

Kacie Jensen

From: Dave Anderson
Sent: Thursday, October 05, 2006 11:39 AM
To: Tommy Boozer; Aaron Small; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins ; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; Larry Turner (turnerle@dhec.sc.gov); Lee Barber; Malcolm Leaphart; Mark Leao; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis ; Skeet Mills ; Steve Bell; Suzanne Rhodes; Tom Eppink
Subject: Final Study Plan

Safety RCG,

Although we have been working on this study plan under the Downstream Flows TWC (under the Recreation RCG), I wanted to distribute the study plan to members of the Safety RCG as one of the purposes of the study deals with safety issues on the lower Saluda River. If you remember, this RCG did task the TWC with addressing safety issues related to flows on the LSR.

I have blocked out some time at our next RCG meeting to address any questions you may have on this study.



Downstream
Recreation Flow Ass..

SOUTH CAROLINA ELECTRIC & GAS COMPANY

SALUDA HYDROELECTRIC PROJECT
(FERC NO. 516)

**DOWNSTREAM RECREATION FLOW ASSESSMENT
STUDY PLAN**

FINAL

SEPTEMBER, 2006

Prepared by:

Kleinschmidt
Energy & Water Resource Consultants

SOUTH CAROLINA ELECTRIC & GAS COMPANY

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DOWNSTREAM RECREATION FLOW ASSESSMENT STUDY PLAN

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SOUTH CAROLINA ELECTRIC & GAS COMPANY

SALUDA HYDROELECTRIC PROJECT (FERC NO. 516)

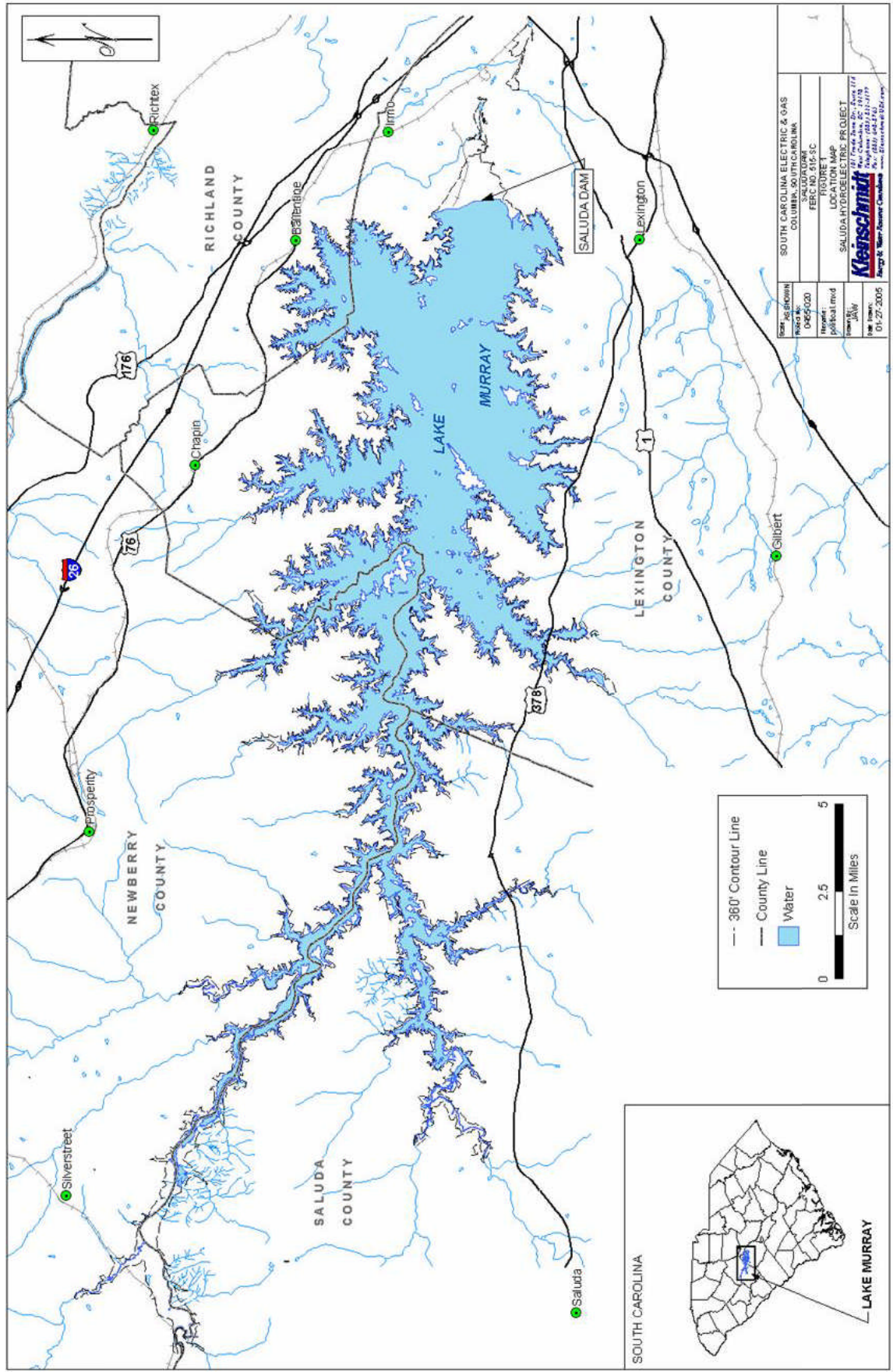
DOWNSTREAM RECREATION FLOW ASSESSMENT STUDY PLAN

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 quality¹. 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.

¹ 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.

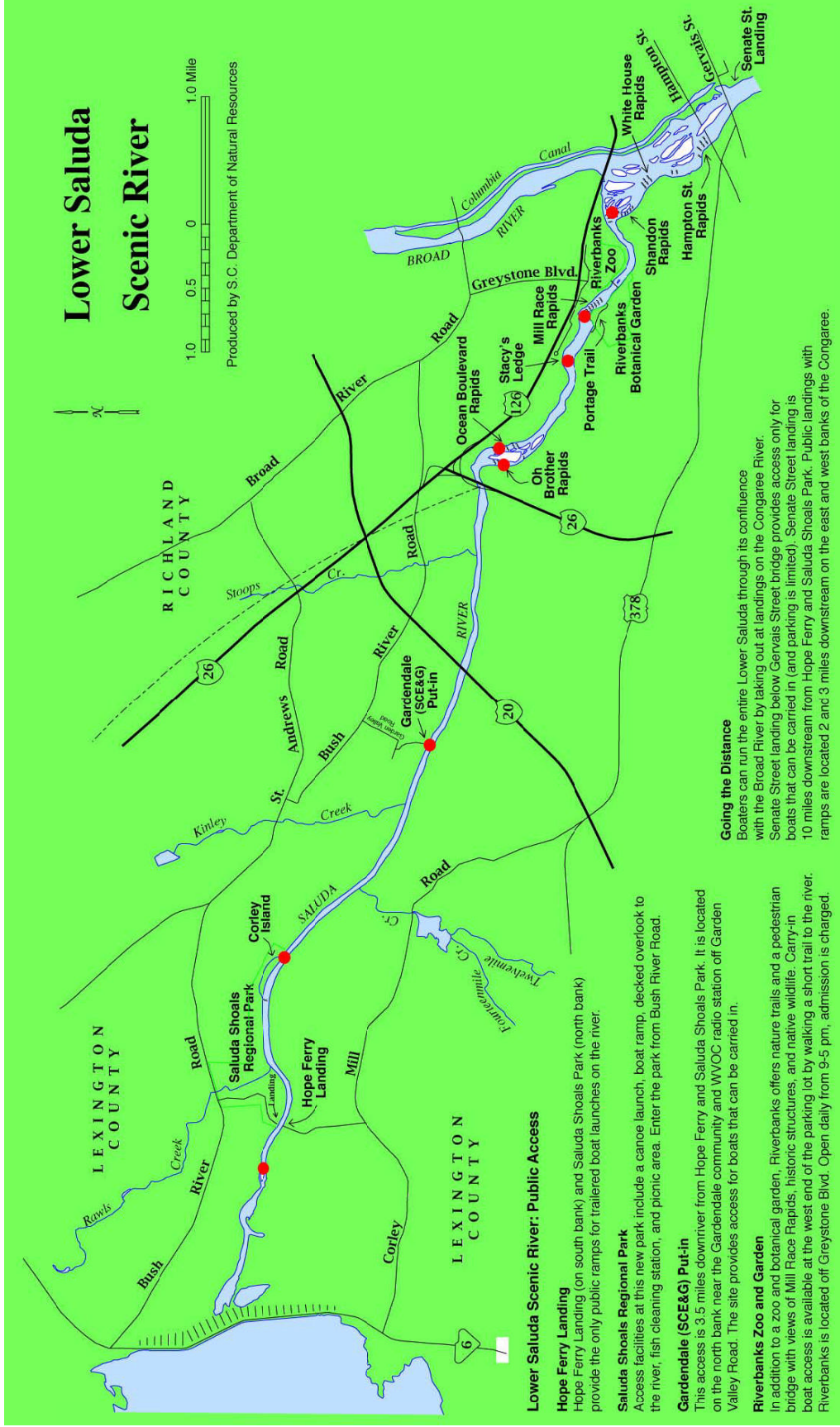
Goal 2: Understand the “rate of change” of the lower Saluda River at various flows at various river reaches. This will be accomplished by meeting the following objectives:

- 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 public 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, NGOs, 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 Field 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 at least three facilitated expert panel site visits led by a principal researcher. The expert panel will observe and assess the lower Saluda at predetermined geographic intervals. The land and/or water-based reconnaissance will be scheduled when flows are provided in the river reach within an estimated recreational flow range. The flow ranges will be determined by the TWC as part of the Phase 1 analysis. The expert panel will complete a land and/or water-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.

In addition to the site visits, video documentation of a rate of change event will be collected. Based on a review of flow records from the last five years, collected during the Phase 1 analysis, video documentation of the maximum rate of change will be attempted. If this release is not available for video documentation (i.e., knowledge of a scheduled release), the rate of change that occurs during the releases scheduled for the field reconnaissance efforts will be video documented. Video cameras will be staffed at pre-determined intervals along the river and record, along with a time stamp, the entire event.

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 water temperature once per minute and will be deployed long enough to capture the full range of flow releases necessary to complete the study. These data will be correlated with hydrologic data (flow in cfs) from the USGS gage below the dam (02168504) to determine (for the study period):

- 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;
- minimum, average, and maximum rate of change in water level for each water level data logger location by flow; and
- estimates of rates of change between level logger locations.

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:

TASK	DATE
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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- South Carolina Design Arts Partnership. 2000. Lower Saluda Scenic River Corridor Plan Update. Clemson, South Carolina. Prepared for the Lower Saluda Scenic River Advisory Council and the South Carolina Department of Natural Resources.
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APPENDIX A

DOWNSTREAM FLOWS TECHNICAL WORKING COMMITTEE

NAME	CONTACT INFORMATION	AFFILIATION
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APPENDIX B

LOWER SALUDA RIVER FOCUS GROUP SURVEY

APPENDIX C

LOWER SALUDA RIVER LAND-BASED RECONNAISSANCE SURVEY

APPENDIX D

RESPONSE TO COMMENTS SUBMITTED TO DRAFT STUDY PLAN

AUTHOR	COMMENT	RESPONSE
Patrick Moore	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	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	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.

AUTHOR	COMMENT	RESPONSE
Tony Bebber	<ol style="list-style-type: none"> 1. Identify and characterize potential/anticipated recreation areas on the lower Saluda River. 2. Identify activities that may be supported by these areas. 3. Identify anticipated patterns of use of these areas by type and volume. 4. Estimate preferred flows associated with reasonable and safe recreational use. 5. Understand the “rate of change” at various flows at these areas. 	<p>With exception of the rate of change and preferred flows, these will be addressed by the Saluda Recreation Assessment.</p>
Patrick Moore	<p>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>

AUTHOR	COMMENT	RESPONSE
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>
Tony Bebber	What about inexperienced users?	<p>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.</p>

AUTHOR	COMMENT	RESPONSE
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.
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.

AUTHOR	COMMENT	RESPONSE
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.
Tony Bebber	Group needs to decide which 6 month period is best.	The TWC will determine the schedule for level logger deployment.

AUTHOR	COMMENT	RESPONSE
Bill Marshall	<p>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.</p>	<p>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.</p>
Tony Bebbber	<p>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.</p>	<p>Included bullets accordingly – see above.</p>
Patrick Moore	<p>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.</p>	<p>This will be taken into consideration in the assessment of ingress, egress and safety warning devices.</p>
Patrick Moore	<p>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.</p>	<p>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.</p>

AUTHOR	COMMENT	RESPONSE
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).

AUTHOR	COMMENT	RESPONSE
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.

AUTHOR	COMMENT	RESPONSE
Patrick Moore	River flows and rates of change 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 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.	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.

Kacie Jensen

From: Dave Anderson
Sent: Friday, September 08, 2006 11:52 AM
To: Tommy Boozer; Aaron Small; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins ; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; Larry Turner (turnerle@dhec.sc.gov); Lee Barber; Malcolm Leaphart; Mark Leao; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis ; Skeet Mills ; Steve Bell; Suzanne Rhodes; Tom Eppink
Subject: Final Safety RCG Work Plan

I only received one additional comment on the Safety RCG Work Plan (concerning how rescue centers are notified). Attached is the final work plan.

I look forward to seeing you in October at the combined RCG meeting on the operations model.

Dave



Final Safety RCG
Work Plan (20...

Safety Resource Conservation Group Work Plan Saluda River Project

09-08-06

FINAL

Facilitator:			
Dave Anderson	Kleinschmidt Associates	dave.anderson@kleinschmidtusa.com	(205) 981-4547
Members:			
Name	Organization	E-mail	Work Phone
Aaron Small	US Coast Guard Auxiliary	arsbhs@bellsouth.net	
Alan Axson	Columbia Fire Department	cfdwaxson@columbiasc.net	
Alan Stuart	KA	alan.stuart@kleinschmidtusa.com	
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	
Bill Mathias	LMA/LMPS	bill25@sc.rr.com	
Charlene Coleman	American Whitewater	cheetahrk@yahoo.com	
Dave Anderson	Kleinschmidt Associates	dave.anderson@kleinschmidtusa.com	
David C. Price	Lake Murray Power Squadron	pricedc@dhec.sc.gov	
Dick Christie	SCDNR	dchristie@infoave.net	
Edward D. Schnepel	LMA	eschnepel@sc.rr.com	
George Duke	LMHC	kayakduke@bellsouth.net	
Gerrit Jobsis	Coastal Conservation League & American Rivers	gerritj@scccl.org; gjobsis@americanrivers.org	
Jennifer O'Rourke	South Carolina Wildlife Federation	jenno@scwf.org	
Jerry Wise	Lake Murray Power Squadron	meddynamic@aol.com	
Jim Devereaux	SCE&G	jdevereaux@scana.com	
John and Rob Altenberg	Sea Tow	seatowlakemurray@seatow.com	
Joy Downs	LMA	elymay2@aol.com	
Karen Kustafik	City of Columbia Parks and Recreation	kakustafik@columbiasc.net	
Ken Uschelbec	US Coast Guard Auxiliary	colkenu@aol.com	
Kenneth G. Fox	LMA	skfox@sc.rr.com	
Larry Turner	SCDHEC	turnerle@dhec.sc.gov	
Lee Barber	LMA	lbarber@sc.rr.com	
Malcolm Leaphart	Trout Unlimited	malcolml@mailbox.sc.edu	
Mark Leao	USFWS	mark_leao@fws.gov	
Michael Waddell	TU - Saluda River Chapter	mwaddell@esri.sc.edu	
Mike Gillis	EMS		
Miriam S. Atria	Capitol City Lake Murray Country	miriam@lakemurraycountry.com	
Norm Nicholson	Lexington Resident Deputy	larana@mindspring.com	
Norm Ferris	Trout Unlimited	norm@sc.rr.com	
Patrick Moore	SCCCL AR	patrickm@scccl.org	
Ralph Crafton	LMA	crafton@usit.net	
Randy Mahan	SCANA	rmahan@scana.com	
Roger Hovis	Richland County Emergency Services	rogerhovis@richlandonline.com	
Steve Bell	Lake Murray Watch	bellsteve9339@bellsouth.net	
Suzanne Rhodes	SC Wildlife Federation	suzrhodes@juno.com	
Tom Eppink	SCANA Services, Inc.	teppink@scana.com	
Tommy Boozer	SCE&G	tboozer@scana.com	

Safety Resource Conservation Group Work Plan Saluda River Project

09-08-06

FINAL

Mission Statement

The Mission of the Safety Resource Conservation Group (SRCG) is, through good faith cooperation, to make Lake Murray and the lower Saluda River as safe as reasonably possible for the public. The objective is to develop a consensus-based Recreational Safety Plan proposal for inclusion in the FERC license application. This will be accomplished by gathering or developing data relevant to Saluda Hydroelectric Project safety-related interests/issues, seek to understand those interests/issues and that data, and consider all such interests/issues and data relevant to and significantly affecting safety on Lake Murray and the lower Saluda River.

Lower Saluda River Identified Issues

- river level fluctuations and their effect on safety
 - lack of advance public information system and improvement of communications concerning changes in river flows in the lower Saluda River
 - enhancement of a public warning/notification system (warning devices) for river users during unannounced changes in river flows in the lower Saluda River
 - ingress/egress to potentially hazardous areas and its effect on rescue resources (e.g., Mill Race)
 - rate of change on the lower Saluda River for recreational safety
- systematic collection of accident data on the river

Lake Murray Identified Issues

- lake levels and their effect on safety
- lake level fluctuations and their effect on safety
- boat traffic/congestion in cove areas related to nearby shoreline development
- placement and maintenance of shoal markers
- power lines impeding sail boat navigation
- water quality and its effect on safety (addressed by WQRCG)
- amphibious aircraft using Lake Murray
- systematic collection of accident data on the lake

RCG Responsibilities

- Identifying specific areas where lake levels and fluctuations may be adversely affecting safety at the lake, including the nature and timing of the effect (e.g., shoal areas).
- 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 affect safety on the lake and lower Saluda River.

Safety Resource Conservation Group Work Plan Saluda River Project

09-08-06

FINAL

- Identifying any studies that should be performed to identify and/or evaluate possible changes to Project operations (e.g., flow studies on the river).
- Presenting a range of reasonable alternatives or recommendations to the Saluda Hydro Relicensing Group (SHRG) regarding possible modifications to current Project operations (e.g., flow rate recommendations for public safety concerns).
- Reviewing recommendations from the Resource Conservation Groups for compatibility with the Recreational Safety Plan.
- Developing a Recreational Safety Plan for Lake Murray and the lower Saluda River that addresses all of the “Identified Issues.”
- Developing a public information/warning system (warning devices) for unannounced changes in river flows in the lower Saluda River (including a phone call to Rescue One—Columbia Fire Department and E911 centers).
- Identifying needed information products/systems/facilities to increase public awareness of potential hazards and necessary precautions

Tasks and Products

- **Task 1** – Review the operational constraints and current operations of the Saluda Project (see Initial Consultation Document).
- **Task 2** – Determine how current Project operations affect safety.
 - Meeting Notes
- **Task 3** – Review applicable laws governing boating use.
 - 01-17-06 Memo; 02-14-06 Presentation
- **Task 4** – Identify and invite safety-related organizations concerned with Lake Murray and/or the lower Saluda River to participate in the Safety Resource Conservation Group.
 - RCG Membership List; Safety Organizations and Responsibilities
- **Task 5** – Review stakeholder requests for particular studies and/or enhancement measures to ensure that these are incorporated into study planning, if applicable (e.g., flow studies related to safety on the lower Saluda River).
 - Final Study Plans
- **Task 6** – Develop and recommend operations 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 11 below. Analysis by the Operations RCG will focus on an assessment of potential safety impacts associated with any suggested changes to operations.
 - RCG Recommendations
- **Task 7** – Discuss results of the Operations RCG analyses.
- **Task 8** – Develop study designs/methods/plans and review agreed upon studies, literature reviews, etc, if necessary.
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- **Task 9** – Identify high use areas of the river for inclusion in the rising water warning system.
 - LSR Map of High Use Areas

Safety Resource Conservation Group Work Plan Saluda River Project

09-08-06

FINAL

- **Task 10** – Identify safety concerns that can possibly be resolved outside of the relicensing process.
 - Safety Program
- **Task 11** – Provide safety-related recommendations for Project operations and recreation access, facilities, and use to be considered in conjunction with all ecological and recreational issues.
 - RCG Recommendations
- **Task 12** – Develop a consensus based Safety Plan for the Saluda Project that addresses all of the issues and tasks identified above.
 - Safety Plan

Schedule

Late 2005/Early 2006—Finalize Mission Statement 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 Recreational Safety Plan

2007—Complete any studies identified in Task 9 and review results; draft recommendations to SHRG, complete draft Recreational Safety Plan

2008—Finalize Recreational Safety Plan and provide comments on Draft License Application

Kacie Jensen

From: ROGER HOVIS [rogerhovis@richlandonline.com]
Sent: Monday, August 28, 2006 11:25 AM
To: Dave Anderson
Subject: RE: Final? Safety RCG Work Plan

Mr. Anderson:

I forwarded the draft to Richland County Emergency Services Deputy Director George Rice on 8/10/06. I would like to see in the "Safety Plan" specific wording addressing Rescue and the way we call out rescue. The E 911 centers can page key Public Safety officials once a notification has been received (from SCE&G prior to water release), similar to other unusual emergency events. Sorry I have missed the meetings but I plan to attend.

Roger Hovis
Richland County Dept. of Emergency Services
Division Manager, Plans and Mitigation
(emergency manager)
1410 Laurens St
Columbia, SC 29204
(803) 576-3417
pager 355-3900
rogerhovis@richlandonline.com

From: Dave Anderson [mailto:Dave.Anderson@KleinschmidtUSA.com]
Sent: Friday, August 25, 2006 3:47 PM
To: Tommy Boozer; Aaron Small; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins ; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; turnerle@dhec.sc.gov; Lee Barber; Malcolm Leaphart; Mark Leao; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis ; Skeet Mills ; Steve Bell; Suzanne Rhodes; Tom Eppink
Subject: Final? Safety RCG Work Plan

I have gone through all of the changes to the Work Plan from the last Safety RCG meeting and have incorporated them into this version. As you can see, I have left the wording of the Mission Statement the same as we started out with last time (with the mention of the Recreational Safety Plan). The only thing left in track changes are the "deliverables" for each of the tasks we have identified we need to complete in this group. Please look over this version and provide me with any comments by next Friday (Sept.1)--I don't think there will be many comments since we have all been working on this the past couple of months. Any substantive comments will be agreed upon by the group before we consider this document "final".

Have a great weekend!

<<Draft Safety RCG Work Plan (08-25-06).doc>>

Kacie Jensen

From: Dave Anderson
Sent: Friday, August 25, 2006 3:47 PM
To: Tommy Boozer; Aaron Small; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins ; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; Larry Turner (turnerle@dhec.sc.gov); Lee Barber; Malcolm Leaphart; Mark Leao; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis ; Skeet Mills ; Steve Bell; Suzanne Rhodes; Tom Eppink
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Have a great weekend!



Draft Safety RCG
Work Plan (08...

Safety Resource Conservation Group Work Plan Saluda River Project

08-25-06

DRAFT

Facilitator:			
Dave Anderson	Kleinschmidt Associates	dave.anderson@kleinschmidtusa.com	(205) 981-4547
Members:			
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Mike Gillis	EMS		
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Norm Nicholson	Lexington Resident Deputy	larana@mindspring.com	
Norm Ferris	Trout Unlimited	norm@sc.rr.com	
Patrick Moore	SCCCL AR	patrickm@scccl.org	
Ralph Crafton	LMA	crafton@usit.net	
Randy Mahan	SCANA	rmahan@scana.com	
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Safety Resource Conservation Group Work Plan Saluda River Project

08-25-06

DRAFT

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Safety Resource Conservation Group Work Plan Saluda River Project

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-----Original Message-----

From: Alan Stuart

Sent: Tuesday, June 27, 2006 10:38 AM

To: Alan Stuart; 'Amanda Hill (Amanda_Hill@fws.gov)'; 'Dick Christie (dchristie@infoave.net)'; 'Hal Beard'; 'Prescott Brownell (Prescott.Brownell@noaa.gov)'; 'gjobsis@americanrivers.org'; 'Patrick Moore'; 'Gina Kirkland - DHEC'; 'cdwood@usgs.gov'; 'Sarah W Ellisor'; 'Richard Roos-Collins'; 'Julie Gantenbein'

Cc: BARGENTIERI@scana.com; 'Jim Ruane'; RMAHAN@scana.com; 'Ray Ammarell (RAmmarell@scana.com)'; 'Steve Summer'; 'Tom Eppink'; 'Brian J. McManus'; 'BOWLES, THOMAS M'; Alison Guth; 'EPPINK, THOMAS G'

Subject: Final 2006 Operation Guidelines and Final Turbine Testing Report for Saluda Hydro

Good morning,

Please find the attached final versions of the 2006 Operation Guidelines and Turbine Testing Report for Saluda Hydro. Per the Settlement Agreement, SCE&G/Jones Day will file the final version of the Operation Guidelines with the FERC by Friday June 30, 2006. These final Operation Guidelines contain the revised Look-up tables (based on the 2005 turbine testing study for Units 1 & 5) will be used by SCE&G to enhance dissolved oxygen levels in the releases from Saluda Hydro.

For everyone's benefit I received no comments on the draft versions.

Turbine testing of units 2-4 is scheduled for the September - October timeframe this year. As a reminder and to avoid any miscommunication, it is imperative that the testing include closing the vacuum breakers lines which will result in periods of low to no dissolved oxygen in the river. Rest assured, we will work efficiently as possible to minimize the impacts on the resources. We have not set the actual testing dates but I will let everyone know a couple weeks prior. If anyone is interested in seeing first hand what the turbine testing involves, please let me know.

I appreciate everyone's time in reviewing the reports and guidelines this year and look forward to seeing the positive outcomes to our efforts.

Thank you,

Alan

Senior Licensing Coordinator
Kleinschmidt Energy and Water Resources
101 Trade Zone Drive Suite 21A
West Columbia, SC 29170

Phone 803.822.3177

Cell 803.640.8765

<<Final Saluda Turbine Aeration Studies 2005 Report.doc>> <<2006 Final Aeration Operations Guidelines.doc>>

Safety Resource Conservation Group Work Plan Saluda River Project

08-25-06

DRAFT

- **Task 10** – Identify safety concerns that can possibly be resolved outside of the relicensing process.
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Kacie Jensen

From: Shane Boring
Sent: Friday, May 25, 2007 3:30 PM
To: Jennifer Summerlin; Theresa Thom; Alison Guth; Amanda Hill; Bill Argentieri; Bud Badr; Dick Christie; Gerrit Jobsis (American Rivers); Hal Beard; Jim Glover; Malcolm Leaphart; Mike Waddell; Milton Quattlebaum (mquattlebaum@scana.com); Prescott Brownell; Randy Mahan; Ron Ahle; Scott Harder; Shane Boring; Steve Summer; Brandon Kulik; Alan Stuart
Cc: Alan Stuart; 'Bill Argentieri'
Subject: Saluda IFIM Transects

Dear Instream Flow TWC Members:

As many you aware, we finished up selection of transect locations for the upcoming lower Saluda IFIM study during our field visit earlier this week. Many thanks to those who made it out for the field visits. To ensure we're all on the same page, the attached documents includes a table summarizing the selected transects as well as maps showing their spatial distribution. If there are any questions on the transects that have been selected, please contact Brandon Kulik (207-487-3328) or me by close of business next Wednesday, May 30. Field data collection is slated to begin Monday June 4.

Thanks
Shane Boring

Environmental Scientist
Kleinschmidt Associates
101 Trade Zone Dr., Suite-21A
West Columbia, SC 29170
Phone: (803)822-3177
Fax: (803)822-3183



Saluda_Upper_She
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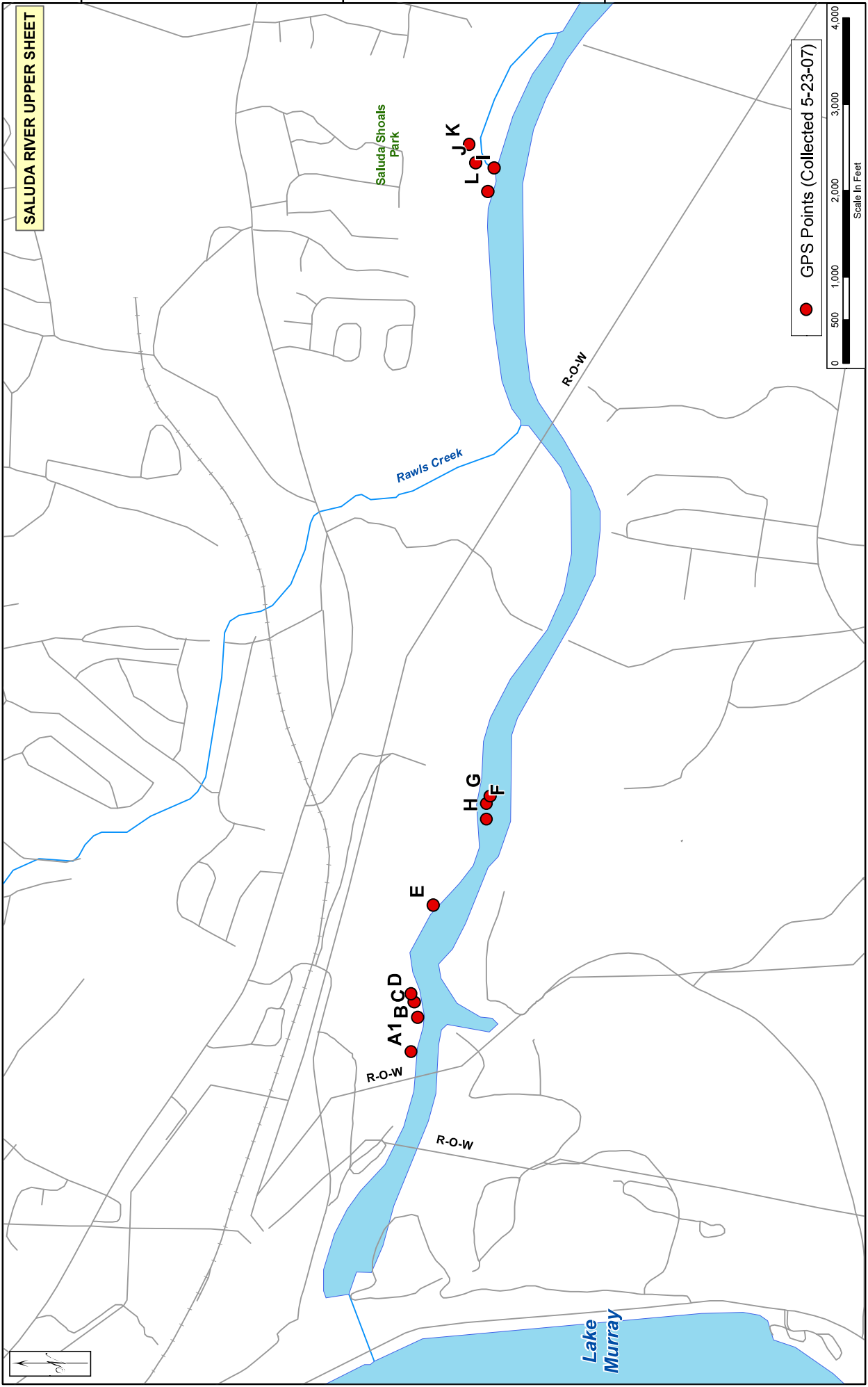
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pdf (213 KB)



● GPS Points (Collected 5-23-07)

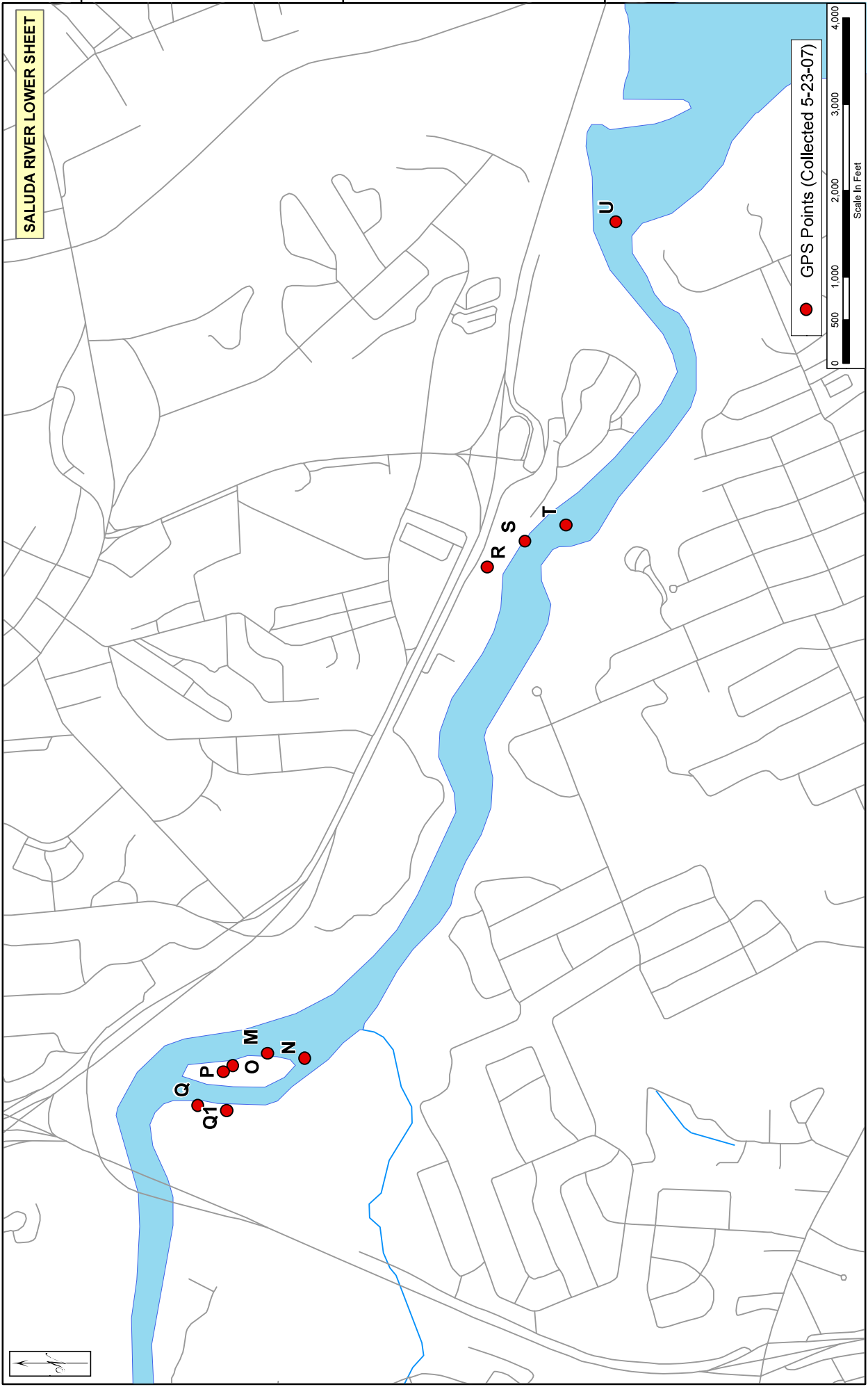


Table 1. Lower Saluda River Instream Flow Study: Final Transect Locations

Interim transect ID	mesohabitat	Reach	study site	comments
A.1	pool	1		below USGS gage
B	riffle/glide	1	confluence	near confluence with overflow channel
C	riffle/run	1	confluence	near confluence with overflow channel
D	riffle/run	1	confluence	near confluence with overflow channel
E	run	1		includes sandy point bar and backwater
F	glide	1	Sandy Beach	Sandy Beach
G	shoal	1	Sandy Beach	Sandy Beach
H	riffle	1	Sandy Beach	Sandy Beach
I	riffle	2	Corley	Corley Island
J	glide	2	Corley	Corley side channel
K	glide	2	Corley	Corley side channel
L	glide	2	Corley	Corley Island
	run	2	Corley	above or below Corley island (TBD)
M	shoal	3	Ocean-Oh Brother	Ocean Blvd
N	riffle	3	Ocean-Oh Brother	below TU access
O	run	3	Ocean-Oh Brother	Ocean Blvd
P	riffle	3	Ocean-Oh Brother	Ocean Blvd
Q	riffle	3	Ocean-Oh Brother	Oh Brother
Q1	riffle	3	Ocean-Oh Brother	Oh Brother
R	shoal	4	Riverbanks Zoo	below Millrace dam remnants
S	run-riffle	4	Riverbanks Zoo	upstream from picnic site
T	pool	4	Riverbanks Zoo	near picnic site
U	glide	4	Riverbanks Zoo	above Shandon
ZOP				

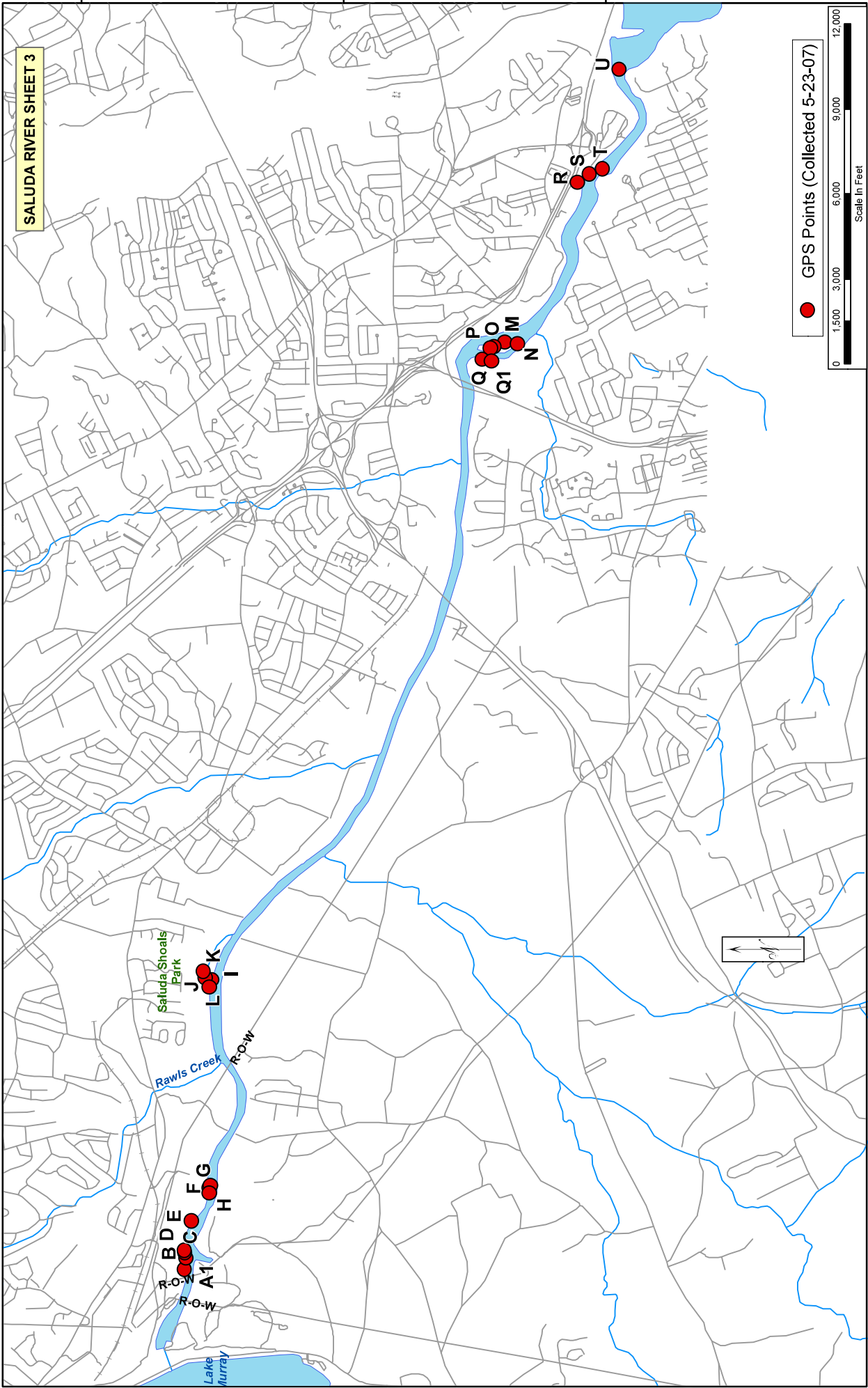
NOTES:

1. The color coding indicates a group of closely-clustered transects that will be tied together to represent a localized complex of linked mesohabitat types. Uncolored transects are stand-alone transects that will represent commonly recurring mesohabitats throughout the study area.
2. “ZOP” refers to the limiting zone-of-passage portion of the river channel in the middle of the Millrace area. This is an approximately 30x100 ft rectangular patch of the river and not a full-blown transect.
3. the unlettered “run” transect in reach 2 will be positioned by the field crew at the time of data collection
4. transect “R” has physical and hydraulic characteristics that may limit full data collection and/or modeling



● GPS Points (Collected 5-23-07)





● GPS Points (Collected 5-23-07)



Kacie Jensen

From: Dave Anderson
Sent: Tuesday, April 17, 2007 11:22 AM
To: Dave Anderson; 'Tommy Boozer'; 'Alan Axson'; Alan Stuart; Alison Guth; 'Amanda Hill'; 'Bill Argentieri'; 'Bill Marshall'; 'Bill Mathias'; Bret Hoffman; 'Charlene Coleman'; Dave Anderson; 'David Price'; 'Dick Christie'; 'Edward Schnepel'; 'George Duke'; 'Gerrit Jobsis (American Rivers)'; 'J. Hamilton Hagood'; 'Jay Schabacher'; 'Jennifer O'Rourke'; 'Jerry Wise'; 'Jim Devereaux'; 'Joel Huggins'; 'John and Rob Altenberg'; 'Joy Downs'; 'Karen Kustafik'; 'Ken Uschelbec'; 'Kenneth Fox'; 'Larry Turner (turnerle@dhec.sc.gov)'; 'Lee Barber'; 'Malcolm Leaphart'; 'Mike Waddell'; 'Miriam Atria'; 'Norm Nicholson'; 'Norman Ferris'; 'Patrick Moore'; 'Randy Mahan'; 'Roger Hovis'; 'Skeet Mills'; 'Stan Jones (sjones@imichotels.net)'; 'Steve Bell'; 'Suzanne Rhodes'
Subject: RE: Documents for Review

The last document we will be discussing tomorrow:



Safety and
Outreach Program (2).

-----Original Message-----

From: Dave Anderson
Sent: Monday, April 16, 2007 1:37 PM
To: Tommy Boozer; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); J. Hamilton Hagood; Jay Schabacher; Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; Larry Turner (turnerle@dhec.sc.gov); Lee Barber; Malcolm Leaphart; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis; Skeet Mills; Stan Jones (sjones@imichotels.net); Steve Bell; Suzanne Rhodes
Subject: Documents for Review

Safety RCG Members:

Attached are a couple of the documents we will be using during our meeting on Wednesday. Following the agenda:

Placement and Maintenance of Shoal Markers - I know I have said that this issue could not be resolved until we hear about what the final minimum lake level might be (given that shoal areas will exist somewhere on the lake at all elevations). However, I would like us to spend our time on Wednesday discussing possible resolutions to this issue. If you remember, there were a number of letters that we have seen regarding the issue from FERC, SCE&G, and Lake Watch. These are attached to the April 18, 2006 meeting notes:

<http://www.saludahydrorelicense.com/documents/2006-04-18MeetingNotes-SafetyFINAL.pdf>

I have done some research on how other relicensings have resolved the issue by searching for "hazard markers", "shoal markers", "unmarked hazards", and "hazards". Attached are two examples of how other utilities have resolved the issue. One is from the Yadkin settlement and the other is from the Coosa Project License Application; I am not sure how FERC will rule in both cases, but this is one way we could resolve the issue. I am open to other ideas and encourage you to research any other ways that hydroelectric owners have dealt with the issue.

<< File: Coosa Project Public Safety Recommendation.pdf >> << File: Yadkin Project Settlement Agreement.pdf >>

Lower Saluda River Warning System Recommendation - We have discussed this issue several times over the past year and I have put together a draft recommendation to begin to finalize our resolution of the issue. Once this recommendation is finalized and agreed to by the RCG, it will be included in the license application and also be a part of any settlement agreement.

<< File: LSR Warning System Issue Recommendation (2007-04-16;DRAFT).pdf >>

I will be sending a draft of the Safety and Outreach Programs shortly. We will be using the afternoon session to

discuss this document.

Let me know if you have any questions.

Dave

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

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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.

PROVIDER	SAFETY ACTIVITIES INVOLVED IN	GEOGRAPHIC AREA COVERED
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.

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.

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.
- 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 10th 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.

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.

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

Kacie Jensen

From: Dave Anderson
Sent: Tuesday, April 17, 2007 11:22 AM
To: Dave Anderson; 'Tommy Boozer'; 'Alan Axson'; Alan Stuart; Alison Guth; 'Amanda Hill'; 'Bill Argentieri'; 'Bill Marshall'; 'Bill Mathias'; Bret Hoffman; 'Charlene Coleman'; Dave Anderson; 'David Price'; 'Dick Christie'; 'Edward Schnepel'; 'George Duke'; 'Gerrit Jobsis (American Rivers)'; 'J. Hamilton Hagood'; 'Jay Schabacher'; 'Jennifer O'Rourke'; 'Jerry Wise'; 'Jim Devereaux'; 'Joel Huggins'; 'John and Rob Altenberg'; 'Joy Downs'; 'Karen Kustafik'; 'Ken Uschelbec'; 'Kenneth Fox'; 'Larry Turner (turnerle@dhec.sc.gov)'; 'Lee Barber'; 'Malcolm Leaphart'; 'Mike Waddell'; 'Miriam Atria'; 'Norm Nicholson'; 'Norman Ferris'; 'Patrick Moore'; 'Randy Mahan'; 'Roger Hovis'; 'Skeet Mills'; 'Stan Jones (sjones@imichotels.net)'; 'Steve Bell'; 'Suzanne Rhodes'
Subject: RE: Documents for Review

The last document we will be discussing tomorrow:



Safety and
Outreach Program (2).

-----Original Message-----

From: Dave Anderson
Sent: Monday, April 16, 2007 1:37 PM
To: Tommy Boozer; Alan Axson; Alan Stuart; Alison Guth; Amanda Hill; Bill Argentieri; Bill Marshall; Bill Mathias; Bret Hoffman; Charlene Coleman; Dave Anderson; David Price; Dick Christie; Edward Schnepel; George Duke; Gerrit Jobsis (American Rivers); J. Hamilton Hagood; Jay Schabacher; Jennifer O'Rourke; Jerry Wise; Jim Devereaux; Joel Huggins; John and Rob Altenberg; Joy Downs; Karen Kustafik; Ken Uschelbec; Kenneth Fox; Larry Turner (turnerle@dhec.sc.gov); Lee Barber; Malcolm Leaphart; Mike Waddell; Miriam Atria; Norm Nicholson; Norman Ferris; Patrick Moore; Randy Mahan; Roger Hovis; Skeet Mills; Stan Jones (sjones@imichotels.net); Steve Bell; Suzanne Rhodes
Subject: Documents for Review

Safety RCG Members:

Attached are a couple of the documents we will be using during our meeting on Wednesday. Following the agenda:

Placement and Maintenance of Shoal Markers - I know I have said that this issue could not be resolved until we hear about what the final minimum lake level might be (given that shoal areas will exist somewhere on the lake at all elevations). However, I would like us to spend our time on Wednesday discussing possible resolutions to this issue. If you remember, there were a number of letters that we have seen regarding the issue from FERC, SCE&G, and Lake Watch. These are attached to the April 18, 2006 meeting notes:

<http://www.saludahydrorelicense.com/documents/2006-04-18MeetingNotes-SafetyFINAL.pdf>

I have done some research on how other relicensings have resolved the issue by searching for "hazard markers", "shoal markers", "unmarked hazards", and "hazards". Attached are two examples of how other utilities have resolved the issue. One is from the Yadkin settlement and the other is from the Coosa Project License Application; I am not sure how FERC will rule in both cases, but this is one way we could resolve the issue. I am open to other ideas and encourage you to research any other ways that hydroelectric owners have dealt with the issue.

<< File: Coosa Project Public Safety Recommendation.pdf >> << File: Yadkin Project Settlement Agreement.pdf >>

Lower Saluda River Warning System Recommendation - We have discussed this issue several times over the past year and I have put together a draft recommendation to begin to finalize our resolution of the issue. Once this recommendation is finalized and agreed to by the RCG, it will be included in the license application and also be a part of any settlement agreement.

<< File: LSR Warning System Issue Recommendation (2007-04-16;DRAFT).pdf >>

I will be sending a draft of the Safety and Outreach Programs shortly. We will be using the afternoon session to

discuss this document.

Let me know if you have any questions.

Dave

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

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SALUDA PROJECT
(FERC NO. 516)

APRIL 2007

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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.

PROVIDER	SAFETY ACTIVITIES INVOLVED IN	GEOGRAPHIC AREA COVERED
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.

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.

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.
- 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 10th 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.

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.

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

Kelly I was able to open them. In Appendix F the hydrographs are generated from the model or are they from the water level recorders?

Mike

From: Kelly Maloney [mailto:Kelly.Maloney@KleinschmidtUSA.com]
Sent: Monday, October 15, 2007 9:24 AM
To: Mike Waddell; Alan Stuart
Subject: RE: Down Stream Recreation Flow Assessment Report

Mike,

The files are quite large. Please let me know if you are unable to retrieve or open them.

Thank you,
Kelly

-----Original Message-----

From: Mike Waddell [mailto:mwaddell@esri.sc.edu]
Sent: Monday, October 15, 2007 7:45 AM
To: Kelly Maloney; Alan Stuart
Subject: Down Stream Recreation Flow Assessment Report

Kelly: I am missing Appendix E and F. Therefore I cannot finish reviewing this report. Would please send me the missing appendices and I will need a another week or two to finish reviewing and making comments.

Mike

Michael G. Waddell
Research Associate Professor
Earth Sciences and Resources Institute
University of South Carolina
Office (803) 777-6484

From: [Alison Guth](#)
To: ["wardg@dnr.sc.gov"](mailto:wardg@dnr.sc.gov); ["taylor@dnr.sc.gov"](mailto:taylor@dnr.sc.gov); Tommy Boozer; Bill Argentieri;
[Dave Anderson](#); [David Price](#); [J. Hamilton Hagood](#); [Joy Downs](#); [Kenneth Fox](#);
[Norm Nicholson](#); [Steve Bell](#); [Alan Stuart](#);
Subject: Nav. Aids Reporting Form
Date: Friday, September 28, 2007 10:19:58 AM
Attachments: [Nav Aids Marking Form.doc](#)

Good Morning All,

As you may recall, there was discussion on developing a Navigational Aids Reporting form in order to assist DNR in locating the whereabouts of any damaged or lost buoys or any unmarked shoals on Lake Murray. We have developed this strawman in consultation with DNR and would also like feedback from the TWC. If you have any suggestions, please provide them by October 9th. Thanks and have a good weekend, Alison

Alison Guth
Licensing Coordinator
Kleinschmidt Associates
204 Caughman Farm Lane, Suite 301
Lexington, SC 29072
Phone 803-951-2077
Fax 803-951-2124

From: Suzanne Rhodes [mailto:suzrhodes@juno.com]
Sent: Wednesday, February 13, 2008 3:50 PM
To: BOOZER, THOMAS C
Subject: Lake Murray Navigation Aids Marking Assistance

The form Alison gave me (attached) has reports going to Lt. Gary Sullivan, and gives his e-mail and landline addresses. The e-mail I just sent came back and my phone call was answered by someone who hasn't heard of Lt. Sullivan. When this gets resolved, I'd appreciate an update. SCWF was hoping to publicize it in its Out of Doors before the Lake gets very high.

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From: [Alison Guth](#)
To: ["wardg@dnr.sc.gov"](mailto:wardg@dnr.sc.gov); ["taylor@dnr.sc.gov"](mailto:taylor@dnr.sc.gov); Tommy Boozer; Bill Argentieri;
[Dave Anderson](#); [David Price](#); [J. Hamilton Hagood](#); [Joy Downs](#); [Kenneth Fox](#);
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Licensing Coordinator
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204 Caughman Farm Lane, Suite 301
Lexington, SC 29072
Phone 803-951-2077
Fax 803-951-2124

From: [Suzanne Rhodes](#)
To: [Alison Guth](#);
Subject: FW: Nav. Aids Reporting Form
Date: Monday, October 29, 2007 9:59:53 AM
Attachments: [Nav Aids Marking Form.doc](#)

Alison - is the attached form final yet? If so, I'll get out a letter to folks re obstacles as well as the protocol. Thanks.

Please note: forwarded message attached

Hello Suzanne,

You must not have been on the TWC emailing list. Attached is the form below, take a few days to look at it and just let me know. Thanks! Alison

-----Original Message-----

From: Alison Guth
Sent: Friday, September 28, 2007 10:20 AM
To: 'wardg@dnr.sc.gov'; 'taylor@dnr.sc.gov'; Tommy Boozer; Bill Argentieri; Dave Anderson; David Price; J. Hamilton Hagood; Joy Downs; Kenneth Fox; Norm Nicholson; Steve Bell; Alan Stuart
Subject: Nav. Aids Reporting Form

Good Morning All,

As you may recall, there was discussion on developing a Navigational Aids Reporting form in order to assist DNR in locating the whereabouts of any damaged or lost buoys or any unmarked shoals on Lake Murray. We have developed this strawman in consultation with DNR and would also like feedback from the TWC. If you have any suggestions, please provide them by October 9th. Thanks and have a good weekend, Alison

<<Nav Aids Marking Form.doc>>

Alison Guth

Licensing Coordinator

Kleinschmidt Associates

204 Caughman Farm Lane, Suite 301

Lexington, SC 29072

Phone 803-951-2077

Fax 803-951-2124

From: [Matt Rice](#)
To: [Dave Anderson;](#)
cc: [Jim Cumberland ; Gerrit Jobsis;](#)
Subject: safety TWC
Date: Thursday, February 28, 2008 9:25:00 AM

Hi Dave,
Can you please include Jim, Gerrit and me on the Safety TWC. We can participate in lieu of Patrick Moore.
Thank You,
Matt

Matthew Rice
Associate Director Southeast Conservation
American Rivers
2231 Devine Street, Suite 202, Columbia, SC 29205
Phone: 803-771-7206
Fax: 803-771-7580
mrice@americanrivers.org

www.americanrivers.org

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From: [LANDRETH, JAMES M](#)
To: [BARGENTIERI@scana.com](#); [BLALOCK, JOHN TROY](#); [FITTS, MARY R](#); [cheetahrk@yahoo.com](#); [skip@dixianasteel.com](#); [HANCOCK, DAVID E](#); [riverrunner@sc.rr.com](#); [dyer@dnr.sc.gov](#); [wfordart@bellsouth.net](#); [urbanfisher@earthlink.net](#); [j-gunter@earthlink.net](#); [jmecca@mcnair.net](#); [meccar@bellsouth.net](#); [adventurec@mindspring.com](#); [whiteh2o4u@hotmail.com](#); [jwells@icrc.net](#); [Shane Boring](#); [Jennifer Hand](#); [Bret Hoffman](#); [palmettooutdoor@bellsouth.net](#); [mmoskwik@tnc.org](#); [YANITY, ROBERT](#); [Alison Guth](#); [commodore@windwardpoint.org](#); [arsbhs@bellsouth.net](#); [cfdwaxson@columbiasc.net](#); [Alan Stuart](#); [amanda_hill@fws.gov](#); [millerca@dhec.sc.gov](#); [bertfloyd@sc.rr.com](#); [yaccove@bellsouth.net](#); [billeast@sc.rr.com](#);
cc: [RITTER, TIMOTHY W](#); [ANDERSON, BETTY L](#); [BUXTON, ANGELA G](#); [BROWN, OSCIE O](#); [HAMILTON, J. HAGOOD JR](#); [DODD, GREG M](#); [KRUGER, JEFF A](#); [SHEARER, LESLIE J](#);
Subject: Re: Saluda Hydro Flow Release Notification System
Date: Wednesday, April 16, 2008 6:11:41 PM

<

From: [LANDRETH, JAMES M](#)
To: [BARGENTIERI@scana.com](#); [BLALOCK, JOHN TROY](#); [FITTS, MARY R](#); [cheetahrk@yahoo.com](#); [skip@dixianasteel.com](#); [HANCOCK, DAVID E](#); [riverrunner@sc.rr.com](#); [dyer@dnr.sc.gov](#); [wfordart@bellsouth.net](#); [urbanfisher@earthlink.net](#); [j-gunter@earthlink.net](#); [jmecca@mcnair.net](#); [meccar@bellsouth.net](#); [adventurec@mindspring.com](#); [whiteh2o4u@hotmail.com](#); [jwells@icrc.net](#); [Shane Boring](#); [Jennifer Hand](#); [Bret Hoffman](#); [palmettooutdoor@bellsouth.net](#); [mmoskwik@tnc.org](#); [YANITY, ROBERT](#); [Alison Guth](#); [commodore@windwardpoint.org](#); [arsbhs@bellsouth.net](#); [cfdwaxson@columbiasc.net](#); [Alan Stuart](#); [amanda_hill@fws.gov](#); [millerca@dhec.sc.gov](#); [bertfloyd@sc.rr.com](#); [yaccove@bellsouth.net](#); [billeast@sc.rr.com](#);
cc: [RITTER, TIMOTHY W](#); [ANDERSON, BETTY L](#); [BUXTON, ANGELA G](#); [BROWN, OSCIE O](#); [HAMILTON, J. HAGOOD JR](#); [DODD, GREG M](#); [KRUGER, JEFF A](#); [SHEARER, LESLIE J](#);
Subject: Re: Saluda Hydro Flow Release Notification System
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From: [Suzanne Rhodes](#)
To: SullivanG@dnr.sc.gov;
cc: [Alison Guth](#); TBOOZER@scana.com;
Subject: RE: navigation aids reporting
Date: Friday, February 15, 2008 3:45:03 PM
Attachments: [Nav Aids Marking Form 2-13-08 Updated.doc](#)

many thanks!

-- "Gary Sullivan" <SullivanG@dnr.sc.gov> wrote:
[Looks good to me.](#)
[Gary](#)

From: Suzanne Rhodes [<mailto:suzrhodes@juno.com>]
Sent: Wednesday, February 13, 2008 5:18 PM
To: Gary Sullivan
Subject: navigation aids reporting

Is the attached correct? particularly the phone/fax/800 numbers? I'm trying to publish this in a SCWF *Out of Doors*. Thanks.

From: [Alison Guth](#)
To: ["BOOZER, THOMAS C"; Alan Stuart;](#)
["Suzanne Rhodes";](#)
Subject: RE: Lake Murray Navigation Aids Marking Assistance
Date: Wednesday, February 13, 2008 4:53:10 PM
Attachments: [Nav Aids Marking Form 2-13-08 Updated.doc](#)

Hello,

The phone number is correct, I just called it. However the email address is wrong... here is a corrected sheet

Cheers

-----Original Message-----

From: BOOZER, THOMAS C [mailto:TBOOZER@scana.com]
Sent: Wednesday, February 13, 2008 4:41 PM
To: Alison Guth
Subject: FW: Lake Murray Navigation Aids Marking Assistance

From: Suzanne Rhodes [mailto:suzrhodes@juno.com]
Sent: Wednesday, February 13, 2008 3:50 PM
To: BOOZER, THOMAS C
Subject: Lake Murray Navigation Aids Marking Assistance

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