From: "Moorer, Tom C." <TCMOORER@southernco.com>
To: "Mark Notich" <mdn@nrc.gov>
Date: 7/31/2007 7:44:18 PM
Subject: ALTERNATE SITE REVIEWSUMMARY1.doc
cc: "Michael R Sackschewsky" <michael.sackschewsky@pnl.gov>

<<ALTERNATE SITE REVIEWSUMMARY1.doc>>

Mark:

Please find attached an advance copy of the requested document for your use. The final document will be provided by letter to NRC consistent with SNC policy. I will contact you tomorrow to discuss. I will be out until approximately 1200 tomorrow, but will call as soon as I can. I hope this provides what you need. Please call if you have questions.

TCM

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SUMMARY
Description of SNC Selection process for Candidate Sites to Support Environmental Report Chapter 9 Alternate Site Selection

DRAFT

Background

Chapter 9 of the Environmental Report (ER) submitted in support of the Vogtle early Site permit (ESP) application provides a discussion of alternatives to the proposed action described in the application. Specifically, Chapter 9 requires presentation of the bases for the applicant's choice of the proposed site and the use of nuclear power technology over the available alternate sites and energy technologies. Chapter 9 presents a discussion of the range of practical alternatives and the considerations and rationale that led to the final site and technology selection. Two classes of alternatives are discussed: those that can meet the power demand without the creation of new generating capacity and those that require the addition of new generating capacity. The following paragraphs briefly describe the process used by Southern Nuclear to identify potential sites and screen them to develop the final candidate site list.

The Southern Nuclear Process

Regulatory Guide 4.2 in Section 9.2-1 provides guidance for the selection of candidate sites in the region of interest available to the applicant to provide a reasonable number of realistic siting options. The applicant must first identify potential sites within the region of interest to support a preliminary assessment to establish a list of candidate sites. The candidate sites are sites that that are suitable for evaluation and have the potential to licensable and capable of being developed. Regulatory Guide 4.7 "General Site Suitability Criteria for Nuclear Power Stations" provides guidance on selection of potential sites. The applicant is directed to place primary reliance on existing, published materials and reconnaissance level information during the section of potential and candidate sites.

Chapter 9 in the Vogtle ESP ER describes the alternatives to construction and operation of new nuclear units with closed cycle cooling at the existing Vogtle Electric generating Plant (a two unit Westinghouse PWR with closed cycle cooling located on a 3169 acre site in Burke County Georgia). The ER addresses the alternative site selection process in section 9.3, beginning on page 9.3-1. NEPA mandates that reasonable alternatives to the action be evaluated. Consistent with this requirement, the SNC site selection process focused on those alternative sites that are considered to be reasonable with respect to being licensable and capable of being developed. SNC notes that the traditional way of conducting alternate site reviews has changed, since existing nuclear sites capable of supporting additional units can now be included in the candidate site list. These sites provide many years of construction and operational experience relative to the impacts of nuclear power plants on the environment. These sites are licensed by NRC and the impacts of their construction and operation are well documented. In NUREG 1555

Section 9.3(iii) (b), NRC recognizes "that there will be special cases in which the proposed site was not selected on the basis of a systematic site selection process. Examples include plants proposed to be constructed on the site of an existing nuclear power plant previously found acceptable on the basis of a NEPA review and/or demonstrated to be environmentally satisfactory on a basis of operating experience , and sites assigned or allocated to an applicant by a State government from a list of State-approved power plant sites. For such cases, the reviewer should analyze the applicant's site selection process only as it applies to candidate sites other than the proposed site, and the site-comparison process may be restricted to a site-by-site comparison of these candidates with the proposed site. As a corollary, all nuclear plant sites within the identified relevant service area having an operating nuclear power plant or a construction permit issued by NRC should be compared with the applicants proposed site."

SNC relied on this special case noted in NUREG -1555 and took advantage of the existing nuclear facilities within the relevant service area that have been previously reviewed by NRC and found to be suitable for construction and operation of a nuclear power plant. The prior review process for these plants also included an alternate site analysis. The candidate screening process used by SNC included two basic steps. SNC identified all sites in the relevant service area with existing units relatively the same size or larger than the proposed AP-1000 units, available land area consistent with proposed site, and available cooling water. The potential site list was developed from plants meeting these criteria and included large pulverized coal plants and nuclear plants in Georgia and Alabama. The review included:

Alabama	Georgia
Plant Barry (coal)	Plant Bowen (coal)
Plant Gaston (coal)	Plant Branch (coal)
Plant Gorgas (coal)	Plant Hammond (coal)
Plant Greene County (coal)	Plant Scherer (coal
Plant Miller (coal)	Plant Hatch (nuclear)
Plant Farley (nuclear)	Plant Vogtle (nuclear)
Plant Barton (nuclear greenfield)	

NUREG -1555 provides that the region of interest includes the state where the candidate site is located, so that alternative sites may be considered for review. Since Southern Company has generating facilities in four states; Alabama, Georgia, a small part of Mississippi, and the panhandle of Florida. There were no facilities in Florida or Mississippi that met the requirements for the potential site list, so the region of interest was narrowed to Alabama and Georgia. During the initial review of potential sites, SNC determined that the advantages of co-locating the new facility with an existing nuclear power facility outweighed the advantages of any other siting alternative.

- Co-located nuclear sites offer distinct advantages in existing infrastructure and support facilities.
- The environmental impacts of an existing nuclear facility are known and the impacts of a co-located new facility should be comparable to those of the operating nuclear plant.

- Site physical criteria, primarily geologic/seismic suitability have been characterized at existing sites and these factors are very important in determining site suitability.
- Transmission is available and the existing sites have nearby markets.
- Existing nuclear sites have local support and the availability of experienced personnel.

Other advantages of co-locating with an existing nuclear facility include:

- The total number of required generating sites is reduced
- Construction of new transmission corridors would be minimized due to potential for use of existing corridors
- No additional land acquisition is normally necessary
- The site has already been through the NEPA alternatives analysis process
- Site development costs and environmental impact of any preconstruction activities are reduced
- Construction, installation, and operation and maintenance costs are reduced because of existing site infrastructure.

Based on the above information, the coal sites were eliminated in favor of available existing nuclear sites suitable for co-location of additional units.
Two nuclear facilities owned by the Tennessee Valley Authority, Browns Ferry and Watts Bar are located in North Alabama outside of the relevant service area. Also, the Savannah River Site (SRS) is located directly across the Savannah River from the Vogtle site in South Carolina. It is also outside the relevant service area. These facilities are operated by quasi-government agencies and present a number of problems as alternate sites. SNC considered these facilities but concluded that existing facilities in the region of interest where SNC could obtain access and control were preferred over other sites. The two TVA facilities and SRS were eliminated as potential sites.

Within the region of interest, SNC considered the three existing Southern Company nuclear sites with currently licensed, operating plants as candidate sites. In addition, SNC included an undeveloped (greenfield) site in central Alabama that was evaluated as a four unit nuclear site in the 1970s. The evaluation included development of a Preliminary Safety Analysis Report (PSAR) and most of the environmental work. The candidate site facilities selected by SNC are:

- Joseph M. Farley Nuclear Plant
- Edwin I. Hatch Nuclear Plant
- Vogtle Electric Generating Plant
- Barton Site (greenfield)

The review of the candidate sites begins in Section 9.3.3 located on page 9.3-3.