

**MEETING NOTES**

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

**SCE&G Training Center  
April 18, 2007**

Final acg 5-24-07

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**ATTENDEES:**

Alison Guth, Kleinschmidt Associates	Dave Anderson, Kleinschmidt Associates
Bill Argentieri, SCE&G	Randy Mahan, SCANA Services, Inc.
Tommy Boozer, SCE&G	Stephen Curry, Columbia Fire Dept.
Steve Bell, Lake Watch	Karen Kustafik, COC Parks
Jay Schabacher, LMA	Kenneth Fox, LMA
Tony Bebber, SCPRT	Joy Downs, LMA
David Price, LMPS	Malcolm Leaphart, TU
Bret Hoffman, Kleinschmidt Associates	Bill Mathias, LMA & LMPS
Bill Marshall, SCDNR, LSSRAC	Charlene Coleman, American Whitewater
Patrick Moore, SCCCL, Am. Rivers	Mike Waddell, TU
Jenn ORourke, SCWF	
Norm Nicholson, Lexington Co. Sheriffs Dept.	
Marty Phillips, Kleinschmidt Associates (via conference call)	

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**HOMEWORK ITEMS:**

- Draft a letter to DNR requesting clarification on several issues regarding shoal markers on Lake Murray - Dave Anderson
- Discuss settlement agreement options with DNR regarding the shoal marker issue – SCE&G
- Update the Issue Recommendation on Warning System for the LSR – Dave Anderson
- Update Issue Matrix – Dave Anderson
- Revise Safety and Outreach Programs document – Marty Phillips

**DATE OF NEXT MEETING:**      **3<sup>rd</sup> Quarter 2007 – Meeting Date TBA**

**MEETING NOTES:**

Dave opened the meeting and the group briefly reviewed the agenda items that were to be discussed during the course of the meeting. Dave noted that they would start off by discussing the issues regarding shoal markers on Lake Murray.

Dave noted the main concern that has been expressed by the group regarding shoal markers on Lake Murray is there is a problem in marking hazards due to lake fluctuations. Dave explained that he had researched the FERC e-library and found two documents that may provide some insight on how

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other licensees have dealt with this issue. One document was from the Coosa and Warrior relicensing and one document was from the settlement agreement at the Yadkin Project. At Yadkin, Progress Energy has proposed to work with NCWRC (North Carolina Wildlife Resources Commission) in provided funding for buoy installation and maintenance. Dave explained the Coosa/Warrior document addresses 7 different reservoirs; however, it may provide the group with ideas on how to address this issue. Dave asked the group if there were any other ideas on how to resolve the shoal marker issue. Steve Bell noted that he is not as concerned with how the shoals are marked at summer lake levels; however, he does have an issue with how the shoals are marked when the lake levels go down and is also concerned with what would happen if DNR pulls out of the program on Lake Murray.

The group continued to discuss this issue and a few individuals expressed that DNR does not have the manpower to keep up with buoy placement and repair, even if money was provided. Joy Downs asked if the agreement with DNR to maintain the buoys on Lake Murray was semi-formal. Tommy Boozer explained that although SCDNR has committed to maintain the buoys, there was no legal, binding agreement that they had to do so. Tommy also pointed out that DNR performs the buoy placement on many other lakes and any funding that was contributed to DNR for the placement of buoys would need to carry with it the requirement that that money would only be spent on the program for Lake Murray. Dave noted the Safety RCG would continue after relicensing and questioned whether they could then set the priorities for buoy placement on Lake Murray at their meetings.

The group discussed the option of hiring a third party contractor to work under the supervision of DNR. Patrick Moore pointed out that the FERC would not be able to agree to a third party contractor in a settlement agreement. Dave asked the group if there was a current process by which a homeowner or lake user could put in a request for a hazard marker. Tommy explained that they frequently receive calls reporting problems with existing shoal markers which they subsequently contact Skeet Mills from DNR about. Norm Nichols explained that DNR owns two buoy boats that they use for the entire state and they had been on Lake Murray twice last week, although he was unsure how often they frequented the Lake. Bill Marshall noted that Skeet had informed him that 54 percent of the navigational aids in the state are located on Lake Murray.

Steve Bell noted that it would be SCE&G's responsibility to mark the Lake if the state did not. Randy Mahan noted that at this point he did not believe they could mark the waters of South Carolina and would not want to assume that liability. He continued to explain that there are some things that the government can and should do, one of which is providing highway markers and markers on the waters of the State. He noted that if it is a funding issue then they may need to look into providing some level of funding to the DNR for that issue. It was also noted that it may be possible to rally for legislation that either releases SCE&G from any kind of liability or would require SCDNR to upkeep this program.

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Dave noted that he would draft a letter to send to Dick Christie with some of the questions that the group had about marking the shoals. Dave noted that he would ask Dick about the agency funding of the program. He would also ask DNR to better define what they meant in the July 6, 1999 letter regarding shoal markers on Lake Murray. Dave also noted that he would ask DNR to define the difference between "aids to navigation" vs. "hazard markers". He would also ask DNR for their definition of a shoal. Dave noted that SCE&G would work with DNR separately regarding a solution for the issue of shoal markers.

After a short break, the group discussed the Warning System for Rising Water on the Lower Saluda River Issue Recommendation. Malcolm Leaphart had submitted a few questions via email and the group briefly discussed these. One of Malcolm's questions was regarding where the float switches that trigger the sirens are located on the LSR. Bill Argentieri noted that the float switch for the sirens at Metts Landing is located at the USGS gage about a 3/4 of a mile upstream. Bill continued to explain that the sirens by Millrace, Shandon Rapids, and the railroad tracks are all activated by a float switch located about 1/4 mile upstream of the first siren at the Zoo near Candi Lane.

Dave had put together an illustration of the LSR in which the areas that the group had indicated the majority of the recreational activity occurs are highlighted in red. Bill Argentieri again asked Trout Unlimited representatives (Malcolm Leaphart and Mike Waddell) if the areas highlighted in red covered the areas that they typically fish in. Malcolm replied that they fish on the entire length of the river. Patrick also recommended that an emergency exit light be placed at Gardendale that would indicate to non-expert boaters the need to exit the waters due to a release.

There were some questions on why all of the sirens were not activated as soon as there was a release at the dam. It was explained that for the areas by the zoo, at times it would take several hours for the water to rise significantly in that area. Malcolm asked the group if there could be a warning for when water was released at the dam as well as a warning when the water started to rise in the immediate vicinity. Malcolm noted that he would like a clearer idea of how much flow was released; he continued to explain that if it was around 400 cfs he may be able to stay in the water and continue with his activities. Bill noted that he believed it was more important that they make sure there is a good coverage area on the river. He continued to explain that it needed to be clear that when the siren was activated, individuals should exit the water, and not try to gage how long they could remain in the water before exiting. Charlene Coleman with American Whitewater agreed, noting that there only needs to be one light, which indicates when to exit the waters. She noted that complex combinations of lights and sirens that depicted flow levels would only serve to confuse the majority of the individuals recreating on the river. Karen Kustafik also agreed and noted that the more detailed information was something that may be more appropriate on the website or in the phone tree message.

Malcolm noted that he would like to clarify that it may be important for different river users to know how much water was coming down the river because individuals with Jon boats may have an

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issue negotiating back up the river safely during high flows. Bill A. replied that they were discussing emergency take out points under the Recreation Management TWC.

Steve asked for an explanation from Dave on how the Issue Recommendation for Warning System for Rising Water on the Lower Saluda River was put together. Dave noted that he had put it together based on the groups recommendations during the meetings and sent it back out to the group to comment on. Steve noted that he was not agreeable to the wording in the document that stated Saluda would be used for reserve. Dave noted that if SCE&G was going to be putting in a multi-million dollar warning system in the river, it would be important for them to have the recommendation to keep reserve capacity.

The group discussed the benefits of reserve capacity to the lake homeowners and Joy Downs noted that reserve was more beneficial to the lake levels than peaking. However, Malcolm noted that in his opinion, when the facility was used for peaking, they did not see high flows as often. Randy pointed out that the data indicates that they rarely run Saluda up to 18,000 cfs. Mike Waddell asked if the operations model will provide the group with travel times of different flows. Bret Hoffman noted that they could run a few transient travel times using the model, but it would be modeled data and could have some inconsistencies due to the many variables involved. It was also asked that the model be used to look at the ramping of flows. Bret pointed out that initially the data indicated that it would take the better part of the day in order to allow the river to rise slowly using ramping. He continued to explain that 15 or 30 minute ramping increments probably will not significantly affect the rate of river rise, depending on where one was located on the river.

The group discussed changes to the Warning System Issue Recommendation . It was noted that if the sentence on reserve generation were removed, than the document would be more agreeable to the group. It was also noted that the recommendation include the area between Corley Island and I-20 as well.

Bill A. noted that it had been discussed that there may be a need at some locations for strobe lights instead of warning sirens. The group agreed and noted that this would be left up to the discretion of SCE&G.

After lunch the group then discussed the Safety and Outreach Programs. Dave noted that one of the purposes of the document is to put in place a safety group that will continue beyond relicensing. Dave noted that the document also reviews current public outreach efforts, as well as those planned for the future. It was further clarified that if the Safety Program was kept out of the license the group would have more local control of it. Joy explained a little about the safety committee that met previously and noted Lee Barber could provide more detail on it if needed. The group noted that it may be beneficial to add more detail into the document that discussed the previous committee. It was also noted that there was a safety committee associated with the Lower Saluda Scenic River Advisory Council that developed/constructed the kiosks, painted poles, and map of the LSR.

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Marty Phillips was available by conference call to guide the group through the document. Marty noted that her goal was to try to make the document as brief as possible, but still provide enough information for a clear understanding of the programs that are in place. Marty explained that in Section 3 of the document, they attempted to separate out the regulatory authorities, as well as what the laws and regulations were. Marty asked the group if it was necessary to list the specific laws, or if that section could be generalized. After some discussion it was noted that the document should generally define what authorities have jurisdiction and generally how the laws apply.

Marty then asked the group what the lifespan of the document should be. Bill Mathias noted that he believed it should be reviewed annually and amended where appropriate. Bill M. also explained that he believed that the safety group should meet on a quarterly basis. The group noted that since the document would be reviewed annually, the document could be very specific as to what federal, state and local entities would be involved and their responsibilities. The group briefly mentioned a few agencies involved, such as DHEC and SLED as State entities, and EMS, the sheriff, the coroner, the city police and the county police at the local level, and the National Weather Service at the federal level. Jay Schabacher noted that it may be helpful to put agency contact information in the document. Marty suggested that it may be provided separately, and noted that there was the concern that someone may use this as an emergency reference document. The group agreed that contact information should be provided as an appendix.

The group then discussed the existing safety measures on Lake Murray. Marty asked the group if there were any safety measures not currently listed that needed to be included in the document. Bill M. suggested including an item referring to the Lake Murray Power Squadron and their vessel safety checks, safe boating checklists, and training programs. Charlene also mentioned the American Canoe Association that certifies instructors on whitewater and flatwater. She pointed out that the American Whitewater webpage provides descriptions of the rapids on the LSR as well. Sea Tow and Boat US were also listed as a resource. Marty discussed the existing outreach section with the group, and it was noted that the Lake Murray Association needed to be added to that section. Dave asked the group if there were additional outreach efforts that needed to be listed in this section and the group concluded their discussions on this section of the document.

Dave explained that he still had some difficulty with obtaining accident data from DNR. Tommy noted that he would assist Dave with his efforts on this. Dave also noted that Patrick had requested that the group put the ramping of non reserve call flows as part of the Proposed Safety and Outreach Programs section. Bill Marshall asked the group if, operationally, ramping rates could be considered under a non-emergency reserve situation. Randy noted that any restriction on the ability to attain the flow that was needed could be a restriction on economics. However, Randy noted that this may be something that is worth looking at under lake level management conditions. Bret noted that they could use the operations model to look at the possibility of ramping during non-emergency lake level management situations. Bret then asked the group what a reasonable rate of water rise

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would be. The group noted that the Downstream Flows TWC would look at this during their recreational flow assessment scheduled during mid-May.

The group concluded discussions on the agenda items and began to decide on future meeting dates. It was noted that the next meeting would probably occur around the third quarter of the year. Dave noted that he would update the issues matrix and send it around to the group.

Meeting Adjourned

reimburse the funds at a time of its discretion, but in any case on or before the 10- or 20-year dates noted in Appendix C.

### **2.3.6 Recreation Safety and Enforcement**

The Parties agree that within one year of the effective date of the New License the Licensee will make a one-time contribution of \$50,000 to the NCWRC to assist with the development of two boathouse facilities, one each on High Rock and Narrows reservoirs, for enforcement purposes. The Licensee and NCWRC will work together to identify appropriate locations for the new boathouse facilities and to develop and execute any necessary license agreements.

The Licensee will also provide NCWRC with \$2,500 annually to assist with the installation and maintenance of buoys and other hazard markers/signs on the Project reservoirs. In the first year following issuance of a New License, the funds will be made available within six months of the effective date of the New License. Thereafter, the funds will be made available in July of each year. This payment amount specified in dollars shall be deemed to be stated as of the year 2008, and such sums shall be escalated as of January 1 of each following year (starting in January 2009) according to the formula set forth in Section 2.3.9.

### **2.3.7 Assessing Future Recreational Needs**

Nothing in this Relicensing Settlement Agreement (RSA) shall preclude the use of established mechanisms for monitoring growth in recreation facility demands such as the FERC Form 80, North Carolina State Comprehensive Outdoor Recreation Plan, and USFS recreation use monitoring. The information generated by these processes will serve as indicators of future recreational needs beyond those noted in this RSA.

### **2.3.8 Compliance with the Project's Shoreline Management Plan**

The Parties agree that any new recreational facilities or upgrades to existing facilities shall be in accordance with the requirements of the Project's Shoreline Management Plan.

### **2.3.9 Escalation of Funds**

Where noted, the Parties agree that the Licensee will escalate payment amounts specified in dollars according to the following formula:

$$AD=D \times ((NGDP)/IGDP)$$

Where:

AD = Adjusted dollar amount as of January 1 of the year in which the adjustment is made

D = Dollar amount prior to adjustment

IGDP = GDP-IPD for the third quarter of the year before the previous adjustment date (or, in the case of the first adjustment, the third quarter of the year before the effective date of the New License)

NGDP = GDP-IPD for the third quarter of the year before the adjustment date

“GDP-IPD” is the value published for the Gross Domestic Product Implicit Price Deflator by the U.S. Department of Commerce, Bureau of Economic Analysis in the publication Survey of Current Business, Table 7.1 (being on the basis of 2000 = 100), in the third month following the end of the applicable quarter. If that index ceases to be published, any reasonably equivalent index published by the Bureau of Economic Analysis may be substituted. If the base year for GDP-IPD is changed or if publication of the index is discontinued, the Licensee will promptly make adjustments or, if necessary, select an appropriate alternative index to achieve the same economic effect.

Contribution amount will not be adjusted to be less than the amount from the previous year.

## **2.4 Shoreline Management**

### **2.4.1 Modifications to the Existing Yadkin Shoreline Management Plan**

The Parties agree that the Licensee will make modifications to the existing Yadkin Project Shoreline Management Plan (SMP) Specifications for Private Recreation Facilities, Shoreline Stewardship Policy, and Subdivision Access Approval, Multi-use Facility Permitting, and Industrial Approval Procedures consistent with Appendix D.

### **2.4.2 Implementation of the Shoreline Management Plan Modifications**

The Parties agree that the Licensee will implement the modifications to the existing SMP referenced in Section 2.4.1 within three months of the effective date of the New License. The Parties agree that any provisions in the existing, FERC approved SMP that are not addressed in Appendix D remain unchanged and in full force and effect.

### **2.4.3 Fees**

The Parties agree that the Licensee has the right to recover the cost of administering the SMP through permit fees.

## **2.5 Wildlife, Aquatics, and Rare, Threatened and Endangered (RTE) Species**

### **2.5.1 RTE Species**

The Parties agree that periodic freshwater mussel monitoring to be conducted under the Rare, Threatened and Endangered Species Management Plan, required by Article FW-1, will be completed within the first 10 years of the effective date of the New License and will be limited in scope and duration so as not to exceed a total cost to the Licensee of \$50,000 (in 2008 dollars) over the term of the New License.

The Parties further agree that if, at the completion of the 10-year mussel monitoring period, the Licensee and NCWRC agree that recruitment of the freshwater mussel species occurring in the Falls tailwater area is not sufficient to justify continued management efforts in this location, within one year of such a finding, the Licensee will make a one-time contribution of \$50,000 to the NCWRC to assist with its freshwater mussel management and preservation efforts elsewhere in the watershed.

## **Issue Action Group: R2 Public Safety**

### **IAG Recommendation Proposal to Enhance Public Safety on APC Reservoirs**

Final

June 25, 2003

#### **Warrior and Coosa Projects Combined**

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The following outlines a proposal developed by Alabama Power Company (APC) and the Alabama Marine Police (Marine Police) in consultation with other stakeholders to enhance public safety on all of APC's FERC licensed reservoirs in the State of Alabama. The proposal is specifically designed to address concerns raised by stakeholders and the public during relicensing discussions and is intended to be incorporated by reference into APC's relicensing application.

#### **Goals:**

1. Address all aspects of the public safety issue that have been raised in relicensing (marking, education, training, control and management) at all APC reservoirs.
2. Provide for a fair, equitable and consistent distribution of resources and programs,
3. Provide a solution that allows for both short term and long term planning.
4. Allow program flexibility to address the unexpected.
5. Initiate early implementation of the program (in 2003), as opposed to waiting for issuance of a new license (in 2007 or later).
6. Clarify public safety responsibilities.

#### **Proposal:**

1. Funding
  - a. APC will commit to providing an annual level of funding to the Marine Police to enhance public safety on all APC reservoirs.
  - b. Funding provided by APC will be to supplement, not replace existing Marine Police programs and existing, ongoing APC commitments.
  - c. Funding provided to the Marine Police may be used for a variety of activities to enhance public safety, including but not limited to: purchase, installation, and maintenance of hazard markers, signs, education program and public input.
  - d. APC will continue to maintain the markers and signs for which it is presently responsible.

## **Issue Action Group: R2 Public Safety**

### **IAG Recommendation Proposal to Enhance Public Safety on APC Reservoirs**

Final

June 25, 2003

#### Warrior and Coosa Projects Combined

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#### 2. Priorities and Decision Making

- a. The Marine Police shall determine and set priorities for the boater and recreational safety programs and projects to be implemented with the contributed funds.
- b. The Marine Police will evaluate the need for all public safety programs and measures, including requests for regulatory markers, using appropriate criteria and standards.
- c. All decisions will be made through a transparent process including opportunities for public input.

#### 3. Public Input and Accountability

- a. The Marine Police encourage the public to communicate regularly with its officers on APC lakes, in order to have questions answered and to provide public safety related comments.
- b. The process by which the general public may request a regulatory marker (hazard, no wake zone, speed limit, etc.) remains unchanged. Applications are presented to the officer(s) on the reservoir.
- c. The Marine Police shall provide APC a report generally describing each safety program and project implemented during the preceding calendar year. Copies of this report will be provided to interested parties on request and be made available at the annual public safety workshop described below.
- d. APC agrees to host an annual public safety workshop for its reservoirs. The Marine Police agrees to chair this meeting. The purpose of this meeting will be to share public safety information, answer public safety questions and to discuss the reservoirs' public safety needs. This meeting will be held annually, given a reasonable level of public interest.
- e. The Marine Police will enhance its current efforts to respond consistently to public safety issues and questions raised by the public.
- f. Neither the Marine Police nor APC is responsible for marking channels with lateral system channel markers.
- g. APC is not responsible for marking hazards.

**Issue Action Group: R2 Public Safety**

**IAG Recommendation  
Proposal to Enhance Public Safety on APC Reservoirs**

Final

June 25, 2003

**Warrior and Coosa Projects Combined**

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4. Hazard Markers

- a. Requests for hazard markers will be evaluated on criteria including conditions at full pool, amount of boater traffic, etc. If the Marine Police determine a condition is a true hazard, the Marine Police will install and maintain appropriate marker(s).
- b. If determined not to be a true hazard, the Marine Police may permit an interested individual or group to install and maintain an appropriate marker for a “personal” hazard.
- c. Applicants are responsible for installing and maintaining other non-hazard regulatory markers permitted by the Marine Police.
- d. 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.

## Safety Resource Conservation Group

### **Issue Recommendation Warning System for Rising Water on the Lower Saluda River**

DRAFT

April 16, 2007

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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.

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 around James R. Metts Landing. A float switch upstream activates the sirens. At Metts Landing the siren is activated with a 2 inch rate of rise (ROR). The ROR is measured every 10 seconds and averaged with 5 readings over a 1-minute interval. The siren sounds for three minutes once activated. There is a hold-off period of 16 minutes at the Metts Landing siren and an override if the water level rises two feet during the 16-minute hold-off period; the siren will activate again and reset itself for the next 16-minute hold-off period. A strobe light activates and remains on for 16 minutes concurrently with the siren activation. At the Zoo location, the siren activates with a 1 inch 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 additional sirens and strobe lights were installed downstream of the Zoo. Their activation is based on the Zoo location float switch. 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. SCE&G is also currently testing an electronic call system that is initiated upon the start of generation at Saluda Hydro. Once activated, a message is sent to selected individuals via e-mail and telephone, alerting them to the change in flow. Information about current and planned operations is also provided on a website maintained by SCE&G.

## **Safety Resource Conservation Group**

### **Issue Recommendation**

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

DRAFT

April 16, 2007

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#### **Recommendation:**

SCE&G will continue to operate the Saluda Project to meet reserve capacity for the company's utility obligations. In order to mitigate the effects of this mode of operation, SCE&G proposes to:

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 Corley Island, as well as from I-26 to the confluence with the Broad River (see Figure 1);
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. Training will involve an estimated 2 days of training with flows of 8,000 CFS for approximately 10 hours each day.



### Legend

-  Project Boundary
-  Extent of Proposed Warning System

1 inch equals 2 miles

Scale: AS SHOWN	South Carolina Electric & Gas Columbia, SC	
Project No: 0455-029	Saluda Project	
Filename: Potential Warning System Poly.mxd	Figure 1: Proposed Range of Warning System for Lower Saluda River	<b>1</b>
Drawn By: DKA	<b>Kleinschmidt</b> Energy & Water Resource Consultants	
Date Drawn: 03-29-2007	4958 Valleydale Rd., Ste. 250 Birmingham, AL 35242 Telephone: (205) 981-4547 Fax: (205) 981-4549 www.KleinschmidtUSA.com	

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# SOUTH CAROLINA ELECTRIC & GAS COMPANY

SAFETY AND OUTREACH PROGRAM

DRAFT

SALUDA PROJECT  
(FERC NO. 516)

*APRIL 2007*

Prepared by:

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

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SAFETY AND OUTREACH PROGRAM

DRAFT

SALUDA PROJECT  
(FERC NO. 516)

APRIL 2007

Prepared by:

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

# SOUTH CAROLINA ELECTRIC & GAS COMPANY

## SAFETY AND OUTREACH PROGRAMS

### SALUDA PROJECT (FERC NO. 516)

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## **SOUTH CAROLINA ELECTRIC & GAS COMPANY**

### **SAFETY AND OUTREACH PROGRAMS**

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

This document describes the complex system public safety measures that exist within the project boundary and identifies numerous regulatory, public, and private entities that contribute to and/or are responsible for public safety on Lake Murray and the lower Saluda River. This document was current at the time of this writing. ***This document should not be used as a source of information for use during emergencies.*** Telephone numbers, regulations, and responsible parties may change over time.

#### ***1.0 INTRODUCTION***

This document seeks to identify the safety and outreach programs in place for public use of project resources within the boundary of the Saluda Project, including Lake Murray, the lower Saluda River, and lands within the project boundary. The document provides an assessment of known or reasonably foreseeable safety issues within the boundary. It identifies existing laws and regulations governing use of project resources, and existing safety and other outreach measures in place at the project. This document does not seek to duplicate the detailed Emergency Action Plan already in place for the Saluda Project. That plan is recognized here as complementary to other safety plans and programs that exist to benefit the users of Lake Murray and the lower Saluda River.

## 2.0 BACKGROUND

### 2.1 Project Operations

SCE&G operates the Saluda Project 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. The average annual flow from the Saluda Dam to the lower Saluda River is 2,595 acre feet with a minimum flow of approximately 400 cfs. **INSERT TEXT ON LAKE LEVELS TO BALANCE DISCUSSION OF DOWNSTREAM FLOWS.**

A more comprehensive review of project operations is provided in the Initial Consultation Document (Kleinschmidt, 2005).

### 2.2 Area Description

Lake Murray and the four surrounding counties (Richland, Lexington, Saluda, and Newberry) are experiencing rapid population growth. Population figures from the U.S. Bureau of the Census (2002) indicate that in 2000, the combined population of these counties was approximately 592,000. This represents a change of about 89,000 people since 1990, or an increase of 17.7 percent. The population of these counties increased by 4.1 percent between 2000 and 2005 and is projected to increase by another 29.3 percent by the year 2030 (SCBCB, 2005). For counties surrounding the lower Saluda River – Richland, and Lexington – population is expected to increase by 40 percent, with Lexington County having the fastest population growth of the area, at 52.9 percent from 2000 to 2030 (SCBCB, 2005).

## 2.3 Activities and Usage

### 2.3.1 Lake Murray

#### Activities

Recreational activities occurring on Lake Murray are diverse including power boating, sailing, personal water craft (PWC), swimming, diving, water skiing, boat rentals (primarily novices), hunting, camping, hiking along the shoreline, sport fishing, commercial fishing excursions, high profile fishing tournaments, sailing regattas, wind surfing, flatwater boating (kayaking and canoeing), watercraft to construct and repair docks, and occasional seaplanes.

#### Times of Greatest Use

The lake is primarily used during the day, during weekends, and during the “boating season,” generally defined as Memorial Day through Labor Day. There may also be substantial use beginning with warm days in March and April, and a hearty contingent, primarily anglers, uses the lake year round regardless of the weather.

#### Characteristics of Individual Users

The level of expertise of the various participants ranges from first time users to world-class participants and champions in sailing and professional anglers. Users vary widely in their experience and in judgment with regard to sun/UV exposure and hydration, experience, expertise, physical strength, and sobriety.

### 2.3.2 Lower Saluda River

#### Activities

Recreation activities downstream from the Saluda Project are somewhat different from, but equally diverse, as activities on Lake Murray. These include flatwater and whitewater

boating with canes and kayaks, rafting, sunning, and socializing on rock outcroppings, bank fishing, wade fishing, camping, and hiking along the riverbanks.

#### Times of Greatest Use

For most of the activities cited above, the peak usage times are generally consistent with the peak usage times on the Lake.

#### Characteristics of Individual Users

Similar to users on Lake Murray, individuals recreating on the lower Saluda River exhibit varying levels of experience and judgment. Stretches of water may be enjoyed by novice boaters or by professionals training for major boating events. Likewise, individuals wading in the river may be local college students sunbathing on exposed rock outcroppings or experienced anglers. Most users live, work, and/or are enrolled in school in the urban Columbia area (Kleinschmidt 2007).

### **3.0 LAWS, REGULATIONS, and REGULATORY ENTITIES GOVERNING PUBLIC USE**

Public use of project lands and waters is regulated and managed by a combination of federal, state, and local governments, and SCE&G. Public use of project lands is governed by federal agencies such as the United States Army Corps of Engineers (USACE), Federal Emergency Management Agency (FEMA), and FERC, state agencies that must review and approve permit applications, local governmental zoning or planning regulations, and SCE&G's shoreline management policies. Public use occurring at recreation sites is generally governed by site operators, while activities such as boating, fishing, and hunting are regulated by the South Carolina Department of Natural Resources (SCDNR).

#### 3.1 Laws and Regulations

##### **SHOULD USACE OR FERC BE LISTED HERE?**

Laws or regulations governing the use of Lake Murray and its shoreline and the lower Saluda River resources can emanate from federal, state, and local authorities.

##### 3.1.1 Federal

- The Congress of the United States—(LIST AUTHORITY)
- United States Coast Guard
- Federal Energy Regulatory Commission
- Army Corps of Engineers

##### 3.1.2 State

- South Carolina General Assembly (the primary source) (§ )—(LIST AUTHORITY)
- South Carolina Department of Natural Resources (SCDNR or DNR)
- South Carolina Department of Health and Environmental Control (SCDHEC or DHEC)—(Clean Water Act)

##### 3.1.3 Local

- County/City jurisdictions through which the Lake/River flow—(LIST AUTHORITY)
- South Carolina Electric & Gas (SCE&G)—The owner of the land under the Lake and licensee of the Federal Energy Regulatory Commission (FERC) which sets conditions

and grants the license for SCE&G to use the waters/lands of the Saluda River for power generation and for other purposes, primarily recreation. These waters are owned by the citizens of the United States and FERC acts on behalf of the citizens in licensing the use of public waters.

### 3.2 Regulatory Agencies and Responsibilities

Numerous entities are responsible for managing use, safety, and law enforcement on Lake Murray and the Lower Saluda River.

#### 3.2.1 Federal

By the terms of the license granted by FERC to SCE&G, the primary responsibility for safety is assigned to SCE&G. SCE&G is responsible providing warning signs, lights, and necessary sirens to alert the public of possible dangers. SCE&G has filed a public safety plan with the FERC that details sign placement, dimensions, and verbiage.

#### 3.2.2 State

Under South Carolina law (§           ), the primary entity responsible for boating safety (including marking of shoals and navigation hazards) is the SCDNR.

#### 3.2.3 Local

Numerous other local and voluntary organizations hold responsibility for managing use, safety on the water.

<b>PROVIDER</b>	<b>SAFETY ACTIVITIES INVOLVED IN</b>	<b>GEOGRAPHIC AREA COVERED</b>
Lake Murray Power Squadron	Boater safety; CPR training; Vessel inspection; Maintenance of day markers and reference lights	Lake Murray
U. S. Coast Guard Auxiliary	Boating safety; Education; Water rescue on Lake Murray	Lake Murray
Columbia Fire and Rescue	Swift water rescue in the lower Saluda and Congaree Rivers	Columbia City Limits & within Richland County; outside Richland

		County when called (limited to LSR?)
City of Columbia Parks and Recreation Department	Whitewater Kayak Program; Boating Safety Information; Park Ranger Staff Patrol	Lower Saluda River and Three Rivers Greenway
Lower Saluda Scenic River Advisory Council		
Lake Murray Association		

### 3.3 Law Enforcement

By statute (SC Code 1976, Annotated, § 50), SCDNR is the state agency with the primary responsibility for the enforcement of laws on South Carolina waterways, including lakes and rivers. However, similar legal authority is vested in Sheriff's department of each county. As a practical matter, the primary enforcement of laws on Lake Murray is conducted by a joint marine task force comprised of deputies from the four counties. As the work of this task force has evolved, the only Sheriff's department, which staffs its marine effort twenty-four hours a day, seven days a week, is the Lexington County Sheriff's Department (LCSD). The greatest portion of the shoreline of Lake Murray is in Lexington County, and the physical facility for the lake patrol is located on Bundrick Island, also in the county.

#### **4.0 EXISTING SAFETY MEASURES ON LAKE MURRAY AND THE LSR**

This section addresses measures relating to safety, such as signs, lights, sirens, barriers, or other safety devices reasonable to alert the public to potential dangers within the project boundary.

##### **4.1 SCE&G's Warning and Safety Programs**

Hydroelectric licensees are bound by federal regulations to promote safe and responsible use of project lands and waters. This may include management activities, or safety measures such as, signs, lights, sirens, buoys, barriers, fences, or other safety devices that may reasonably be necessary or desirable to warn the public of fluctuations in flow from the project or otherwise to protect the public in the use of project lands and waters (18 CFR 12.42).

FERC monitors public safety at hydroelectric projects via its Public Safety Program and a Dam Safety Program, both of which are designed on a project-by-project basis to accommodate the unique conditions of each project. All safety measures installed at a project must be approved by FERC prior to installation. FERC conducts annual inspections of the project and require independent safety inspections, annual spillway gate tests, and the maintenance of an Emergency Action Plan. SCE&G performs regular project inspections and monitors various types of instruments at the dam. A backup dam at the Saluda Project is designed to prevent massive downstream flooding in the unlikely event of a seismically induced primary dam failure.

##### **4.1.1 Warning Systems**

SCE&G has installed an early warning system consisting of ten large sirens downstream of the dam. The sirens are designed to activate in the unlikely event of a dam failure, to alert people in areas that could be flooded and to seek information from television or radio media sources for further instruction. A brochure containing evacuation routes and emergency preparedness information is mailed to businesses and residents in these areas periodically. The information is also posted on SCE&G's website at [www.xxxx.com](http://www.xxxx.com).

SCE&G maintains a warning system on the LSR to warn river users of sudden changes in water level. Sirens are located at Metts Landing, upstream of Riverbanks Zoo, and downstream of the Zoo. A float switch upstream activates the sirens. At Metts Landing the siren is activated with a 2 inch rate of rise (ROR). The ROR is measured every 10 seconds and averaged with 5 readings over a 1-minute interval. The siren sounds for three minutes once activated. There is a hold-off period of 16 minutes at the Metts Landing siren and an override if the water level rises two feet during the 16-minute hold-off period; the siren will activate again and reset itself for the next 16-minute hold-off period. A strobe light activates and remains on for 16 minutes concurrently with the siren activation. At the Zoo location, the siren activates with a 1 inch 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 additional sirens and strobe lights were installed downstream of the Zoo. Their activation is based on the Zoo location float switch. 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. Currently SCE&G is working with the Safety Resource Conservation Group to determine the potential need to install additional sirens two additional sirens have been or will be installed near Riverbanks Zoo and the confluence of the LSR with the Broad River, by mid-2007.

#### 4.1.2 Emergency Action Plan

In accordance with FERC requirements, SCE&G developed and maintains an Emergency Action Plan (EAP). The purpose of an EAP is to determine the results of a dam failure, and create discharges, depth of flow, and travel time are part of the dam break analyses. The EAP contains a notification flowchart showing a priority of who is to be notified, and by whom. It also identifies who is responsible for carrying out various duties outlined in the Plan. Responsibilities of the licensee include contacting the emergency and local agencies, who then have the duty of warning and evacuating affected areas.

#### 4.1.3 Public Safety Plan

Buoys, signs, and fences are placed throughout the project as part of the Public Safety Plan, which is on file with FERC. Public safety measures include warning signs near hazardous areas of the project, buoys in the impoundment serve as navigational aids or notify of dangerous conditions, and restraining devices such as fences around the powerhouse and downstream project area. The Plan contains descriptions and locations of these devices.

#### 4.1.4 Other

SCE&G supports numerous programs to promote the safe use of project lands and waters, in compliance with this regulation, in support of relicensing, and as a community leader and corporate citizen.

- SCE&G supports swiftwater rescue training by providing Columbia Fire and Rescue and AWW with flows for training events.
- SCE&G provides up-to-date information on designated evacuation routes and associated shelters that are in place for use in case of dam failure. Evacuation routes are available on-line at SCE&G's website.
- SCE&G partnered with the USCG Auxiliary and SCDNR to develop a safe boating checklist which is distributed (NEED INFORMATION FROM SCE&G)
- SCE&G and SCDNR monitor recreation sites regularly for purposes of public safety.
- SCE&G maintains a warning system on the LSR to warn river users of sudden changes in water level. Currently SCE&G is working with the safety Resource Conservation Group to determine the potential need to install additional sirens. Two additional sirens have been or will be installed near Riverbanks Zoo and the confluence of the LSR with the Broad River, by mid-2007.
- SCE&G coordinates safety efforts with the River Alliance to ensure compatibility with the Three Rivers Greenway Project.
- SCE&G manages an electronic call system that is initiated upon sudden changes in water levels on the lower Saluda River. Once activated, a message is sent to registered individuals via e-mail and telephone, alerting them to the change in flow. The system is currently being revised to accommodate a larger volume of use and for the general public registration. NEED INFO FROM TOMMY TO DESCRIBE WHO IS ON THE NOTIFICATION LIST AND ABOUT HOW MANY PEOPLE THERE ARE.
- The Lower Saluda River Advisory Consul and American Whitewater, with assistance from SCE&G, established a series of color-coded river markers are positioned along the LSR for use by boaters, anglers and other recreators. The markers help users interpret danger associated with rising water levels. The color coding was designed by American Whitewater. Information on the codes is provided at all public access points on the lower

Saluda River. Additional information is provided at [http://www.dnr.sc.gov/water/envaff/river/low\\_saluda\\_scenic.htm](http://www.dnr.sc.gov/water/envaff/river/low_saluda_scenic.htm).

#### 4.2 Other Warning and Safety Programs

Safety programs and measures for areas on and along the water, within and beyond the project boundaries are provided by numerous other local, state, and federal agencies and organizations. Most of these organizations and the programs they offer work due to extensive interagency coordination and support from one another and the corporate community, including SCE&G. SCE&G often sponsors, supports and participates in these efforts. A selection of the organizations that work to promote public safety within the project boundary is provided below.

- The US Coast Guard Auxiliary, which is under the jurisdiction of the USCG base in Charleston, SC, maintains a base on Lake Murray to assist with boating safety and emergencies until the Charleston unit arrives. It also maintains a weather link to the US Weather Bureau and an unofficial reporting station to the lake. The Auxiliary focuses on educational activities to promote boating safety on Lake Murray. Additional information on the services provided by the Auxiliary is available at [INSERT INFORMATION HERE]
- The National Weather Service issues small craft advisories for Lake Murray. Advisories are advertised ... WHERE?
- The City of Columbia Parks and Recreation Commission provides whitewater kayaking courses, including a focus on how to prevent emergencies. Courses are available for the general public, and are coordinated with city park rangers along the riverfront area. The Park Commission also provides ACA-certified instructors for children's boating classes. Additional information is provided at the city's website: [www.columbiasc.net](http://www.columbiasc.net).
- The Lake Murray Power Squadron offers courses on safe boating, engine care, ocean navigation, and weather. The Squadron also participates in public outreach and education efforts and assists in maintaining the emergency center on Lake Murray, reference lights and day markers.
- The SCDNR is responsible for placing navigation buoys on Lake Murray, and works with SCE&G in identifying hazards on the lake at normal or nearly full pond levels.
- The Columbia Fire Department is currently working on the Three Rivers Greenway Plan, which will provide emergency access points on the lower Saluda River. The Plan includes significant public access along the lower Saluda River, including emergency call boxes, which provide immediate access to a 911 operator.

## **5.0 Existing EDUCATION AND OUTREACH PROGRAMS**

Hydroelectric licensees are bound by federal regulations to make reasonable efforts to inform the public of the availability of project lands and waters for recreational purposes (18 CFR 8.1). SCE&G takes this duty seriously, providing informational signage at all of its public access sites, and a substantial amount of information on its website. SCE&G also recognizes that more and better information to users about where and how to properly use the project's lands and waters can promote responsible resource use; help prevent activity conflicts; help prevent accidents; and lessen overcrowding, and therefore, participates in many educational programs to help inform the public on these topics. Outreach activities typically focus on resources related to the Project and are designed to inform and educate the public regarding the locations of recreation sites, lake levels, generation schedule, lake drawdown events, and safe and responsible use of recreation and environmental resources.

This section discusses the types of activities that SCE&G engages in for these purposes. This section is intended to provide a summary of the education and outreach activities in which SCE&G participates and supports. SCE&G's commitment to public education and outreach is long term and dynamic: the company continually responds to worthy new ideas and requests, supplementing and supporting the activities described here.

### **5.1 SCE&G's Public Outreach and Education Activities**

SCE&G's website is located at **INSERT WEB ADDRESS**. The website is regularly maintained and provides information regarding the Saluda Project, ongoing public activities, educational material, and links to SCE&G's parent corporation, SCANA, which provides additional informational and educational resources. The website is used to describe ongoing activities around the lake and to provide information to homeowners, recreationists, and the general public of upcoming events. This includes information for shoreline residents regarding shoreline management and permitting requirements, as well as permit applications and directions; lake levels, current and planned generation schedules (excluding reserve calls); and identification of SCE&G's public access sites used for recreation. The website provides numerous contact numbers for individuals interested in additional information about the topics presented.

The Reservoir Information System (1-800-XXX-XXXX) also provides a source of information about lake levels and the planned generation schedule (excluding reserve calls). This system is operational 24 hours a day.

SCE&G also educates the public by advertising in local lakeside magazines, newspapers, and through the distribution of information to establishments around the lakes.

SCE&G holds periodic information meetings with local contractors and realtors to ensure they are aware of notification and permit requirements prior to starting any construction work and makes presentations to local organizations on an as-requested basis. SCE&G also participates in many ad hoc meetings to discuss notification and permit requirements for various homeowner and boat owner groups, boards of realtors, and home builders associations, just to name a few.

Through its Speakers' Bureau, which is described on its website, SCE&G provides informative presentations on a variety of energy-related topics to civic and social groups. Subjects range from energy costs and conservation to hurricane preparedness. Upon request, SCE&G strives to create presentations to meet the needs of any requesting party. To schedule a presentation, please contact us at (800) 562-9308.

SCE&G participates in many community activities and groups. For example, SCE&G supports the annual Dam Swim for Drew, and is very active with local Boy Scout chapters.

**[CANOEING FOR KIDS – PROVIDE FLOWS SO THEY CAN CANOE THE RIVER. TOY GIVEAWAY]**

With agencies and local sponsors, SCE&G maintains a shoreline conservation demonstration project that illustrates conservation alternatives for shoreline stabilization at its #3 boat launch. The demonstration project, profiled on SCE&G's website, supports the use of natural elements as much as possible.

As part of a cooperative effort between SCE&G, the Department of Natural Resources, and several other lake interest groups host an annual Lake Murray Shoreline Habitat

Enhancement Project. 2007 will mark the 10<sup>th</sup> year anniversary of this project. It is designed to improve the aesthetics of the Lake's shoreline, help control erosion, re-establish shoreline vegetation, enhance fish and wildlife habitat, and protect water quality. As part of the project, tree seedlings are provided to lakeside residents free of charge. Seedlings are generally distributed in bundles of 10 and 15 trees, and include native species such as cypress, river birch, willows, and button bushes. Planting instructions are provided.

With respect to aquatic plant management, SCE&G posts signs at all public boat launches, warning boaters of the potential hazards of inadvertently introducing invasive aquatic species would be detrimental to the health of Lake Murray. In addition, SCE&G monitors and manages hydrilla and water primrose in the lake, and posts this information on its website for public consumption.

**[INSERT TEXT ON ANY OTHER ENVIRONMENTAL PROGRAMS OF INTEREST ON THE LAKE OR RIVER, RELATED TO ZEBRA MUSSELS, FISHERIES, WILDLIFE, ETC. WOULD BE GOOD TO GET SOME FISHERIES IN HERE.]**

SCE&G is a proud partner in education in communities throughout South Carolina. Through various initiatives, educational resources and financial contributions, SCE&G strives to benefit students, teachers and communities overall. One example is SCE&G's involvement in Junior Achievement, where business and education are connected through sponsorship of Homework Centers -- supervised places where students can go after school to work on their assignments. Other examples of the ways SCE&G fosters education in communities throughout South Carolina at are described at an educational Web site: [www.energeticminds.com](http://www.energeticminds.com).

SCE&G is a strong supporter of the City of Columbia's Riverbanks Zoo. SCE&G leases roughly 180 acres to City, where the Riverbanks Zoo and Garden now exist. Today, Riverbanks Zoo is one of the top-ranked zoos in the nation and is home to more than 2,000 magnificent and fascinating animals and one of the nation's most beautiful and inspiring botanical gardens. SCE&G also provided a cash donation, and continues to provide support for numerous zoo projects. A special camera provided to Riverbanks Zoo & Garden courtesy of SCE&G offers a live video feed of selected animals within their zoo habitat. The video feed – tabbed SCE&G ZooView – is available from 7 a.m. to 7 p.m. EST daily through a link on [EnergeticMinds.com](http://EnergeticMinds.com).

Finally, and importantly, SCE&G staff are all members of the local community and many participate in community outreach activities as citizens and active members of their communities.

## 5.2 Other Public Outreach and Education Programs

Many different agencies, universities, and organizations support public education and outreach activities to support good decision-making in resource utilization and management. SCE&G has compiled a list that identifies some of the various agencies and organizations that provide outreach and educational materials and services, and in some cases, grant monies. *This list is far from complete* – many other sources exist, including in neighboring states and across the country that may provide useful information and/or educational materials. It is impracticable to try and list them all, and sources are continually changing; however, the information below is sufficient to get a person started in learning more about management of our natural resources.

Topic areas addressed by these organizations include a broad range of subjects such as: boating safety for adults and children; community development and best management practices; landscaping and agricultural best management practices; watershed and wetland management and protection; lesson plans and materials for the classroom; fishing; nonpoint source pollution and water quality management. Persons interested in additional information from these sources are encouraged to contact the following agencies and browse their websites. The information and resources provided by these agencies and organizations are frequently free and downloadable from their websites. Information available is also continually evolving – sources should be consulted frequently in order to remain current.

American Red Cross  
 City of Columbia Parks and Recreation  
 Commission  
 Environmental Protection Agency  
 Lake Murray Power Squadron  
 National Safe Boating Council  
 National Water Safety Congress  
 North American Lake Management Society  
 Recreational Boating and Fishing  
 Foundation  
 Safe Boating Campaign

South Carolina Cooperative Extension  
 Service  
 South Carolina Department Natural  
 Resources  
 South Carolina Department of Parks,  
 Recreation and Tourism  
 US Army Corps of Engineers National  
 Water Safety Program  
 US Coast Guard Auxiliary  
 US Coast Guard Office of Boating Safety  
 US Fish and Wildlife Service

US Weather Bureau  
USDA Forest Service  
USDA Natural Resources Conservation  
Service

**6.0 PROPOSED SAFETY AND OUTREACH PROGRAMS**

**THIS SECTION TO BE COMPLETED PENDING FURTHER INPUT FROM THE SAFETY RCG.**

- 6.1 Annual Safety Meeting
- 6.2 Shoal Markers
- 6.3 Additional Communications