MEETING NOTES

SOUTH CAROLINA ELECTRIC & GAS COMPANY
SALUDA HYDRO PROJECT RELICENSING
Low Inflow Protocol Focus Group

Lake Murray Training Center
September 19, 2008

Final ACG 10-31-08

ATTENDEES:

Alan Stuart, Kleinschmidt Associates
Alison Guth, Kleinschmidt Associates
Dick Christie, SCDNR
Bill Marshall, LSSRAC, SCDNR
Ray Ammarell, SCE&G
Steve Bell, LW
Bill Argentieri, SCE&G
Dave Landis, LMA

DATE: September 19, 2008

INTRODUCTIONS AND DISCUSSION

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.

Ray opened the meeting and noted that the first discussion item would be to review the LIP runs that were recently distributed. Ray noted that he would like to come to a consensus on as many of the parameters as they could, so that he could start moving forward in putting an actual procedure together for review.

Ray briefly reviewed the LIP graphs with the group. It was shown that the reservoir fared a lot better with the LIP implemented than without. However, during the graphed scenarios the reservoir was not able to stay on the guide curve at all times during the low inflow years. The group discussed the current year and it was shown that there were good inflows up through April, therefore there would be no reason not to provide the higher minimum flows at that point. Ray pointed out that the lake was a little above 356' currently, and asked if that was actually a bad situation and if there was a burden on recreation. Furthermore, Ray added that for being in a drought, the lake was not faring too badly. Steve Bell explained that the reason the lake is at 356' this time of year is because SCE&G restricted releases during late winter and spring- below 400 cfs at times. Dick Christie explained that the water was available to drive the spring flows, and if it was a normal flow year, then the water would return. Dick continued to note that what the group seemed to be struggling with, was over the next 50 years, how often would this situation be expected to happen. Dick explained that he had spent a good amount of time reviewing the graphed years, and there are a number of years that were pretty close to equally sharing the water between upstream and downstream in the inflow tracking LIP. He further noted that the graphs show in some years that safety flows (City of Columbia Swift Water Rescue Training) do have an impact on

the lake, and in some years it is just a blip. Dick continued to add, however, that the safety flow was a very important flow. Bill pointed out that the graphs being shown by Ray include the full flows for the safety, however, after the LIP is developed we will approach the CFD to determine how to decrease the duration of the safety flows. The group discussed the fact that when the previous guide curve was established the forecasting was not as good, and that they may be able to keep levels higher in the spring. Although, there are dam safety implications with doing this, in the event of a large spring flood event.

Dave Landis noted that as the group was discussing "sharing the pain", the LMA believes that the provision of the 400 cfs flow during a drought situation was "sharing the pain". Ray shifted all of the outflow inputs to 400 cfs in the spreadsheet model, and the group viewed that although the graphed lines shifted up about one foot, the steepness of the line did not drastically change. Dick pointed out the graphs and noted that it was being suggested that the flows were benefiting more than the reservoir; however, the 2007 graph showed that the reservoir was reaching 87.5 percent of its storage, while the downstream flows are only receiving 80.7 percent of the targeted flow. If this combination was chosen, then the reservoir was going to receive a higher percentage of the available inflow then the outflows would. It was also shown that in 2006 the situation was reversed.

Dave Landis noted that the 700 cfs flow was the optimum flow for the river, and the minimum was 400 cfs flow; moreover, the guide curve was the optimum lake level. Dave continued to note that one option would be to reduce outflows to 400 cfs once there is a departure from the guide curve. In this way the lake level would not drop as drastically, and once the guide curve was reached then outflows could be increased. Ray commented that this would be an example of an LIP that would be very conservative for the reservoir, and more restrictive on downstream flow.

Dick noted that this method partitioned a larger share of the inflow to the reservoir. Dick suggested that the inflows be split 50-50. Steve noted that he believed that this took away from the littoral fishery. Dick replied that it could actually be positive to the fishery, it occurs infrequently, and allows things to break down and oxidize. He further noted that the fish are going to move a little deeper, and when there is water 8 years out of 10 in those areas, it has been proven that it is not a problem. Alan noted that fish spawn in a range of depths and Dick added that 2 to 4 feet is more important and minor fluctuations are not a big deal. Steve noted that they felt very strongly about having the lake up from April to June. Steve noted that it is important that the emergent vegetation which typically grows near the 357' contour be inundated with water during April 1 through early fall. Ray added that there was nothing special about the guide curve, but it is necessary to have target elevations to operate the reservoir and for the model to work.

Dave Landis asked the group if the river has survived sufficiently with the current flows. He noted that the 400 cfs minimum was something that they were trying to understand and explain to their group. Since there were no downstream representatives available, Dick noted that he was trying to balance the discussions even though both sides of the issue were important to DNR.

Bill A. noted that he would like to keep as much water in the lake as he could for generation purposes, however, he realizes the need for a balance. He continued to note that the reservoir was currently around 356' and he has not heard any complaints about the lake level. Bill A. explained that there is currently a minimum flow proposed by the Instream Flow TWC, and under the new license, when the spring comes SCE&G will be obligated to provide the required minimum flows. The goal is to figure out how inflows are going to be partitioned during low inflow years.

Furthermore, Bill A. noted there is an impression that this focus group was trying to change the minimum flows. He explained that the minimum flows are going to be provided if the inflows are available. Dick noted that he was not able to share DNR's thoughts on this issue before discussion with Bud Badr and Scott Harder, however, he noted that typically DNR's focus in other relicensing is to protect the downstream flows because there are a number of users on the reservoir side that typically try to hold-back the water. He continued to note that the scenarios were very helpful, and he would be interested in viewing the modeling of a six inch reservoir trigger and a 14 day averaging period. Steve noted that a six inch trigger would allow outflows of 700 cfs for 30 to 40 days before restrictions would occur, allowing adequate time for rain events to bring the lake back up to guide curve. Regarding downstream flow request, Steve noted that the Instream Flow TWC had not presented its findings specifically to the Fish and Wildlife RCG, therefore the lake groups have asked to meet with DNR to review the study and discuss the recommendations. Steve also indicated that the lake groups were completing a presentation on lake level impacts which would be discussed at the meeting. Steve indicated that justification for certain releases will be the key factor in getting buy in from lake leaders including the business community.

Moving along, the group discussed looking at a shorter averaging period and a smaller reservoir drop. Bill Marshall noted that after the last meeting, he thought that the shorter averaging looked suitable, and he was comfortable with the 1 foot lake level trigger. Ray reviewed the discussion points with the group as follows:

A. Net inflow – Ray noted that he believed that everyone at the meeting was agreeable to taking inflows, subtracting municipals, and leaving in evaporation. (Lake Watch noted that they do not support leaving in evaporation since reservoir storage significantly benefits downstream recreation and other flows).

B. Inflow averaging period – Ray reviewed that the group was leaning towards a shorter averaging period.

C. Reservoir level triggers - Ray reviewed that the individuals in this meeting are trending towards a smaller reservoir trigger, 6 inches to 1 foot or so.

D . Stop loss -

The group discussed the stop loss and Bill A. asked how it would be possible to have a stop loss elevation higher than 354'. Ray explained that it would be complicated and cumbersome. Bill A. asked if it would be possible to have a stop loss curve. Ray replied that the idea behind it is to at some point, even though inflows may become greater, keep the outflows depressed in order for the reservoir elevation to become higher. Several members of the group expressed that 354' was an acceptable stop loss, and Dick noted that he would discuss this with Bud and Scott.

E. April-May Pulsing –

Ray explained that they have carried this information forward with the only changes being the brackets for the inflow. Steve asked if pulsing was something that provides acceptable flows for downstream. Dick replied that it was not acceptable for use all the time. He explained that there are other issues. Dick noted that the pulses would meet the needs for the fish passage criteria,

however it did not address other ecological aspects, such as the habitat in the edges, and the sediment and water quality issues. Steve Bell suggested having pulsing instead of a constant minimum flow and a guaranteed 400 cfs flow. Alan noted that he believed that the IFIM TWC looked at that scenario and they were willing to take the risk in order to have the 1300, as opposed to a guaranteed 400 flow.

Ray reviewed the homework items with the group and noted that he would synthesize all of the discussion into a draft document to be distributed to the group. Dick noted that he would review discussion points with Bud Badr and Scott Harder and provide their thoughts back to the group.

Inflow Information from Whiteboard:

4-15 through 5-14 (30 day)

- If inflows were > or equal to 1,300 than outflows would be > or equal to 1,300
- If inflows were < or equal to 1,000 than outflows would = 700 with 2, 3,000 cfs pulses for 1.5 hours a day – 988 CFS daily average flow.
- If inflows were < or equal to 700 than outflows would be 500 with 1, 3,000 cfs for 1.5 hours a day – 656 CFS daily average flow.
- If inflows were < or equal to 400 than Outflows would equal 400 with no pulsing.