MEETING NOTES

SOUTH CAROLINA ELECTRIC & GAS COMPANY
SALUDA HYDRO PROJECT RELICENSING
WATER QUALITY GROUP

SCE&G Training Center
February 21, 2006

Final-CSB-03/21/2006

ATTENDEES:

Alan Stuart, Kleinschmidt Associates
Alison Guth, Kleinschmidt Associates
Amanda Hill, USF&WS
Andy Miller, SC DHEC
Bill Argentieri, SCE&G
Bob Seibels, Riverbanks Zoo
Dan Tufford, USC
Dick Christie, SCDNR
Donald Eng, Trout Unlimited
George Duke, LMHOC
Gerrit Jobsis, SCCCL & Am. Rivers
Gina Kirkland, SC DHEC
Jennifer Summerlin, Kleinschmidt Associates
Joy Downs, Lake Murray Association
Randy Mahan, SCANA Services
Reed Bull, Midlands Striper Club
Richard Kidder, Lake Murray Association
Ron Ahle, SCDNR
Roy Parker, Lake Murray Association
Shane Boring,* Kleinschmidt Associates
Steve Bell, Lake Watch
Steve Summer, SCE&G
Tom Bowles, SCE&G
Tom Eppink, SCANA

**facilitator*

ACTION ITEMS:

- Provide info on historical distributions of freshwater aquatic mussels in the LSR
  Shane Boring
- Provide info regarding temperature impacts on mussels (Weiss Bypass publications)
  Gerrit Jobsis
- Provide location of SCE&G's seven water quality sample sites
  Tom Bowles
- Obtain historical information on stripped bass fish kills in Lake Murray
  Ron Ahle
- Provide summary of SCE&G water quality data, including monthly and intake monitoring
  Steve Summer
- Provide information on LMA cove water quality studies
  Roy Parker
- Incorporate additional tasks identified in 02/21/06 Water Quality RCG meeting into list of study requests/tasks to be addressed by the Water Quality TWC and distribute for review
  Shane Boring

MEETING NOTES:

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

Alan Stuart opened the meeting at approximately 9:00 am, and meeting attendees introduced themselves. Alan then reviewed the protocol being used to distribute draft RCG meeting notes, noting that comments would be solicited from RCG members in attendance, but that the notes would be also distributed to all members of the RCG for informational purposes. .Dick Christie asked that meeting agendas to be sent out at least one business week before the meeting. Alan noted that the primary purpose of today's meeting would be to form the Technical Working Committees for the Water Quality RCG and that Shane Boring would be taking over facilitation for the remainder of the meeting.

Mission Statement

Shane reviewed the following mission statement for the Water Quality RCG, noting that it had been finalized and placed on the Saluda Relicensing website:

> *The Mission of the Water Quality Resource Conservation Group (WQRCG) is to develop water quality related recommendations to be included in the Saluda Hydroelectric Project FERC license application. The goal will be to achieve or exceed levels of compliance for State water quality standards for Lake Murray and the lower Saluda River. A means to work towards that goal is to identify data needs and to gather or develop that data necessary to ensure that water quality standards are currently being met and that they will be maintained in the future. A primary measure of success in achieving the mission and goals will be a published WQRCG Protection, Mitigation, and Enhancement (PM&E) Agreement.*

Formation of Technical Working Committee (TWC)

Shane proposed that a single Water Quality TWC be formed due to the interdependent nature of the issues and the fact that many of the same personnel are likely to be involved. The group agreed that a single TWC would be acceptable.

Review of Relevant Study Requests

Shane reminded the group that, at the initial RCG meeting, a document was distributed that summarizes the study request received in response to issuance of the Initial Consultation Document (ICD). He added that one of the primary purposes of today's meeting would be to review the water-quality-related study requests (see attached handout from the meeting[1]) and to determine which requests should be handled by the Water Quality TWC. He added that an additional goal of the meeting would be to formalize any other requests/comments not covered in the study requests received thus far. Comments and discussion regarding the study requests to be handled by the Water Quality TWC are summarized below:

Downstream Impacts of Coldwater Releases

Amanda Hill noted that USFWS, National Park Service, and others would like to know how far downstream in the Congaree mixing occurs at different flows and at different operations. Alan Stuart explained that, with the variable influence of the Broad, the scenarios are unlimited. Amanda noted the major concern is how seasonal water temperatures in the Broad and Saluda effect habitat down stream in the Congaree and in the Congaree National Park. Ron Ahle noted the need for understanding how the different flows and temperatures effect migration of diadromous fish. The group agreed that this study request was deserving of further discussion and that the Water Quality TWC would be the appropriate venue for such discussions.

TMDLs

Shane asked Andy Miller if he would give a quick synopsis of TMDLs. Andy noted that TMDLs are wired into the Clean Water Act and that every water body listed as impaired is required to have a TMDL implemented at some point. Andy added that impaired waterbodies are those listed on the 303-D list, which is issued by SCDHEC. Dan Tufford noted that there are a number of parameters for which a waterbody can be considered impaired, and often each of these parameters may have its own TMDL. He added, as an example, that portions of the Lake Murray watershed are considered impaired for phosphorous, while the LSR is considered impaired for DO.

Randy Mahan noted that, while TMDLs obviously have great utility in regulating NPDES discharges, it was unclear to him how SCE&G could implement a TMDL for Lake Murray without having the regulatory authority to do so. Tom Eppink added that, while they recognize the utility of TMDLs for improving water quality, SCE&G may be limited in what they can do in terms of a TMDL as part of the relicensing process. Steve Bell noted, and the

[1] Issues outlined in handout to be addressed by the Water Quality TWC unless otherwise noted.

majority of the group voiced support for, the need for a TMDL to be implemented for all of Lake Murray. Dan Tufford noted that it might be helpful to view TMDL development as a 2 phase process: 1) the study phase, in which studies are preformed in support of developing an appropriate TMDL for the water body 2) the implementation phase. He added that while SCE&G may not have the regulatory authority to implement a TMDL, they have the potential to contribute significantly to studies done to develop an effective TMDL. Shane noted that TMDLs are an issue that obviously deserves consideration at a more technical level and proposed that the issue be deferred to the Water Quality TWC for further discussion. The group agreed.

Effects of Project Operations on Summer Habitat for Striped Bass

Ron Ahle noted there was a problem with low DO in late summer and early fall in Lake Murray, often resulting in suitable habitat being limited to the area in front of the Unit 5 intake. Gerrit Jobsis noted a need to evaluate different operational scenarios and how they relate to this habitat "crunch" and ultimately to fish kills in the lake. He also noted the need to look at how water quality varies across years, particularly in the area in front of the forebay. Steve Summer noted that the magnitude of the habitat "crunch" varies from year to year, regardless of whether you use unit five, due to evaporation and flow regime. Steve suggested an acoustic Doppler profile study on the towers to characterize the interface between suitable habitat and the unit intakes under various scenarios. The group agreed that this issue should be handled in the water quality TWC.

Potential DO and Temperature Effects on Freshwater Mussels

Shane noted, and the group agreed, that the effects of DO and water temperature on mussel populations should be addresses in the TWC. Alan noted that the water quality standards are formulated to protect aquatic invertebrates, including mussels. Gerrit noted there is some debate because mussels are typically located in the interstitial area (between the water column and the substrate), which often has lower DO than the water column. Shane noted that before water quality effects can be evaluated, we first need to know what mussel species, if any, historically occurred in the Saluda Hydro vicinity and their current status (i.e., are they extant). Shane agreed to gather information regarding historical occurrence of mussels in the area.

Cove Water Quality In Lake Murray

Roy Parker noted the Lake Murray Association (LMA) is in the process of implementing a cove water quality monitoring program, which they hope to have their program up and running by May. Roy explained they have picked the types of coves they want to sample, but have not yet picked specific locations. He added that they would like to sample all quadrants of the lake. Tom Bowles noted SCE&G has seven sites where they take samples and will provide these locations to LMA. Several group members expressed the need for a comparative evaluation of water quality in coves before and after marinas are installed.

Sediment Regime and Transport Studies

Gerrit proposed, and the group agreed, that the sediment regime and sediment transport studies should be discussed in the F&W TWCs, namely the Instream Flow and Aquatic Habitat TWC.

Impacts of Power Boats and Jet Skis on Drinking Water Quality

The group briefly discussed the League of Women Voter's request for a study to evaluate the impacts of jet skis and power boats on drinking water quality. Several meeting attendees noted that they were unsure of exactly what is being requesting and the project nexus. Gerrit noted that some individuals pump drinking water directly from the lake to their homes, and he assumed that is what is being referred to in the request. Randy Mahan noted that SCE&G does not permit individual water withdrawals as part of its current lake use permitting process, nor does SCE&G have the regulatory authority to regulate watercraft usage on the lake. The group agreed that the Water Quality TWC is the appropriate venue for further discussion of this issue.

Status of Existing Water Quality Data and Identification of Data Gaps

Dick Christie, Gerrit, and others noted that data from SCE&G's existing studies needs to be shared with the TWC in order to provide an idea of baseline conditions for relicensing studies. Group members noted specifically a need for information related to SCE&G's monthly water quality monitoring, monitoring conducted at the five turbine intakes, and results of the hub baffle effectiveness testing. Alan Stuart noted that Jim Ruane is nearing completion of the draft report on the hub baffle effectiveness nesting, which was conducted in fall 2005, and will distribute it to the TWC when it is received. Dan Tufford enquired as to when the technical documentation would be available for the W2 model performed by Jim Ruane for Lake Murray. Alan noted that it will be available as soon as it is finalized,

which is scheduled for late late-March/early-April. The group agrees that water quality data needs could be further refined in the TWC.

Water Quality TWC Membership

After a short break, the group began to assign members to the TWC and agreed that the members should have technical expertise. The following people volunteered and were assigned to the water quality TWC:

Gina Kirkland
Alan Stuart
Jim Ruane
Gerrit Jobsis
Reed Bull
Richard Kidder
Roy Parker
Dan Tufford
Tom Bowles
Amanda Hill
Ron Ahle
Andy Miller
Shane Boring

Dates and Agenda of Upcoming RCG and TWC Meetings

THE RCG meeting was closed at approximately 2:00 pm and the group agreed to use the remainder of the afternoon to convene the first Water Quality TWC meeting (notes prepared separately). No date was set for the next Water Quality RCG meeting as the group determined it best that the TWC meet a few times and then propose a date to the RCG for its next meeting.

10/10/05 ACG

Water Quality

Study Requests:

- **Temperature Analysis – Downstream Effects[2]:** This request entails providing an analysis of the effects of the temperature of discharges from the Saluda Dam on downstream habitats including: (1) An analysis that determines the travel distance downstream to effectuate completion of temperature mixing in the Congaree River; (2) an evaluation of the affects to species and habitats within the downstream Congaree National Park; (3) an evaluation of the affects to upstream migrating diadromous fish.

  Requested by: USFWS

- **Water Quality Studies:** Request of studies in order to assess the effects of Project operations on water quality, and consequently the aquatic habitat in the lake and river segments. Suggested studies include those to determine the effectiveness of newly installed hub baffles, TMDL's in Lake Murray, effects of project operations on summer habitat for striped bass including mitigative measures for fish kills, effects of operations on water temperature as affecting the spawning and recruitment of diadromous and riverine fish in the Saluda and Congaree rivers, and the effects of D.O. and water temperature on mussel populations in the LSR and Congaree. SCDNR recommends that water quality models be developed to identify any relationships between point and non-point pollutants and operations. The Lake Murray Association (LMA) and Lake Murray Homeowners Coalition (LMHC) specifically request information to be collected on cove water quality. The League of Women Voters suggests that water quality studies also include a facet on the impacts of power boats and jet skis on drinking water quality.

  Requested by: CCL/American Rivers, American Whitewater, City of Columbia Parks and Recreation, SCDNR, LMA, LMHC, League of Women Voters, LSSRAC, National Marine Fisheries Service, S.C. Parks Rec and Tourism, SC Council Trout Unlimited, USFWS

- **Sediment Regimen and Sediment Transport Studies:** A request has been made that a study be performed on the sediment regimen in the Project area as well as the Project effects on the sediment regimen of the lower Saluda River. Should include such things as sediment composition, bedload movement, gravel deposition, sediment storage behind dams, and bedload changes below the dam; and project effects on downstream geomorphometry, sediment availability and streambank erosion, and the possible addition of gravel to mitigate

[2] Not included as part of meeting handout; however, this study request was discussed in the meeting and thus is included in the meeting notes.

for project impacts. Also, the effects of the Project operations on habitat requirements for spawning fishes.

Requested by: CCL/American Rivers, USFWS

Information Needs:

- **Aquatic Habitat Decline Model**: In order to understand the reasons and contributing factors of seasonal habitat decline associated with the combination of increasing water temperature and decreasing dissolved oxygen. Thus resulting in a decrease in available cool-water habitat for some species. This model would be developed to better understand the causative factors that result in habitat declines, and to evaluate scenarios that could reduce or eliminate this problem.

  Requested by: SCDNR

- Request information that will help to a) forecast striped bass habitat reductions with new operational protocol implemented, and b) help develop an operational protocol to minimize impacts on striped bass habitat. ***SCDNR***

- Temperature profiles, on at least a monthly basis, at the unit intakes in the reservoir (specifically June-September) to have a better understanding of the relationship between project operations and water temperature and dissolved oxygen as they pertain to our management programs. ***SCDNR***

- We recommend that trends in water quality data associated with Lake Murray and the Lower Saluda River be reviewed and summarized. Special attention should be given to the stations and parameters that did not meet State standards or are declining. ***SCDNR***

- Marina water quality monitoring records in order to understand the degree of water quality impacts related to large multi-slip docking facilities. ***Lake Murray Homeowners Coalition***

- An updated report on the status of dissolved oxygen concentrations in the lower Saluda River and the efficacy of existing enhancement measures. **USFWS**

Requests for Potential Mitigation: None