

MEETING NOTES

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

**SCE&G Training Center
November 9, 2005**

final 11-30-05 acg

ATTENDEES:

Alan Stuart, Kleinschmidt Associates
Alison Guth, Kleinschmidt Associates
Bill Argentieri, SCE&G
Steve Summer, SCANA Services
Shane Boring, Kleinschmidt Associates
Randy Mahan, SCANA Services
Donald Eng, Trout Unlimited
Roy Parker, LMA
Dick Christie, SCDNR
Gina Kirkland, SCDHEC
Andy Miller, SCDHEC
Hank McKellar, SCDNR
Bill Marshall, SCDNR & LSSRAC
Steve Bell, Lake Watch

Amanda Hill, USFWS
Bob Keener, LMA & LMSCA
Tom Bowles, SCE&G
Reed Bull, Midlands Striper Club
George Duke, LMHOC
Patrick Moore, SCCCL, Am. Rivers
Bill Hulslander, Congaree National Park
Jeff Duncan, National Park Service
Ron Ahle, SCDNR

DATE: November 9, 2005

HOMEWORK ITEMS:

- Go through list of study requests.
- Review the ICD and the water quality report at the back of the ICD.

AGENDA TOPICS FOR NEXT MEETING:

- Presentation: Water Quality Standards and Classifications of Lake Murray and the Lower Saluda River
Gina Kirkland
- Presentation: Status on impaired areas within Lake Murray
Andy Miller
- Presentation: A Review of 25 years of Water Quality in Lake Murray
Jim Ruane - Reservoir Environmental Management

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- A Review of the QUAL 2 -E Water Quality Model and its Application to Lake Murray
Jim Ruane
- A Review of the Site-Specific Dissolved Oxygen Standard
Alan Stuart/Shane Boring

**DATE OF NEXT MEETING: December 7, 2005 at 9:00 a.m. (Combined Meeting with Fish and Wildlife Resource Group)
Located at the Saluda Shoals Park Rivers Center**

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.

INTRODUCTIONS

Alan opened the meeting and began introductions. Alan pointed out that in answer to many questions that had come up, the FERC Representative for the Saluda Hydro Project is Allan Creamer.

DISCUSSION

Alan began by commenting on the draft Operational Procedures and asked the group if everyone had received a copy. He then noted that some comments were received from Patrick Moore. Patrick then proceeded to read a list of the co-signing parties. Alan also noted that comments were received from Bill Marshall of the LSSRAC as well.

Alan then pointed out that one of the recommendations that has been tabled is the development of a procedures group. He noted that he believes that some of the NGOs are in the process of developing an internal group.

Patrick Moore pointed out, "Yes we have drafted a second set of comments and will develop an informal group."

Alan Stuart then asked, "Are there any questions in regard to the procedures. The revisions will be circulated after we receive Patrick's second set."

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Alan then switched gears to discuss the development of a mission statement for the group. "One thing that we have done in the other RCGs is develop mission statements. Bill Cutler mentioned three things necessary in achieving a mission statement I would like to first start to develop this mission statement."

The group then began to discuss what needed to be included into the mission statement. The following is some of the dialogue that went on between members of the group:

Gina Kirkland noted, "How about attain and maintain water quality standards and improve water quality be included."

Randy Mahan pointed out, "I think that the goal for the group is to address programs and operations that impact the resource goals. I think that we need to develop the goal for the resource and then the goal for the group."

Gina Kirkland explained, "There are some goals that are going to be beyond what SCE&G can accomplish."

Jeff Duncan noted that he believed it was important that the group become well versed with what the standards were.

Gina Kirkland: "My specific job at DHEC is a WQ standards coordinator and my job is to identify those standards, etc. If it would be beneficial I could bring copies of the WQ standards."

Don Eng asked, "Are we not going to put down anything specific like the oxygen level required for the trout?"

Alan Stuart noted, "I think that goes back to Attain and Maintain."

Don Eng replied, "I would like to see the standard raised."

Gina Kirkland pointed out, "I would tell you that is not something that I would pursue."

Jeff Duncan added, "That is a regulatory thing, first we have to make sure we are in attainment with the standard."

Amanda Hill: "I think that would be a specific issue."

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Randy Mahan noted, “I think it is appropriate to consider what the standards may be, to learn about and understand them, and make recommendations. On behalf of SCE&G we would not apply to increase the standards, the first thing we would like to make sure of is that we can support the current standard. The setting of standards is really a public policy issue and if the policy is to protect a trout fishery then you set the standards to support that trout fishery WQ standard setting is a public policy issue and that is one that is taken up with DHEC.”

Dick Christie added, “It seems like one thing we need to focus on is going by the rules and learning the rules for water quality standards.”

Alan Stuart pointed out that many were involved in the revisions of the WQ standards in 2004, it involved a rigorous process that has to go through much review and approval. It is not a simple thing to change a WQ standard.

Don Eng asked, “What happens when we get new information that says current WQ standards are not good enough.”

Gina Kirkland replied, “WQ standards are revised every three years. A lot of stuff comes from the public and public presents information.”

Bob Keener noted, “It seems to me the standard is more a floor, not a ceiling, and you should keep at that and not go below that. Things can happen that negatively impact on dissolved oxygen that may drive it down – I think we are trying to make these more infrequent.”

Alan Stuart noted that one thing that everyone needs to keep in mind, it doesn’t drop below that standard much but at a certain time of year. He continued to note that there was a misconception in the newspaper; they made it seem like it happens year round, and that is not true.

Gina Kirkland explained, “When you are looking at WQ standards you often set an acute value, a lethal value. Then there are chronic conditions that impact how they breathe, eat, and grow. Those are expressed as averages. What you have is a number that you want the organism to be at and healthy organism. Can it fall below a certain number for short spans of time and not have anything happen to the system and it be okay?... Yes... what you don’t want is a long period of time below that number. You are going to have occasional blips without affecting the system. We set the numbers in order to make sure that we are not having long term impacts. Typically when the toxicity test is done, they would take an organism and keep it at a DO level for a certain period of time. What they found is that organism does quite well at fluctuating DO, and that’s what we found on the lower Saluda. That there is a healthy growing trout population, even though they are very sensitive to DO we found the LSR provides a very healthy habitat for them.”

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Don Eng: "From fishing experience, the trout have been affected by the few days of low DO."

Gina Kirkland replied, "We were aware and concerned about that and we have issued them a letter and they have replied and a lot of the time there are reasons for the low DO."

Steve Summer pointed out, "A list of action items we first need to do is to look at the applicable standards for LM and the LSR...DO, metals, phosphorus, etc. In order to know where we are. Then look at the standards and see which of the standards are not being met currently. Then we need to focus on those areas and identify the mechanisms for improving those areas. I think we can also have a goal for improving WQ. I think we could spend months discussing whether the trout are happy or not, but if we can work on getting the standards met at least gives us something to shoot at."

Steve Summer added, "We did some electro-fishing on the river after the low DO, and there are still decent populations of fish."

Gina Kirkland noted, "The classifications we are talking about is Freshwater on lake, and right below the lake is Trout Put Grow and Take, and that class has a number assigned to it and a site specific standard. Meaning, that this is not a natural trout area. And three things important to trout are clarity, cold water and DO. And what we are trying to protect is the regular aquatic biology, as well as the Put Grow and Take, not a natural trout population."

Randy Mahan noted, "We also need to look at a goal of developing a common understanding of things. We are going to have these technical working committees that are getting into the nitty gritty of things, and I think it is really important that we all become educated in this process."

Jeff Duncan noted that he thought that it would be helpful if Gina gave a presentation on Standards and Classifications and 401 standards. He requested that part of it would include Gina and the Applicant's view of the 401 Water Quality Certification Process.

Patrick Moore pointed out that in discussions with Bill Argentieri it was noted that not all of the violations as seen on the USGS site are actually violations, some are just bad data. He noted that it might be good for Bill or Lee to go through the violations noting which ones were actually violations versus bad data or operational obligations.

Randy Mahan replied, "I don't know if we want to do that every time. Each week Ray puts out an update on operations with a link to the USGS Preliminary data and it gives you a snapshot as to what has been going on."

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Alan Stuart noted, "SCE&G is required to prepare an annual operations report every year as a Settlement with the SCCCL, one thing that is a problem is that the monitor fouls quite frequently."

Steve Summer added, "USGS maintains two monitors on the LSR, one immediately below the dam and one upstream of the zoo. They will routinely go out and service the instrumentation, but during this time of the year the monitors tend to foul frequently. USGS will often contact me and I will go out and look at them. If he goes out and finds that that monitor is reading 2 or 3 mg/l below the norm then usually he will bring it up. If you are looking at the data and you see a lot of jumping around, it is usually fouling. Another issue is the location of the USGS monitor below the dam. There is a large rock that interrupts the flow. We've been doing testing in order to see whether there is a better place for it."

Gina Kirkland: "It is extremely hard to maintain a continuous DO meter."

George Duke noted, "I think we need to know what the reasonable expectations are. A population of fish below the dam would be a reasonable expectation."

Steve Summer replied, "You would think the standards would address that."

Gina Kirkland replied, "I can gear my presentation to do that. And the LSR could not be a location for a reproducing trout population. There is not location for them to lay eggs. Understand that if you do see a dead fish occasionally, I mean they do die. Overall the biological community is healthy in Lake Murray and the LSR."

Bob Keener noted, "A non-technical concern I have, on the DO sensors we have, should there be additional sensors, more than two? How expensive are they, and are there new sensors out that would not have the problems that those have now."

Randy Mahan replied, "The license requires that USGS has monitor data. That is one reason we prefer to have USGS to do that, because they are more likely to be believed and they do a great job."

Steve Summer explained, "USGS uses two different brands: Hydrolab and YSI. The Hydrolab has a stirrer which would get jammed with vegetation. YSI has been installed, and those have been having membrane problems. We have now been looking at a new portable unit that costs about 10,000 dollars. Right now USGS will not use any sensors that are not tested at their lab. This new sensor has not been tested at their testing facility yet, but may be tested in the future. They are working with us and we are trying to figure out the best location of a sensor."

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Gina Kirkland, "If we wanted to make a suggestion that you do install more monitors would you have an objection."

Randy Mahan, "No we do not have an objection to the idea of putting more out there. If our operation is driven by science, then we should have the best data to govern our operations. The only problem, besides the money, is that if you do have a USGS station out there and we start getting different readings does that help the situation, or make the problem worse."

Jeff Duncan pointed out, "I think we have identified an issue here, the issue is that more DO meters are needed. USGS funds are tight."

Steve Summer responded, "We fund the USGS monitors they have now."

Steve Bell pointed out, "I think one of the goals should be to review the data on the current conditions of WQ on the lake. I think it is important to see what they are saying and why and then go back and see what we need to improve."

Alan Stuart noted, "If you go to the back of the ICD, there is a comprehensive report that addresses phosphorus issues etc. I am going to propose this as a HW assignment. One of the things I was going to propose is to have Jim Ruane come down and explain the W2 Model. He did his report on the nutrients on LM."

Gina Kirkland noted, "Jim even got DMR data off of discharges upstream."

Randy Mahan noted that he would be happy to put a straw man mission statement out there but I would be glad to give it a shot. He noted that he didn't want it to appear that SCE&G is doing this whole thing but if the group would like him to, then he would.

Steve Bell asked if the group could add to the draft to which Randy and Alan noted that they certainly could.

The group began to discuss the objective of the Water Quality RCG. Randy Mahan noted that the objective is to get to a license application and a desired outcome is a settlement agreement or an agreement that the issues that have come up will be addressed in a certain way. He noted that when the application is filed it will include these agreed upon items.

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Gina Kirkland noted, "Our expectation is that at the point you apply for 401, that you can demonstrate how the WQ standards are going to be achieved. And this group is one of the ways that we can get to this point."

Ron Ahle, "I think what we would like to do is identify areas of potential problems and see if we can change any of the areas to remedy a problem that exists."

Gina Kirkland pointed out, "There may be problems that are beyond the scope of a licensing issue, that are outside SCE&G's control."

Randy Mahan noted that it needs to be what SCE&G can have a material and direct impact on.

BREAK

Alan Stuart noted that at the break, he was talking with Jeff, who noted that the group may want to come up with a work plan. He noted that a workplan will be an assignment for himself or SCE&G.

Alan then noted, "We have 2 presentations that people would like to see. Are there any other presentations you would like to see?"

Patrick Moore replied, "A presentation on the statutory articles, regulatory articles."

Alan Stuart pointed out, "We do have an ex FERC employee at our company maybe she could come down."

Jeff Duncan: "I think that there are current trends and interpretations that FERC uses right now."

Steve Bell: "I think FERC could come down in every group."

Alan Stuart pointed out, "I think we should have one big meeting."

Dick Christie noted, "Include a discussion of baseline in the FERC meeting."

Steve Bell suggested, "I think we should have a presentation on the trout growth study that was performed"

Jeff Duncan added, "I think it is important in terms of understanding the history of this, in terms of developing context."

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George Duke pointed out, "We may want to do a joint meeting of WQ and Fisheries when we do the WQ presentations.

The group agreed and an all day educational combined meeting was set up.

LUNCH

After lunch the group discussed the straw man Mission Statement that the group drew up during lunch.

Randy Mahan read the mission and noted that one of the thoughts that went into the writing of the mission statement was that the quality of the water flowing into Lake Murray as that water quality/nutrients cannot be materially controlled by the operation of Saluda Hydro..

Gina Kirkland noted that she understands why you would want to make recommendations to things outside the impact of SCE&G to agencies, however we want to make sure that it discusses what we can do relevant to the project.

Patrick Moore read his version of the mission statement and the group discussed.

Jeff Duncan noted that Randy's version tended to be focused toward the LSR, and that there were also concerns further downstream.

Don Eng noted that the issues he was concerned about are those that SCE&G is having on the system.

Randy Mahan explained that the source of the problem needed to be dealt with, not to requiring SCE&G to treat the problems that are originated elsewhere. He noted that SCE&G was not a wastewater treatment plant. He noted that he feared that SCE&G was going to be required to put oxygenation in when it would better be treated at the point source.

Steve Bell asked, "Are we having problems because there are nutrients coming in from the outside or just because the lake is there and is causing a buildup?"

Alan Stuart: "In the W2 model you will get an understanding of this process. There are two wastewater discharge facilities that produce 70% of the nutrient input into Lake Murray."

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Gina Kirkland added, "And do understand that the dept. is worrying about putting phosphorus controls in place, but it will take a while. All of that in terms of implementing it, etc., will take a while and then, once it is in place, it will be a while before we see results."

Randy Mahan noted that we should mull over and merge the two mission statements.

Gina Kirkland noted, "There is one other issue, if you have insufficient quantity of water then you are not going to have a healthy environment. I would like to see that the quantity of water also be included in the statement."

The group discussed that they would like to reach agreement in terms of a settlement as the goal of the group.

Randy Mahan noted he would like to amalgamate them and then send out from there.

The group decided that the next meeting will be on December 7th.

The agenda would include Gina's presentation on water quality standards and classifications for the lake and downstream. Jim Ruane will give a presentation on W2 model. Andy Miller will give an update on current water quality status on the lake in the river. And Jim will give a historical assessment of data that was collected for W2.

LEE'S PRESENTATION

Lee's Powerpoint Presentation of Saluda Hydro System Control can be viewed through the website as well as through the November 1st Operations meeting notes. The following is a summary of the questions posed during his presentation:

Jeff Duncan, "Do you have gas turbines?"

Lee Xanthakos, "Yes, we have two kinds of gas turbines, one which shoots fuel in a jet type engine turbine, and a combined cycle turbine that contains a mechanism that captures the steam off the turbine."

Steve Bell: "How long does it take the Jasper facility to come online?"

Lee noted that it was a complicated question to answer because it could take from 1 hour to 8 hours depending on what was online at the time.

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Steve Bell asked if VC Summer was either 1000 MW on or off, or was there an in between.

Lee noted that although they can run it lower, it is not beneficial to do so unless something is wrong, such as a pump is out or Lake Monticello's water is not cool enough.

Steve Bell: "So when it is not running at 1000 then you will have to use something else to make up that power."

Lee: "Yes, but out of 18 months I would guess it would only be out for about 6 hours."

In discussions on the operational requirements of Fairfield Pump Storage, Lee noted that it was a requirement that the Broad River could not already have a flows surpassing 40,000 cfs. Jeff Duncan asked, "How many times a year does the environmental factors such as too much flow happen."

Lee noted that it usually happens between 4 and 10 times a year.

Don Eng then asked, "Why is it when the broad is flooding, you open the gates at Saluda, and add more water."

Lee Xanthakos replied, "Well if the Broad River is flooding it is very likely that the Saluda is flooding also, and you do not want the Lake coming up to fast."

In a discussion on buying power Jeff Duncan noted that he did not understand how the power came in once it was purchased from another company.

Lee explained, "You create inadvertent flow. What happens is a marketer finds where you can buy the electricity and creates the lease for 1 hour for the amount of power. When the hour comes, the company you are buying from ramps up the generation while SCE&G ramps down its generation in order to create a hole and the electricity finds the path of least resistance to fill that hole."

Bob Keener asked, "What would happen if a storm came and the lake came up very fast."

Lee replied, "If there is a storm that is projected to come across our path we start to generate before the storm gets here."

Bill Argentieri added, "We have a flood forecasting model and it will help us develop scenarios based upon weather service data and we decide how much we need to generate in order to get the lake down."

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Randy Mahan also explained, “When it comes to opening the spillway gates we have a agreement with the Public Service Commission that we not waste water unless it is a condition that is in the license, it is like shoveling coal in the trashcan, and if the public service commission decides we were not prudent with our generation, they will not let us recover some of our costs.

Andy Miller, “When are you in danger of a major rolling blackout.”

Lee Xanthakos replied, “There are days when our systems are stressed such as when it is really hot or really cold and we have everything running, and everyone else has everything running, and a nuclear station trips. A blackout occurs when everyone is under-generating by a certain amount.”

Jeff Duncan: “A rolling blackout is what happens on purpose.”

Lee replied, “Yes when we know we can’t buy power.”

Ron Ahle asked, “Are there any plans to look at alternative energy generation, something that will come on quickly and reliable.”

Lee replied, “We do have a group that is looking at those alternatives. But you have to think that it is not always sunny to use solar power and it is not always windy, and every single type of plant has its problem, if it is not the trout folks worrying about the trout then it is the bird folks worrying about the birds that are getting hurt in the wind generators.”

Randy Mahan replied, “The main problem I see with alternative power is there always has to be something that will back them up if it is not sunny or windy.”

Reed Bull asked, “What is the cheapest electrify you produce, nuclear?”

Randy Mahan replied, “Overall yes, in the amount of kilowatt hours, most of it comes out of VC Summer nuclear.”

Ron Ahle added, “So if you built another nuclear power plant it would just be another 1000 base load.”

Randy Mahan replied, “Yes, but you would still have to have reserves.”

Meeting adjourned at 3:45.