
Mill Race A	Bank Fishing	20%
	Boat Fishing	5%
	Flatwater Canoe/Kayak	9%
	Rafting	2%
	Tubing/Floating	5%
	Whitewater Canoe/Kayak	14%
	Camping	2%
	Dog Walking	5%
	Nature Study/Wildlife	3%
	Picnicking	3%
	Sightseeing	8%
	Sunbathing	5%
	Swimming	16%
	Walking/Hiking/Backpacking	3%
	Other	2%
	<b>100%</b>	
Mill Race B	Bank Fishing	19%
	Boat Fishing	1%
	Rafting	3%
	Tubing/Floating	6%
	Whitewater Canoe/Kayak	1%
	Dog Walking	9%
	Nature Study/Wildlife	6%
	Sightseeing	1%
	Sunbathing	10%
	Swimming	24%
	Walking/Hiking/Backpacking	10%
	Other	10%
		<b>100%</b>

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In general, SCPRT reports the following activities are most popular in the four county area surrounding the Project (participants age 12 and older):

Activity	Four County Area (Percent)	State (Percent)
1. Walking for pleasure or exercise	81.8	83.2
2. Attending outdoor sporting events	70.3	63.4
3. Weights or exercise machines	68.9	57.1
4. Ocean Beach swimming/sunbathing	68.3	62.5
5. Visiting a zoo	58.8	34.1
6. Pool swimming	54.1	53.2
7. Driving for pleasure	53.5	58.2
8. Picnicking	52.1	53.4
9. Visiting historical sites	51.5	52.1
10. Bicycling	51.1	42.8
11. Visiting a museum	45.2	38.4
12. Playing basketball	45.0	34.5
13. Jogging/running	42.7	33.9
14. Motor boating	35.4	34.1
15. Fresh water fishing	34.8	37.2
16. Visiting an unusual natural feature	34.4	34.7
17. Watching wildlife	34.0	33.4
18. Lake/river swimming	29.3	28.0
19. Playing football	28.8	22.4
20. Golf	26.1	21.1
21. Guided nature trail/study	26.1	20.2
22. Playing volleyball	24.5	17.2
23. Off-road vehicle riding	23.8	23.5
24. Camping	22.2	23.1
25. Hiking	20.9	18.2

*b. Where are these uses occurring, and are they concentrated in certain areas?*

See Table D-1 and Table E-1 in the Recreation Assessment Study Report.

There are some unique activities that were not captured in the surveys of public site users. These include waterfowl hunting, which takes place mostly in the upper reservoir due to legislative restrictions regarding hunting near residential development, and wade fishing, which is concentrated at Sandy Beach, Corley Island, and the Oh Brother/Ocean Boulevard rapids section below the I-26 bridge on the LSR.

*c. Identify existing impediments to these activities, if any.*

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Dramatic river fluctuations are impediments to water-based recreational activities along the lower Saluda River.

The Lake Murray Association and other lake stakeholders report that access from private boat docks for the majority of shoreline residents is not possible at lake levels below 354' PD.

9. *Are there known management issues associated with use?*

a. *Are there areas of congestion, and if so where?*

Results of the boating density study (Kleinschmidt, 2007c) showed that Lake Murray is currently utilized well below its recreational boating capacity. Weekend percent capacity only exceeds 20 percent in Segment 2. Six segments (1, 6, 7, 8, 10, and 12) had weekend percent capacities between 10 percent and 20 percent, with the remaining five segments (3, 4, 5, 9, and 11) being below 10 percent capacity on weekends. Percent capacity averaged about 12 percent on weekends across the entire reservoir. Holiday use, which is the peak use time for the reservoir, was higher in most segments, leading to higher percent capacities on holidays. Four segments (1, 2, 10, and 12) had percent capacities over 20 percent, with Segment 1 having the highest percent capacity (26 percent). Six segments (3, 5, 6, 7, 8, and 11) had percent capacities between 10 percent and 20 percent. The remaining two segments (4 and 9) were still below 10 percent capacity on holidays. Percent capacity averaged about 16 percent on holidays across the entire reservoir.

b. *Are there known conflicts between users, and if so where and when?*

Fishing tournaments are disruptive to other boaters and residents. There needs to be an established, enforced protocol for organized fishing tournaments.

Jet skis and large motorboats are disruptive to anglers, other boaters, and residents.

Kayakers are often called upon to rescue rock people near Zoo.

The area known as "Two Bird Cove", designated as a Special Recreation Area (for overnight anchorage), is creating conflicts between shoreline property owners in the area and boats that are anchoring for long periods of time. The property owners are also concerned about the use of the buffer zone in this area.

c. *Are there other known management issues, such as littering, trespassing, etc.?*

Enforcement of established rules are limited by funding, staffing, and political boundaries.

Littering on the islands in Lake Murray is becoming a problem.

The effects of boat wakes in the coves of Lake Murray is a concern for many of the stakeholders.

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*d. Are there known issues regarding recreational safety?*

Wade fishing, canoeing/kayaking, and other water contact and bank use is often dangerous due to river fluctuations in water levels on the lower Saluda River.

Some stakeholders contend that the shoal marker program for Lake Murray is inefficient due to lack of manpower and funding.

The lack of law enforcement is generally a problem at the more remote recreation sites, especially Metts Landing and Gardendale on the LSR and Sunset and River Bend on Lake Murray. On-the-water enforcement of boating laws is also an issue.

Swimming takes place near boat ramps, which is against the law, but was an observed activity during the recreation assessment.

*10. What is the expected future demand for recreation activities at Lake Murray?*

*a. Will existing facility capacity likely be exceeded, and if so where and when?*

Results of the Recreation Assessment Study suggested that Dam Site, Parksite, Rocky Point and Dreher Island State Recreation Area on Lake Murray are consistently used within their design capacities, regardless of day type (weekend, weekday or holiday), and could accommodate additional use. Three sites, River Bend, Higgins Bridge, and Kempson Bridge, are currently used at rates approaching capacity, though this trend was only observed on holidays for River Bend and Kempson Bridge.

The remaining seven sites were observed to be used at rates that regularly meet or exceed their design capacities on some or all day types. Larry L. Koon Boat Landing and Shull Island are used beyond their capacities, regardless of day type. Lake Murray Estates Park is utilized at rates that exceed its capacity on weekends, and use exceeds capacity on weekends and holidays at Sunset and Hilton. Capacity is exceeded on holidays at Murray Shores but this site is consistently used within its design capacity on weekdays and weekends. Use at Macedonia Church is considered to exceed design capacity on weekdays and weekends.

*b. Would accommodating this demand be consistent with the long-term vision for the reservoir?*

Yes.

*c. Will demand introduce new or additional congestion, conflicts, or other management issues?*

The Recreation Solutions Principles, if followed in any future planning efforts, should reduce congestion, conflicts, and other management issues.

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*11. Identify current local benefits from recreation and any local detriments.*

Better quality of life, outdoor experiences, physical fitness, and mental health benefits.

Commercial enterprises rent and/or sell boating, fishing, and other equipment, provide services, and stimulate the local/regional economy.

More local benefits can be found at the Capital City Lake Murray Country website at <http://www.lakemurraycountry.com>.

### **STEP 3 – DETERMINE WHAT IS NEEDED AND WHEN**

*12. Ideas for better or different access, consistent with Step 2 above.*

- creation of public access sites and greenway-trail concepts as proposed in the Lower Saluda River Corridor Plans of 1990 and 2000, which include a linear park and trail system on the north bank of the river connecting Saluda Shoals Park to Gardendale Landing and Riverbanks Zoo; and a park/preserve on the south side of river at Twelve-mile Creek
- creation of a state park on the south side of the reservoir
- creation of a multi-lane boating facility that can accommodate large tournaments
- consideration of a boat ramp for small trailered boats at Gardendale or further downstream, but above I26, to allow safer upstream motoring towards Metts Landing. Many boaters have carried in their heavy rigs for years at the Gardendale 'throw-in' to be able to more safely boat the Saluda.

*13. Potential facility enhancements or upgrades, consistent with Step 2 above.*

See Question 7d.

*14. Potential new facilities, or other management actions, consistent with Step 2 above.*

#### **Cloud's Creek (1-18)**

- Install a gravel parking lot to accommodate approximately 8 to 10 vehicles (and trailers) (SCE&G)
- Install carry in access (SCE&G)

#### **Little Saluda Point (1-20)**

- Add 14.2 acres for future use (SCE&G)
- Install two fishing piers (SCE&G)



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- Develop a walking path to the fishing piers **(SCE&G)**
- Expand the parking area **(Lake Murray Watch)**

### **Bundrick Island (1-21)**

- Explore lease /development alternatives with the LCRAC and/or SCPRT **(SCPRT)**
- Develop into a formal site **(Lake Murray Watch)**
  - A small portion should be utilized for parking area and boat launching facilities should be constructed. Walking trails with an occasional picnic area would protect the natural setting. The Sandy Beach area should remain pristine to continue to protect this unique setting.

### **Old Corley Bridge Road Canoe Access**

- Install a gravel parking lot to accommodate approximately 8 to 10 vehicles (with trailers) **(SCE&G)**
- Install carry in access **(SCE&G)**
- Install directional signs to the site (working with Saluda County) **(SCE&G)**

### **Shealy Tract**

- Install a gravel parking lot to accommodate approximately 8 to 10 vehicles (no trailers) **(Lake Murray Watch)**
- Install fishing piers **(SCPRT)**
- Install picnic shelters **(SCPRT)**
- Create walking trails **(SCPRT)**

### **Twelve-mile Creek (SCPRT)**

- Explore lease to the Lexington County Recreation and Aging Commission **(SCE&G)**

**Candi Lane**

- Explore lease to the City of Columbia with the following conditions: **(SCE&G)**
  - Install a gravel parking lot to accommodate approximately 20 vehicles (no trailers)
  - Install carry in access

*15. What are the priorities regarding identified needs both in terms of resources and time? How do priorities compare across the entire Project?*

The priorities for the first ten years of the new license will be to upgrade existing facilities to meet ADA design standards, providing for two “premier” ADA compliant parks on the north and south side of the reservoir. Along with other improvements scheduled for the first ten years of the new license, recreational access needs should continue to be met during this time. Priorities will be identified beyond ten years during the regular consultation process discussed in the Recreation Plan.

**STEP 4 – DECIDE HOW NEEDS WILL BE MET AND WHO IS RESPONSIBLE**

SCE&G will be responsible for all facility upgrades identified in the Recreation Plan. If property is leased, updates will be provided in the Recreation Plan Addenda.

**QUESTIONS REGARDING RESERVOIR LEVELS**

*16. How is the Project currently operated and what are the typical reservoir levels during key recreation seasons?*

- SCE&G operates Saluda Hydroelectric Project as a multi-purpose project. The seasonal changes in elevations provide hydroelectric generation, maintenance of downstream water quality, a unique tailrace fishery, and municipal/industrial water supply.
- SCE&G has an agreement with SCDHEC for a minimum flow of 180 cfs.
- During the low DO season which generally runs from late June to early December, SCE&G will try to maintain a minimum flow of 400 – 500 cfs to help maintain a higher level of DO in the lower Saluda River.
- From April through the end of August the lake is operated near the normal operating high water level of el. 358 ft Plant Datum (PD). Maximum full pool is el. 360 PD.
- Drawdown begins near the end of August or early September and ends in late December near the winter pool level of 350 - 352 ft PD. This allows additional storage capacity in anticipation of the late winter and early spring rainy season. In recent years, the lake has been managed for a minimum winter pool level of approximately 354 ft PD in response to the requests of stakeholder groups.
- At the beginning of January the lake is allowed to refill so it will be at the normal operating high water level of 358 ft. PD by April.

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- The plant normally operates for contingency reserve to meet our obligation to the Virginia/Carolinas Reserve Sharing Group (VACAR), which is located within the Southeastern Electric Reliability Council (SERC), which is governed by the North American Electric Reliability Council (NERC). This agreement requires that SCE&G provide up to 200 MW within 15 minutes of a plant trip. Saluda Hydro has this capability and is the primary facility that SCE&G chooses to use to meet this requirement.
- In anticipation of heavy rains from a tropical storm or hurricane, the plant will generate as necessary to manage the lake level. Power generation is increased to provide lake level management normally from September through December.
- Low lake levels can cause concern for lake residents, commercial establishments, and boaters due to their impacts on recreation. As the lake levels drop, more impacts are recognizable. A lake elevation of 356 ft PD was recognized as optimal in the Lake Murray Association September 2005 Lake Murray User Survey and in Lake Murray Homeowners Coalition surveys. According to these surveys, when the lake drops below elevation 352 ft PD more serious impacts to recreation occur.

*17. Are there changes to Project operations that you would like to see addressed to improve the overall value of the reservoir, and how specifically would such changes benefit recreation?*

- Current reservoir level operations balance the multi-purpose use of the reservoir. Maintaining the existing reservoir level fluctuations would allow for continued water level management through daily and weekly power generation operations however recreation would see no additional benefits. Conversely, limiting the seasonal fluctuation may have recreational benefits but other project purposes would be compromised (power generation, water level management, water quality maintenance, and aquatic weed control).
- Higher lake levels could increase, improve and enhance recreational opportunities.

*18. What are the impacts of seasonal and/or daily variations in reservoir level?*

- There are no large daily fluctuations in reservoir levels at the Saluda Hydroelectric Project (there are large fluctuations in the lower Saluda River water level). However, daily fluctuations in lake level could create a potential safety issue.
- Weekly and seasonal fluctuations in lake level may have an effect on recreation access.

*19. What are the reservoir levels at which recreation problems tend to occur (may be different for different locations or problems)?*

- All but one of the public (SCE&G owned) boat ramps were extended to the 345' PD elevation during the Saluda Dam Remediation Project in 2003. During this same period, most of the commercial and private boat ramps were extended to the 345' PD to 347' PD elevation. Since the proposed new guide curve will maintain a higher lake elevation throughout the year, accessibility to all boat ramps will be better during the proposed new guide curve than the current license guide curve.
- Buoys function more appropriately when lake levels are at 352 ft PD or higher.

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20. *When (i.e., what time of year) and how frequently do recreational problems occur related to reservoir levels?*

- In general, the operation of Saluda Hydroelectric Project has been consistent throughout the years except for 1990, 1996, 2002 – 2004, and 2006. During those years the lake level was lowered to around el. 345 – 348 ft PD for the following project maintenance requirements:
  - 1990 – Intake towers maintenance
  - 1996 – Hydrilla control as requested by SCDNR
  - 2002 – 2004 – FERC Order for safety during dam remediation project
  - 2006 – Upstream riprap repair
- It may be necessary to lower the lake level to around el. 345 ft PD in the future for maintenance of project structures, managing lake resources, installing new recreational access, or other extraordinary circumstances.
- Seasonal variations occur depending on rainfall and upstream water flow.

21. *Why are operating water levels important to the operation of the project and the overall system?*

- The Saluda Hydroelectric Project is a multi-purpose reservoir. The changes in water level have many beneficial impacts both upstream and downstream of the dam.
- The project is used to meet our contingency reserve capacity obligation as part of the VACAR agreement. This is for a loss on our own system or by one of our neighboring Reserve Sharing Group utilities.
- Electricity (inexpensive, clean, renewable)
- Electric system ancillary services (transmission line maintenance & overload protection, security resource for VCS Nuclear Station)
- Navigation support
- Boating opportunities
- Municipal and industrial water supply

22. *Are there state or federal operating requirements that stipulate specific operating goals?*

- SCE&G and SCDHEC have an agreement to discharge a minimum flow of 180 cfs from the project.
- Article 12 of the FERC license requires that reservoir levels and discharge from storage be controlled by reasonable rules and regulations of the Commission for the protection of life, health, and property and for other beneficial public uses including recreational purposes.
- Exhibit H of the latest FERC license application identifies the lower lake level to be Elev. 350 ft PD during normal flow years and 345 ft PD during low flow years.
- Our McMeekin Generating Station NPDES permit requires a minimum of 2,500 cfs discharge from Saluda Hydro prior to discharging the fossil plant circulating water return directly into the lower Saluda River.
- NERC/SERC/VACAR Agreements – SCE&G primarily uses Saluda to meet its reserve capacity requirements. This agreement requires that SCE&G provide up to 200 MW within 15 minutes of a plant trip. Saluda Hydro has this capability and is the primary facility that SCE&G chooses to use to meet this requirement.

**QUESTIONS REGARDING DOWNSTREAM FLOWS**

23. *Are there riverine recreation opportunities below the dam? If yes, move to additional questions, if not, stop.*

Yes, trout fishing (wading, bank, boat), striper fishing (wading, bank, boat), canoeing/kayaking, tubing, sunbathing/swimming/rock hopping, picnicking, walking/hiking, bicycling, wildlife watching.

24. *Do we know how different flow levels affect recreation opportunities and specific recreation activities?*

Based on the results of Downstream Recreation Flow Assessment, the range of acceptable flows for water-based activities varies by experience level. Generally, whitewater boating opportunities are available at all water levels ranging from 500 cfs and up and are favorable at flows of between 2,300 cfs up to 18,000 cfs. Flatwater canoeing/kayaking, like whitewater boating, is generally available at all water levels ranging from 500 cfs and up, from Metts Landing/Saluda Shoals Park to Gardendale. Power boating, including fishing from a boat, is generally best at flows between 1,000 cfs and 4,000 cfs.

Activities requiring lower flows include wade angling, swimming and rock hopping. Because these activities involve full or partial body contact with the water, they are best suited at flows that provide minimized current, shallower depths, exposed rocks and shoals, and the presence of eddies. Wade angling, swimming, and rock-hopping are best enjoyed at flows between 500 and 1,100 cfs.

To some degree, any number or all of the most popular on-water activities are available at flows of 4,000 cfs and less. Boating activities are generally available at flows of between 1,000 cfs and 4,000 cfs. Non-boating on-water activities, such as swimming and wade angling, are best suited for flows of 1,000 cfs or less.

25. *Can opportunities be enhanced by modifying releases, and in what way?*

Predictable flows would make it safer, easier to fish/boat/swim in the river. It would also enhance the commercial aspects of boating/fishing in the river (allow outfitters/guides known times they could take paying customers into the water safely).

26. *How would modified releases affect upstream lake levels?*

During normal inflow years, the proposed recreational releases will not have an effect on lake levels in Lake Murray. However, lake levels may be affected by the recreational releases during low inflow years. The reduction of the recreational releases (depending on the final Low Inflow Protocol) should minimize these effects.

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*27. How would suggested modified downstream flows affect project operations at the project and at upstream and downstream projects?*

The scheduled recreation flow releases should not affect any upstream or downstream hydropower projects. The only effect on Saluda Hydro Project operations is that Saluda will be removed from “reserve operations” status during recreational flow scheduled times.

*28. Are there additional concerns with regard to state and federal requirements or existing ecological issues that limit suggested changes to downstream flows?*

There are concerns about bank erosion due to high flows.  
There are concerns about water quality/habitat for aquatic organisms due to low flows or continuous flows.

*29. How binding is the VACAR agreement and when does it expire?*

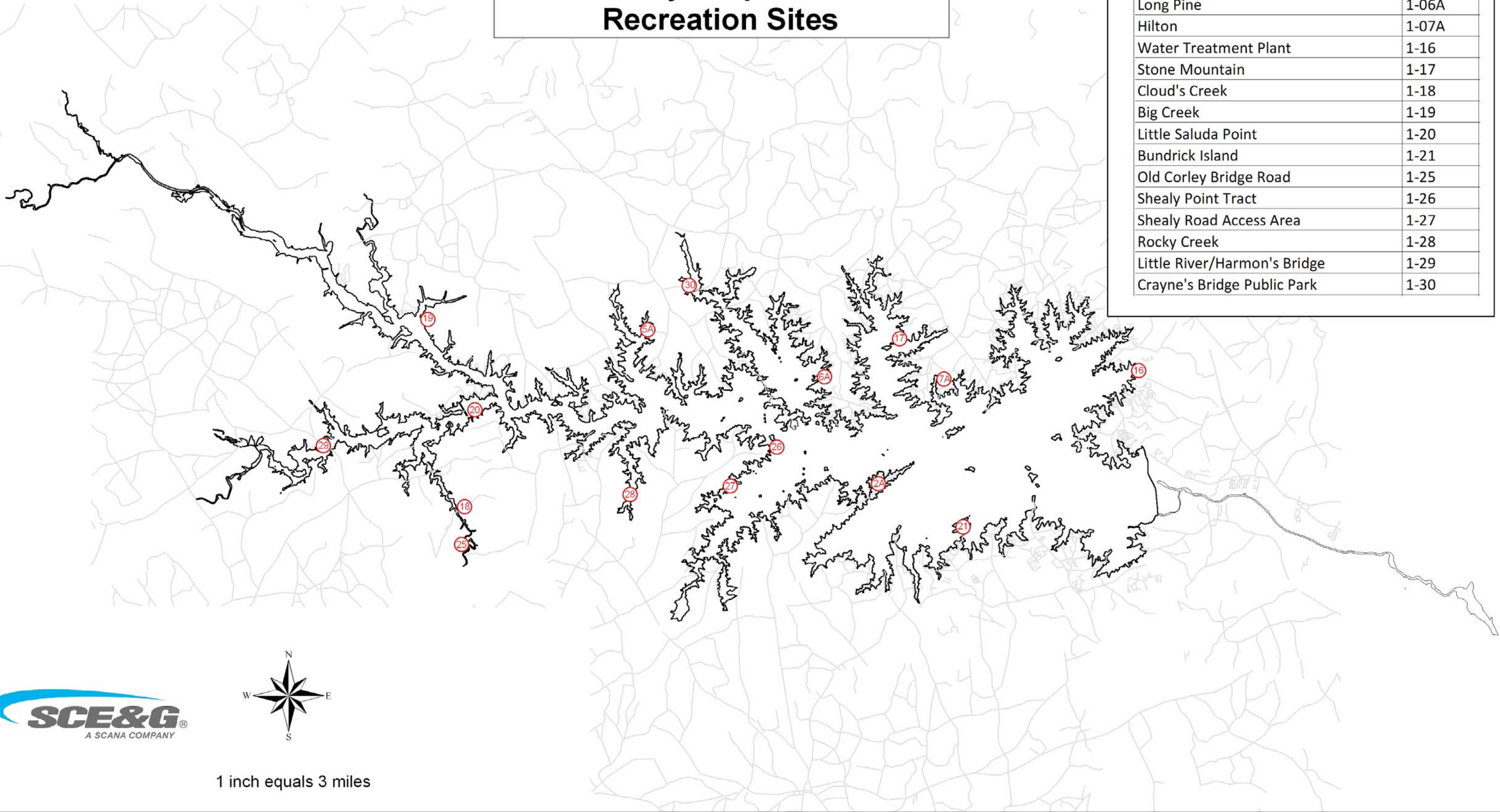
The VACAR Reserve Sharing Arrangement (“Agreement”) is an agreement among certain electric utility companies in the Carolinas and Virginia that structures operating reserves for the electric utility companies. These operating reserves allow the companies to assist one another in instances of losses of generation. The Agreement is binding, and there is no expiration date. The Agreement is tied to each Company’s two-party Interchange Agreements which remain in effect until termination, usually with at least four years notice. The Agreement provides the companies the reliability of sharing of reserves to ensure compliance with NERC Electric Reliability Organization (ERO) Reliability Standards for recovery from losses of generation resulting in a Disturbance Control Standard event. Without this structure, each company would be required to hold reserves in an amount greater than its largest unit at all times in order to ensure recovery from the loss of a unit. Under the Agreement, each company may hold less in reserve and can then call on assistance from the other companies when needed and when appropriate. Therefore, the Agreement also benefits the companies economically. Non-delivery of reserves would violate the agreement and would potentially violate NERC ERO Standards. Maximum potential assessable penalties for an ERO Standard violation are \$1 million per day per violation.

APPENDIX D

MAPS OF PROPOSED FUTURE RECREATION SITES

**Figure D-1  
Lake Murray Proposed Future  
Recreation Sites**

Proposed Future Park Sites	Number
Shull Island	1-02A
Simpson's Ferry	1-05A
Long Pine	1-06A
Hilton	1-07A
Water Treatment Plant	1-16
Stone Mountain	1-17
Cloud's Creek	1-18
Big Creek	1-19
Little Saluda Point	1-20
Bundrick Island	1-21
Old Corley Bridge Road	1-25
Shealy Point Tract	1-26
Shealy Road Access Area	1-27
Rocky Creek	1-28
Little River/Harmon's Bridge	1-29
Crayne's Bridge Public Park	1-30



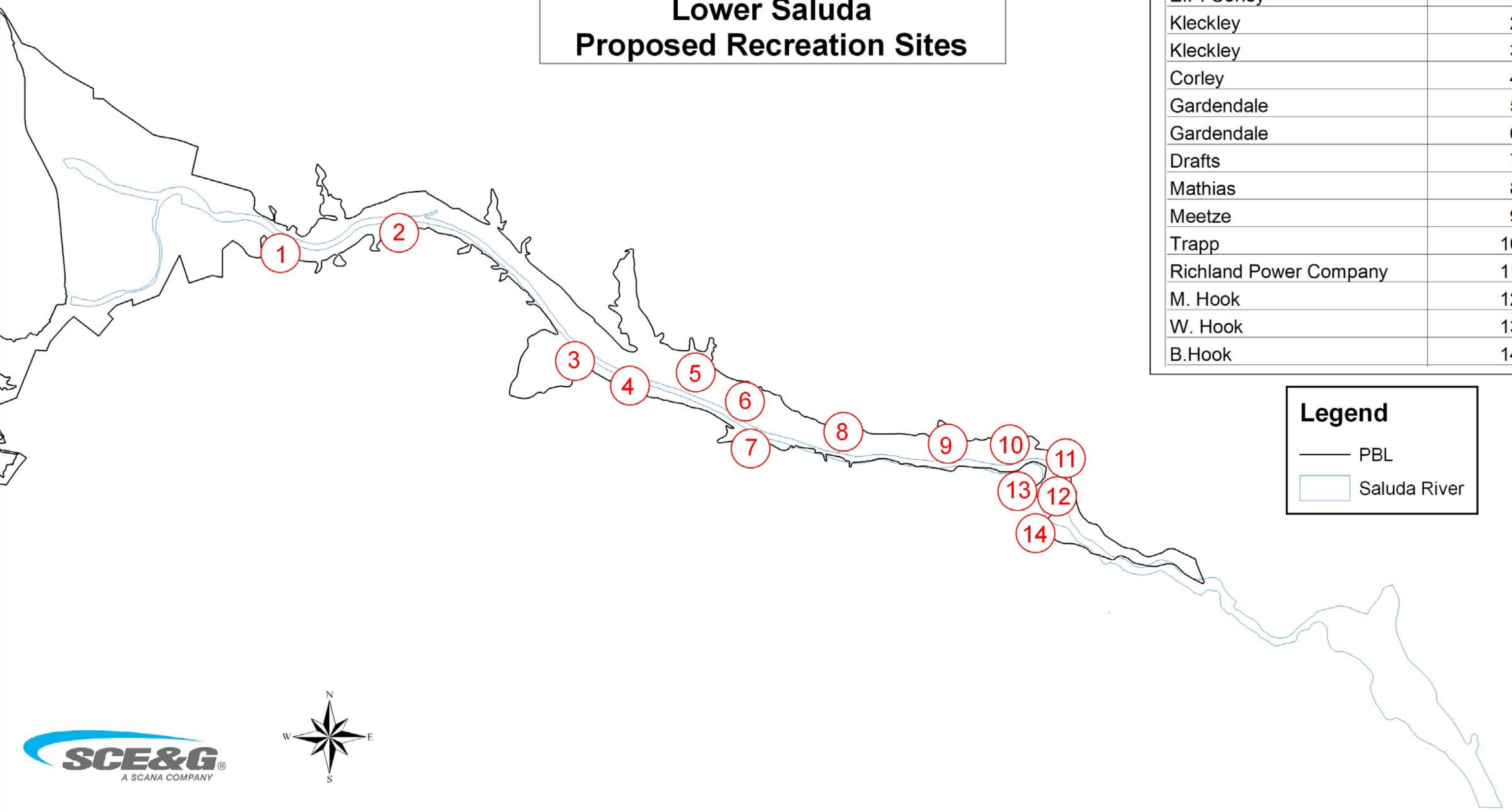


**Figure D-2  
Lower Saluda  
Proposed Recreation Sites**

Proposed Future Rec Site	Number
E.P. Corley	1
Kleckley	2
Kleckley	3
Corley	4
Gardendale	5
Gardendale	6
Drafts	7
Mathias	8
Meetze	9
Trapp	10
Richland Power Company	11
M. Hook	12
W. Hook	13
B.Hook	14

**Legend**

- PBL
- Saluda River



1 inch equals 1 mile

APPENDIX E

RECREATION RESOURCE CONSERVATION GROUP ISSUE RECOMMENDATIONS

## **Recreation Resource Conservation Group**

### **Issue Recommendation Minimum Lake Levels for Lake Murray**

FINAL

March 24, 2008

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#### **Issue:**

The Saluda Project License sets a minimum reservoir elevation of 345 ft. Plant Datum (PD) and a maximum reservoir elevation of 360 ft. PD. In the past, SCE&G normally has operated the reservoir in the range of 350 ft. PD to 358 ft. PD. Occasionally, the reservoir has been drawn down to near 345 ft. PD for vegetation control and project maintenance work. Referencing a guide curve, SCE&G sets target reservoir elevations for each month of the year to account for historic, expected seasonal inflow variations. Target elevations may vary from year to year, depending on inflow projected and/or available, planned and emergency maintenance activities, unit availability, etc.

The lake typically reaches 358 ft. PD at the beginning of June. Beginning in September, water is released, via generation, to achieve 350 ft. PD by December 31. Rising lake levels begin again around January 1 with the objective to continue to allow the rise so as to reach approximately 358 ft. PD by June 1.

The Lake Murray Association (LMA), Lake Murray Homeowners Coalition (LMHOC), and Lake Murray Watch (LMW) have expressed concerns that elevations less than 354 ft. PD at Lake Murray impede recreational use of the reservoir. According to a 2005 survey of Lake Murray users conducted by LMA, over half (51%) of lake users who responded, responded that 354 ft. PD was the minimum lake level needed for “year around safe lake use” at their “normal site or dock”; 98% of respondents indicated 356 ft. PD.

#### **Recommendation:**

The Recreation RCG recommends that:

1. A normal operating range of Lake Murray for recreational purposes should be modeled as between 354 ft. PD to 358 ft. PD, with a target elevation of 358 ft. PD being reached by April 1 of each year and being maintained through the first Monday of September (to coincide with Labor Day) of each year.
2. A normal operating range of Lake Murray for recreational purposes should be modeled as between 356 ft. PD to 358 ft. PD, with a target elevation of 358 ft. PD being reached by April 1 of each year and being maintained through the first Monday of September (to coincide with Labor Day) of each year.

## **Recreation Resource Conservation Group**

### **Issue Recommendation Protection of Natural/Undeveloped Lands for Public Recreation**

FINAL

February 5, 2008

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#### **Issue:**

SCE&G manages its lands around Lake Murray according to a Shoreline Management Plan (SMP), which is designed to comply with the terms of the Project License, regulations, and orders of the FERC. Its aim is to provide a balance between shoreline development, recreational use, and environmental protection.

SCE&G has identified eight distinct land management classifications for the land within the Project boundary line (PBL). The classifications consist of Easement, Forest and Game Management, Public Recreation, Commercial Recreation, Future Development, Conservation Areas, 75-Foot Setback, and Project Operations. Although SCE&G aims to manage their lands according to this classification system, the public has the right to access SCE&G-owned lands regardless of classification, with the exception of lands reserved and used for Project Operations.

The Lower Saluda Scenic River Advisory Council, South Carolina Department of Parks, Recreation and Tourism, Lake Murray Watch, and Coastal Conservation League/American Rivers have expressed concerns regarding the conservation of lands to enhance recreational use around Lake Murray and in the lower Saluda River corridor, protect the scenic integrity of the Project, protect wildlife habitat, and provide informal recreational opportunities.

#### **Recommendation:**

In order to enhance recreational use around Lake Murray and in the lower Saluda River corridor, protect the scenic integrity of the Project, protect wildlife habitat, and provide informal recreational opportunities, the Recreation RCG recommends that:

1. Shoreline lands classified as “Easement”, but undeveloped, be available for passive recreation opportunities inside the PBL;
2. Shoreline lands classified as “Forest and Game Management” be available for passive recreation opportunities;
3. Shoreline lands classified as “Future Development” be available for passive recreation opportunities;
4. Shoreline lands within the “75-Foot Setback” be available for passive recreation opportunities;
5. Statements be included in the SMP and recreation brochure/map that identify lands available for passive recreation opportunities.

## Recreation and Safety Resource Conservation Groups

### **Issue Recommendation Warning System for Rising Water on the Lower Saluda River**

FINAL

July 1, 2008

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#### **Issue:**

South Carolina Electric & Gas (SCE&G) currently operates the Saluda Project in order to provide reserve capacity for the company's utility obligations. Project generators are typically offline, i.e., not operating, but can be started and synchronized to the electrical grid and can increase output immediately in response to a generator or transmission outage on SCE&G's system or in response to a call for reserve power from neighboring utilities, with which the company has reserve agreements and obligations. As a result, flows from the Saluda Project are generally unscheduled.

The Lower Saluda Scenic River Advisory Council, American Whitewater, Trout Unlimited, and American Rivers have expressed concern over the safety of river users due to the unscheduled flows from the Project, as well as the rates that the river level changes due to the higher flows (> 10,000 cfs). SCE&G currently has a warning system in place that covers the area from the Riverbanks Zoo to the confluence with the Broad River, as well as the area from the Saluda Hydro powerhouse to James R. Metts Landing/Saluda Shoals Park. In 2008, SCE&G installed additional sirens and strobe lights between the Saluda Hydro powerhouse and Saluda Shoals Park. Sirens and strobe lights are located at the U.S. Geological Survey (USGS) gauge platform below the Saluda Hydro powerhouse, between the USGS gauge platform and James R. Metts Landing, at James R. Metts Landing, upstream of Riverbanks Zoo, and two locations downstream of the Zoo (Shandon Rapids and confluence with the Broad River). Along with stand alone strobe lights at the spillway discharge and Saluda Shoals Park, the sirens located at the USGS gauge platform, between the USGS platform and James R. Metts Landing, and at James R. Metts Landing are activated automatically by the plant Distributed Control System (DCS) equipment when Saluda Hydro starts to generate 5 MW or 800 cfs. The sirens sound for three minutes once activated. Subsequent siren activation is made automatically after a six minute delay from the initial activation. All strobe lights activate and remain on for 16 minutes concurrently with the initial siren activation. These sirens can be activated manually from a push button inside the Saluda powerhouse. At the Zoo location, the siren activates with a 1 inch rate of rise (ROR). The sirens sound for three minutes once activated. There is a hold-off period of 60 minutes at the Zoo location sirens and an override if the water level rises three inches during that 60-minute hold-off period; the sirens will activate again and then reset for the next 60-minute hold-off period. A strobe light activates and remains on for 16 minutes concurrently with the siren activation. Sirens are active 24 hours per day, and were tested in 2004 to calibrate the volume to cover an area 1500 feet upstream and downstream of the Zoo siren, and 500 feet upstream and downstream of the Metts Landing siren. Since 2004 two additional sirens and strobe lights were installed downstream of the Zoo. The Zoo location float switch activates these new sirens on a three-minute delay. Prominent warning signs posted near the strobe lights and sirens warn people that the activation of the sirens and/or the light signals potentially dangerous conditions caused by a rising water level. These two new sirens were tested for volume level and coverage area as part

## **Recreation and Safety Resource Conservation Groups**

### **Issue Recommendation**

#### **Warning System for Rising Water on the Lower Saluda River**

FINAL

July 1, 2008

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of their installation. SCE&G manages an electronic ring-down call system (operational on April 14, 2008) that is activated by the SCE&G System Dispatchers upon initiation of significant generation at Saluda. Upon activation, a message is sent to registered individuals via e-mail and telephone, alerting them to the initiation of generation. Registration for this ring-down service can be made at SCE&G's website (<http://www.sceg.com/en/my-community/lower-saluda-river/>). This system was developed in response to Safety RCG member requests for notification of initiation of Saluda Hydro generation. Information about current and planned operations is also provided on a website maintained by SCE&G.

#### **Recommendation:**

In order to mitigate the effects of rising water in the lower Saluda River due to project operation, the Recreation RCG recommends that SCE&G:

1. Continue to work with river users to make the current warning system on the river more effective;
2. Implement the electronic call system for the general public to alert of generation releases;
3. Install additional warning devices on the lower Saluda River that will provide auditory and/or visual warning from the tailrace of the dam to the confluence with the Broad River (initial proposal is detailed in the Safety RCG Meeting Presentations in the Saluda Hydro Project License Application);
4. Continue to implement and improve the website providing current and planned operations of the Saluda Project; and
5. Coordinate with swiftwater rescue training agencies to determine an annual schedule for training personnel.

## **Recreation Resource Conservation Group**

### **Issue Recommendation Recreational Flow Releases on the Lower Saluda River**

FINAL

February 5, 2008

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#### **Issue:**

South Carolina Electric & Gas (SCE&G) currently operates the Saluda Hydro Project in order to provide reserve capacity for the company's utility obligations, a mode of operation that the company proposes to continue under the new license. Project generators are typically offline, i.e., not operating, but can be started and synchronized to the electrical grid and can increase output immediately in response to a generator or transmission outage on SCE&G's system or in response to a call for reserve power from neighboring utilities, with which the company has reserve agreements and obligations. As a result, flows from Saluda Hydro to the lower Saluda River (LSR) are generally unscheduled.

Although there is no minimum flow requirement for the Project, SCE&G has an informal agreement with the South Carolina Department of Health and Environmental Control (SCDHEC) to provide a minimum of 180 cfs at the Project to maintain downstream water quality of the LSR. SCE&G typically releases a minimum flow of approximately 500 cfs to enhance water quality during the low dissolved oxygen (DO) season (July – November). The average annual flow from the Saluda Dam to the LSR is 2,595 cfs with a minimum average daily flow of 285 cfs.

The Lower Saluda Scenic River Advisory Council, South Carolina Department of Parks, Recreation and Tourism, South Carolina Department of Natural Resources, American Whitewater, Saluda River Chapter of Trout Unlimited, and Coastal Conservation League/American Rivers have requested instream flows for the LSR to support recreational uses such as small boat navigation, swimming, wade and boat fishing, and other downstream uses.

American Whitewater, the Coastal Conservation League/American Rivers, and the City of Columbia Parks and Recreation Department have also requested scheduled recreational releases for whitewater boating, wade fishing, and special events.

To some degree, any number or all of the most popular on-water activities are available at flows of 4,000 cfs and less. Boating activities are generally available at flows of between 1,000 cfs and 4,000 cfs, whereas, non-boating on-water activities, such as swimming and wade angling, are best suited for flows of 1,000 cfs or less.

Daily average flows of less than 1,000 cfs are generally available 38 percent of the time year-round. Hourly average flows of less than 1,000 cfs are generally available 60 percent of the time year-round.

Daily average flows of less than 4,000 cfs are generally available 83 percent of the time year-round. Hourly average flows of less than 4,000 cfs are generally available 27 percent of the time year-round.

## **Recreation Resource Conservation Group**

### **Issue Recommendation Recreational Flow Releases on the Lower Saluda River**

FINAL

February 5, 2008

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Higher flows, for whitewater activities such as canoeing/kayaking and rafting, of 12,000 cfs or greater are generally only available approximately 2 percent of the time year-round on a daily average and hourly average basis.

#### **Recommendation:**

Based on the results of the Downstream Recreation Flow Assessment, the Recreation RCG recommends:

1. SCE&G releases approximately 45,000 acre feet of water for recreational flows in the LSR. These flows will occur on no more than 51 days. The Saluda Hydro Project will be removed from reserve status during the recreational flow hours on those 51 days. The initial recreational flow schedule is attached to this recommendation.
2. SCE&G hosts an annual meeting during October of each year to review the previous year's flows, set the specific dates for the following year's flows (with the understanding that the volume of water and number of days will remain consistent from year to year, even if the schedule varies), and discuss any outstanding issues with appropriate stakeholders;
3. SCE&G hosts a tri-annual meeting to comprehensively review the recreation flow schedule for the purpose of reviewing recreation trends, trout reproduction and holdover, etc.;
4. Once the Low Inflow Protocol (LIP) has been finalized, SCE&G will meet with the Recreation Flow Technical Working Committee to determine a schedule for the reduction and elimination of recreational flows based on criteria from the final LIP. This issue has not been resolved at this time.
5. SCE&G will continue release patterns for reservoir management favoring lower flows for longer periods of time within the operating efficiency of the units as opposed to higher flows for shorter and more frequent periods.





**Recreation Resource Conservation Group**

**Issue Recommendation  
Recreational Flow Releases on the Lower Saluda River**

FINAL

February 5, 2008

**Initial Schedule of Recreational Flow Releases in the Lower Saluda River**

*Flows will be measured at the USGS gage below the Saluda Dam (02168504). Actual flows may vary  $\pm 10\%$ . Make-up days will be allowed; no more than 5 recreational days per year can be lost to operational or maintenance emergencies before make up days will be required to be scheduled; make-up days must occur within three months of the scheduled flow. The annual flow release schedule will be posted on the SCE&G website.*

	Event Name	Rec. Flows					
		Days Allocated	Hours/Day	Start Time	End Time	CFS	Ac-Ft*
January	Iceman Race	1	6	8:00	14:00	4,000	1,636
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	MLK Day	1	5	7:00	12:00	700	0
February	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	President's Day	1	5	7:00	12:00	700	0
March	WW Festival	1	6	8:00	14:00	8,650	3,941
	WW Festival	1	3	10:00	13:00	3,300	644
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
April	General Recreation (Sat.)	1	5	12:00	17:00	1,000	0
	General Recreation (Sun.)	1	5	7:00	12:00	1,000	0
May	CFK	1	9	7:30	16:30	10,000	6,470
	Wade Fishing	1	9	8:00	17:00	700	0
	Memorial Day/ General Recreation	1	9	8:00	17:00	1,000	0
June	Rescue Rodeo	2	9	7:00	16:00	2,111	2,099
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
July	WW Rodeo	2	8	9:00	17:00	3,300	3,437
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
	Ind. Day/ General Recreation	1	9	8:00	17:00	1,000	223

**Recreation Resource Conservation Group**

**Issue Recommendation  
Recreational Flow Releases on the Lower Saluda River**

FINAL

February 5, 2008

August	USTWWR Prac.	2	8	8:00	16:00	10,000	12,295
	Wade Fishing (Sat.)	1	9	8:00	17:00	700	0
	Wade Fishing (Sun.)	1	9	8:00	17:00	700	0
September	High Boating (Sat. and Sun.)	2	6	10:00	16:00	4,500	3,768
	Labor Day/ General Recreation	1	9	8:00	17:00	1,000	223
October	CFK	1	7	9:30	16:30	2,400	983
	High Boating (Sat. and Sun.)	2	6	10:00	16:00	4,500	3,768
November	Low Boating (Sat.)	1	6	10:00	16:00	2,400	843
	High Boating (Sun.)	1	6	10:00	16:00	4,500	1,884
December	Low Boating (Sat.)	1	6	10:00	16:00	2,400	843
	High Boating (Sun.)	1	6	10:00	16:00	4,500	1,884
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Wade Fishing (Sat.)	1	5	12:00	17:00	700	0
	Wade Fishing (Sun.)	1	5	7:00	12:00	700	0
	Totals>>>>	51					44,940

\*Increment Above Minimum Flow

## **Recreation Resource Conservation Group**

### **Issue Recommendation Placement and Maintenance of Shoal Markers**

FINAL

July 1, 2008

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#### **Issue:**

Lake Murray is a large reservoir and, like many other reservoirs, has hazards that present a danger to boaters and other recreationists. The Lake Murray Watch and the Lake Murray Association have raised the issue of the responsibility for marking these hazards to make Lake Murray safer for the boating public. South Carolina Electric & Gas (SCE&G) has historically depended on the South Carolina Department of Natural Resources (SCDNR) to bear responsibility for the marking of hazards. Stakeholders contend that the SCDNR system is not as effective as it could be because of the yearly fluctuations in water level, unmarked hazards, and missing/damaged shoal markers.

#### **Recommendation:**

In order to make the shoal marker program on Lake Murray more effective, the Recreation RCG recommends that:

1. A description of the shoal marker program be included in the Saluda Project Safety and Outreach Program;
2. SCE&G provide the attached "Navigation Aids Marking Assistance Program Report Form" on their website and produce a magnet that will be available free-of-charge that contains contact and other relevant information on the shoal marker program;
3. Navigation Aids Marking Assistance Program Report Forms submitted to SCDNR be evaluated on criteria including fluctuations in water level, amount of boater traffic, etc. If the SCDNR determines a condition is a true hazard, the SCDNR will install and maintain appropriate marker(s). Applications that are denied will be returned with an explanation for the decision and contact information should the applicant wish to discuss the matter further.
4. SCDNR encourage the public to communicate regularly with its officers on Lake Murray, in order to have questions answered and to provide public safety related comments.

**Lake Murray Navigation Aids Marking Assistance Program Report Form**

***Reporting Person's Contact Information***

Name \_\_\_\_\_ Date \_\_\_\_\_

Telephone Number \_\_\_\_\_ Email Address \_\_\_\_\_

***Nature of Problem (check one or more if applicable)***

Damaged Marker \_\_\_\_\_ Marker Free of its Mooring \_\_\_\_\_

Unmarked Area \_\_\_\_\_ Displaced Marker \_\_\_\_\_

Illegally Marked Area (i.e., no wake zones, non-DNR buoy or Navigation Aid, etc.) \_\_\_\_\_

Other (describe in detail) \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Missing/Displaced Marker Number (if known or can be obtained from a map) \_\_\_\_\_

Lake Elevation at Time of Detection \_\_\_\_\_ County \_\_\_\_\_

Location of Unmarked Area or Marker GPS Coordinates \_\_\_\_\_ Lat. \_\_\_\_\_ Long. \_\_\_\_\_

**(Note: If GPS coordinates are not available, identify area on a topographic map and remit.)**

Nearest Landmark (Island, Marina, Landing, etc.) \_\_\_\_\_

Additional Information:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Forms should be faxed to SCDNR, Attention: **Lt. Gary Sullivan** at **843-953-9376** or emailed to [SullivanG@SCNDR.gov](mailto:SullivanG@SCNDR.gov). Information may be called into **Lt. Gary Sullivan** at **843-953-9378** or **1-800-922-5403**.



## **Recreation Resource Conservation Group**

### **Issue Recommendation Protection of the Trout Fishery in the Lower Saluda River**

FINAL

March 24, 2008

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#### **Issue:**

The lower Saluda River (LSR) is successfully managed (and classified by the South Carolina Department of Health and Environmental Control) as a put, grow, and take trout fishery by the South Carolina Department of Natural Resources (SCDNR). Currently, annual stockings of brown and rainbow trout species are necessary to support the trout fishery in the LSR.

Trout stockings vary in number depending primarily on availability of fish from the SCDNR Walhalla Fish Hatchery. Stocking records suggest that typically the SCDNR stocks approximately 30,000 to 34,000 trout annually in the LSR, with approximately 60% being rainbow trout. The length of the fish at the time of stocking is typically 6-8” for brown trout and 9-10” for rainbow trout.

Trout are typically stocked from November – March throughout the LSR after the dissolved oxygen (DO) levels in the releases of water from Lake Murray have improved to safer levels for fish. The initial stocking event is typically done by the use of helicopter to facilitate distribution of both species along the LSR. Subsequent stockings are conducted by truck with stocking limited to 3 locations along the LSR. Intense fishing pressure, predation, potential late-summer and fall low DO concentrations, and thermal regimes affect both carryover and incidental reproductive success of adult trout in the LSR. However, while continued stocking efforts by the SCDNR will be required to support the trout fishery, changes in project operations (i.e., minimum flows) should facilitate increased carryover of stocked trout. Increased adult carryover could provide increased opportunities for natural reproduction of trout, further enhancing the LSR trout fishery.

#### **Recommendation:**

The Recreation RCG recommends that SCE&G continue to support the trout fishery as a significant recreational activity in the LSR by:

1. Sharing relevant data (generation records, DO monitoring, temperature monitoring, etc.) with the SCDNR to facilitate information gathering on the trout fishery;
2. Providing sufficient access points on the LSR to enter/exit the river for recreation and safety;
3. Implementing the “Rising Water Warning System” as recommended by the Safety RCG;
4. Maintaining state water quality standards year round in the LSR;

## **Recreation Resource Conservation Group**

### **Issue Recommendation Protection of the Trout Fishery in the Lower Saluda River**

FINAL

March 24, 2008

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5. Maintaining flow levels as determined by science based studies in conjunction with state and federal fishery agencies, such as the current 'IFIM' study undertaken during relicensing;
6. Continuing relationships with relevant state and federal resource management agencies to support the health and survival of trout in the LSR;
7. Working with SCDNR and interested stakeholders to develop a trout management plan for the LSR, including periodic evaluations as determined by the Fish and Wildlife Technical Working Committee;
8. Implementing scheduled flows for wade fishing.

APPENDIX F

AS BUILT AND CONCEPT DESIGN DRAWINGS



**Appendix 41**

**JANUARY 27, 2009 DRAFT SAFETY RCG MEETING NOTES**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
SAFETY RCG**

**Lake Murray Training Center  
January 27, 2009**

draft ACG 2-22-09

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates  
Alison Guth, Kleinschmidt Associates  
Tommy Boozer, SCE&G  
Ron Ahle, SCDNR  
Bill Argentieri, SCE&G  
Bill Marshall, LSSRAC  
Bret Hoffman, Kleinschmidt Associates  
Charlene Coleman, American Whitewater  
Jay Schabacher, LMA  
Joy Downs, LMA  
Mike Waddell, TU

Lee Barber, LMA  
Dave Anderson, Kleinschmidt Associates  
David Price, LMPS  
Richard Miner – USCG Auxiliary  
Suzanne Rhodes – SCWF  
Karen Kustafik – COC Parks and Rec  
Kenneth Fox - LMA  
Malcolm Leaphart - TU  
Dick Christie, SCDNR

**DATE:**            *January 8, 2009*

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Bill Argentieri opened the meeting and began with a discussion of the LSR warning siren plan. Bill explained that Jim Devereaux with SCE&G first gave a presentation on this subject to the Safety group on April 9, 2008. Bill provided a recap of the plan, including siren locations along the river. He explained that the first phase of the siren installation was completed as of 2008. The remainder of the area, Bill explained, from Saluda Shoals Park to the zoo, would be installed after issuance of the new license and possibly sooner depending on the availability of funds. While discussing siren sound levels, Bill added that, in the winter, Siren 2 was too loud due to the lack of tree cover. Therefore, the siren had to be temporarily deactivated.

As the group viewed the siren plan, they discussed the possibility of altering the phase schedule. Malcolm Leaphart suggested that since most of the activity occurs in the zoo area, it may be best to complete that schedule first. Bill explained that the currently installed zoo sirens should take care of the high use areas, however there may be a more appropriate way of arranging the schedule.

The group also discussed sound levels, and Bill Marshall explained that from his residence in West Columbia, the zoo siren is audible. He further suggested that if the sirens are the same volume as at

the zoo, then the they could possibly be spaced two miles apart. The group decided to base the schedule on an appropriately spaced set of sirens for the second phase and supplementing as necessary.

Malcolm noted that TU was a proponent for the use of strobes in the place of sirens. However, the group discussed that it came down to the use of active versus passive warning signals. It was noted that people respond better to active warning signals. The group continued to discuss which order the sirens should be installed in. After some group discussion it was noted that phase 2 would consist of sirens 4,5,7, and strobes C,E, and F, complete within one year of the new license issuance. Phase 3, will consist of sirens 3,6,8,9 and strobe D, complete within two years after phase 2. It was also described that a coverage evaluation would occur after phase 2.

There was discussion regarding the implementation schedule, and Dave noted that if the Settlement Agreement is signed by everyone then SCE&G may go ahead with implementation. However, with regards to installation before the license was issued, it was possible that there could be a license article that could negate the need for the sirens.

Alan took this opportunity to discuss settlement agreement meetings with the group. He reiterated the kick-off date of March 11<sup>th</sup>, and noted that they would be sending out a draft settlement agreement document for the group to review. He also described that they would block the scheduled dates by resources groups.

The group then discussed future meetings of safety group after the relicensing. It was explained that meetings would consist of discussions with agencies, and the resolution of safety issues that arose on the lake. Lee Barber discussed how these meetings occurred previously and Tommy Boozer added that the meetings had stopped due to a lack of interest by attendees. It was noted, however, that SCE&G was proposing to again begin hosting these meetings. Furthermore, Bill explained that after the settlement agreement meetings, if everyone signs onto the settlement agreement, then SCE&G will begin hosting the safety meeting within a year of the signing as long as there is interest in the meeting. Bill further suggested that if the settlement agreement is not signed, then they would begin the meetings within a year after SCE&G receives the license for Saluda. Before closing, the group briefly discussed what season to hold the safety meetings in and the group suggested October.

**Appendix 42**

**REVISED LSR WARNING SIREN INSTALLATION PROPOSAL**

**(SUPERSEDES APPENDIX 24)**

## Proposed New Lower Saluda River Siren Installation Schedule



### Overview:

Installation of the proposed siren and strobe light stations, including warning signs similar to Type D-1 or D-2 as identified in the Saluda Public Safety Plan (submitted August 29, 2008, submittal number 20080910-0057) and approved by FERC on letter dated December 18, 2008, will be broken into three phases. The first phase was installed and operational in 2008. This phase consisted of new sirens #1 and #2, new strobe lights A and B, and upgrade of existing sign at Saluda Shoals Park. The second phase will be installed within one year after issuance of the new license. This phase will consist of new sirens #4, #5, and #7, and new strobe lights C, E and F. It was recommended during the last Safety Resource Conservation Group meeting held in January 2009 that the third phase should be installed within two years after Phase 2 is complete. This will provide enough time to evaluate the coverage of Phase 2 through the different seasons of the year (with and without leaves on the trees) and allow the licensee to determine if additional sirens or strobes are necessary. This third phase, if necessary, will possibly consist of new sirens #3, #6, #8, and #9, and new strobe light D. If it is determined that a siren or strobe light is not needed due to the coverage of the other siren or strobe light equipment, then that siren or strobe light will not be installed. This will be determined through field volume level testing. For budgeting purposes, this installation schedule is based on receiving the new license in 2011, installing Phase 2 in 2012 and Phase 3 in 2014.

**Appendix 43**

**JANUARY 8, 2009 FINAL LAKE AND LAND MANAGEMENT RCG NOTES**

**MEETING NOTES**

**SOUTH CAROLINA ELECTRIC & GAS COMPANY  
SALUDA HYDRO PROJECT RELICENSING  
LAKE AND LAND MANAGEMENT RCG**

**Lake Murray Training Center  
January 8, 2009**

final ACG 2-22-09

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**ATTENDEES:**

Alan Stuart, Kleinschmidt Associates	Bob Keener, LMA
Alison Guth, Kleinschmidt Associates	Joy Downs, LMA
Tommy Boozer, SCE&G	Steve Bell, LW
David Hancock, SCE&G	Bill Argentieri, SCE&G
Ron Ahle, SCDNR	Tony Bebber, SCPRT
Randy Mahan, SCANA Services	Teresa Powers, Newberry County
Carl Sundius, Marina Owner	Cheryl Matheny, Matheny-Burns/Newberry Co.
Tom Brooks, Saluda County	Dick Christie, SCDNR
Tanjenique Paulin, SCDNR	Bertina Floyd, LMHOC
Randy Walston, Lake Murray Vacation Rentals and Sales	Regis Parsons, Landowner
Bill Ammermann, Russell & Jeffcoat Realtors	Amanda Hill, USFWS

**DATE:**            *January 8, 2009*

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**INTRODUCTIONS AND DISCUSSION**

*These notes serve to be a summary of the major points presented during the meeting and are not intended to be a transcript or analysis of the meeting.*

Alan opened the meeting and explained that there had been some revisions made to the document since it had been sent out and those revisions could be viewed as the group projected the document on the overhead screen. The first topic of discussion was the Permitting Handbook, and Alan noted that they had received three sets of comments on the Permitting Handbook, two sets from TWC members and one set from the public. Alan then asked if there were any comments on the Permitting Handbook from the RCG members. Steve Bell began to discuss fringelands, and the sub-dividing of fringelands sold after 2007. He noted that his concern was when a developer came in and subdivided the lots. Tommy noted that he believed that it would trend more towards multi-slips. Carl Sundius noted that he believed the group was making a mistake by limiting docks by trending towards multi-slip. He noted that he believed that this would result in more and more



individuals pulling their boat up onto the shoreline. David Hancock explained that the intention of this was that the docks would be placed in a central location, thus benefiting the environmental resources. Steve Bell reminded Tommy B. about the US Army Corps of Engineers “Tie-Up policy for Lake Hartwell” he had recently forwarded to Tommy and suggested that this policy be adopted for Lake Murray. Tommy indicated that wording of the policy was being reviewed by Kleinschmidt. Alan pointed out that there were only about 50 miles of shoreline in question. The group also emphasized that the Permitting Handbook was a “living” document and would be reviewed on a yearly basis to see if anything needed to be modified.

Joy Downs noted that they were not only concerned with the shoreline and water quality, that they were concerned with marinas associated with large housing developments. She noted that as a compromise they tried to limit the large portions of unregulated shoreline. However, she noted that they were concerned that there would be enough pump-out stations. The group briefly discussed pump-out stations and it was reiterated that a pump-out would be required if the marina housed boats that had on-board sanitation facilities. Regarding commercial marinas, Steve B. suggested that a check off list be developed as a means of reviewing potential impacts. Steve noted that minimum setback requirements alone should not be the basis for approval. He explained that other factors including, existing uses, boating traffic, cove flushing, development density, etc. should be given equal weight.

Comments from the Lake Murray Landowners Association were projected on the screen and the group discussed how to best address comments provided by the public. Dick Christie noted that they may best be addressed during the FERC Public Scoping. Steve Bell noted that many of these issues have already been reviewed. The group noted that they were not dismissing this set of comments, however this may not be the appropriate forum for them.

Regis Parsons noted that he did not speak for the LMLA, however he would like to discuss one comment provided by the LMLA on docks in front of forest management lands. He explained that when SCE&G requires the landowner to donate part of their land to make a uniform buffer in order to have a dock, then the company is enriched by the transfer of the property at the expense of the property owner. Randy Mahan replied that the objective was to create a uniform 75’ setback, and if anything it is a liability to the company because it is then up to SCE&G to manage the lands. He



further noted that those lands do not show up on the company's assets. Dick C. replied that the public was the entity being enriched by this transfer. Regis considered whether the title could then somehow pass to the public. However it was noted that SCE&G would be the ones managing the land, not the public.

Alan again asked the group if there were any other comments on the Permitting Handbook before they moved on to discuss the SMP. Carl S. noted that if there were problems with the Permitting Handbook it was good to know there would be yearly meetings at which changes could be made. Randy Walston noted that public education on this Permitting Handbook was an important component and the group discussed that there would likely be a Quarterly Public Meeting on this in the upcoming months. The group reviewed through the SMP and a few editorial changes were made by the group. Regis Parsons noted that Two-Bird Cove was depicted on the public access areas maps, and asked whose decision it was to place this on the maps. David H. noted that the FERC required SCE&G to depict it on the Exhibit R maps, however if the designation is removed then they will remove it. Alan noted that the best option for those concerned with Two-bird cove was to attend the FERC scoping meeting and ask FERC about the designation. Alan further noted that if the shoreline was being destroyed by the activities in the cove, then to bring photo documentation. The group completed discussions and it was noted that the documents would be updated with the changes.

Group Adjourned.

**Appendix 44**

**USFWS LETTER DATED JANUARY 28, 2009 PROVIDING COMMENTS ON  
MUSSEL PROGRAM**



# United States Department of the Interior



FISH AND WILDLIFE SERVICE  
176 Croghan Spur Road, Suite 200  
Charleston, South Carolina 29407

January 28, 2009

Mr. Bill Argenteri  
South Carolina Electric & Gas Company  
111 Research Drive  
Columbia, SC 29203

Re: COMMENTS, Freshwater Mussel Adaptive Management Program,  
Saluda Hydroelectric Project, P-516

Dear Mr. Argenteri:

The U.S. Fish and Wildlife Service (Service) has reviewed the *Freshwater Mussel Adaptive Management Program* submitted for our review in December 2008 for the relicensing of the Saluda Hydroelectric Project (Project), FERC No. 516. The Service is seeking mitigation for the continuing impacts from project operations on the freshwater mussel fauna in the Lower Saluda River and the Congaree River. We appreciate your efforts in developing a Technical Working Committee to address these important trust resource issues.

The Service requested freshwater mussel surveys within the Project vicinity in our Initial Stage Consultation comments for the relicensing of this project. Surveys conducted in the summer of 2006 documented 15 native species occurring in Lake Murray, its tributaries, and the upper Congaree River below the confluence of the Lower Saluda River and the Broad River. No mussels were documented in the Lower Saluda River downstream from the Lake Murray Dam to the confluence with the Broad River.

The Service also requested a study to characterize the effects of the hypolimnetic releases from the Project on the Lower Saluda River and the Congaree River. Specifically, the Service is interested in the impact of the cold water releases on the ambient water temperature in the Congaree River. Results of this study indicate statistically significant differences in water temperatures between the Saluda River side and the Broad River side of the Congaree River. The Saluda River side experiences colder water temperatures through the spring and summer months. The statistically significant differences in water temperatures between the two sides of the Congaree River are maintained to approximately River Mile 35, where mixing of the Broad and Saluda waters are complete.

The Service believes the hypolimnetic releases from the Project have affected the abundance of freshwater mussel species in the Lower Saluda River and the Congaree River. Preliminary data from Dr. Jennifer Price has documented a significant temporal difference in gravid females

**TAKE PRIDE  
IN AMERICA** 

located upstream of the Saluda River and Broad River confluence, from those located downstream of the confluence. Dr. Price's data indicates that the downstream females are gravid one to several months later than mussels in the Broad River. It is believed this is a result of the cooler water temperatures entering the Congaree River from the Saluda River. Additionally, Dr. Price's study documented a higher rate of gravidity upstream of the Saluda River confluence, which may be attributed to cooler water temperatures in the Congaree downstream of the Saluda confluence.

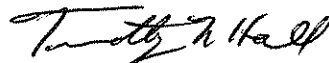
Currently, negotiations are underway to determine an instream flow regime in the Lower Saluda River that meets the needs of SCE&G, stakeholders, and the environment. This new flow regime will be included in the settlement agreement for the relicensing of the Saluda Hydroelectric Project. It is assumed that the new flow regime will be implemented upon issuance of the new license for the project. We recommend that mussel aggregations in the Congaree River be monitored to evaluate potential effects from these new flows. We suggest the following elements be included in the *Freshwater Mussel Adaptive Management Program*.

- A long-term monitoring program should be developed to evaluate the effects of the new flows on specific mussel aggregations.
- Monitoring sites extending from the Broad River downstream to the water temperature mixing area in the Congaree River should be identified before the new flow regime is implemented.
- Caged mussels taken from the Broad or Congaree Rivers should be placed within the Lower Saluda River and Broad River to determine potential impacts of altered temperatures on timing and frequency of mussel reproduction.
- Temperature and dissolved oxygen should be monitored at each site.

We believe if a long-term monitoring program in the Lower Saluda River and Congaree River is implemented, along with the proposed restoration measures for the Savannah liliput (*Toxolasma pullus*) as described in the *Freshwater Mussel Adaptive Management Program*, then our concerns related to freshwater mussel resources will be adequately addressed. We suggest the details of these studies be discussed and developed within the Technical Working Committee. We look forward to working with you to develop a management program for freshwater mussels at the Saluda Hydroelectric Project. We recommend scheduling a meeting of the Technical Working Committee to further develop our above recommendations.

If you have any questions please contact Ms. Amanda Hill of my staff at 843-727-4707 ext. 303, or Ms. Lora Zimmerman at 843-727-4707 ext. 226.

Sincerely,



Timothy N. Hall  
Field Supervisor

TNH/AKH

**Appendix 45**

**LOWER SALUDA RIVER MACROINVERTEBRATE STUDY REPORT  
2007**

MACROINVERTEBRATE ASSESSMENT OF THE LOWER SALUDA RIVER,  
DOWNSTREAM OF THE SALUDA HYDROELECTRIC PROJECT (LAKE MURRAY)  
OPERATED BY SOUTH CAROLINA ELECTRIC & GAS,  
LEXINGTON COUNTY, SOUTH CAROLINA

Fall 2007

Submitted To:

SOUTH CAROLINA ELECTRIC & GAS  
Columbia, South Carolina

Submitted By:

CARNAGEY BIOLOGICAL SERVICES, LLC  
636 Westwood Drive  
Lexington, South Carolina 29073  
(803) 233-6952

SCDHEC Laboratory Certification No. 32572

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## I. SUMMARY

On 25 and 30 July 2007 and 19 September 2007, personnel from CARNAGEY BIOLOGICAL SERVICES, LLC (SCDHEC Laboratory Certification No. 32010), SOUTH CAROLINA ELECTRIC & GAS (SCE&G), and KLEINSCHMIDT ASSOCIATES conducted an instream benthic macroinvertebrate community rapid bioassessment on the lower Saluda River, downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SCE&G. Additionally, three replicate Hester Dendy multi-plate macroinvertebrate samplers were placed at each sampling station on 25 July 2007, allowed to colonize, and collected on 19 September 2007 to compare with the rapid bioassessment data.

To determine if macroinvertebrate communities differed significantly between sampling stations, data were analyzed with linear regression. Regression analysis of the Hester Dendy data showed biotic conditions improved significantly as distance from the dam increased. This result was expected. Studies have demonstrated that rapid fluctuations in current velocity and water level associated with the operation of hydroelectric dams results in reduced diversity, by decreasing habitat and/or survival of habitat-specific taxa (Death, 1995; Death and Winterbourn, 1995; Ward and Stanford, 1995; Valentin *et al.*, 1995). As distance from the dam increases, the fluctuations in current velocity and water level are smaller and slower, resulting in improved biotic conditions.

For the rapid bioassessment data, regression analysis showed no detectable trends in taxa richness, total abundance, or in percentage of the dominant taxon as a function of distance from the hydroelectric dam in July or in September. The July samples did show a significant increase in the EPT indices as distance from the dam increased. The September samples showed a significant increase in EPT index and EPT abundance values as distance from the dam increased. The September samples also showed a significant decrease in NCBI values as distance from the dam increased. This corroborates the Hester-Dendy data.

Comparing the two methods, the Hester Dendy method detected trends among stations that were not statistically significant for the rapid bioassessment data. This may be due to the high sampling variability of rapid bioassessment samples. There is greater variability in the rapid bioassessment data because this method only samples the river margins, where habitat is less stable due to river level fluctuations. The Hester Dendy samplers provide a more stable habitat, and lower variability in the samples enables the detection of trends in the macroinvertebrate community.



## II. INTRODUCTION

On 25 and 30 July 2007 and 19 September 2007, personnel from CARNAGEY BIOLOGICAL SERVICES, LLC, SOUTH CAROLINA ELECTRIC & GAS (SCE&G), and KLEINSCHMIDT ASSOCIATES, conducted a benthic macroinvertebrate rapid bioassessment on the lower Saluda River downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SCE&G.

The hydroelectric dam produces electricity from water obtained from Lake Murray. This water is released into the lower Saluda River and can affect the benthic macroinvertebrate communities downstream in several ways. First, mechanical disturbance results from rapid changes in water level and current velocity during the production of power. This disturbance can reduce the amount of stable macroinvertebrate habitats, including stream banks, leaf packs, and fine sediment deposits (Stalnaker *et al.*, 1989; Death, 1995; Ward and Stanford, 1995; Valentin *et al.*, 1995). Secondly, due to the thermal stratification of Lake Murray in summer, the release of anoxic water from the hypolimnion can reduce oxygen levels of the lower Saluda River. This can reduce the amount of suitable habitat for macroinvertebrates, which require oxygen to live.

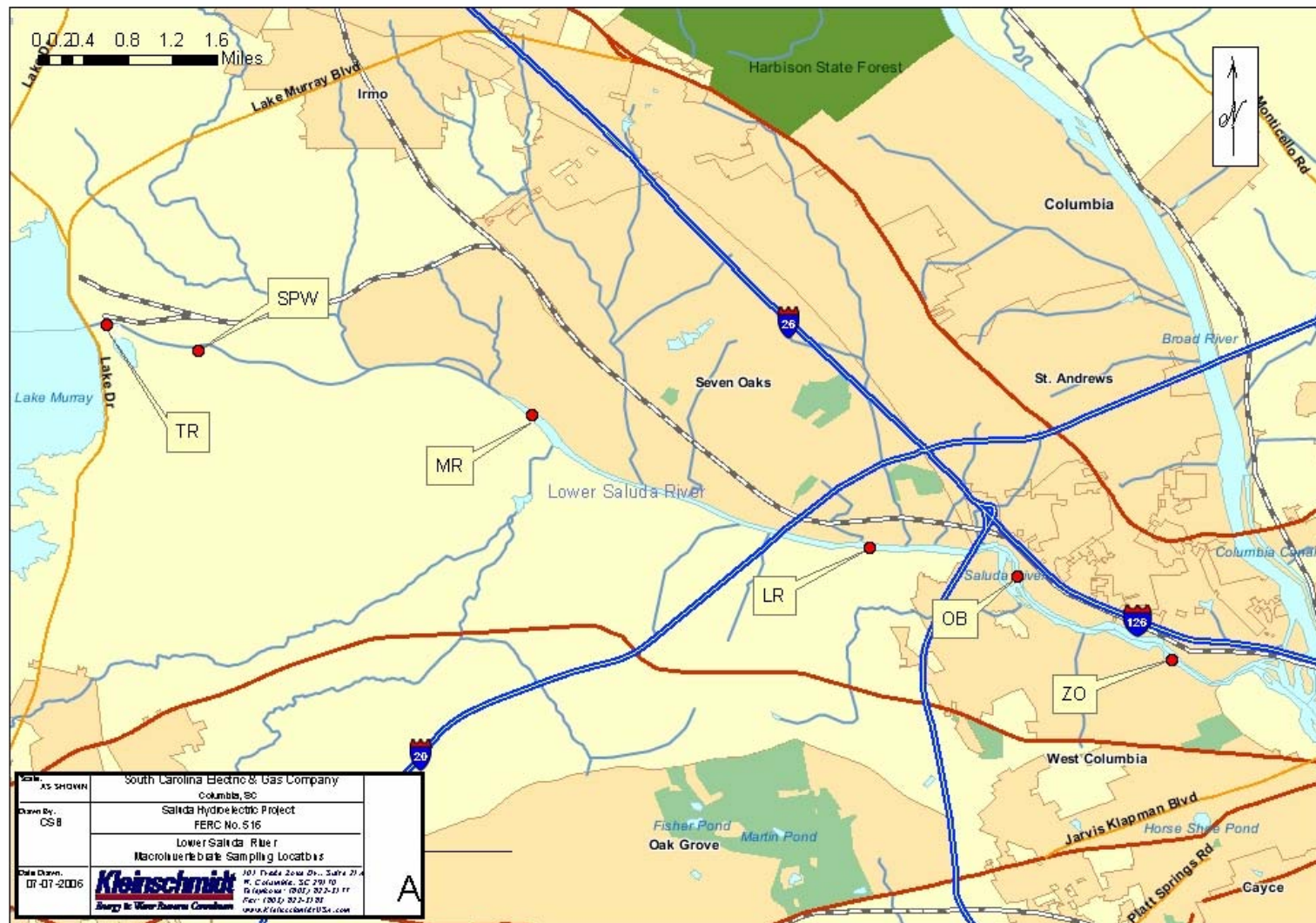
Due to a lack of reference or control stations, it is not possible to determine if operation of the hydroelectric dam (rapid, periodic fluctuations in water level and current velocity) has *caused* a reduction in the diversity and abundance of the macroinvertebrate community at the sampled locations. However, this study can answer the following questions:

- 1) Are there significant differences in the macroinvertebrate community as a function of distance from the hydroelectric dam?
- 2) What differences were found between rapid bioassessment and Hester Dendy multi-plate sampler collection methods?

## III. DESCRIPTION OF THE STUDY AREA

Six stations were sampled on the lower Saluda River, beginning directly downstream from the hydroelectric dam's release and ending approximately 10.5 kilometers downstream (Figure 1). The first sampling site, Station TR, was established approximately 500 meters downstream from the hydroelectric dam. Available habitat consisted of thick mats of submerged aquatic macrophytes, submerged logs, some large boulders, and gravel. Some sand was also present.

Figure 1. Sampling locations for benthic macroinvertebrates collected from the lower Saluda River, downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina.



The second sampling site, Station SPW, was located in the side channel formed by the dam's spillway. This channel was located approximately one kilometer downstream from the hydroelectric dam. When not in use, the spillway channel receives water only from seeps along the banks, leakage from spillway gates, and the backwater effect from the Saluda's mainstem. Available habitats included submerged aquatic macrophytes, vegetated banks, large rocks and boulders, and the gravel, sand and detritus that made up the channel bottom.

The third river sampling site, Station MR, was located just upstream of the confluence with Twelve Mile Creek and approximately 4.5 kilometers downstream from the hydroelectric dam. Available habitats included submerged logs, aquatic macrophytes, snags, large rocks, vegetated banks, and the muddy channel bottom.

The fourth river sampling site, Station LR, was located between the Interstate 20 and Interstate 26 bridges and approximately 8.5 kilometers downstream from the hydroelectric dam. Available habitats included submerged logs, snags, vegetated banks, a riffle area, and the muddy channel bottom. Large boulders were present in the deeper parts of the section.

The fifth river sampling site, Station OB, was located near the Ocean Boulevard shoal area and approximately 9.5 kilometers downstream from the hydroelectric dam. Available habitats included submerged logs, snags, vegetated banks, large boulders and rocks, aquatic macrophytes, and the gravel and sand river bottom. This section has a large gravel riffle.

The sixth river sampling site, Station ZO was located near the Riverbanks Zoo river access and approximately 10.5 kilometers downstream from the hydroelectric dam. Available habitats included submerged logs, snags, vegetated banks, and the muddy channel bottom. In addition, large boulders were present.

Previous rapid bioassessments included other sampling sites. These stations included Stations UR and OX. Station UR was located in a shoal area of the main river channel, approximately 50 meters downstream of the spillway channel entrance and 30 meters from the north bank. Station OX was established in an oxbow pond on the south side of the main river channel, approximately 1.5 kilometers downstream from the hydroelectric dam. The oxbow pond is connected to the main river channel by a channel 50 meters wide and is flushed during periods of high water.



## IV. MATERIALS AND METHODS

### A. Field Procedures

#### 1. Rapid Bioassessment Samples

Aquatic macroinvertebrates were qualitatively collected from all available habitats (e.g., stream margins, leaf packs, aquatic vegetation, water soaked logs and sand deposits) using a D-frame aquatic dip net and by picking organisms from substrates with forceps. Sampling was conducted along a 10-50 meter area at each location to the depth of approximately one meter. For each station, collections from all habitat types were pooled to form one aggregate sample and preserved in the field with 80% ethanol. Each sample represented 1.5 man-hours of sampling effort by experienced biologists. Sampling procedures were kept similar at each station to enable taxonomic and numerical population comparisons between stations.

#### 2. Hester Dendy Samples

Additionally, three replicate Hester Dendy multi-plate macroinvertebrate samplers were placed at five stations, allowed to colonize for seven weeks, and collected for analyses. The samplers were preserved in the field with 70% ethanol and returned to CARNAGEY BIOLOGICAL SERVICES, LLC for sample processing. Hester Dendy samplers were colonized from 25 July 2007 to 19 September 2007.

#### 3. Physicochemical Measurements

In conjunction with the macroinvertebrate assessment, water temperature, dissolved oxygen, pH, and conductivity were measured using a Yellow Springs Instruments Model 55 Dissolved Oxygen meter and a Yellow Springs Instruments Model 63 Multimeter.

### B. Laboratory Procedures

Upon return to the laboratory, the macroinvertebrates were removed from any debris with the aid of a stereo microscope, identified to the lowest positive taxonomic level, and enumerated using appropriate techniques and taxonomic keys. All specimens will be maintained by CARNAGEY BIOLOGICAL SERVICES, LLC, in a voucher collection for five years, or placed into the permanent reference collection.

## C. Data Analysis

To obtain the most information possible from the data, several types of analysis were performed. Bioassessment metrics allowed comparison of stations based on their overall taxonomic composition. Regression analyses detected trends in macroinvertebrate community composition with distance from the dam. Additionally, comparison of the July rapid bioassessment samples to the September rapid bioassessment samples was based on two-factor ANOVAs without replication. Data were  $\log_{10}(x+1)$  transformed prior to analysis.

### 1. Bioassessment Metrics

Comparisons of the macroinvertebrate communities were based on changes in taxonomic composition between sampling sites and on the known tolerance levels and life history strategies of the organisms encountered. Changes in taxonomic composition were determined using the metrics outlined in Rapid Bioassessment Protocol III of *Rapid bioassessment protocols for use in streams and rivers* (Plafkin et al. 1989). These metrics include the following:

a) Taxa richness - The number of different taxa found at a particular location is an indication of diversity. Reductions in community diversity have been positively associated with various forms of environmental pollution, including nutrient loading, toxic substances, and sedimentation (Barbour *et al.*, 1996; Fore *et al.*, 1996; Rosenberg and Resh, 1993; Shackleford, 1988).

b) EPT Index - EPT Index is the number of taxa from the insect orders Ephemeroptera, Plecoptera and Trichoptera found at a station. These three insect orders are considered to be intolerant of adverse changes in water quality, especially temperature and dissolved oxygen, and therefore, a reduction in these taxa is indicative of reduced water quality (Barbour *et al.*, 1996; Lenat, 1988).

c) Chironomidae taxa and abundance - The Chironomidae are a taxonomically and ecologically diverse group with many taxa which are tolerant of various forms of pollution. The chironomids are often the dominant group encountered at impacted or stressed sites (Rosenberg and Resh, 1993).

d) Ratio of EPT and Chironomidae abundance - The relative abundance of these four indicator groups is a measure of community balance. When comparing sites, good biotic conditions are reflected in a fairly even distribution among these four groups (Plafkin *et al.*, 1989). The value of this ratio is reduced by impact due to the general reduction of the more sensitive EPT taxa and an increase in the more tolerant chironomid taxa.

e) Ratio of scraper/scraper and filtering collectors - When comparing sites, shifts in the dominance of a particular feeding type may indicate a community responding to an over-abundance of a particular food source or toxicants bound to a particular food source (Rosenberg and Resh, 1993).

f) Shredder/total number of specimens collected - When comparing sites, reductions in the relative abundance of shredders can indicate changes in the quality or quantity of riparian zone vegetation or the presence of toxic substances bound to organic carbon contained in the leaf and woody material which comprises their food source (Plafkin *et al.*, 1989).

g) Percent contribution of dominant taxon - This measures the redundancy and evenness of the community structure. It assumes a highly redundant community reflects an impaired community because as the more sensitive taxa are eliminated, there is often a significant increase in the remaining tolerant forms (Barbour *et al.*, 1996; Shackleford, 1988).

h) North Carolina biotic index (NCBI) -  $NCBI = \sum TV_i N_i / N$  where  $TV_i$  is the tolerance value for the  $i$ th taxon,  $N_i$  is the abundance of the  $i$ th taxon, and  $N$  is the total abundance of all taxa in the sample. This index utilizes a pollution tolerance value developed over a wide range of conditions and pollution types and taxon abundance to assess the amount of impact (North Carolina Department of Environment, Health and Natural Resources, 1997). The values range from 0-10, increasing as water quality decreases. This metric appears to be adversely affected by the combination of low taxa richness and low abundance, often indicating better conditions than actually exist.

## 2. Regression Analyses

### a. Rapid Bioassessment Data

To detect trends in the macroinvertebrate community as a function of distance from the hydroelectric dam (sampling station), six linear regression analyses were performed on the rapid bioassessment data. Data were  $\log_{10}(x+1)$  transformed prior to regressing taxa richness, total abundance, EPT index, EPT abundance, NCBI values, and percentage of the dominant taxon on distance from the dam. Plots of data were constructed if any trends were detected ( $\alpha \leq 0.05$ ) among stations.

### b. Hester Dendy Data

To detect trends in the macroinvertebrate community as a function of distance from the hydroelectric dam (sampling station), six linear regression analyses were performed on the

Hester Dendy data. Data were  $\log_{10}(x+1)$  transformed prior to regressing taxa richness, total abundance, EPT index, EPT abundance, NCBI values, and percentage of the dominant taxon on distance from the dam. Plots of data were constructed if any trends were detected ( $\alpha \leq 0.05$ ) among stations.

## V. RESULTS

### A. Physicochemical Analysis

The water chemistry data taken in conjunction with the macroinvertebrate assessment are presented in Tables 1 and 2.

Table 1. Physicochemical data collected in conjunction with the macroinvertebrate assessments of the lower Saluda River downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007.

Parameter	Station					
	TR	SPW	MR	LR	OB	ZO
Temperature (°C)	15.2	16.0	17.1	17.9	18.7	18.3
Dissolved Oxygen (mg/l)	9.64	6.85	10.32	9.90	9.76	6.83
pH (SU)	6.52	6.69	6.99	6.99	7.11	7.15
Conductivity ( $\mu\text{S}/\text{cm}$ )	64.4	68.0	66.5	70.1	69.9	72.1

Table 2. Physicochemical data collected in conjunction with the macroinvertebrate assessments of the lower Saluda River downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 19 September 2007.

Parameter	Station					
	TR	SPW	MR	LR	OB	ZO
Temperature (°C)	17.7	17.7	17.8	18.3	18.4	18.3
Dissolved Oxygen (mg/l)	8.92	8.86	10.78	9.68	9.15	8.76
pH (SU)	6.73	6.40	6.83	6.71	6.91	7.12
Conductivity ( $\mu\text{S}/\text{cm}$ )	105.6	89.3	87.2	89.7	86.8	90.0

## B. Macroinvertebrate Community Analysis

### 1. Rapid Bioassessment Samples (25 and 30 July 2007)

A total of 1123 specimens representing 69 taxa were collected from six sampling stations during this assessment. The number of specimens collected, their NCBI tolerance values, functional feeding groups, and relative abundance are presented in Table 3 for each station. Bioassessment metrics for each sampling station are presented in Table 4. Table 5 lists the number of specimens and relative abundance of dominant taxa (>5% of the collection) for each station.

The sampling effort at Station TR yielded 214 specimens representing 22 taxa (Table 3). An EPT index of 4 was calculated for this station, and the NCBI value of 8.11 resulted in a water quality rating of “poor” (Table 4). The Chironomidae were represented by 7 taxa and contributed 24% of the collection. The dominant functional feeding group was the scrapers, which contributed 47% of the collection. The dominant taxon was *Dicrotendipes* sp., contributing 21% of the specimens collected (Table 5).

The sampling effort at Station SPW yielded 323 specimens representing 34 taxa (Table 3). An EPT index of 4 was calculated for this station, and the NCBI value of 7.48 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by 7 taxa and contributed 13% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 26% of the collection. The dominant taxon was *Gammarus* sp., contributing 14% of the specimens collected (Table 5).

The sampling effort at Station MR yielded 180 specimens representing 29 taxa (Table 3). An EPT index of 10 was calculated for this station, and the NCBI value of 6.60 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by 4 taxa and contributed 6% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 53% of the collection. The dominant taxon was *Caecidotea* sp., contributing 19% of the specimens collected (Table 5).

The sampling effort at Station LR yielded 214 specimens representing 26 taxa (Table 3). An EPT index of 11 was calculated for this station, and the NCBI value of 6.48 resulted in a water quality rating of “good-fair” (Table 4). The Chironomidae were represented by 3 taxa and contributed 2% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 54% of the collection. The dominant taxon was *Caecidotea* sp., contributing 18% of the specimens collected (Table 5).

The sampling effort at Station OB yielded 192 specimens representing 26 taxa (Table 3). An EPT index of 10 was calculated for this station, and the NCBI value of 6.02 resulted in a water quality rating of “good-fair” (Table 4). The Chironomidae were represented by 5 taxa and contributed 4% of the specimens collected. The dominant functional feeding group was the collector-filterers, which contributed 34% of the collection. The dominant taxon was *Baetis intercalaris*, contributing 13% of the specimens collected (Table 5).

The sampling effort at Station ZO yielded 185 specimens representing 40 taxa (Table 3). An EPT index of 9 was calculated for this station, and the NCBI value of 6.92 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by a 12 taxa and contributed 15% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 34% of the collection. The dominant taxon was *Campeloma decisum*, contributing 14% of the specimens collected (Table 5).

Regression analysis of the rapid bioassessment data showed no detectable trends ( $\alpha \leq 0.05$ ) in taxa richness, total abundance, EPT abundance, NCBI, or in percentage of the dominant taxon as a function of distance from the hydroelectric dam (Table 6). EPT indices increased significantly as a function of distance from the hydroelectric dam (Table 6, Figure 2).

## 2. Rapid Bioassessment Samples (19 September 2007)

A total of 1132 specimens representing 69 taxa were collected from six sampling stations during this assessment. The number of specimens collected, their NCBI tolerance values, functional feeding groups, and relative abundance are presented in Table 7 for each station. Bioassessment metrics for each sampling station are presented in Table 8. Table 9 lists the number of specimens and relative abundance of dominant taxa (>5% of the collection) for each station.

The sampling effort at Station TR yielded 208 specimens representing 26 taxa (Table 3). An EPT index of 3 was calculated for this station, and the NCBI value of 8.29 resulted in a water quality rating of “poor” (Table 4). The Chironomidae were represented by 3 taxa and contributed 5% of the collection. The dominant functional feeding group was the predators, which contributed 37% of the collection. The dominant taxon was *Enallagma* sp., contributing 32% of the specimens collected (Table 5).

The sampling effort at Station SPW yielded 237 specimens representing 31 taxa (Table 3). An EPT index of 6 was calculated for this station, and the NCBI value of 7.87 resulted in a water quality rating of “poor” (Table 4). The Chironomidae were represented by 7 taxa and contributed 13% of the specimens collected. The dominant functional feeding groups were the predators and the scrapers, which each contributed 31% of the collection. The dominant taxon was *Enallagma* sp., contributing 19% of the specimens collected (Table 5).

The sampling effort at Station MR yielded 201 specimens representing 27 taxa (Table 3). An EPT index of 7 was calculated for this station, and the NCBI value of 6.51 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by 3 taxa and contributed 5% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 46% of the collection. The dominant taxon was *Simulium confusum*, contributing 15% of the specimens collected (Table 5).

The sampling effort at Station LR yielded 215 specimens representing 32 taxa (Table 3). An EPT index of 12 was calculated for this station, and the NCBI value of 6.87 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by 4 taxa and contributed 6% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 71% of the collection. The dominant taxon was *Caecidotea* sp., contributing 29% of the specimens collected (Table 5).

The sampling effort at Station OB yielded 271 specimens representing 32 taxa (Table 3). An EPT index of 12 was calculated for this station, and the NCBI value of 6.70 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by 4 taxa and contributed 4% of the specimens collected. The dominant functional feeding group was the collector-filterers, which contributed 40% of the collection. The dominant taxon was *Hydropsyche mississippiensis*, contributing 20% of the specimens collected (Table 5).

The sampling effort at Station ZO yielded 168 specimens representing 32 taxa (Table 3). An EPT index of 10 was calculated for this station, and the NCBI value of 6.49 resulted in a water quality rating of “fair” (Table 4). The Chironomidae were represented by a 3 taxa and contributed 4% of the specimens collected. The dominant functional feeding group was the scrapers, which contributed 40% of the collection. The dominant taxon was *Maccaffertium modestum*, contributing 10% of the specimens collected (Table 5).

Regression analysis of the rapid bioassessment data showed no detectable trends ( $\alpha \leq 0.05$ ) in taxa richness, total abundance, or in percentage of the dominant taxon as a function of distance from the hydroelectric dam (Table 9). EPT indices and EPT abundance increased significantly as a function of distance from the hydroelectric dam (Table 9, Figure 3). NCBI values decreased significantly as a function of distance from the hydroelectric dam (Table 9, Figure 3).

### 3. Comparison of Rapid Bioassessment Samples from July and September

Results of two-factor ANOVAs without replication to detect differences in taxa richness, total abundance, EPT index values, EPT abundance, NCBI values, and percent dominant taxon between samples collected on 25 and 30 July 2007 and 19 September 2007 are presented in Tables 11-16. Plots of the data are given in Figure 4. None of the metrics showed significant differences between the two months.

### 4. Hester Dendy Samples

A total of 1784 specimens representing 57 taxa were collected from the six Hester Dendy stations. Three replicates were collected at each station, except Stations MR and OB, which only had two replicates retrieved at each. The number of specimens collected, their NCBI tolerance values, and functional feeding groups are presented in Table 17 for each sample. Bioassessment metrics for each sample are presented in Table 18.

The bioassessment metrics indicated several differences between the stations. All replicates at Stations TR SPW, MR, and LR had “poor” NCBI water quality conditions. Station OB had a replicate with a “fair” NCBI rating and a replicate with a “good-fair” rating. All replicates at Station ZO had ratings of “fair”. Stations TR, SPW, MR, LR, and ZO were dominated by scrapers. TR had a single replicate dominated by collector-gatherers, SPW a single replicate dominated by omnivores, and ZO a single replicate dominated by collector-gatherers. Station OB was dominated by collector-filterers.

Regression analysis of the Hester Dendy samples showed significant increases ( $\alpha \leq 0.05$ ) in taxa richness with increasing distance from the hydroelectric dam (Table 19, Figure 5). NCBI values and percentage of the dominant taxon both decreased significantly as distance from the hydroelectric dam increased (Table 19, Figure 5). Total abundance, EPT indices, and EPT abundance showed no significant difference with increasing distance from the hydroelectric dam.



## VI. DISCUSSION

Regression analysis of the Hester Dendy data showed biotic conditions improved significantly as distance from the dam increased. This result was expected, as studies have demonstrated that rapid fluctuations in current velocity and water level (associated with the operation of hydroelectric dams) results in reduced diversity, by decreasing habitat and/or survival of habitat-specific taxa (Death, 1995; Death and Winterbourn, 1995; Ward and Stanford, 1995; Valentin *et al.*, 1995). As distance from the dam increases, the fluctuations in current velocity and water level are smaller and slower, resulting in improved biotic conditions.

For the rapid bioassessment data, regression analysis showed no detectable trends in taxa richness, total abundance, or in percentage of the dominant taxon as a function of distance from the hydroelectric dam in July or in September. In addition, none of the metrics showed a significant difference when compared between the July sample and the September sample. The July samples did show a significant increase in the EPT indices as distance from the dam increased. The September samples showed a significant increase in EPT index and EPT abundance values as distance from the dam increased. The September samples also showed a significant decrease in NCBI values as distance from the dam increased. This supports the conclusion that as the distance from the dam increases, fluctuations in current velocity and water levels decrease and biotic conditions are improved.

Comparing the two methods, the Hester Dendy method detected trends among stations that were not statistically significant for the rapid bioassessment data. This may be due to the high sampling variability of rapid bioassessment samples. There is greater variability in the rapid bioassessment data because this method only samples the river margins, where habitat is less stable due to river level fluctuations. The Hester Dendy samplers provide a more stable habitat, and lower variability in the samples enables the detection of trends in the macroinvertebrate community.

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Table 3. Macroinvertebrates, their NCBI tolerance values (TV), functional feeding groups (FG), and relative abundance for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
	<b>Annelida</b>														
	<b>Hirudinea</b>														
	<b>Rhynchobdellida</b>														
	<b>Glossiphoniidae</b>														
1	Helobdella triserialis	9.20	P		1						0.00				
	<b>Oligochaeta</b>														
	<b>Haplotaxida</b>														
	<b>Lumbricidae</b>														
2	Lumbricidae Genus species		SC	5						0.02					
	<b>Lumbriculida</b>														
	<b>Lumbriculidae</b>														
3	Lumbriculidae Genus species	7.03	SC	3	2					0.01	0.01				
	<b>Tubificida</b>														
	<b>Tubificidae</b>														
4	Tubifex tubifex	10.00	SC	15	18	11	16	3	6	0.07	0.06	0.06	0.07	0.02	0.03
	<b>Arthropoda</b>														
	<b>Arachnoidea</b>														
	<b>Acariformes</b>														
	<b>Hydrachnidae</b>														
5	Hydrachna sp.	5.53	P	7	14		2	1	4	0.03	0.04		0.01	0.01	0.02

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 3. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
	<b>Crustacea</b>														
	<b>Amphipoda</b>														
	<b>Gammaridae</b>														
6	Gammarus sp.	9.10	OM	35	46	4	6		15	0.16	0.14	0.02	0.03		0.08
	<b>Talitridae</b>														
7	Hyalella azteca	7.75	OM	9	13	1	1	5	8	0.04	0.04	0.01	0.00	0.03	0.04
	<b>Cladocera</b>														
	<b>Daphnidae</b>														
8	Daphnia sp.		CF		12				1		0.04				0.01
	<b>Decapoda</b>														
	<b>Cambaridae</b>														
9	Cambaridae Genus species		OM			1	1	3				0.01	0.00	0.02	
	<b>Palaemonidae</b>														
10	Palaemonetes sp.	7.10	OM		3				1		0.01				0.01
	<b>Isopoda</b>														
	<b>Asellidae</b>														
11	Caecidotea sp.	9.11	SC	38	18	34	39	4	7	0.18	0.06	0.19	0.18	0.02	0.04
	<b>Hexapoda</b>														
	<b>Coleoptera</b>														
	<b>Dytiscidae</b>														
12	Neoporus sp.		P			1			1			0.01			0.01

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 3. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Elmidae</b>															
13	Dubiraphia quadrinotata	5.93	CG			1						0.01			
<b>Haliplidae</b>															
14	Haliplus fasciatus	8.71	SH		8						0.02				
15	Peltodytes sexmaculatus	8.73	SH			1			2			0.01			0.01
<b>Diptera</b>															
<b>Ceratopogonidae</b>															
16	Bezzia/Palpomysia sp.	6.86	P		3						0.01				
<b>Chironomidae</b>															
17	Ablabesmyia mallochi	7.19	P	1					2	0.00					0.01
18	Ablabesmyia peleensis	9.67	P	2					1	0.01					0.01
19	Chironomus sp.	9.63	CG		1			1			0.00			0.01	
20	Clinotanypus sp.		P		1						0.00				
21	Cryptochironomus sp.	6.40	P			3			1			0.02			0.01
22	Dicrotendipes sp.	8.10	CG	44	31	3	1	2	5	0.21	0.10	0.02	0.00	0.01	0.03
23	Orthocladius sp.	5.94	SH	1		3			3	0.00		0.02			0.02
24	Paralauterborniella nigrohalterale	4.77	CG			1						0.01			
25	Phaenopsectra obediens gr.	6.50	SC						5						0.03
26	Polypedilum flavum	5.78	SH		2						0.01				
27	Polypedilum illinoense gr.	9.00	SH	1	4				4	0.00	0.01				0.02

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 3. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Chironomidae cont.</b>															
28	Procladius sp.	9.10	P	2	1				2	0.01	0.00				0.01
29	Rheocricotopus robacki	7.28	CG				2	2					0.01	0.01	
30	Rheotanytarsus exiguus gr.	5.89	CF	1				2	1	0.00				0.01	0.01
31	Tanytarsus sp.	6.76	CF		2				2		0.01				0.01
32	Thienemanniella xena	5.86	CG						1						0.01
33	Thienemannimyia gr.	8.42	P				1	1	1				0.00	0.01	0.01
<b>Simuliidae</b>															
34	Simulium confusum	4.00	CF				7	19	8				0.03	0.10	0.04
35	Simulium tribulatum/venustum	4.00	CF			20	32	7	1			0.11	0.15	0.04	0.01
<b>Tipulidae</b>															
36	Tipula sp.	7.33	SH					2						0.01	
<b>Ephemeroptera</b>															
<b>Baetidae</b>															
37	Baetis intercalaris	4.99	CG			4	13	25	12			0.02	0.06	0.13	0.06
38	Heterocloeon sp.	3.48	SC			17	12	12	4			0.09	0.06	0.06	0.02
39	Procloeon sp.	5.00	OM		7						0.02				
40	Pseudocloeon propinquum	5.77	CG			13	8	12	8			0.07	0.04	0.06	0.04
<b>Caenidae</b>															
41	Caenis sp.	7.41	CG	1	6					0.00	0.02				

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 3. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Heptageniidae</b>															
42	<i>Maccaffertium modestum</i>	5.50	SC				5	12					0.02	0.06	
43	<i>Stenacron interpunctatum</i>	6.87	SC		25	2	2	1	2		0.08	0.01	0.01	0.01	0.01
<b>Heteroptera</b>															
<b>Corixidae</b>															
44	<i>Trichocorixa</i> sp.	9.00	P		8				2		0.02				0.01
<b>Veliidae</b>															
45	<i>Microvelia</i> sp.		P		1				1		0.00				0.01
<b>Odonata</b>															
<b>Aeshnidae</b>															
46	<i>Boyeria vinosa</i>	5.89	P		2	2			1		0.01	0.01			0.01
<b>Coenagrionidae</b>															
47	<i>Enallagma</i> sp.	8.91	P	2	40				4	0.01	0.12				0.02
48	<i>Ischnura posita</i>	9.52	P		2	1	1				0.01	0.01	0.00		
49	<i>Ischnura</i> sp.	9.52	P		4						0.01				
<b>Gomphidae</b>															
50	<i>Aphylla williamsoni</i>		P		1						0.00				
<b>Libellulidae</b>															
51	<i>Neurocordulia</i> sp.	5.03	P		6						0.02				
<b>Trichoptera</b>															
<b>Brachycentridae</b>															
52	<i>Micrasema wataga</i>	2.63	SH			6	3					0.03	0.01		

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder



Table 3. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Hydropsychidae</b>															
53	Cheumatopsyche sp.	6.22	CF			9	15	4	21			0.05	0.07	0.02	0.11
54	Hydropsyche betteni	7.78	CF			2	2	22	1			0.01	0.01	0.11	0.01
55	Hydropsyche venularis	4.96	CF			4	1	11	1			0.02	0.00	0.06	0.01
<b>Hydroptilidae</b>															
56	Hydroptila sp.	6.22	SC	9		3	10			0.04		0.02	0.05		
<b>Lepidostomatidae</b>															
57	Lepidostoma sp.	0.90	SH					4						0.02	
<b>Leptoceridae</b>															
58	Mystacides sepulchralis	2.69	CG						1						0.01
59	Oecetis sp.	4.70	P	1		1		1		0.00		0.01		0.01	
60	Triaenodes ignitus	4.58	SH						1						0.01
61	Triaenodes injustus	2.47	SH		14						0.04				
<b>Polycentropodidae</b>															
62	Phylocentropus carolinus	6.20	CF	1						0.00					
63	Phylocentropus placidus	6.20	CF				1						0.00		
<b>Mollusca</b>															
<b>Bivalvia</b>															
<b>Unionoida</b>															
<b>Corbiculidae</b>															
64	Corbicula fluminea	6.12	CF			1	2					0.01	0.01		

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 3. Continued.

Seq	Taxon	No. of Individuals								Relative Abundance					
		TV	FG	TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
	<b>Sphaeriidae</b>														
65	Sphaeriidae Genus species		CF		2						0.01				
	<b>Gastropoda</b>														
	<b>Limnophila</b>														
	<b>Physidae</b>														
66	Physa sp.	8.84	SC	15	8	16	22	17	9	0.07	0.02	0.09	0.10	0.09	0.05
	<b>Planorbidae</b>														
67	Helisoma anceps	6.23	SC	15	14	13	9	6	4	0.07	0.04	0.07	0.04	0.03	0.02
	<b>Mesogastropoda</b>														
	<b>Viviparidae</b>														
68	Campeloma decisum		SC						26						0.14
	<b>Platyhelminthes</b>														
	<b>Turbellaria</b>														
	<b>Tricladida</b>														
	<b>Planariidae</b>														
69	Dugesia tigrina	7.23	OM	6	3	2		13	5	0.03	0.01	0.01		0.07	0.03

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 4. Bioassessment metrics for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007.

Metric	Station					
	TR	SPW	MR	LR	OB	ZO
Taxa Richness	22	34	29	26	26	40
Number of Specimens	214	323	180	214	192	185
EPT Index	4	4	10	11	10	9
EPT Abundance	12	52	61	72	104	51
Chironomidae Taxa	7	7	4	3	5	12
Chironomidae Abundance	52	42	10	4	8	28
EPT/Chironomidae Abundance	0.23	1.24	6.10	18.00	13.00	1.82
North Carolina Biotic Index	8.11	7.48	6.60	6.48	6.02	6.92
SCDHEC Bioclassification	1.0	1.5	2.5	2.5	2.8	1.5
Percent Collector-Filterers	0.93	4.95	20.00	28.04	33.85	19.46
Percent Collector-Gatherers	21.03	11.76	12.22	11.21	21.88	14.59
Percent Omnivores	23.36	22.29	4.44	3.74	10.94	15.68
Percent Predators	7.01	26.01	4.44	1.87	1.56	10.81
Percent Scrapers	46.73	26.32	53.33	53.74	28.65	34.05
Percent Shredders	0.93	8.67	5.56	1.40	3.13	5.41
Scraper/Scraper & Collector-Filterers	50.00	5.31	2.67	1.92	0.85	1.75
Shredders/Total	0.01	0.09	0.06	0.01	0.03	0.05
Percent Dominant Taxon	20.56	14.24	18.89	18.22	13.02	14.05
Number Of Dominant Taxa	6	6	8	7	9	4

Table 5. Dominant taxa (>5% of the collection) for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007.

<b>Sta. TR</b>			<b>Sta. SPW</b>			<b>Sta. MR</b>		
<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>
Dicrotendipes sp.	44	20.56	Gammarus sp.	46	14.24	Caecidotea sp.	34	18.89
Caecidotea sp.	38	17.76	Enallagma sp.	40	12.38	Simulium tribulatum/venustum	20	11.11
Gammarus sp.	35	16.36	Dicrotendipes sp.	31	9.60	Heterocloeon sp.	17	9.44
Helisoma anceps	15	7.01	Stenacron interpunctatum	25	7.74	Physa sp.	16	8.89
Physa sp.	15	7.01	Caecidotea sp.	18	5.57	Helisoma anceps	13	7.22
Tubifex tubifex	15	7.01	Tubifex tubifex	18	5.57	Pseudocloeon propinquum	13	7.22
						Tubifex tubifex	11	6.11
						Cheumatopsyche sp.	9	5.00
			Pseudocloeon propinquum	12	6.25			
			Hydropsyche venularis	11	5.73			

Table 5 Continued.

<b>Sta. LR</b>			<b>Sta. OB</b>			<b>Sta. ZO</b>		
<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>
Caecidotea sp.	39	18.22	Baetis intercalaris	25	13.02	Campeloma decisum	26	14.05
Simulium tribulatum/venustum	32	14.95	Hydropsyche betteni	22	11.46	Cheumatopsyche sp.	21	11.35
Physa sp.	22	10.28	Simulium confusum	19	9.90	Gammarus sp.	15	8.11
Tubifex tubifex	16	7.48	Physa sp.	17	8.85	Baetis intercalaris	12	6.49
Cheumatopsyche sp.	15	7.01	Dugesia tigrina	13	6.77			
Baetis intercalaris	13	6.07	Heterocloeon sp.	12	6.25			
Heterocloeon sp.	12	5.61	Maccaffertium modestum	12	6.25			
			Pseudocloeon propinquum	12	6.25			
			Hydropsyche venularis	11	5.73			

Table 6. Results of the linear regressions to detect differences in taxa richness, total abundance, EPT index, EPT abundance, NCBI, and percentage of the dominant taxon among sampling stations for the rapid bioassessment data collected at six lower Saluda River stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007.

<b>RBP July 2007: taxa richness regressed on station</b>					<b>RBP July 2007: EPT abundance regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.00420	0.46463	0.53289	Regression	1	0.21837	3.30676	0.14313
Residual	4	0.03618			Residual	4	0.26415		
Total	5	0.04039			Total	5	0.48252		
<b>RBP July 2007: total abundance regressed on station</b>					<b>RBP July 2007: NCBI value regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.01571	2.26430	0.20683	Regression	1	0.00515	6.62400	0.06174
Residual	4	0.02775			Residual	4	0.00311		
Total	5	0.04346			Total	5	0.00825		
<b>RBP July 2007: EPT index regressed on station</b>					<b>RBP July 2007: percentage of the dominant taxon regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.11577	10.79712	0.03033	Regression	1	0.00702	1.22523	0.33042
Residual	4	0.04289			Residual	4	0.02291		
Total	5	0.15865			Total	5	0.02992		

Figure 2. Plot comparing NCBI data from rapid bioassessment samples collected from the lower Saluda River, downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, collected 11 October 2006.

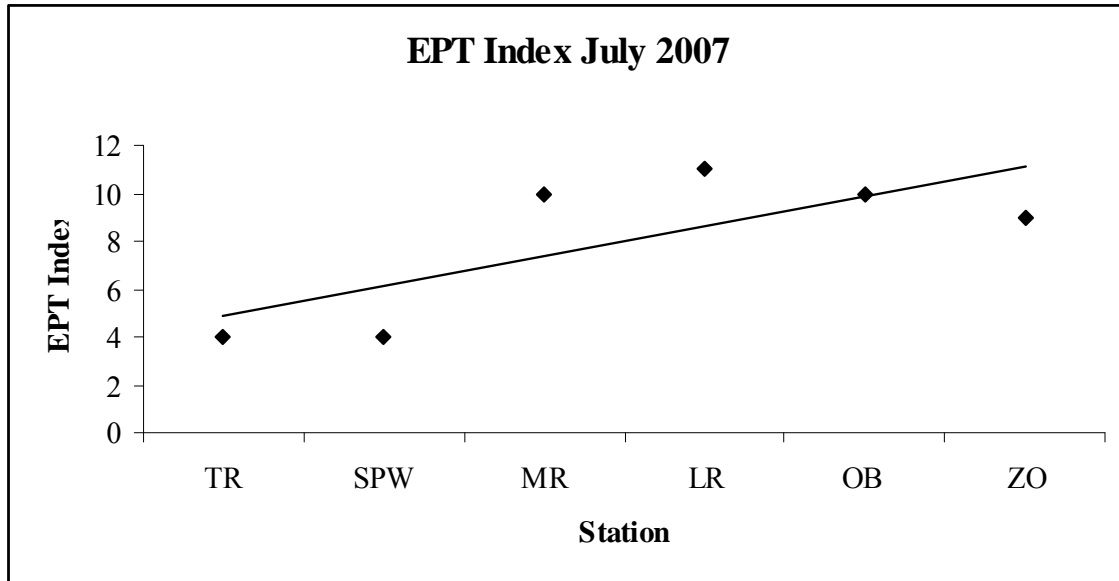


Table 7. Macroinvertebrates, their NCBI tolerance values (TV), functional feeding groups (FG), and relative abundance for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 19 September 2007.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Annelida</b>															
<b>Hirudinea</b>															
<b>Rhynchobdellida</b>															
<b>Glossiphoniidae</b>															
1	Helobdella triserialis	9.20	P		2					1		0.01			0.01
<b>Oligochaeta</b>															
<b>Haplotaxida</b>															
<b>Lumbricidae</b>															
2	Lumbricidae Genus species		SC	2						1		0.01			0.00
<b>Lumbriculida</b>															
<b>Lumbriculidae</b>															
3	Lumbriculidae Genus species	7.03	SC	4		2	1	1	1		0.02		0.01	0.00	0.00
<b>Tubificida</b>															
<b>Tubificidae</b>															
4	Tubifex tubifex	10.00	SC	4	5	6	2	4	1		0.02	0.02	0.03	0.01	0.01
<b>Arthropoda</b>															
<b>Arachnoidea</b>															
<b>Acariformes</b>															
<b>Hydrachnidae</b>															
5	Hydrachna sp.	5.53	P	3	2	1	2				0.01	0.01	0.00	0.01	

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder



Table 7. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Crustacea</b>															
<b>Amphipoda</b>															
<b>Gammaridae</b>															
6	Gammarus sp.	9.10	OM	38	34	28	8	12	16	0.18	0.14	0.14	0.04	0.04	0.10
<b>Talitridae</b>															
7	Hyalella azteca	7.75	OM	7	23		10	2	3	0.03	0.10		0.05	0.01	0.02
<b>Cladocera</b>															
<b>Daphnidae</b>															
8	Daphnia sp.		CF						2						0.01
<b>Cyclopoida</b>															
<b>Cyclopidae</b>															
9	Eucyclops agilis		OM			1						0.00			
<b>Decapoda</b>															
<b>Cambaridae</b>															
10	Cambaridae Genus species		OM			1	1	3				0.00	0.00	0.01	
<b>Palaemonidae</b>															
11	Palaemonetes sp.	7.10	OM	1						0.00					
<b>Isopoda</b>															
<b>Asellidae</b>															
12	Caecidotea sp.	9.11	SC	19	32	22	63	9	5	0.09	0.14	0.11	0.29	0.03	0.03
<b>Ostracoda</b>															
13	Ostracoda Genus species		CF	1						0.00					

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 7. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Hexapoda</b>															
<b>Coleoptera</b>															
<b>Dytiscidae</b>															
14	Neoporus sp.		P			6						0.03			
<b>Elmidae</b>															
15	Ancyronyx variegatus	6.49	CG				1						0.00		
<b>Haliplidae</b>															
16	Haliplus fasciatus	8.71	SH	1						0.00					
17	Peltodytes sexmaculatus	8.73	SH	1			1	2	2	0.00			0.00	0.01	0.01
<b>Hydrophilidae</b>															
18	Tropisternus collaris	9.68	CG					3						0.01	
<b>Diptera</b>															
<b>Ceratopogonidae</b>															
19	Bezzia/Palpomyia sp.	6.86	P		2						0.01				
<b>Chironomidae</b>															
20	Ablabesmyia mallochi	7.19	P				3						0.01		
21	Ablabesmyia peleensis	9.67	P	1	1					0.00	0.00				
22	Cricotopus sp.	5.29	SH				1						0.00		
23	Dicrotendipes sp.	8.10	CG	9	14	5	7	4	3	0.04	0.06	0.02	0.03	0.01	0.02
24	Orthocladus sp.	5.94	SH		3	5		5	2		0.01	0.02		0.02	0.01
25	Phaenopsectra obediens gr.	6.50	SC		8						0.03				
26	Polypedilum illinoense gr.	9.00	SH	1	1		1	1		0.00	0.00		0.00	0.00	

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 7. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Chironomidae cont.</b>															
27	Procladius sp.	9.10	P		1				1		0.00				0.01
28	Rheocricotopus robacki	7.28	CG					1						0.00	
29	Tanytarsus sp.	6.76	CF		2						0.01				
30	Xylotopus par	5.99	CG			1						0.00			
<b>Simuliidae</b>															
31	Simulium confusum	4.00	CF			31	1	8	4			0.15	0.00	0.03	0.02
32	Simulium tribulatum/venustum	4.00	CF	1		7		3	1	0.00		0.03		0.01	0.01
<b>Tipulidae</b>															
33	Tipula sp.	7.33	SH			2						0.01			
<b>Ephemeroptera</b>															
<b>Baetidae</b>															
34	Baetis intercalaris	4.99	CG			4		46	12			0.02		0.17	0.07
35	Heterocloeon sp.	3.48	SC		7	24	36	7	2		0.03	0.12	0.17	0.03	0.01
36	Procloeon sp.	5.00	OM		3						0.01				
37	Pseudocloeon propinquum	5.77	CG	1		9	7	7		0.00		0.04	0.03	0.03	
<b>Caenidae</b>															
38	Caenis sp.	7.41	CG	1						0.00					
<b>Heptageniidae</b>															
39	Maccaffertium modestum	5.50	SC			5	5	6	17			0.02	0.02	0.02	0.10
40	Stenacron interpunctatum	6.87	SC		2	2	9	2	1		0.01	0.01	0.04	0.01	0.01
41	Stenonema femoratum	7.18	SC		4		1	3			0.02		0.00	0.01	

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 7. Continued.

Seq	Taxon	TV	FG	No. of Individuals						Relative Abundance					
				TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Heteroptera</b>															
<b>Corixidae</b>															
42	Trichocorixa sp.	9.00	P		7				4		0.03				0.02
<b>Gerridae</b>															
43	Aquarius conformis		P			1					0.00				
<b>Veliidae</b>															
44	Microvelia sp.		P	4						0.02					
<b>Odonata</b>															
<b>Aeshnidae</b>															
45	Anax longipes		P		3						0.01				
46	Boyeria vinosa	5.89	P		4	1			1		0.02	0.00			0.01
<b>Calopterygidae</b>															
47	Calopteryx sp.	7.78	P			1						0.00			
<b>Coenagrionidae</b>															
48	Argia bipunctulata	8.17	P		4						0.02				
49	Enallagma sp.	8.91	P	67	44		2			0.32	0.19		0.01		
50	Ischnura posita	9.52	P	1	2					0.00	0.01				
<b>Libellulidae</b>															
51	Neurocordulia sp.	5.03	P	1	2				4	0.00	0.01				0.02

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 7. Continued.

Seq	Taxon	No. of Individuals								Relative Abundance					
		TV	FG	TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Trichoptera</b>															
<b>Hydropsychidae</b>															
52	Cheumatopsyche sp.	6.22	CF				6	9	2				0.03	0.03	0.01
53	Hydropsyche betteni	7.78	CF		5	2	2	22	5		0.02	0.01	0.01	0.08	0.03
54	Hydropsyche mississippiensis		CF					55	12					0.20	0.07
55	Hydropsyche venularis	4.96	CF		1		2	10	16		0.00		0.01	0.04	0.10
<b>Hydroptilidae</b>															
56	Hydroptila sp.	6.22	SC	1		3	4	2	3	0.00		0.01	0.02	0.01	0.02
<b>Lepidostomatidae</b>															
57	Lepidostoma sp.	0.90	SH					3	2					0.01	0.01
<b>Leptoceridae</b>															
58	Mystacides sepulchralis	2.69	CG				1						0.00		
<b>Polycentropodidae</b>															
59	Neureclipsis crepuscularis	4.19	CF				1						0.00		
<b>Psychomyiidae</b>															
60	Lype diversa	4.05	SC				1						0.00		
<b>Mollusca</b>															
<b>Bivalvia</b>															
<b>Unionoida</b>															
<b>Corbiculidae</b>															
61	Corbicula fluminea	6.12	CF				2	1					0.01	0.00	

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 7. Continued.

Seq	Taxon	No. of Individuals								Relative Abundance					
		TV	FG	TR	SPW	MR	LR	OB	ZO	TR	SPW	MR	LR	OB	ZO
<b>Sphaeriidae</b>															
62	Sphaeriidae Genus species		CF		1						0.00				
<b>Gastropoda</b>															
<b>Limnophila</b>															
<b>Ancylidae</b>															
63	Ferrissia sp.	6.55	SC	1						0.00					
<b>Physidae</b>															
64	Physa sp.	8.84	SC	29	8	6	21	22	2	0.14	0.03	0.03	0.10	0.08	0.01
<b>Planorbidae</b>															
65	Gyraulus parvus	4.23	SC				4		1				0.02		0.01
66	Helisoma anceps	6.23	SC	7	8	22	5	12	10	0.03	0.03	0.11	0.02	0.04	0.06
<b>Mesogastropoda</b>															
<b>Hydrobiidae</b>															
67	Somatogyrus virginicus	6.37	SC					3	8					0.01	0.05
<b>Viviparidae</b>															
68	Campeloma decisum		SC						16						0.10
<b>Platyhelminthes</b>															
<b>Turbellaria</b>															
<b>Tricladida</b>															
<b>Planariidae</b>															
69	Dugesia tigrina	7.23	OM	2	2	3	4	2	8	0.01	0.01	0.01	0.02	0.01	0.05

\* Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 8. Bioassessment metrics for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 19 September 2007.

Metric	Station					
	TR	SPW	MR	LR	OB	ZO
Taxa Richness	26	31	27	32	32	32
Number of Specimens	208	237	201	215	271	168
EPT Index	3	6	7	12	12	10
EPT Abundance	3	22	49	75	172	72
Chironomidae Taxa	3	7	3	4	4	3
Chironomidae Abundance	11	30	11	12	11	6
EPT/Chironomidae Abundance	0.27	0.73	4.45	6.25	15.64	12.00
North Carolina Biotic Index	8.29	7.87	6.51	6.87	6.70	6.49
SCDHEC Bioclassification	1.0	1.2	2.3	2.0	2.3	1.5
Percent Collector-Filterers	0.96	3.80	19.90	6.51	39.85	25.00
Percent Collector-Gatherers	5.29	5.91	9.45	7.44	22.51	8.93
Percent Omnivores	23.08	26.16	16.42	10.70	7.01	16.07
Percent Predators	37.02	31.22	4.98	3.26	0.00	6.55
Percent Scrapers	32.21	31.22	45.77	70.70	26.57	39.88
Percent Shredders	1.44	1.69	3.48	1.40	4.06	3.57
Scraper/Scraper & Collector-Filterers	33.50	8.22	2.30	10.86	0.67	1.60
Shredders/Total	0.01	0.02	0.03	0.01	0.04	0.04
Percent Dominant Taxon	32.21	18.57	15.42	29.30	20.30	10.12
Number Of Dominant Taxa	4	5	5	3	4	7

Table 9. Dominant taxa (>5% of the collection) for the six lower Saluda River rapid bioassessment stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 19 September 2007.

<b>Sta. TR</b>			<b>Sta. SPW</b>			<b>Sta. MR</b>		
<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>
Enallagma sp.	67	32.21	Enallagma sp.	44	18.57	Simulium confusum	31	15.42
Gammarus sp.	38	18.27	Gammarus sp.	34	14.35	Gammarus sp.	28	13.93
Physa sp.	29	13.94	Caecidotea sp.	32	13.50	Heterocloeon sp.	24	11.94
Caecidotea sp.	19	9.13	Hyaella azteca	23	9.70	Caecidotea sp.	22	10.95
			Dicrotendipes sp.	14	5.91	Helisoma anceps	22	10.95
<b>Sta. LR</b>			<b>Sta. OB</b>			<b>Sta. ZO</b>		
<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>	<b>Taxon</b>	<b>No.</b>	<b>Rel. Abd.</b>
Caecidotea sp.	63	29.30	Hydropsyche	55	20.30	Maccaffertium modestum	17	10.12
Heterocloeon sp.	36	16.74	Baetis intercalaris	46	16.97	Campeloma decisum	16	9.52
Physa sp.	21	9.77	Hydropsyche betteni	22	8.12	Gammarus sp.	16	9.52
			Physa sp.	22	8.12	Hydropsyche venularis	16	9.52
						Baetis intercalaris	12	7.14
						Hydropsyche mississippiensis	12	7.14
						Helisoma anceps	10	5.95



Table 10. Results of the linear regressions to detect differences in taxa richness, total abundance, EPT index, EPT abundance, NCBI, and percentage of the dominant taxon among sampling stations for the rapid bioassessment data collected at six lower Saluda River stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 19 September 2007.

<b>RBP September 2007: taxa richness regressed on station</b>					<b>RBP September 2007: EPT abundance regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.00388	3.82791	0.12204	Regression	1	1.18591	10.99311	0.02950
Residual	4	0.00406			Residual	4	0.43151		
Total	5	0.00794			Total	5	1.61741		
<b>RBP September 2007: total abundance regressed on station</b>					<b>RBP September 2007: NCBI value regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.00050	0.08473	0.78546	Regression	1	0.00567	9.83703	0.03497
Residual	4	0.02369			Residual	4	0.00231		
Total	5	0.02420			Total	5	0.00797		
<b>RBP September 2007: EPT index regressed on station</b>					<b>RBP September 2007: percentage of the dominant taxon regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.15729	16.55596	0.01524	Regression	1	0.02726	0.86567	0.40483
Residual	4	0.03800			Residual	4	0.12594		
Total	5	0.19530			Total	5	0.15320		

Figure 3. Plot comparing EPT indices from rapid bioassessment samples collected from the lower Saluda River, downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, collected 19 September 2007.

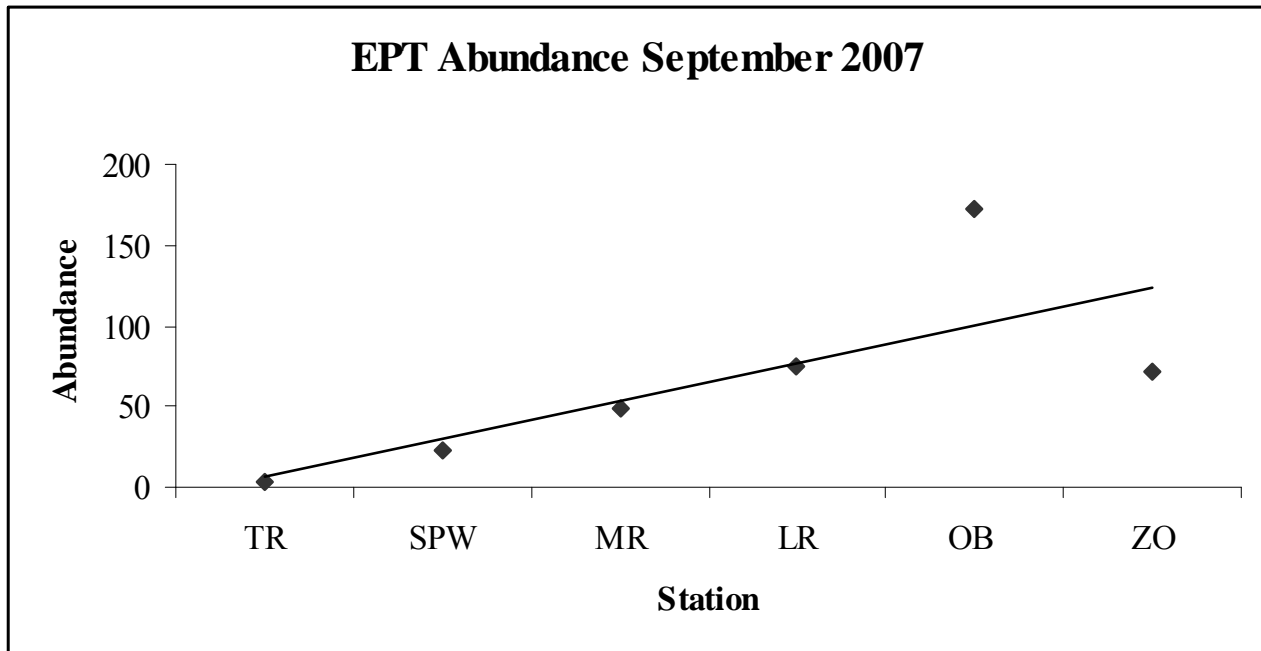
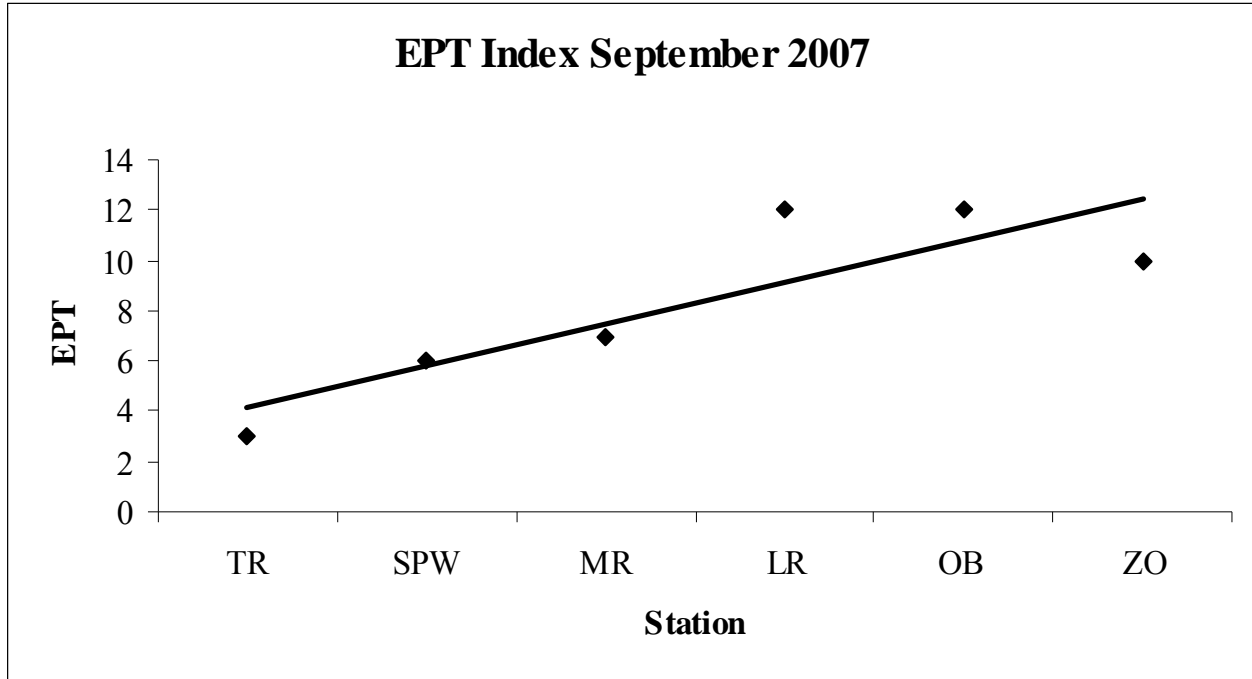


Figure 3. Continued.

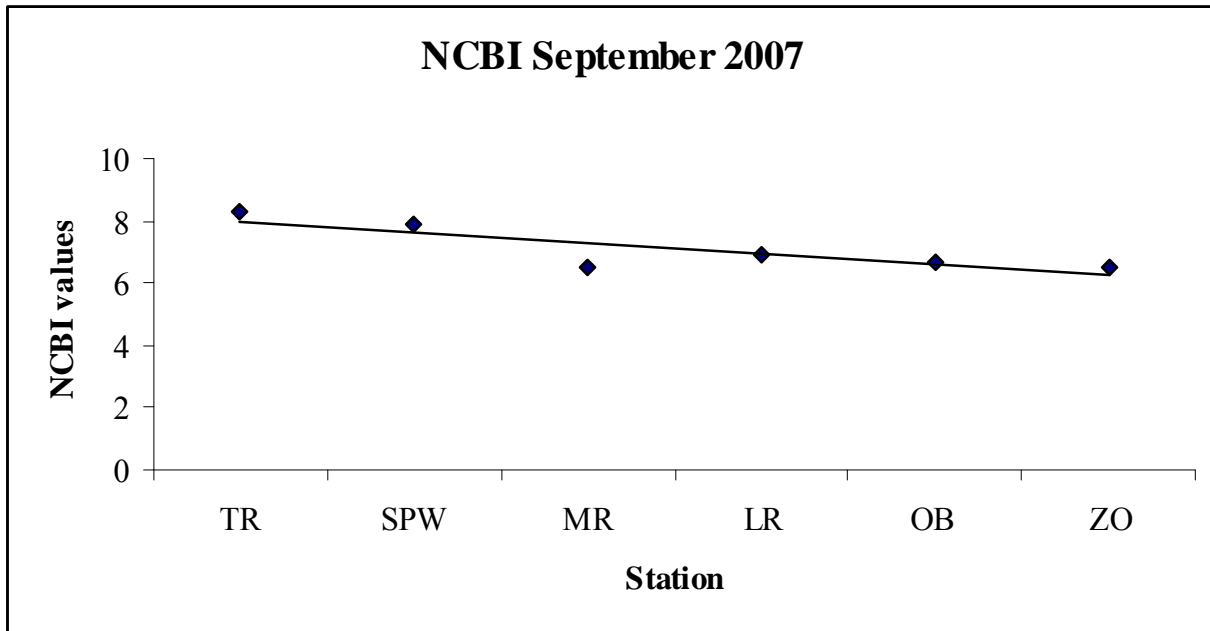


Table 11. Results of the two-factor ANOVA without replication to detect differences in taxa richness between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for Taxa Richness</i>						
Source of Variation	SS	df	MS	F	P-value	F crit
Station	0.03320	5	0.00664	2.19517	0.20423	5.05033
Month	0.00054	1	0.00054	0.17978	0.68919	6.60789
Error	0.01513	5	0.00303			
Total	0.04887	11				

Table 12. Results of the two-factor ANOVA without replication to detect differences in total abundance between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for Total Abundance</i>						
Source of Variation	SS	df	MS	F	P-value	F crit
Station	0.04551	5	0.00910	2.05498	0.22403	5.05033
Month	0.00001	1	0.00001	0.00220	0.96441	6.60789
Error	0.02215	5	0.00443			
Total	0.06767	11				

Table 13. Results of the two-factor ANOVA without replication to detect differences in EPT index values between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for EPT Index values</i>						
Source of Variation	SS	df	MS	F	P-value	F crit
Station	0.32522	5	0.06504	11.31868	0.00933	5.05033
Month	0.00030	1	0.00030	0.05155	0.82938	6.60789
Error	0.02873	5	0.00575			
Total	0.35425	11				

Table 14. Results of the two-factor ANOVA without replication to detect differences in EPT Abundance between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for EPT Abundance</i>						
Source of Variation	SS	df	MS	F	P-value	F crit
Station	1.89295	5	0.37859	9.14559	0.01485	5.05033
Month	0.02863	1	0.02863	0.69172	0.44347	6.60789
Error	0.20698	5	0.04140			
Total	2.12857	11				

Table 15. Results of the two-factor ANOVA without replication to detect differences in NCBI between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for NCBI</i>						
<b>Source of Variation</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>P-value</b>	<b>F crit</b>
Station	0.01495	5	0.00299	11.72379	0.00863	5.05033
Month	0.00031	1	0.00031	1.20907	0.32162	6.60789
Error	0.00128	5	0.00026			
Total	0.01654	11				

Table 16. Results of the two-factor ANOVA without replication to detect differences in percent dominant taxon between samples collected on 25 and 30 July 2007 and 19 September 2007.

<i>ANOVA for Percent Dominant Taxon</i>						
<b>Source of Variation</b>	<b>SS</b>	<b>df</b>	<b>MS</b>	<b>F</b>	<b>P-value</b>	<b>F crit</b>
Station	0.12919	5	0.02584	2.39509	0.17989	5.05033
Month	0.01770	1	0.01770	1.64065	0.25643	6.60789
Error	0.05394	5	0.01079			
Total	0.20082	11				

Figure 4. Plots comparing data from rapid bioassessment samples collected on 25 and 30 July 2007 and 19 September 2007 from the lower Saluda River, downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina.

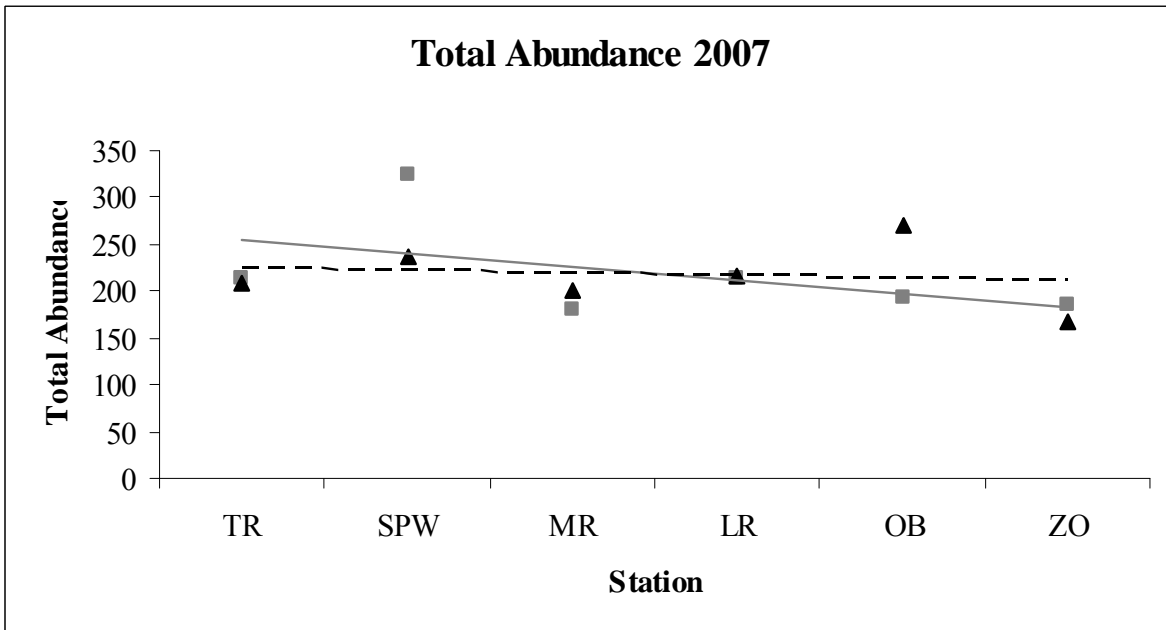
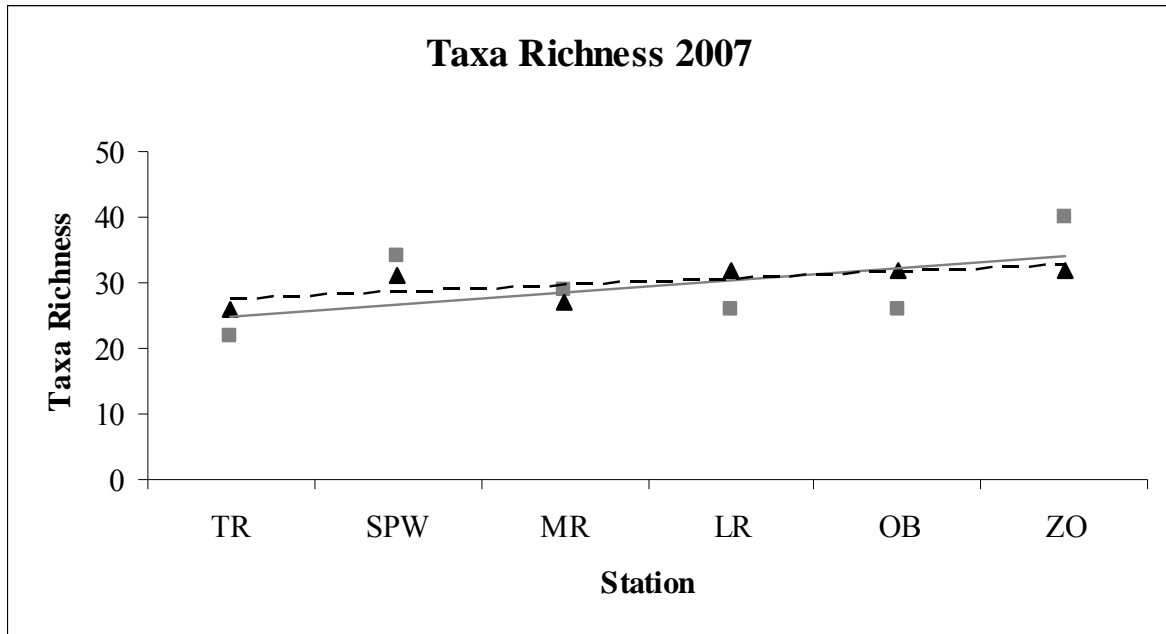


Figure 4. Continued.

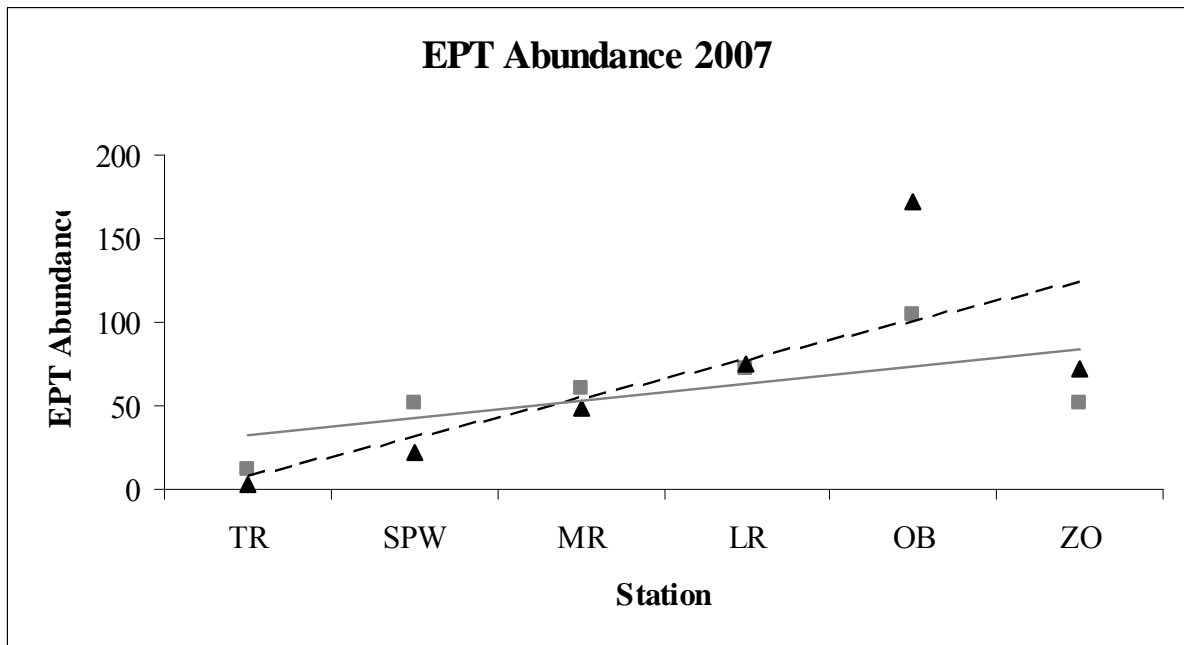
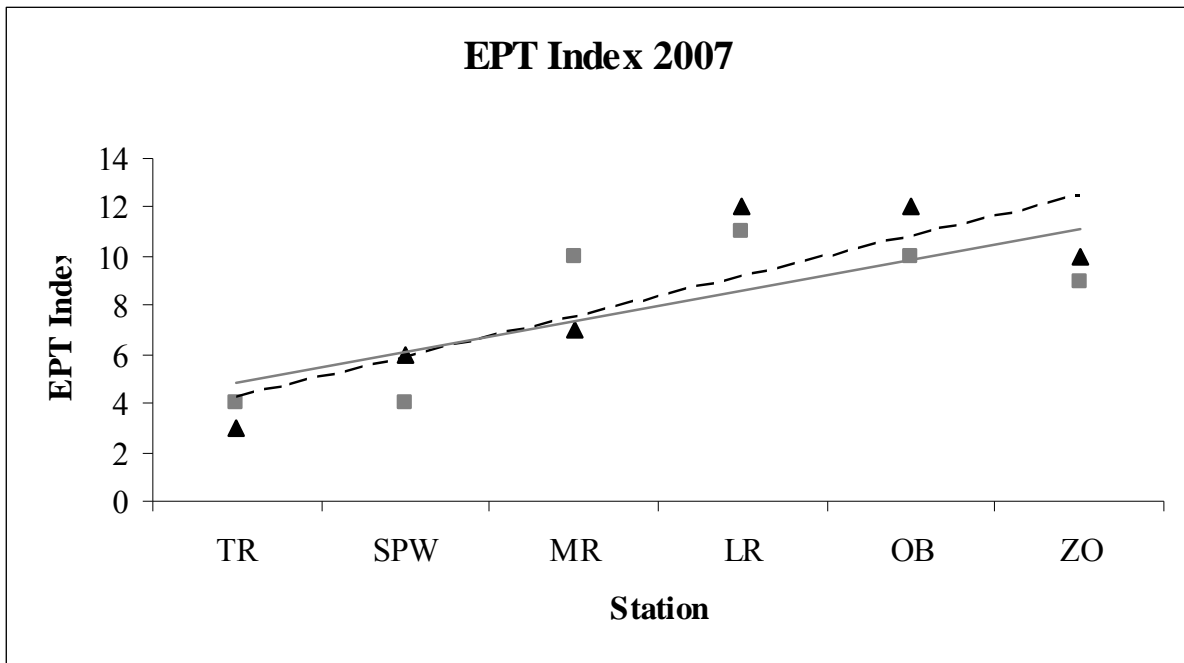


Figure 4. Continued.

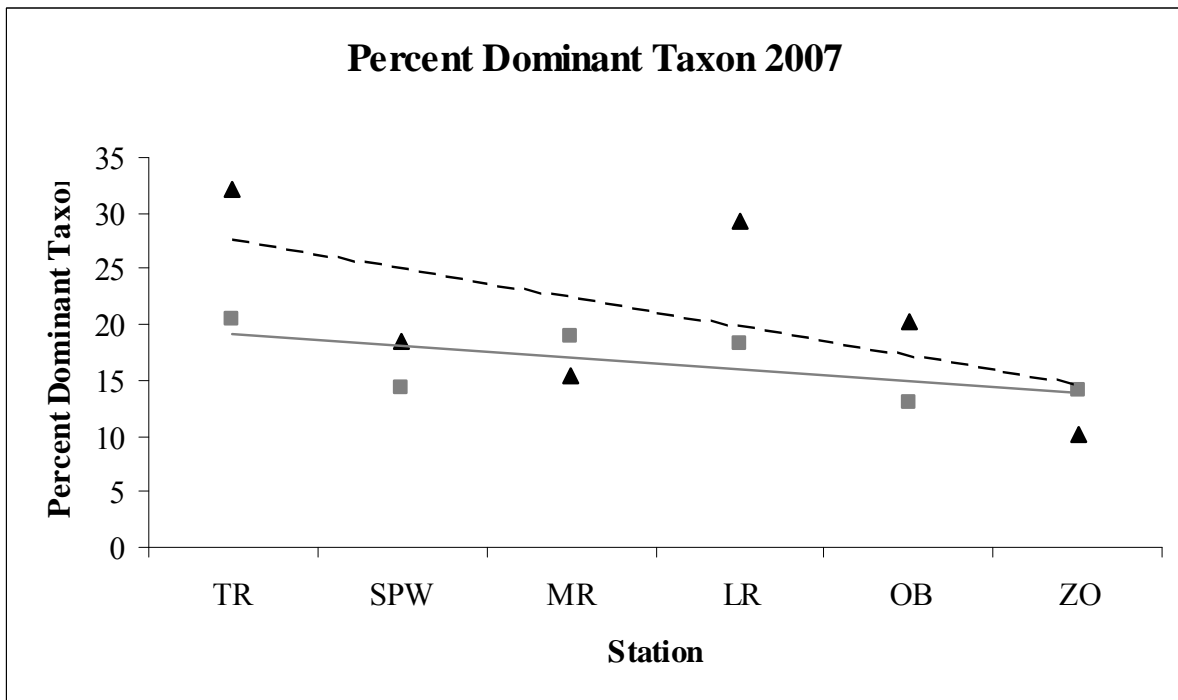
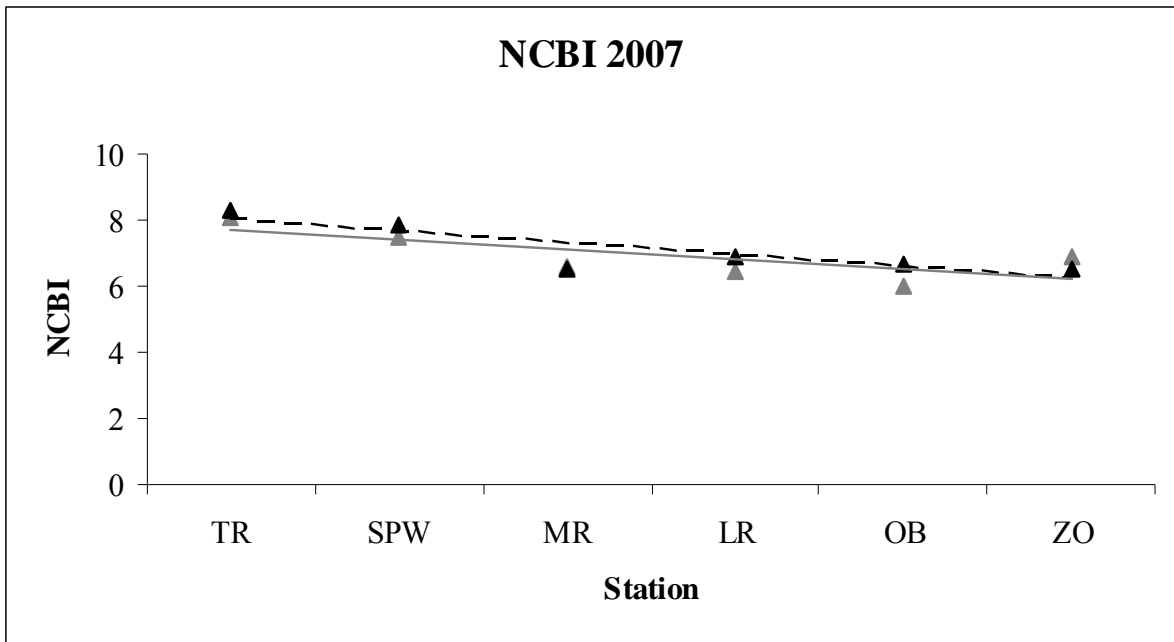




Table 17. Macroinvertebrates, their NCBI tolerance values (TV) and functional feeding groups (FG) for the six lower Saluda River Hester Dendy stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007 to 19 September 2007

Seq	Taxon	TV	FG	No. of Individuals																	
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3		
	<b>Annelida</b>																				
	<b>Hirudinea</b>																				
	<b>Rhynchobdellida</b>																				
	<b>Glossiphoniidae</b>																				
1	Helobdella triserialis	9.20	P								1	3		1							
	<b>Piscicolidae</b>																				
2	Myzobdella sp.		P				2														
	<b>Oligochaeta</b>																				
	<b>Lumbriculida</b>																				
	<b>Lumbriculidae</b>																				
3	Lumbriculidae Genus species	7.03	SC		1	2	5		1	1	3										
	<b>Tubificida</b>																				
	<b>Naididae</b>																				
4	Dero sp.	9.00	SC																	1	
	<b>Tubificidae</b>																				
5	Tubifex tubifex	10.00	SC	1	3	3				2	1		2	4	4	3			1	1	

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	No. of Individuals																		
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3			
<b>Arthropoda</b>																						
<b>Crustacea</b>																						
<b>Amphipoda</b>																						
<b>Gammaridae</b>																						
6	Gammarus sp.	9.10	OM	19	10	13	26	6	12	46	21	4	13	7	2			3	2	1		
<b>Talitridae</b>																						
7	Hyalella azteca	7.75	OM	18	3	1	80	5	31	7	10	23	21	16	1			6	2	2		
<b>Decapoda</b>																						
<b>Cambaridae</b>																						
8	Cambaridae Genus species		OM					1														
<b>Isopoda</b>																						
<b>Asellidae</b>																						
9	Caecidotea sp.	9.11	SC	64	23	18	90	40	167	73	50	32	40	33	17			3	3	10		
<b>Ostracoda</b>																						
10	Ostracoda Genus species		CF						3											1		
<b>Hexapoda</b>																						
<b>Coleoptera</b>																						
<b>Elmidae</b>																						
11	Ancyronyx variegatus	6.49	CG										2	7					1	1	1	
12	Dubiraphia quadrinotata	5.93	CG																51	8	9	

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	No. of Individuals															
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3
<b>Elmidae cont.</b>																			
13	Dubiraphia sp.	5.93	CG									1					1	2	1
14	Macronychus glabratus	4.58	CG									1		3	2	2			2
15	Stenelmis sp.	5.10	SC															1	
<b>Hydrochidae</b>																			
16	Hydrochus sp.	6.55	SH												1				
<b>Diptera</b>																			
<b>Chironomidae</b>																			
17	Ablabesmyia mallochi	7.19	P								2	3	1	2					
18	Corynoneura sp.	6.01	CG			1				4						1			
19	Dicrotendipes sp.	8.10	CG	5	65	38	4	4	18	7	3		1		1				
20	Nanocladius sp.	7.07	CG						1	1									
21	Orthocladius sp.	5.94	SH		1					3					6	5			
22	Parachironomus sp.	9.42	P											1					
23	Phaenopsectra obediens gr.	6.50	SC					2											
24	Phaenopsectra punctipes gr.	6.50	SC									1							
25	Polypedilum fallax gr.	6.39	SH								1								
26	Polypedilum flavum	5.78	SH													1			
27	Polypedilum illinoense gr.	9.00	SH							1			1	1					
28	Rheocricotopus robacki	7.28	CG	1	1						1		1						

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	No. of Individuals															
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3
<b>Chironomidae cont.</b>																			
29	<i>Rheotanytarsus exiguus</i> gr.	5.89	CF													4	2		
30	<i>Thienemannimyia</i> gr.	8.42	P													2			
31	<i>Xestochironomus</i> sp.		P											2		1			
<b>Tipulidae</b>																			
32	<i>Antocha</i> sp.	4.25	CG													7	2		
33	<i>Tipula</i> sp.	7.33	SH										1						
<b>Ephemeroptera</b>																			
<b>Baetidae</b>																			
34	<i>Baetis</i> sp.	4.71	CG								1					2			
<b>Heptageniidae</b>																			
35	<i>Maccaffertium modestum</i>	5.50	SC								3				2	4		1	
36	<i>Stenacron interpunctatum</i>	6.87	SC					2	1	3	1	7	3	6	4		1		
<b>Heteroptera</b>																			
<b>Veliidae</b>																			
37	<i>Microvelia</i> sp.		P							1		2			1				
<b>Odonata</b>																			
<b>Aeshnidae</b>																			
38	<i>Boyeria vinosa</i>	5.89	P															1	

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	No. of Individuals																
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3	
<b>Coenagrionidae</b>																				
39	<i>Argia bipunctulata</i>	8.17	P															1		
40	<i>Enallagma</i> sp.	8.91	P															1		
<b>Trichoptera</b>																				
<b>Brachycentridae</b>																				
41	<i>Micrasema</i> sp.		SH							1	2							2		
<b>Hydropsychidae</b>																				
42	<i>Cheumatopsyche</i> sp.	6.22	CF			1				3	1			2	18	23		2		
43	<i>Hydropsyche betteni</i>	7.78	CF												17	9				
44	<i>Hydropsyche mississippiensis</i>		CF												17	5				
45	<i>Hydropsyche venularis</i>	4.96	CF												34	39		1		
<b>Hydroptilidae</b>																				
46	<i>Hydroptila</i> sp.	6.22	SC	2	25	12		3	1	62	6	4	1	2	11	6	1	2		
<b>Leptoceridae</b>																				
47	<i>Oecetis avara</i>	4.70	P										4	4				2	1	
48	<i>Triaenodes</i> sp.	4.46	SH								1						1			
<b>Polycentropodidae</b>																				
49	<i>Cernotina</i> sp.		P					1	1		1	2								
50	<i>Phylocentropus placidus</i>	6.20	CF									6	1	5	2				2	

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	No. of Individuals															
				TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3
<b>Mollusca</b>																			
<b>Bivalvia</b>																			
<b>Unionoida</b>																			
<b>Corbiculidae</b>																			
51	<i>Corbicula fluminea</i>	6.12	CF				5				1			4			2	3	3
<b>Gastropoda</b>																			
<b>Limnophila</b>																			
<b>Ancylidae</b>																			
52	<i>Ferrissia</i> sp.	6.55	SC				4		1	1	1						1		
<b>Physidae</b>																			
53	<i>Physa</i> sp.	8.84	SC			2				3	11	2	8	15	2		6	3	2
<b>Planorbidae</b>																			
54	<i>Gyraulus parvus</i>	4.23	SC		1												7	1	
55	<i>Helisoma anceps</i>	6.23	SC	3	7	3	4	5	1	1	1	2	2		1	1	1	3	
<b>Mesogastropoda</b>																			
<b>Hydrobiidae</b>																			
56	<i>Somatogyrus virginicus</i>	6.37	SC														31	13	12

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 17. Continued.

Seq	Taxon	TV	FG	TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3	
	<b>Platyhelminthes</b>																			
	<b>Turbellaria</b>																			
	<b>Tricladida</b>																			
	<b>Planariidae</b>																			
57	<i>Dugesia tigrina</i>	7.23	OM										2	1			4	5		

Functional feeding groups: CF = collector-filterer, CG = collector-gatherer, OM = omnivore, P = predator, SC = scraper, SH = shredder

Table 18. Bioassessment metrics for the six lower Saluda River Hester Dendy stations downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007 to 19 September 2007.

Metric	TR1	TR2	TR3	SPW1	SPW2	SPW3	MR1	MR2	LR1	LR2	LR3	OB1	OB2	ZO1	ZO2	ZO3
Taxa Richness	8	11	11	9	10	12	18	22	15	17	19	22	18	18	21	13
Number of Specimens	113	140	94	220	69	238	220	123	93	104	116	156	109	123	58	46
EPT Index	1	1	2	0	3	3	4	8	4	4	5	8	9	3	5	1
EPT Abundance	2	25	13	0	6	3	69	16	19	9	19	105	91	4	8	1
Chironomidae Taxa	2	3	2	1	2	2	5	4	2	4	4	4	5	0	0	0
Chironomidae Abundance	6	67	39	4	6	19	16	7	4	4	6	13	10	0	0	0
EPT/Chironomidae Abundance	0.33	0.37	0.33	0.00	1.00	0.16	4.31	2.29	4.75	2.25	3.17	8.08	9.10	-	-	-
North Carolina Biotic Index	8.36	7.96	8.04	8.04	8.02	8.27	7.71	7.97	7.79	8.04	7.76	6.84	6.05	6.83	6.83	7.29
SCDHEC Bioclassification	1.0	1.0	1.0	1.0	1.0	1.0	1.3	1.5	1.2	1.0	1.2	2.0	2.8	1.5	1.5	1.5
Percent Collector-Filterers	0.00	0.00	1.06	2.27	0.00	0.00	1.36	1.63	6.45	0.96	9.48	58.97	71.56	1.63	13.79	6.52
Percent Collector-Gatherers	5.31	47.14	41.49	1.82	5.80	9.24	5.45	4.07	2.15	3.85	8.62	6.41	6.42	43.09	20.69	28.26
Percent Omnivores	32.74	9.29	14.89	48.18	17.39	18.07	24.09	25.20	29.03	34.62	20.69	1.92	0.00	10.57	15.52	6.52
Percent Predators	0.00	0.00	0.00	0.91	1.45	0.42	0.45	3.25	10.75	4.81	8.62	1.92	0.92	3.25	1.72	2.17
Percent Scrapers	61.95	42.86	42.55	46.82	75.36	72.27	66.36	62.60	51.61	53.85	51.72	26.28	12.84	41.46	48.28	56.52
Percent Shredders	0.00	0.71	0.00	0.00	0.00	0.00	2.27	3.25	0.00	1.92	0.86	4.49	8.26	0.00	0.00	0.00
Scraper/Scraper & Collector-Filterers	-	-	40.00	20.60	-	-	48.67	38.50	8.00	56.00	5.45	0.45	0.18	25.50	3.50	8.67
Shredders/Total	0.00	0.01	0.00	0.00	0.00	0.00	0.02	0.03	0.00	0.02	0.01	0.04	0.08	0.00	0.00	0.00
Percent Dominant Taxon	56.64	46.43	40.43	40.91	57.97	70.17	33.18	40.65	34.41	38.46	28.45	21.79	35.78	41.46	22.41	26.09
Number Of Dominant Taxa	3	5	4	3	5	4	3	4	4	4	6	6	4	3	7	4



Table 19. Results of the linear regressions to detect differences in taxa richness, total abundance, EPT index, EPT abundance, NCBI, and percentage of the dominant taxon among sampling stations for the Hester Dendy data collected on the lower Saluda River, downstream from the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, 25 and 30 July 2007 to 19 September 2007.

<b>Hester Dendy 2007: taxa richness regressed on station</b>					<b>Hester Dendy 2007: EPT abundance regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.15502	19.10946	0.00064	Regression	1	0.37939	1.12929	0.30591
Residual	14	0.11357			Residual	14	4.70337		
Total	15	0.26859			Total	15	5.08276		
<b>Hester Dendy 2007: total abundance regressed on station</b>					<b>Hester Dendy 2007: NCBI value regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.09918	2.84034	0.11408	Regression	1	0.00963	16.65633	0.00112
Residual	14	0.48885			Residual	14	0.00809		
Total	15	0.58803			Total	15	0.01772		
<b>Hester Dendy 2007: EPT index regressed on station</b>					<b>Hester Dendy 2007: percentage of the dominant taxon regressed on station</b>				
<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>	<i>Source of Variation</i>	<i>df</i>	<i>SS</i>	<i>F</i>	<i>P-value</i>
Regression	1	0.32324	5.50206	0.03425	Regression	1	0.16642	18.93456	0.00066
Residual	14	0.82249			Residual	14	0.12305		
Total	15	1.14573			Total	15	0.28947		

Figure 5. Plot comparing data from Hester Dendy samples collected from the lower Saluda River, downstream of the Saluda Hydroelectric Project (Lake Murray) operated by SOUTH CAROLINA ELECTRIC & GAS, Lexington County, South Carolina, retrieved 05 and 19 September 2007.

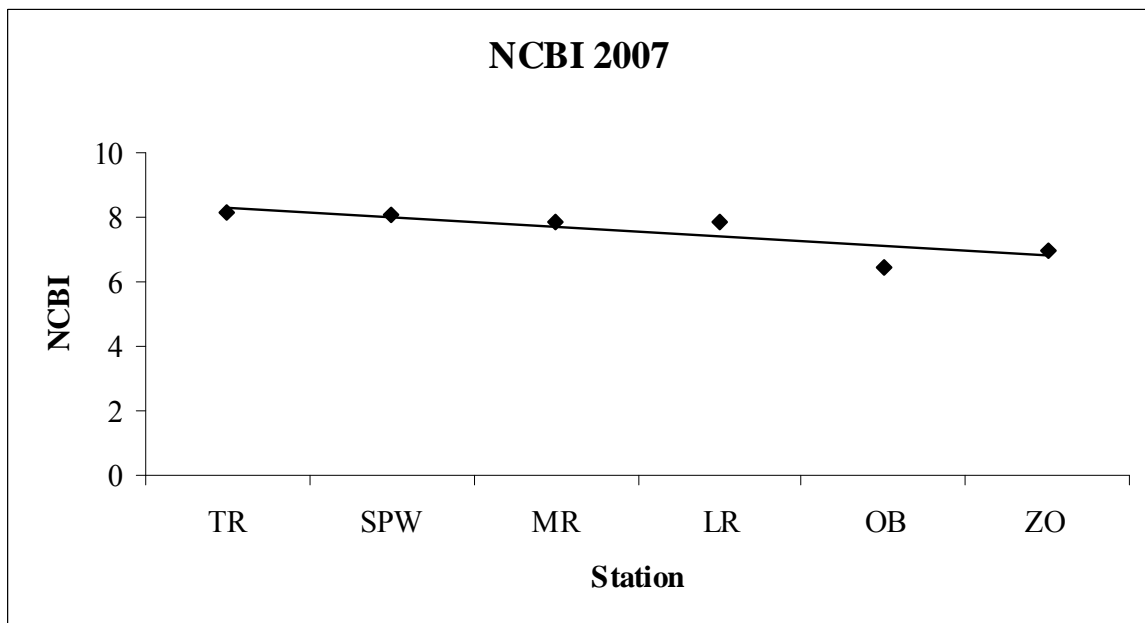
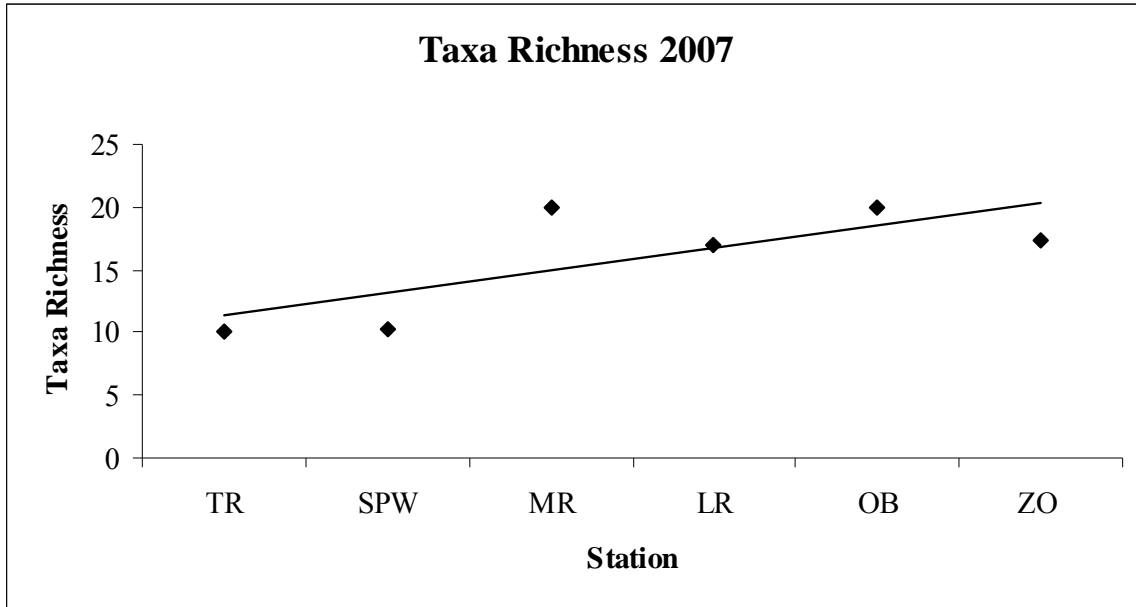


Figure 5. Continued.

