

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA ESP SITE

DOCKET NO. 52-008

EARLY SITE PERMIT

Amendment No. 3  
Early Site Permit No. ESP-003

1. The U.S. Nuclear Regulatory Commission (NRC) or the Commission has found that:
  - A. The application for amendment by Virginia Electric and Power Company, doing business as Dominion Virginia Power (DVP) and Old Dominion Electric Cooperative, (the permit holders) dated March 1, 2012, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The permit holder will conduct Early Site Permit (ESP) activities in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this ESP amendment will not be inimical to the common defense and security or the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the ESP is amended as indicated in the attachment to this amendment.

3. The ESP amendment is effective as of its date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Hossein Hamzehee, Chief  
Licensing Branch 2  
Division of New Reactor Licensing  
Office of New Reactors

Attachment: Changes to ESP No. ESP-003

Date of Issuance: January 30, 2013

ATTACHMENT TO ESP AMENDMENT NO. 3

EARLY SITE PERMIT NO. ESP-003

DOCKET NO. 52-008

Replace the following pages of the Early Site Permit No. ESP-003 with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove

1  
2  
3  
4  
5  
E-2  
E-3  
E-8

Insert

1  
2  
3  
4  
5  
E-2  
E-3  
E-8

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA ESP SITE

DOCKET NO. 52-008

EARLY SITE PERMIT

Early Site Permit No. ESP-003

1. The U.S. Nuclear Regulatory Commission (the NRC or the Commission) has found the following:
  - A. The application for an early site permit (ESP) complies with the applicable requirements of the Atomic Energy Act of 1954, as amended, and the applicable rules and regulations of the Commission, and all required notifications to other agencies or bodies have been duly made.
  - B. Based on consideration of the site criteria contained in Title 10, Part 100, "Reactor Site Criteria," of the *Code of Federal Regulations* (10 CFR Part 100), a reactor, or reactors, having design characteristics that fall within the site characteristics and controlling parameters of the North Anna ESP Site can be constructed and operated without undue risk to the health and safety of the public.
  - C. There is reasonable assurance that the permit holder will comply with the regulations in 10 CFR Chapter I and the health and safety of the public will not be endangered.
  - D. Issuance of an ESP to the permit holder will not be inimical to the common defense and security or the health and safety of the public.
  - E. There is no significant impediment to the development of emergency plans, as referenced in 10 CFR 52.17(b)(1), "Contents of Applications," and 10 CFR 52.18, "Standards for Review of Applications." The descriptions of contacts and arrangements made with Federal, State, and local governmental agencies with emergency planning responsibilities, as set forth in 10 CFR 52.17(b)(3), are acceptable. Major features A, B, C, D, E, F, G, I, J, K, L, O, and P of the emergency plan are acceptable to the extent specified in NUREG-1835, "Safety Evaluation Report for an Early Site Permit (ESP) at the North Anna ESP Site," issued September 2005.
  - F. The issuance of this ESP, subject to the Environmental Protection Plan (EPP) and the conditions for the protection of the environment set forth herein, is in accordance with the National Environmental Policy Act of 1969, as amended, and with applicable sections of 10 CFR Part 51, "Environmental Protection Regulations for Domestic Licensing and

Related Regulatory Functions,” as referenced by Subpart A, “Early Site Permits,” of 10 CFR Part 52, “Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants,” and all applicable requirements therein have been satisfied.

- G. The site redress plan incorporated into this permit demonstrates that there is reasonable assurance that redress carried out under the plan, if required, will achieve an environmentally stable and aesthetically acceptable site suitable for whatever nonnuclear use may conform with local zoning laws, and those activities described in the site redress plan will not result in any significant adverse environmental impact that cannot be redressed.
2. Based on the foregoing findings, and pursuant to Sections 103 and 185 of the Atomic Energy Act of 1954, as amended, 10 CFR Part 52, the Initial Decision of the Atomic Safety and Licensing Board, dated June 29, 2007 (LBP-07-09), and the Commission Memorandum and Order dated November 20, 2007 (CLI-07-27), the NRC hereby issues Early Site Permit No. ESP-003 to Virginia Electric and Power Company (Dominion), for a site located in Louisa County, Virginia, approximately 40 miles north-northwest of Richmond, Virginia, and adjacent to existing North Anna Power Station Units 1 and 2, for additional nuclear power units, which may be modular, designed to operate at an individual power of no more than 4500 megawatts thermal and a combined power of no more than 9000 megawatts thermal, as described in the application and amendments thereto (the application) filed in this matter by the permit holder, and as described in the evidence received at the public hearing on that application.
  3. This ESP shall be deemed to contain and is subject to the conditions specified in the Commission’s regulations in 10 CFR Chapter I; is subject to all applicable provisions of the Atomic Energy Act of 1954, as amended, and the rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the following conditions specified or incorporated below:
    - A. The characteristics of the North Anna ESP site set forth in Appendix A to this ESP are hereby incorporated into this ESP.
    - B. The controlling values of parameters and design-basis accident source term plant parameters set forth in Appendix B to this ESP are hereby incorporated into this ESP.
    - C. The combined license (COL) action items set forth in Appendix C to this ESP are hereby incorporated into this ESP. These COL action items identify certain matters that an applicant submitting an application that references this ESP shall address in the final safety analysis report (FSAR). These items constitute information requirements but are not the only acceptable set of information in the FSAR. An applicant may depart from or omit these items, provided that it identifies and justifies the departure or omission in the FSAR. In addition, these items do not relieve an applicant from any requirement in 10 CFR Chapter I that governs the application. After issuance of a construction permit (CP) or

COL, these items are not requirements for the permit holder or licensee unless such items are included in a permit or license condition.

- D. The values of plant parameters considered in the environmental review of the application and set forth in Appendix D to this ESP are hereby incorporated into this ESP.
- E. The following conditions apply:
  - (1) [Deleted]
  - (2) An applicant for a CP or COL referencing this ESP for a second new unit shall use a dry cooling tower system to remove waste heat from the working fluid passed through the turbine/generator set during normal operation.
  - (3) An applicant for a CP or COL referencing this ESP shall ensure that any new unit's radioactive waste management systems, structures, and components, as defined in Regulatory Guide 1.143, "Design Guidance for Radioactive Waste Management Systems, Structures, and Components Installed in Light-Water-Cooled Nuclear Power Plants," for a future reactor include features to preclude accidental releases of radionuclides into potential liquid pathways.
  - (4) An applicant for a CP or COL referencing this ESP shall excavate weathered or fractured rock at the foundation level and replace it with lean concrete before the commencement of foundation construction for safety-related structures.
  - (5) The permit holder and an applicant for a CP or COL referencing this ESP shall not use an engineered fill with high compressibility and low maximum density, such as saprolite.
  - (6) If the ESP holder performs an excavation for a safety-related structure, the ESP holder shall perform geologic mapping of such excavation, evaluate any unforeseen geologic features that are encountered, and notify the NRC no later than 30 days before any such excavation is open for NRC examination and evaluation. An applicant for a CP or COL referencing this ESP shall perform geologic mapping of any excavation for a safety-related structure,

evaluate any unforeseen geologic features that are encountered, and notify the NRC no later than 30 days before any such excavation is open for NRC examination and evaluation.

- (7) An applicant for a CP or COL referencing this ESP shall improve Zone II saprolitic soils to reduce any liquefaction potential if safety-related structures are to be founded on them.

F. The activities and site redress plan specified in paragraphs F, G, H, and I below were reviewed and approved in accordance with the regulations in effect on September 25, 2003, and refer to the rules in effect at that time. The site redress plan set forth in Appendix E to this ESP is hereby incorporated into this ESP.

- (1) The holder of this ESP may perform the activities authorized by 10 CFR 52.25, "Extent of Activities Permitted," only insofar as the site redress plan describes such activities. The holder of this ESP may perform activities not described in the site redress plan only with prior NRC approval. A request to perform such activities shall describe how such activities will be redressed, and, if the request is granted, the site redress plan shall be deemed to include this additional description of site redress.

- (2) The holder of this ESP may change the site redress procedures set forth in the site redress plan in Appendix E without obtaining Commission approval provided that the changes do not decrease the effectiveness of the plan.

- (3) [Deleted]

G. [Deleted]

H. The holder of this ESP shall not perform any site preparation or preliminary construction activities authorized by 10 CFR 52.25 unless such holder obtains the certification required pursuant to Section 401 of the Federal Water Pollution Control Act from the Commonwealth of Virginia, or obtains a determination by the Commonwealth of Virginia that no certification is required and submits the certification or determination to the NRC before commencement of any such activities.

I. The following conditions apply:

- (1) Any activities performed pursuant to 10 CFR 52.25 are subject to the conditions for the protection of the environment set forth in the EPP attached as Appendix F to this ESP.
  - (2) Dominion shall conduct a comprehensive instream flow incremental methodology (IFIM) study, designed and monitored in cooperation and consultation with the Virginia Department of Game and Inland Fisheries (VDGIF) and the Virginia Department of Environmental Quality (VDEQ,) to address potential impacts of the proposed Units 3 and 4 on the fishes and other aquatic resources of Lake Anna and downstream waters. Development of the scope of work for the IFIM study shall begin in 2007, and the IFIM study shall be completed before issuance of a combined license (COL) for this project. Dominion agrees to consult with VDGIF and VDEQ regarding analysis and interpretation of the results of that study and to abide by surface water management, release, and instream flow conditions prescribed by VDGIF and VDEQ upon review of the completed IFIM study, and implemented through appropriate State or Federal permits or licenses.
  - (3) The CP or COL applicant will conduct an IFIM study pursuant to the Coastal Zone Management Act consistency determination.
- J. An applicant for a CP or COL referencing this ESP shall develop an EPP for construction and operation of the proposed reactor and include the EPP in the application. The portion of the EPP directed to operation shall include any environmental conditions derived in accordance with 10 CFR 50.36b, "Environmental Conditions."
4. The holder of this ESP is subject to the requirements of 10 CFR Part 21, "Reporting of Defects and Noncompliance," as of the date of issuance of this ESP.
  5. This ESP is effective as of its date of issuance and shall expire at midnight on November 27, 2027.

FOR THE NUCLEAR REGULATORY COMMISSION

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R.W. Borchardt, Director  
Office of New Reactors



## Appendix E: Site Redress Plan

### 1. Site Redress

This section describes early site permit (ESP) site preparation activities that might occur after the U.S. Nuclear Regulatory Commission (NRC) issues an ESP. This section also describes the site redress plan that would be implemented if those site preparation activities were performed but the ESP then expired before being referenced in a combined license (COL) application.

#### 1.1 Description of Site Preparation Activities

The site redress plan was submitted pursuant to Title 10, Section 52.17(c) of the *Code of Federal Regulations* (10 CFR 52.17(c)) to allow the holder of the ESP to perform, after being granted the ESP, the site preparation activities for new nuclear units at the ESP site allowed by 10 CFR 50.10(e)(1).

The site preparation activities that the holder of the ESP for the North Anna ESP Site may perform include the following:

- preparation of the site for construction of the facility (including such activities as clearing, grading, construction of temporary access roads, and preparation of borrow areas)
- installation of temporary construction support facilities (including items such as warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and construction support buildings)
- excavation for facility structures
- construction of service facilities (including items such as roadways, paving, railroad spurs, fencing, exterior utility and lighting systems, switchyard interconnects, and sanitary sewage treatment facilities)
- construction of structures, systems, and components that do not prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public, including but not limited to the following:
  - cooling towers
  - intake and discharge structures
  - circulating water lines
  - fire protection equipment
  - switchyard and onsite interconnections
  - microwave towers

- **underground utilities**

**Before commencing any of these activities after the ESP is granted, the permit holder would do the following:**

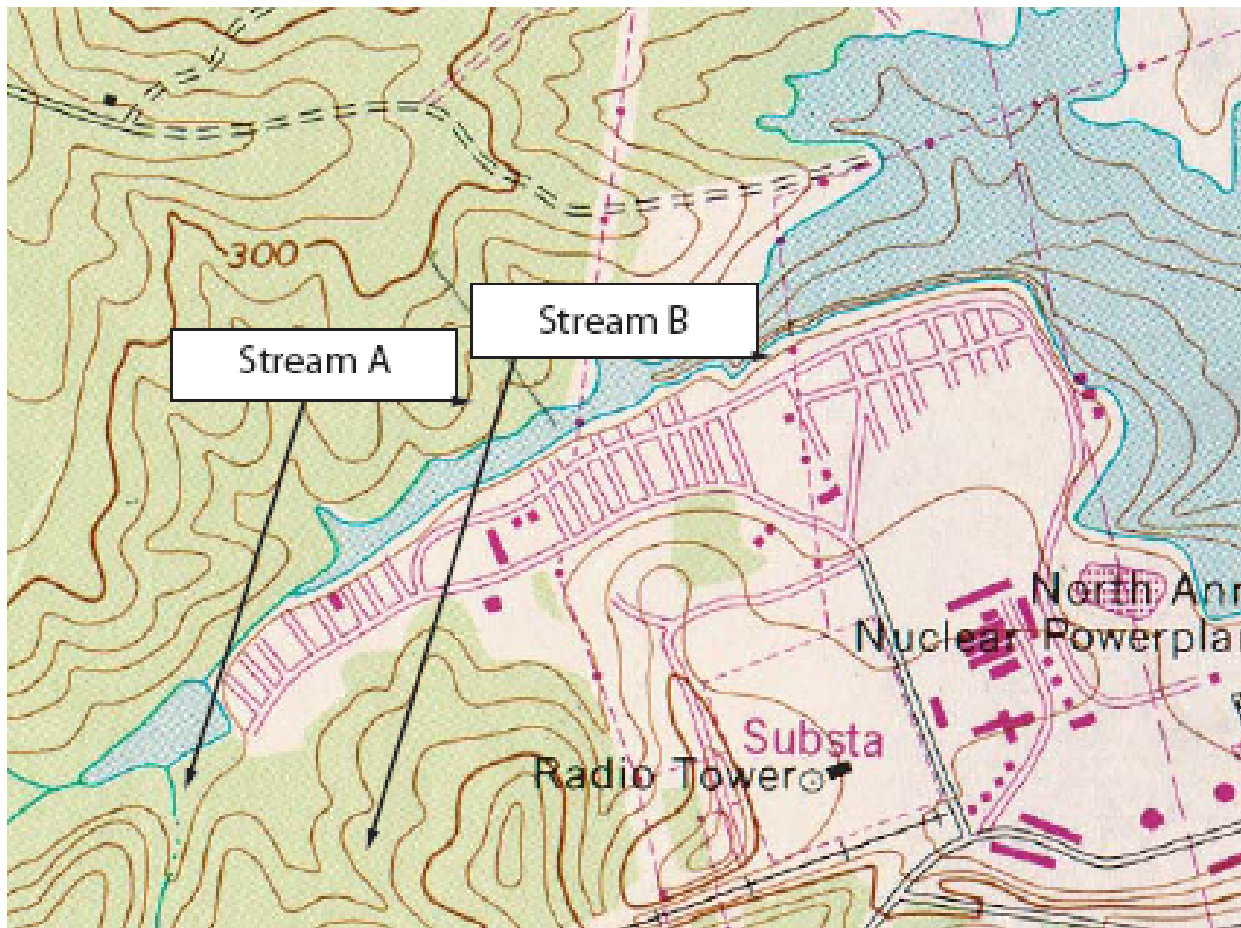
- 1. Create a record of the existing site conditions within the proposed ESP site by way of photographs, surveys, listings of existing facilities and structures, or other documentation. This record would serve as the baseline for redressing the site if ESP site preparation activities are terminated as a result of project cancellation or expiration of the ESP.**
- 2. Obtain any State and local permits and authorizations necessary to perform the site preparation activities.**
- 3. [Deleted]**
- 4. [Deleted]**

## **1.2 Site Redress Plan**

**This section constitutes the permit holder’s plan for redress of the North Anna site in the event that activities allowed by 10 CFR 50.10(e)(1) are performed but the ESP then expires before being referenced in an application for a combined license under 10 CFR Part 52, “Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants,” Subpart C, “Combined Licenses.” This site redress plan provides reasonable assurance that redress carried out under the plan would achieve an environmentally stable and aesthetically acceptable site condition suitable for whatever nonnuclear use may conform with local zoning laws. The following sections describe the objective of the site redress plan and activities that would be considered to redress the site; a general description of proposed redress activities; and the procedure for NRC notification and final acceptance of the redressed site.**

### **1.2.1 Site Redress Plan Objective and Considerations**

**The objective of the site redress plan is to ensure that the site, should it not be fully developed for the intended purpose of new nuclear power generation, would be returned to an unattended, environmentally stable, and aesthetically acceptable condition suitable for such nonnuclear use as is consistent with local zoning laws. Site redress activities would be commensurate with the level of site modification created by the proposed site preparation activities. Redress activities would reflect applicable land use and/or zoning requirements of local, State, and Federal agencies. Redress activities would consider the following:**



**Figure 3 (Revision 9 ER Figure 1.2-1). Ephemeral Stream Locations**  
 Source: *Lake Anna West, VA*, USGS 7.5 Minute Topographic Map, 1983.

### 1.2.3 NRC Notification upon Completion

The permit holder will notify the NRC upon completion of activities addressed by this site redress plan. The site would be made available for inspection, and any documentation that the NRC may require would be provided to confirm the satisfactory completion of the redress activities.