

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

ATOMIC SAFETY AND LICENSING BOARD PANEL

Before the Licensing Board:

G. Paul Bollwerk, III, Chairman
Nicholas G. Trikouros
Dr. James Jackson

In the Matter of

SOUTHERN NUCLEAR OPERATING CO.

(Early Site Permit for Vogtle ESP Site)

Docket No. 52-011-ESP

ASLBP No. 07-850-01-ESP-BD01

**REBUTTAL TESTIMONY OF DR. SHAWN P. YOUNG CONCERNING
CONTENTION EC 6.0**

Q1. The NRC Staff in the FEIS and in prefiled direct testimony maintains that the impacts of dredging the Savannah River could be moderate. In your opinion, are the effects more likely to be significant or more likely to be moderate?

A1. In my opinion, effects are more likely to be significant.

Q2. Do you agree with Dr. Coutant, in answer 15 of his prefiled direct testimony, that the “impacts of dredging on aquatic life will be localized, temporary and not biologically significant on a broad scale of geography or animal population of the 110 miles of the Savannah River”

A2. No. Even if only one mile of river is dredged, the dredged areas may be hotspots of high abundance for benthic organisms. Plus, the dredging of short reaches of river may change flow velocity or location of the thalweg which in turn may then cause changes in habitat for an

extended reach below the immediate vicinity of dredging. Further, the removal of several hundred trees from the main channel will destabilize benthic substrates, eliminate flow refugia for benthic organisms, and eliminate likely feeding stations for main channel organisms.

Q3. Are there any foreseeable impacts associated with dredging that were not sufficiently addressed in Exhibit SNC000051, Dr. Coutant's report analyzing the impacts of dredging the Federal navigation channel?

A3. Yes, I believe the extensive removal of main channel trees and woody structure was not sufficiently addressed. Dr. Coutant only discussed the positive aspect of keeping the trees within the river. However, Dr. Coutant failed to identify the negative effects of removing the trees from the main channel to begin with, which are potentially significant.

Q4. According to Dr. Coutant's report, "A total of 180 trees and 277 snags were located for removal and identified by tenth of river mile." Does the report adequately address the impacts associated with removal or relocation of snags and woody debris?

A4. No. The removal of 350+ trees from the main channel is a very important but overlooked aspect of the Southeast Marine report. Dr. Coutant attempts to reduce this significance by stating trees will simply be repositioned in shallow habitats along the river banks. I acknowledge this would allow for continued nutrient input important to aquatic ecosystems and may increase habitat for shallow water species; however, Dr. Coutant fails to address the importance of large woody structure to the main channel aquatic habitat. The large trees provide benthic substrate stability, provide flow refugia for benthic organisms, and as stated by Dr. Coutant host a large percent of aquatic invertebrate biomass, concentrating food items for fish species. The loss or disruption of benthic substrates and flow refugia would be detrimental to

freshwater mussels and benthic fishes, and loss of concentrated prey items would be detrimental to main channel fishes.

Q5. Did Dr. Coutant adequately address potential impacts of mussel populations given the 2007 report by Savidge regarding the mussel populations in the Savannah River?

A5. No. Dr. Coutant does not address or even acknowledge the Savidge study of the *Savannah River*. NRC000005. Remarkably, Dr. Coutant relies on a study of the Pee Dee River by the same group of researchers (Savidge 2006).

Q6. In your opinion, was Dr. Coutant correct to rely on the Pee Dee River study instead of the Savannah River Study?

A6. In my opinion, Dr. Coutant is incorrect to extrapolate from a study of the Pee Dee River, especially in light of the fact that the same group of researchers also studied the Savannah River. The Pee Dee River study may be useful to augment data collected from the Savannah River, but Dr. Coutant is mistaken to rely heavily on the study of the Pee Dee River without mention of the Savannah River study.

Q7. In your opinion, what is the significance of Savidge's Savannah River study?

A7. The Savannah River study by Savidge is the most recent information available about the mussel species of the Savannah River. Savidge sampled at 39 sites between Augusta and Savannah, which includes the Vogtle site and the stretch of river to be dredged for construction of Units 3 and 4. Based on the Savidge study, there are 14 mussel species listed as species of concern, threatened, or endangered by South Carolina, the United States Fish and Wildlife Service, or scientists. . Even limited dredging and the large scale wood removal may affect those vulnerable species. Further, no discussion of translocation of mussels from proposed dredging

areas was offered. It is remarkable that Dr. Coutant would not mention a 2007 study from the same area of the Savannah River as the contemplated dredging.

Q8. If Southern’s witnesses are correct that only 8 sites comprising less than one mile of dredging, would you still be concerned with impacts to mussels.

A8. Yes, I would still be concerned because Savidge found rare, threatened, or endangered mussels at sample sites that were relatively close to where dredging will occur. In particular, proposed dredging sites at River Mile 51.3 and 121.6. Also, I would be concerned because most of the dredging sites identified are not close by one of Savidge’s survey sites and have not been surveyed recently.

Q9. According to Dr. Coutant’s report, the robust redhorse “has not been identified from the reach of the Savannah River where the dredging is proposed.” Is this accurate?

A9. No. In a telemetry study conducted to determine habitat use and distribution of robust redhorse, of which I participated in personally, robust redhorse were located as far downriver as RM 73 during summer, fall, and winter (NRC000017).

Q10. Are the studies that have been cited thus far sufficient? In your opinion, are more studies necessary to determine the likely effects in the aquatic environment?

A10. No, the studies cited are not sufficient. More studies are necessary. Mussel and fish surveys should be undertaken at the proposed dredging and tree removal sites. Studies using experimental design should compare species composition and abundance near trees/woody structure versus habitat with no trees to determine importance of trees/wood.

In accordance with 28 U.S.C. § 1746, I state under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Executed on February 6, 2009.

Executed in Accord with 10 C.F.R. 2.304(d)
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