Malcolm Leaphart, Treasurer
SC Council Trout Unlimited
115 Conrad Circle
Columbia, SC 29212
August 15, 2005

Mr. James Landreth, Vice President
Fossil and Hydro Operations - c/o email to William Argentieri, August 15, 2005
South Carolina Electric and Gas Company (SCE&G)
111 Research Drive
Columbia, SC 29203

Subject: Saluda Hydroelectric Project, FERC Project #516
Initial Consultation Document (ICD)

Dear Mr. Landreth:

**Opening/Introduction:**

I am filing these statements on behalf of the SC Council of Trout Unlimited (TU) of which I am past Chair after a review of the Initial Consultation Document (ICD). As a coordinating body for the state chapters with regional and national TU offices, the SC TU Council speaks in a unified voice for the entire organization on coldwater conservation, such as the relicensing of the Saluda hydro. I have also monitored and advocated for better management of the Saluda River below Lake Murray for the Saluda River Chapter of TU since 1982 when I helped to found the chapter, serving as its first president, and then as Conservation Chair for many years focusing on the lower Saluda River.

TU has been a long time advocate of science-based management of our natural resources and has supported and helped to fund several research projects for the lower Saluda with the US Geological Survey (USGS), the SC Department of Natural Resources (DNR) and the SC Department of Health and Environmental Control (DHEC). Those projects included an oxygen dynamics study, a temperature and flow regime study, a marked trout study, and an aquatic insect study.

**Endorsements:**

The SC Council of Trout Unlimited endorses the ICD recommendations of the Lower Saluda Scenic River Advisory Council which I have served on since its inception. That Advisory Council is mandated by SC 'Wild & Scenic Rivers' legislation for local guidance in managing designated rivers, under the leadership of the SC DNR. The recommendations of the Advisory Council represent consensus views as compiled by the SC DNR Council Chair, Bill Marshall, of many different individuals and entities with varying concerns for the river, including SCE&G and other industries. Those plans have been previously documented in the following two publications, archived on the SC DNR web page noted:

1) The Lower Saluda River Corridor Plan (1990)
2) Lower Saluda Scenic River Corridor Plan Update (2000)
http://www.dnr.state.sc.us/etc/conservation.html

The 2000 Plan Update was a based on a series of 'charrettes' which allowed for input from a broad range of landowner, public, and special interests groups, including SCE&G, to keep the management recommendations current since the original 1990 plan.

The main categories of items addressed by these plans include:

- Access and Facilities
- Historic and Archaeological sites
- Law Enforcement
- Resource Protection
- Tourism and Promotion

While the key issues of interest to a coldwater conservation group of water quality, including dissolved oxygen maintenance, and adequate continuous flows, are included in Resource Protection, TU supports all of the recommendations in this broad range of topics as in the best overall interests of the citizens and the resource.

TU has reviewed and supports the recommendations and comments on the ICD from the US Fish & Wildlife Service (USF&WS) and the SC DNR.

TU supports the overall concerns and recommendations of many groups to improve the water quality of Lake Murray. Doing that for what is basically the 'headwaters' of the lower Saluda River will improve conditions there too. A model for the lake and river basin showing inflows and outflows and the effects of changes in either has also been proposed by many, including the SC Wildlife Federation. While TU is supportive of a comprehensive science based watershed modeling program to help understand all of the dynamics of the river system, the first priority is to maintain the necessary flow and water quality at the hydro plant as discharges are made into the lower Saluda River.

**Further Recommendations:**

Approach:
In addition to the above jointly supported recommendations regarding the ICD, TU offers the following further comments and recommendations, including studies. In general any recommended study done should include a multi-agency team of appropriately assigned and qualified scientists to help formulate and guide a study, while providing oversight and ultimate approval of the study goals and methods and results, including 'sign off'. The agencies to be included are: SC DHEC, SC DNR, and the USF&W. Any study done without the agencies involvement will suffer in credibility for not having these long time public resource protectors and managers involved as noted.

**Establishment of Coldwater Fishery**

Background/Reasoning*:*

Because of the construction of the dam at Lake Murray for the hydro-electric operation, the Saluda River below the dam ('lower Saluda') was changed to a coldwater fishery in 1930. Since the lower Saluda was changed from a warmwater to a coldwater river habitat by the construction of the reservoir and hydro power plant, the river's water quality and flows should be maintained to a level that allows coldwater species like trout to not only thrive year round, but be self sustaining as they would in a normal coldwater river system. That has not been possible however due to the severe, lethal anoxic water quality problems in the months preceding lake 'turnover' each fall. It has taken periodic stockings of 'adult' trout by SC DNR to maintain the fishery since the early 1960's because of the very low levels of dissolved oxygen each fall before 'turn over' from the summer stratification. The conditions have been so bad each year that the adult trout stocked were barely able to cope with the low levels of dissolved oxygen, especially when levels often approached 0 mg/l! These fish have been observed to be severely stressed and nearly lifeless when caught during the fall; and, as expected with the conditions, there was little significant hold-over of trout following the months of anoxic water conditions. This condition was summed up well in a "Lake Line" article from SCE&G in the November 2, 1995 issue of the 'Lake Murray News', and also is well documented by both our federal and state fishery agencies and also by DHEC. SC DNR even maintains a trout stocking schedule now based on an initial stocking only after 'turn over' when dissolved oxygen levels have rebounded, followed by periodic stockings through late spring or early summer when the stratification has begun again.

The 'trout – put, grow, and take' water classification by DHEC was based on the creation and maintenance of an adult trout fishery by the SC DNR Fisheries Division since the early 1960's. That was the appropriate fish species for the coldwater habitat for them to introduce and try to establish and manage; but, the adult fishery dependent on stocked trout was all that could be developed because of the lethal low levels of dissolved oxygen. For many years the failure of trout to hold over, spawn, and thrive was noted, but not understood until the dissolved oxygen problem was scientifically documented, first in the TU co-funded study in 1988 on the 'oxygen dynamics' (H. McKellar, USC School of Public Health) and over the years by the readings from the USGS dissolved oxygen meters first introduced to the river for the study. Reproduction in that harsh environment is not possible as eyed and young trout fry have even higher requirements for dissolved oxygen than do the adults, preventing development of a self sustaining trout population. Yet the state standards have been set based on the limited criteria of adult trout because that was the only fishery that could be developed. This is the classic situation of "which comes first – the chicken or the egg?" in that SC DHEC was limited to the 'current uses' in formulating the standards; but, that the current use was limited by lethal low levels of dissolved oxygen caused by the stratification of the lake built for the hydro.

SCE&G has installed turbine venting and baffles to their generators to increase dissolved oxygen in the outflow to the lower Saluda. Those efforts are commendable and have increased the dissolved oxygen levels in recent years; but, cannot be counted on to work

in all operating scenarios. It is not satisfactory to be in compliance with state standards 'most of the time', especially when those standards are not high enough for a self sustaining coldwater trout fishery at this time. 100% maintenance of the needed dissolved oxygen required to allow a thriving, reproducing trout fishery should be the goal – and further techniques like liquid oxygen injection should be employed as needed to reach the determined levels consistently for a healthy coldwater river.

Conclusion:

A complete assessment requiring several studies of the lower Saluda River aquatic environment should be made under multi-agency supervision. This assessment should include the needs of rainbow and brown trout in this coldwater habitat, in order to be a self sustaining fishery. Dissolved oxygen, flows, spawning and rearing habitat, the aquatic food base, especially in the shallow, rocky foraging areas, and actual water chemistry should be key items in such an assessment. The purpose should be to determine the factors needed for a self sustaining trout fishery that can reproduce and thrive year round, and, how the operation can be modified to meet the habitat needs.

Recommended Assessment Studies:

*IFIM/Dual Flow Analysis*:

One key component of a comprehensive assessment should be an 'IFIM' study (instream flow, incremental methodology) or similar process as deemed appropriate by the multi-agencies to determine the required minimum, continuous ('instantaneous' flow) flow to prevent spawning and food producing riffle areas from being de-watered as has been routinely done for years. A 'dual flow analysis' should also be considered to look at negative impacts on the aquatic communities from the scouring of the high flow levels reached when all 5 generators are run at close to 100 per cent. The results should be used to establish a flow regime that would not severely limit or destroy aquatic life and prevent periodic low flow de-waterings and high flow scourings of the river bottom and banks.

*Macroinvertebrate Survey*:

An update of the 1985 DHEC macro-invertebrate study led by Butch Younginer should be done to determine the current state of the river. That study was commissioned by the SC DHEC Water Quality section in follow up to the Saluda River Chapter of TU's kick seining observations for the entire river which showed dramatically less aquatic life in the upper miles. The study confirmed the low populations in the upper reaches, citing the scouring effects of the high flows as the probable cause, and provided a scientific measurement of the negative effects of scouring flows. The results of a new study should be used to determine an operating mode for the hydro plant that significantly improves the aquatic life below the dam. Such a study would have the benefit of providing an excellent indication of water quality that would aid the community in wastewater 208 planning. Any improvements to the water quality in the lower Saluda should be a catalyst for further river protection by the community by eliminating all wastewater discharges into the lower Saluda and its tributaries, rather than allowing increases in revised 208 plans.

*Water Quality/Chemistry*:
A thorough analysis of water quality, including of actual samples of water taken from the river, especially at low flow conditions, at the dam and at logical downstream locations where degradation could occur should be done. That analysis would provide credible data to show scientifically the water chemistry from the actual discharges through the hydro plant, and changes as the lower Saluda flowed toward the confluence with the Broad. While some of those changes would not be the responsibility of SCE&G, a study by the utility company using the multi-agency approach recommended would confirm whether the water coming from the lake was the source of any water quality problems that would negatively impact the aquatic life in the river. It's important to note that the current monitoring is mostly self-monitoring by dischargers of the effluent as it leaves their plants. The actual water chemistry of the Saluda below the hydro plant, below the discharges, and at points where assimilation could reasonably be expected should be determined from actual water sample analysis. Results of the tests could be used for making fishery decisions and to protect public trust resources. The research would answer questions of concern to both SCE&G and to the citizens and could be used for reassessments as needed to the water quality regulations of all concerned.

**Recreational and Safety Needs of the lower Saluda:**

In addition to the above studies which are resource oriented, the recreational and safety needs of the lower Saluda should be studied and improvements made accordingly. The current situations are very hazardous and life threatening and ways need to be determined and implemented to make public use safer, including improved access to the river.

Safe Flow Levels:
The uneven pattern of releases with sharp drops or rises in the river water level in a short period of time are very unsafe to all recreational users, including boaters. Consideration should be given to an efficient way to release water more evenly over a 24 hour period that is closer to the average flow for that day. USGS records show that often the bulk of the flow into the river in a 24 hour period is released in only 1 or 2 hours time; or, is done with numerous peaks and valleys with variations of several thousands of cfs (cubic feet per second). Dealing with 'walls of water' or de-watered rocky shoals in upstream passages is unsafe and needs to be minimized as much as possible. Publicizing water release levels at least daily would also help make the river much safer.

Also, of concern is the current usage of the hydro for needs outside of the SCE&G service area. Meeting demands around the southeast on short notice should not put midlands citizens in peril. SCE&G should only use the hydro for their own back up needs. Other utilities need to develop and use their own systems such as natural gas plants that can be brought online in relatively short time periods to meet backup needs. Also, a study to determine the minimum navigational flow should be made. But, first it must be decided whether the flows are for floaters or motorized boats as the two have distinctly different requirements. If motor boats are to be considered, a minimum navigable flow level for upstream passage must be set as the low flows now result in extremely hazardous boating through shallow, rocky stretches.

Safety Warnings/Rescues:
'River rescues' are made every year because of the volatile up and down swing in the flows of the lower Saluda. The number of wading fishermen has increased dramatically over the past decade, as the membership of over 350 in the local TU chapter shows. Many of the general public are drawn to the river for bird watching, nature viewing, swimming, and sunbathing. Boating continues to grow in popularity, especially with kayakers and canoeists. The rescues of many of these from high flow surges are not only life threatening to those in peril, but put rescue personnel, many of whom are volunteers, at risk and are costly to local governments. Warning sirens and lights over the entire lower Saluda are not very feasible as those are nuisances to citizens living near those devices. Safety education information at access points and more markers such as those at Saluda Shoals and on the I20 and I26 bridges are more practical. The most effective approach, however, is to reduce the big swing in flows.

Access:
Access needs should be studied in a way that allows for broad citizen input along with the appropriate resource agencies. Additional access is needed due to increasing usage and for safety reasons. For example:

- There is no legal access above the Mill Race Rapids at Riverbanks Zoo for boater 'take out' upstream of that dangerous section of river. No one, regardless of experience, should boat through there at any time, including expert boaters when the river flows reach level 5 whitewater status.
- The landing built by SCE&G near the WVOC radio station is a 'throw in' landing only, requiring an unacceptable carry of boats and motors and other gear to the water. The only boat landings with ramps for trailered launches are both at the 'Hopes Ferry' location, requiring downstream trips to access the 5-6 miles of water between there and the Mill Race. Motor boats are often forced into navigating rocky shoals at very low flows on return upstream trips, and cannot float back to their landing as an upstream trip would allow. Paddlers launching there and going downstream often must exit the river at unplanned sites downstream as flows can rise to very high levels that can make paddling upstream back to the landings very perilous or even impossible. A downstream site such as the one near WVOC should be available to the public with a ramp for trailered boats, whether motorized or not, for safer boating.
- The 2000 'charrette' for the Lower Saluda Corridor Update noted a significant demand for more trails along the river corridor. SCE&G should try to accommodate that demand and do so in conjunction with the River Alliance and other entities that work for a trail system along the entire river from Saluda Shoals Park to the Columbia Greenway Park.
- The Lower Saluda Corridor Plan envisioned an additional park downstream from Saluda Shoals. Increasing public use and demand makes this need even more imperative and a recreational study should identify an appropriate site for SCE&G to develop to meet the growing demands over the next license term.

**Pertinent Observations:**

There is overwhelming public support in the Columbia metro area for the lower Saluda to be cleaned up by removing all discharges and protected for future generations as a state designated wild and scenic river. This support has been proven by the building of the Saluda Shoals Park, the addition of the Botanical Gardens, including a bridge across the Saluda to the Riverbanks Zoo, and the new riverfront greenways in the confluence area by the cities of Columbia, West Columbia, and Cayce. It is very unlikely that any of these entities would have built these facilities unless they envisioned a clean and healthy Saluda River as it leaves the hydro plant at Lake Murray flows past these facilities.

The lower Saluda is unique for many reasons, especially for recreational uses. It provides whitewater for paddling in an area of the state where that is not usually found. It provides a unique 'rainbows and rockfish' fishery in spite of the water quality problems of the past 75 years. It is increasingly used as a natural oasis in a growing urban area, for field studies by our schools, and is recognized as a focal point for economic and other promotion of the midlands as an area where rivers are seen as 'crown jewels', providing the life blood to our quality of life.

The 208 planning has dealt with maintenance of the water quality through consolidation of wastewater to regional lines built by the Joint Water and Sewer Commission of Lexington County; but, the water quality must be adequate after it is used at the hydro plant and enters the lower Saluda.

In light of the Saluda's state scenic river status and these significant new major public areas along the river, the long-time, unique recreational uses, and as a focal point for the midlands, it should be very clear that the community's wishes are for a clean, well managed Saluda River as befits its designation and community value. SCE&G's use of the river at their hydro plant should in no way prevent or detract from the wishes of the community.

*Sincerely,*

*Malcolm Leaphart*

CC:
Kleinschmidt, Guth, Mealing
FERC, Salas
SC DNR – Christie, Aule, Marshall
SC DHEC – Kirkland
SC PRT - Bebber
USF&WS – Hill
TU – distribution list