MEETING NOTES

SOUTH CAROLINA ELECTRIC & GAS COMPANY
SALUDA HYDRO PROJECT RELICENSING
Instream Flow/Aquatic Habitat Technical Working Committee
SCE&G's Lake Murray Training Center
December 19, 2006

Final jms 1-17-07

ATTENDEES:

Bill Argentieri, SCE&G	Gerrit Jobsis, AR/CCL
Alan Stuart, Kleinschmidt Associates	Shane Boring, Kleinschmidt Associates
Randy Mahan, SCANA Services	Jeni Summerlin, Kleinschmidt Associates
Amanda Hill, USFWS	Theresa Thom, NPS
Milton Quattlebaum, SCANA Services	Dick Christie, SCDNR
Ron Ahle, SCDNR	Jennifer O'Rourke, SCWF
Bill Hulslander, NPS	Hal Beard, SCDNR

ACTION ITEMS

- Review the National Park Service literature review for studies of interest (studies were sent out by Theresa Thom on October 11, 2006)

All Committee Members

- Contact Jim Bulak about presenting his dissertation work on striped bass

SCDNR – Ron Ahle

- Contact Will Graf regarding presentation on CNP inundation model

Theresa Thom/Bill Hulslander

- Develop work plan/framework for addressing floodplain flows request based on interests/objects outlined at 12/19/06 TWC meeting

Shane Boring

NEXT MEETING

February 21, 2007 at 9:30am
Located at the Lake Murray Training Center

MEETING NOTES:

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

Shane Boring of Kleinschmidt Associates opened the meeting at approximately 9:30 PM and noted that the focus of the meeting would be to discuss impacts of project operations on the downstream floodplain and Congaree National Park (CNP), including aquatic resources. Shane explained that the group should first discuss existing information pertaining to inundation in the CNP and then define study request for this committee.

Review of Study Request

Shane noted that the request for floodplain flow evaluations and sediment regime/transport were among the study requests assigned to the Instream Flow/Aquatic Habitat Technical Working committee (TWC) at the May 3, 2006 meeting. Shane noted that in regards to the floodplain flow evaluations, there are a number of recent and ongoing studies that have potential to assist in addressing this issue. It was noted that a literature review of the known studies on the CNP was distributed to the group via e-mail by Theresa Thom on October 11, 2006.

The group then briefly discussed the study entitled *Hydrologic Variation Study of the Congaree River (2005)*, prepared by Tara Plewa and William Graf from the University of South Carolina. The group reviewed figures from the study describing potential influence of flow variations on the Congaree River from the lower Saluda (LSR) and Broad Rivers. Shane pointed out that from a flow standpoint the LSR appears to have a very limited influence on stage in the CNP. Bill Hulslander explained that the effect is during low flows, when little water is coming from the Broad River. He added that during these low flow periods, there may be potential for the LSR (and subsequently the Saluda Project) to help provide inundation at the CNP.

Randy Mahan inquired as to the extent the CNP is influenced by the Wateree River. Several attendees noted that the Wateree does provide a significant amount of flow to the CNP floodplain, but only in the lower portion of the park (i.e. the confluence area) and that a much greater proportion of the floodplain is controlled by the Congaree. As an example, Gerrit provided figures from the Catawba-Wateree inundation model that illustrated how flows from the Wateree River affect floodplain inundation on the CNP (i.e. percent inundation at various flows). Gerrit and others noted that a similar inundation model could assist in addressing the floodplain flows request for Saluda Hydro.

Alan Stuart noted that John Quebman from Kleinschmidt Associates may be able to develop an inundation model, similar to the Catawba-Wateree model, as an extension of the HEC-RAS model being developed for the operations TWC. NPS staff noted that a HEC-RAS-based inundation model has already been developed for the CNP by Dr. Graf at USC. The group agreed that building

on the CNP's existing model would likely be the best approach. Several group members inquired as to whether Dr. Graf would be willing to present the model at a future TWC meeting. CNP staff agreed to contact Dr. Graf regarding this request.

The group decided to dedicate the remainder of the meeting to further refinement of the study objectives. Through an interactive session the group outlined the following interests, information needs, objectives and potential tools that may be used in determining the impacts of project operations on the downstream floodplain and CNP.

Interests

Floodplain Inundation for the Congaree River/CNP

- Duration, timing, magnitude, frequency, rate of change
- Aquatic biota re-nourishment
- Fish/macro spawning, forest ecology, nursery areas, nutrient cycling etc
- Floodplain sediment transport, flushing and geomorphology
- Groundwater effects on the wetland flooding capacity

Objectives

- Determine what percentage of inundation is provided at various flows in the Congaree River
- Evaluate the effects of Saluda Hydro operations on Congaree floodplain (considering lake levels, flow regimes and temperature)
- Develop recommended seasonal alternatives for flow releases from the Saluda Hydro to enhance floodplain function

Information Needs

- Effects of Wateree on CNP inundation
- Relationship of lower Saluda and Broad rivers on the Congaree River
- Lake Marion pool levels
- Effects of Lake Murray elevations and water availability
- Effects of river stage on inundation
- Forest Ecology Study (SREL Study)
- Temperature study of LSR release
- Effects on RT&E species in the CNP
- Effects on the LSR
- Groundwater within the basin
- Basin hydrology (tributaries)

- Historical floodplain levels

Potential Tools to Use

- USC Inundation Model (May 2007)
- DNR fisheries/macro park studies
- Saluda Hydro Operations Model (February 2007)
- Water quality/vegetation studies (CNP)
- Temperature study results of the lower Saluda and Congaree rivers (October 2007)
- Wateree inundation studies
- LIDAR information
- USGS flow data (CNP)
- USGS groundwater study (June 2007)
- SCE&G flyover video of the Lower Saluda and Congaree River
- Savannah River Ecology Laboratory forest ecology study (January 2007)
- Granby Lock removal study
- Jim Bulak's striped bass thesis

Moving Forward

1. Presentation on the USC Inundation Model
    - Capabilities of model
    - Inputs
    - Constraints
    - Assumptions
    - Limitations
    - Capability with other models, such as the HEC-RAS Model
    - Outputs (GIS, etc.)
2. Presentation on striped bass reproduction/floodplain work in the Congaree River
3. Develop draft work plan for group consideration