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# Pacific Northwest National Laboratory

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May 22, 2006

Ms. Sally Adams  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
11555 Rockville Pike, Mail Stop O12 E5  
Rockville, MD 20852

Dear Ms. Adams:

**Subject: Government and Public Meetings Trip Summary Report (JCN J-3012, Task No. 13)**

PNNL has completed a summary report of the trip conducted May 8 through 11 in support of the anticipated application from Southern Nuclear Operating Company for an Early Site Permit at the Vogtle Site near Waynesboro, GA. The purposes of this trip included: 1) meetings with federal, state, and local government agencies to lay the groundwork for future interactions during the ESP NEPA process, 2) attend a public information meeting designed to inform the public of the upcoming application and answer questions concerning the application and the ESP review process, and 3) meet with applicant representatives to discuss the status of various portions of the application package.

Please see the enclosed hard copy of this report. An electronic copy has been transmitted directly to the Environmental Program Manager, Mr. Mark Notich.

Please contact me at 509-376-2554 (email: [michael.sackschewsky@pnl.gov](mailto:michael.sackschewsky@pnl.gov)) if you have any questions or comments.

Sincerely,



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cc: Van Ramsdell, PNNL, K3-55  
Mark Notich, NRC O11 F1

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## **Trip Summary**

### **Vogtle / Southern Nuclear Operating Company Early Site Permit**

### **Pre-Application Site Visit, Initiation of Government Interactions, and Public Outreach Meeting**

**May 8 through 11, 2006**

**May 8, 2006**

#### **Georgia Department of Natural Resources, Environmental Protection Division Atlanta, GA**

Attendees: Mark Notich, Christian Araguas, James Wilson, Kendra Klump (NRC)  
Mike Sackschewsky, Christopher Cook (PNNL)  
Sabrina Glenn, Renee Hurson Goodley, Joe Kane, Jeff Larson, Christine Voudy  
(GADNR-EPD)

The NRC staff and its consultants from the Pacific Northwest National Laboratory (PNNL) met with staff from the Georgia Department of Natural Resources, Environmental Protection Division (EPD). The meeting concerned the anticipated ESP application from the Southern Nuclear Company (SNC) to construct new nuclear reactors on the existing Vogtle Site.

During this meeting, NRC staff briefed EPD on the new reactor licensing process. Both the ESP and COL process were discussed. In addition, EPD was notified of the upcoming public meeting on May 11.

EPD staff discussed permits obtained for the operation of the existing Plant Vogtle reactors. EPD staff distributed a list of the approximately 14 permits that SNC holds for the existing units at Vogtle, which includes three separate NPDES permits, public water supply systems, hazardous materials certificates, ground water use, and solid waste collection and handling. A point of contact for each permit was provided.

EPD staff discussed two potential issues that the applicant must contend with before new permits for the ESP units could be awarded. The first issue regards future withdrawals of groundwater from the aquifer beneath the site (Florida Aquifer). At present, a moratorium has been placed on any new withdrawals from the aquifer, which impacts the entire Burke County. It is unclear how long this moratorium will be in place, although resolution is expected to be resolved near the end of 2006. The second issue regards placement of the Savannah River near the Vogtle site on the 303d list. Specifically, dissolved oxygen levels in the river are suppressed, which may be an impediment to obtaining additional discharge permits for the ESP units.

The EPD staff indicated that approximately 6 months would be required to work through the new permit applications, but it could be longer if a hearing is required. The EPD has its own public hearing process, and there is a 30 day period for public comments on draft permits.

May 9, 2006

**Georgia State Historic Preservation Officer  
Atlanta, GA**

Attendees: Jennifer Davis (NRC)  
Darby Stapp (PNNL)  
W. Ray Luce (GA SHPO Division Director), Dr. Karen Anderson-Cordova (Planning and Local Assistance), Steven Moffson (Architectural Historian), Robert Entorf (Review Archaeologist), and Michelle Volema (Environmental Review Specialist). Moffson is the NRC coordinator.

Jennifer Davis began by explaining the proposed action, construction and operation of two new units at Vogtle power plant and that we would be integrating the NHPA Section 106 process with NEPA, as allowed under 800.8(c). Ms. Anderson-Cordova mentioned that they prefer to do straight 106, that they often don't get the information required when people try to only do NEPA. Ms. Davis said we need to do NEPA integration, but would make sure that they get the information required. Mr. Luce said regardless of the approach used, there were five main questions that needed to be addressed:

- Is the Area of Potential Effect correct?
- Are there resources there?
- Will there be an effect on National Register eligible properties?
- Will there be an adverse effect?
- If there is an adverse effect, have all avoidance measures been taken?

They need 75 days to review the draft EIS.

The staff mentioned that when a review comes in, they send it to the archaeology division and the above ground division for review. They want to see enough information to understand how the Area of Potential Effect was determined. In terms of records, above ground resources are in Atlanta; archaeological records are in Athens at the University. The Keeper of the archaeological files is Dr. Mark Williams at UGA.

Mr. Moffson indicated that they would be concerned about visual impacts from tall structures such as cooling towers, but also indicated that if there were existing towers, the setting would have already been diminished, and so the effect would likely not be adverse.

We talked about consultation with tribes and interested parties. Mr. Moffson will provide the names and addresses of the tribes we need to consult with. They also referred to a state council of tribes that we might want to contact, though consulting on individual projects is not the function of the council. They suggested we get "Grave Intentions," which has a lot of information about Georgia Burial laws. They suggested we contact Chris Hamilton at Fort Benning, who has done a lot of tribal consultation.

They also mentioned an archaeological group that has an Augusta chapter, which might want to provide input.

Stephen Moffson expressed interest in going out on a site tour when NRC does the site audit.

**May 10 and 11, 2006**

**Vogtle Site, Waynesboro, GA**

Meetings were held on May 10 and 11 at the Vogtle Site with staff from NRC, PNNL, SNC and it's contractors, and, on May 11, between the NRC staff the US Fish and Wildlife Service.

**Socio-Economic Issues**

Attendees: Christina Guerrero (NRC)  
Katherine Cort (PNNL)  
Karen Patterson (Tetra Tech)

The attendees discussed some of the pitfalls other applicants had run into completing the socio-economic portions of the Environmental Review, which primarily included such things as:

- Not providing data to back-up claims, conclusions, and generalizations
- Not fully explaining and providing data on tax revenue/tax payment structure
- Not fully documenting data sources and interviews
- Incomplete discussions of potable water sources, environmental justice issues, and characteristics of current plant employee housing situation.

Ms. Guerrero and Ms. Cort provided the general advice that. . . "When in doubt, keep in mind the intent of the regulation behind the application/ER such that the Environmental Review provides the readers with more answers than questions."

It appeared that Tetrattech/Southern Co. were on the right track as far as gathering data in the socio-economic area. Tax and water data has been particularly difficult to track down due to lack of data and/or cooperation from local officials. Burke County is relatively poor, rural, and predominantly Black/African-American; however, there appears to be no EJ issues identified that would disproportionately negatively impact these populations.

Ms. Cort made additional contacts during the Open House and Public meeting held the evening of May 11 in Waynesboro, including:

- Wilbert Roberts, Principal local elementary school
- Linda S. Bailey, Superintendent of Burke County Schools (lsbailey@burke.K12.ga.us, (706)554-5101)
- Ashley B. Long, Burke County Chamber of Commerce (burkechamber@roelco.net, 706-554-5451)

Some general points that were brought up about the local community and schools:

- Burke County Chamber of Commerce is very supportive of plant expansion and depends on the in-flow of income to the community supported by the plant both in terms of employees living in community, community service donations provided by

- plant, and plant property taxes paid to Burke County.
- Other than plant, the county relies on agriculture (some peanut farming and cotton, cattle feedlots), and manufacturing (batteries, lint brushes, cotton goods)
- Relatively few engineers from the Vogtle plant actually live in Waynesboro, which is in Burke County and is one of the closest communities to the plant.
- 85% of school district funding is attributed to tax revenue generated on the value of the Vogtle site & facilities
- Roughly 70% of schools are Black/African American and 30% Caucasian
- 80% of school students qualify for subsidized lunches
- Schools have an 18 student to 1 teacher ratio and most all elementary classrooms have a full-time teachers aid available
- Waynesboro has 2 elementary schools, a middle school, and a high school
- Schools have won numerous academic awards and have consistent results throughout the County.

### **Cultural / Archeological Issues**

Attendees: Jennifer Davis (NRC)  
 Darby Stapp (PNNL)  
 Natalie Adams (New South Associates)

Natalie Adams, from New South Associates (an SNC consultant) described surveys she and her crew have done within the Vogtle Site, the resources that have been found, and her opinion on whether or not they are eligible for the National Register of Historic Places. Ms. Adams then took Mr. Stapp and Ms. Davis on an archaeological tour of the plant. There are two primary areas of high significance located near the proposed water intake. One area is a bench near the shoreline that has prehistoric resources going back several thousand years. Looters have been digging at this site. The other site is along the ridge above the river where shovel tests have found artifacts scattered over a relatively large area. Some historic sites were located within the plant boundaries, but these do not appear to be significant. The Topper Site, a site that is purported to be the oldest site in North America, is located across the river 10 miles downstream.

New South Associates is preparing a report that will be form the basis for the archeological discussions in the ER. SNC is currently using the ESRP (NUREG 1555) as the basis for the ER. SNC has recently contacted the state SHPO to obtain a project number.

### **Meteorological Issues**

Attendees: Amy Aughtman (SNC) (5/10)  
 Jeremy Rishel (PNNL)  
 Andy Kugler (NRC) (5/11)  
 Mark Abrams (ABS Consulting) (5/11)

On May 10, Vogtle's meteorological monitoring procedure "Meteorological Tower Monitoring and Data Control" (Procedure Number 36030-C, Rev 17) was reveiwed. This document has been made available to the NRC (Mark Notich). Ms. Aughtman indicated that the procedure

was currently under revision and would soon be updated to reflect how meteorological data are currently stored at the site (i.e., digital versus paper strip charts).

There are two meteorological towers operating at Vogtle: the primary, 60-meter tower and a backup, 45-meter tower. The 60-meter tower is instrumented at 10 meters and 60 meters; the 45-meter tower is instrumented at 10 meters and 45 meters. Measured quantities include temperature (at both heights), wind speed and direction (at both heights), and humidity (at the 10-meter height, only). Instrumentation are calibrated semi-annually according to the site procedure.

During this meeting, Ms. Aughtman also identified where the proposed cooling towers would be located in relation to the existing meteorological observation towers. Two, 600-foot tall cooling towers would be located approximately 3,000 feet north of the existing meteorological towers. As detailed in NRC guidance NUREG-1555, the existing meteorological tower would be well within the "ten obstruction heights of a major obstruction", and therefore further analysis would have to be performed to see if the proposed cooling towers would modify the measured winds at the existing meteorological tower site.

On May 11, Mr. Rishel and Mr. Kugler met with Mark Abrahms of ABS Consulting. Mr. Abrams does a lot of meteorological contract work for Southern Company and will be performing modeling to determine if the proposed cooling towers will affect the measured winds. Mr. Abrams did not indicate what model will be used to conduct this analysis, but did say that it was a potential flow model that accounts for local terrain and individual structural elements.

They also discussed a potential issue with plume visibility analysis, which requires atmospheric moisture at height(s) representative of water-vapor releases (NUREG 1555). The highest, routinely available atmospheric moisture measurement is at the 10-meter height on the existing tower and is not nearly as high as the proposed height of discharge (600 feet). Mr. Abrams mentioned that Savannah River Site has tower data that may be used as a surrogate because they have atmospheric moisture data available up to the 100-meter level.

In the afternoon, Mr. Rishel and Mr. Kugler visited the existing meteorological monitoring tower site with Amy Aughtman (Southern Company), Michael Wright (Southern Company), and Mark Abrams, (ABS Consulting). Michael Wright is a Nuclear Specialist at Vogtle but also oversees the meteorological surveillance at the Vogtle site. The existing observation location is well-suited for current measurements and is a large, grassy area, with trees and shrubs well off in the distance. Observations are stored on computers housed in a shed near the towers and are made available to the plant network.

The group then visited two proposed locations where the meteorological towers could be situated if the new cooling towers were found to affect wind measurements. One site is preferred because it already has power and is at a similar elevation as the existing site. However, it would need some tree clearing so that wind measurements would not be obstructed by the local environment. The second site is generally clear, but has no power. In addition, Mr. Rishel noted that this site may be less than optimal because it is situated lower than the existing tower network and the Vogtle facility in general.

## **Hydrological and Water Quality Issues**

Attendees: James Wilson (NRC)  
Mark Notich (NRC)  
Christopher Cook (PNNL)  
Tom Moorer (SNC)  
Jon Cudworth (Tetra Tech)

During the May 10 meeting, SNC staff and their consultants discussed the status of the application and ongoing technical work to complete the ESP application. Hydrology related information concerned location of the new intake, upgrades to the existing barge dock, and location of the new discharge outlet. SNC staff are engaged in discussions with the USACE Savannah River District regarding future minimum releases from dams upstream of the Plant Vogtle Site, three separate 404 permits, and a Section 10 permit. SNC staff provided the number (021973269) of the USGS gage that was recently installed near the plant intake structure. The gage reports water surface elevation. At present there may be a datum elevation error with preliminary values displayed on the USGS web site. The USGS have been notified by SNC staff of the datum elevation error.

A tour of the Plant Vogtle site was provided by SNC staff. The tour included the existing intake structure, existing and proposed discharge locations, proposed location of the new reactor containment structures and cooling towers, Mallard's Pond north of the containment structures, proposed laydown yards for construction, and the location of the proposed cooling towers.

## **Ecological Issues**

### **May 10**

Attendees: Mike Sackschewsky (PNNL)  
Amy Aughtman (SNC)  
Karen Patterson (Tetra Tech)

Mr. Sackschewsky had a set of questions concerning ecological resources at the Vogtle site and the SNC policies and procedures regarding these resources.

Migratory birds - Georgia Power has procedures for reporting bird collision events, and they can probably find records if needed. There are transmission bulletins that provide directions for dealing with nests on transmission towers. They have had some problems with swallows in the past; in general they protect nests when eggs or young are present. The Vogtle site is not located in a significant or unusual flyway, although there was one event when individuals of several species of vireo were found dead at the cooling towers.

Area of disturbance - it appears that approximately 750 to 800 acres will be disturbed during construction of Units 3 and 4, including the borrow areas, spoil piles, and temporary use areas. They will develop a sediment and erosion control plan prior to construction, probably as part of the individual storm water permit that they would need from the state. They will have a site redress plan, although they do not know what the proposed end-state would be; the on-going trend is to reintroduce long-leaf pine. The existing rail system will be adequate to support construction, it was recently upgraded to bring in new transformers to the site. The rail line will be used to deliver aggregate and other bulk materials to the site.

Noise - SNC has not done a noise analysis of the existing units, but there is very little actual "habitat" within many hundreds of meters of the power block or tower. Once the site is fully cleared, the same will be true of the new units. SNC will be using standard values derived from the literature for noise impacts during construction.

Salt deposition will be less than 2.5 pounds/acre at approximately 3500 feet from the cooling towers, this estimate includes the existing towers. There is no crop land or unusually sensitive vegetation in the area. Fogging will be greatest along the river, cooling tower-induced fogging will increase only a couple of days a year.

The only wildlife refuge in the area is the Yuchi Wildlife Management Area just south of the site and a couple of designated wildlife areas on the Savannah River Site. There are shad runs in the river, there has been some ongoing work to restore the fishery.

There are no rare mussels in the river. There are asiatic clams, but the plant has not had a significant problem with them. Chlorine or Bromine is added to the circulating water to control algal growth in the towers and condenser. The water is dechlorinated prior to discharge.

The effluent will be a bit warmer than ambient river water, with a plume at worst case approximately 300 feet long and 50 feet wide. This is not likely to block fish migration. There are no known nuisance aquatic plants or animals that could increase due to the heated effluent. The condenser and other portions of the cooling system will not contain copper.

T&E Species - One of the existing transmission lines goes near a wood stork rookery. SNC is entering into a safe harbor agreement with Georgia DNR for the red-cockaded woodpecker at Vogtle, even though it is currently not known to occur in the area. The shortnose sturgeon is believed to spawn upstream of the Vogtle site, and Savannah River Site studies have found some larvae and eggs. SNC has not made contact with National Marine Fisheries Service regarding the Vogtle ESP.

SNC commissioned a terrestrial T&E species survey of the site and existing transmission corridors, but has not performed any new aquatic ecological monitoring or inventories. The ER will be based on SRS data collected over the last 20 to 30 years. SNC currently does not plan to perform any additional pre-application, construction, or operational ecological monitoring.

#### **May 11**

Attendees      Mark Notich, James Wilson, Christina Guerrero (NRC)  
                      Strant Colwell, Rebecca Schapansky (USFWS)  
                      Mike Sackschewsky (PNNL)

Mr. Colwell and Ms. Schapansky participated in a general site tour with the NRC, and then met briefly to discuss the FWS interactions and involvement in the ESP application review.

The initial species list request letter should go to the Brunswick, GA ecological services office, and should request information for Vogtle and all 3 of the alternate sites. The request should be cc'd to the Daphne Office in Alabama. At least for Georgia, they will simply direct us to their web site for the county T&E species lists.

The Brunswick office has access to eagle and wood stork nesting data that is updated at least yearly, so FWS can provide fairly detailed information about these species. Data for other

species are more sporadic, so in general only the county level information will be available. For analysis they will expect to see evaluations and surveys for all species on the county lists. The county lists include both the known and potential species.

They will also be concerned about wetlands, and will probably see permits from the Corps. They will look to minimize wetland impacts. Bird collisions are probably not a major concern; they have been reviewing a lot of cell towers and other structures with guy-wires that are of much greater concern to the FWS.

Ms Schapansky is leaving the FWS in June 2006, so there will be a different contact established for the Vogtle ESP.

**May 11**  
**General Site Tour**

SNC provided a site overview and bus tour for a large contingent of NRC staff, PNNL staff, and others. A couple of points raised include:

SNC expects a 40% increase in electrical demand in GA by 2030. This will require the addition of approximately 400 MW of new generation capacity every year in Georgia (and approximately 800 MW yearly addition throughout the Southern Co. service region. This translates into the addition of approximately one new large-scale generating plant every year.

The excavation for the new units will require the removal of approximately four million cubic yards of material. It will be over 2100 feet long, nearly 800 feet wide, and initially will be approximately 100 feet deep to reach the load-bearing Blue Bluff marl layer. They will then fill the hole with approximately 60 feet of seismic fill before starting to pour concrete.

Seismic surveys indicated that the inactive Pen Branch fault is located to the west of the power block area.