

April 10, 2007

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
)
DOMINION NUCLEAR NORTH ANNA, LLC) Docket No. 52-008-ESP
)
(Early Site Permit for North Anna ESP Site))

PREFILED DIRECT TESTIMONY OF GEORGE F. WUNDER ON
HEALTH AND SAFETY ISSUES IN THE NORTH ANNA ESP PROCEEDING

Q1. Please state your name and job title.

A1. George F. Wunder. I am a Senior Project Manager in the Nuclear Regulatory Commission's ("NRC"), Office of New Reactors ("NRO"), Division of New Reactor Licensing ("DNRL").

Q2. Please describe your responsibilities in connection with the Staff's review of the North Anna early site permit application.

A2. I am the NRC Project Manager for the health and safety review of the Dominion Nuclear North Anna, LLC ("Dominion" or "Applicant") application for an early site permit ("ESP") at the North Anna ESP Site near Mineral, Virginia. I took over project management responsibilities in December 2006, following issuance of NUREG-1835, the "Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site," dated September 2005 ("FSER"), and Supplement 1 to NUREG-1835, dated November 2006 ("FSER Supplement"). I have been responsible for project management activities with respect to the FSER since that time.

Q3. In that capacity, do you hereby sponsor the introduction of the FSER into the record of this proceeding?

A3. I do.

Q4. In that capacity, do you hereby sponsor the introduction of the FSER Supplement into the record of this proceeding?

A4. I do.

Q5. Please briefly describe the Staff's approach to the safety review of the North Anna ESP application.

A5. With respect to the chronology of the Staff's health and safety review, the Staff evaluated the ESP application and issued its draft Safety Evaluation Report on December 20, 2004, followed by issuance of the FSER (NUREG-1835), dated September 2005. The FSER included the Staff's review of the application, originally submitted on September 25, 2003, through Revision 5, dated July 25, 2005. Subsequently, based on Dominion's revisions of its application, through Revision 9 (dated September 12, 2006), which involved a new approach for cooling the proposed Unit 3, a change in the maximum power level of both proposed Units 3 and 4, and a reduction in the bounding value for tritium release, the Staff re-evaluated the safety aspects of the application with these changes and documented its conclusions in the FSER Supplement. The NRC's Advisory Committee on Reactor Safeguards ("ACRS") reviewed the bases for the Staff's conclusions in both the FSER and FSER Supplement, independently reviewed those aspects of the application that concerned safety, and provided the results of its review to the Commission in final reports dated July 18, 2005, and October 13, 2006 (for the FSER and FSER Supplement, respectively).

The Staff completed its review of the ESP application (including the Applicant's site safety analysis report, or "SSAR") in the areas of seismology, geology, meteorology, and hydrology, as well as in the area of hazards to a nuclear power plant that could result from manmade facilities and activities on or in the vicinity of the site. The Staff also assessed the risks of potential accidents that could occur as a result of the operation of a nuclear plant or plants at the site and evaluated whether the site could support adequate physical security

measures for a nuclear power plant or plants. The Staff evaluated whether the Applicant's quality assurance measures are equivalent in substance to the measures discussed in Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants to Title 10, Part 50, "Domestic Licensing of Production and Utilization Facilities," of the *Code of Federal Regulations* (10 C.F.R. pt. 50 App. B). The NRC has found that such measures provide reasonable assurance that information derived from ESP activities that would be used in the design and/or construction of structures, systems, and components ("SSCs") important to safety would support satisfactory performance of such SSCs once in service. Finally, the Staff reviewed the proposed major features of the emergency plans that Dominion would implement if a new reactor(s) is eventually constructed at the ESP site. The NRC would need to review the complete and integrated emergency plans in a separate licensing proceeding.

In sum, the FSER delineates the scope of technical matters the Staff considered in evaluating the suitability of the site. NRR Review Standard (RS)-002, "Processing Applications for Early Site Permits," issued May 2004, provides additional details on the scope and bases of the Staff's review of the radiological safety and emergency planning aspects of a proposed nuclear power plant site. This review standard contains regulatory guidance based on NUREG-0800, "Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants," Revision 3, issued July 1981 (hereinafter referred to as the "Standard Review Plan"). The Standard Review Plan reflects the many years of experience the Staff has had in establishing and promulgating guidance to enhance the safety of nuclear facilities, as well as in evaluating safety assessments. Because numerous sections and chapters in the Standard Review Plan are not within the scope of or addressed in an ESP proceeding, the subjects of chapters and sections in the Standard Review Plan that are not addressed in the North Anna FSER will be addressed, as appropriate and applicable, in the course of the Staff's review of

other regulatory actions (design certification, construction permit (“CP”), operating license, and/or combined license (“COL”)) for a reactor or reactors that might be constructed on the North Anna ESP site.

In its SSAR, Dominion provided a list of postulated design parameters, referred to as the plant parameter envelope (“PPE”). The regulations in Part 52 do not require an ESP applicant to provide specific design information. A PPE is a set of values of plant design parameters that an ESP applicant expects would bound the design characteristics of the reactor or reactors that might be constructed at a given site. The PPE values are surrogates for actual reactor design information. The Staff reviewed the Applicant’s PPE values and agreed that these values were not unreasonable for a reactor that might be constructed on the proposed ESP site. In doing so, the Staff identified certain PPE values as bounding parameters or controlling PPE values; a controlling PPE value necessarily depends on a site characteristic. The PPE is intended to bound multiple reactor designs, so the actual design selected in a COL or CP application referencing any ESP that might be issued in connection with this application would be reviewed to ensure that the design fits within the bounding parameter values. FSER at 1-5, 1-6.

On the basis of its evaluation and independent analyses, and subject to certain limitations and conditions proposed in the FSER for inclusion in any ESP that might be issued, the Staff concludes that North Anna ESP site characteristics comply with the requirements of 10 C.F.R. Part 100; that, taking into consideration the site criteria contained in Part 100, a reactor, or reactors, having characteristics that fall within the parameters for this site, can be constructed and operated without undue risk to the health and safety of the public; and that issuance of the ESP will not be inimical to the common defense and security or to the health and safety of the public. FSER Supplement 1 at 19-1. The permit conditions proposed by the

Staff addressed a range of issues, including exclusion area control and site redress plan implementation; hydrology; and geology, seismology, and geotechnical engineering. FSER Supplement 1, at A-2 to A-3.