2. SITE CHARACTERISTICS

2.1 Introduction

2.1.1 Site Location and Description

2.1.1.1 Technical Information in the Application

In Section 2.1.1.1 of the site safety analysis report (SSAR), the applicant presented information concerning site location and site area that would affect the design of systems, structures, and components (SSCs) important to safety of a nuclear power plant or plants falling within the applicant's plant parameter envelope (PPE) that might be constructed on the proposed early site permit (ESP) site. The applicant did not provide latitude and longitude or Universal Transverse Mercator coordinates for new units in the proposed ESP site. However, the North Anna Units 1 and 2 Updated Final Safety Analysis Report (UFSAR) for the existing North Anna Power Station (NAPS) does include them. The proposed ESP site is located within the existing NAPS site.

The applicant provided the following information on site location and site area:

- the site boundary for new units in the proposed ESP site with respect to the existing units
- the site layout for new units in the proposed ESP site with respect to the current and future developments
- the site location with respect to political subdivisions and prominent natural and manmade features of the area within the 6-mile low population zone (LPZ) and 50-mile population zone
- the topography surrounding the proposed ESP site
- the distance from the proposed ESP site to the nearest exclusion area boundary (EAB), including the direction and distance
- potential radioactive material release points and their locations for the proposed new units
- the distance of the proposed site from regional U.S. and State highways
- confirmation that no physical characteristics unique to the proposed ESP site were identified that could pose a significant impediment to the development of emergency plans

2.1.1.2 Regulatory Evaluation

Sections 1.8 and 2.1.1 of the SSAR identify the applicable U.S. Nuclear Regulatory Commission (NRC) regulations and guidance regarding site location and description as defined in Title 10, Section 52.17, "Contents of Applications," of the *Code of Federal Regulations* (10 CFR 52.17); 10 CFR Part 100, "Reactor Site Criteria"; 10 CFR 50.34(a)(1), "Contents of Applications; Technical Information"; and NRC Review Standard (RS)-002, "Processing Applications for Early Site Permits," issued May 2004. The staff finds that the applicant correctly identified the applicable regulations and guidance.

The staff considered the following two regulatory requirements in reviewing the site location and site area:

- 10 CFR Part 100, insofar as it requires consideration of factors relating to the size and location of sites

- 10 CFR 52.17, insofar as it requires the applicant's submission of information needed to evaluate factors involving the characteristics of the site environs

According to Section 2.1.1 of RS-002, an applicant has submitted adequate information if it satisfies the following criteria:

- The site location, including the exclusion area and the proposed location of a nuclear power plant or plants of specified type falling within a PPE that might be constructed on the proposed site, is described in sufficient detail to determine that the requirements of 10 CFR Part 100 and 10 CFR 52.17 are met, as discussed in Sections 2.1.2, 2.1.3, and 15.0 of this safety evaluation report (SER).

- Highways, railroads, and waterways which traverse the exclusion area are sufficiently distant from planned or likely locations of structures of a nuclear power plant or plants of specified type falling within a PPE that might be constructed on the proposed site so that routine use of these routes is not likely to interfere with normal plant operation.

2.1.1.3 Technical Evaluation

The proposed ESP site is located within the existing NAPS site. The ESP site boundary, as shown in Figure 2.1-1, "Site Boundary," of the SSAR, is the same as the site boundary for the existing NAPS units.

The staff has verified the following coordinates of the existing NAPS units provided in the North Anna UFSAR:

	Latitude	Longitude	Universal Transverse Mercator		
Unit 1	38E3'36"N	77E47'23"W	4,215,990 mN	255,240 mN	zone 18S
Unit 2	38E3'38"N	77E47'26"W	4,215,960 mN	255,170 mN	zone 18S

The staff will review the exact coordinates of the new units at the time of a combined license (COL) application when the applicant selects new units in the proposed ESP site. This is **COL Action Item 2.1-1**, "Latitude and longitude and Universal Transverse Mercator coordinates for new units in the proposed ESP site."

The applicant has defined the EAB envelope at a radius of 5000 feet from the now abandoned Unit 3 containment and the LPZ at a radius of 6 miles from the existing Unit 1 containment building. The applicant established the EAB and the LPZ to ensure that the radiological consequence evaluation factors identified in 10 CFR 50.34(a)(1) and the siting evaluation factors in Subpart B, "Evaluation Factors for Stationary Power Reactor Site Applications on or After January 10, 1997," of 10 CFR Part 100 are met. No persons live within the EAB.

The NAPS is located in the northeastern portion of Virginia in Louisa County. Louisa County includes two incorporated towns, Louisa and Mineral. The proposed ESP site is on a peninsula on the southern shore of Lake Anna at the end of State Route 700. Lake Anna was created to serve the needs of the NAPS. It is about 17 miles long and has 272 miles of irregular shoreline with various contour and scenic views. The proposed ESP site lies along the lake shoreline. The NAPS property comprises 1803 acres, of which about 760 acres are covered by water. Virginia Electric and Power Company (Virginia Power) and Old Dominion Electric Cooperative (ODEC) own the NAPS site, which includes the existing two nuclear power units and the proposed ESP site, as tenants in common (see Section 2.1.2 of this SER).

The largest community within 10 miles of the proposed ESP site is the town of Mineral with a population of 424, according to the 2000 Census. It is situated about 6 miles west-southwest of the proposed ESP site. Regionally, as shown in Figure 2.1-3, "Fifty-Mile Surrounding Area," of the SSAR, the proposed site is approximately 40 miles north-northwest of Richmond, Virginia; 36 miles east of Charlottesville, Virginia; 22 miles southwest of Fredericksburg, Virginia; and 70 miles southwest of Washington, D.C. Highways U.S. 1 and I-95 pass within 15 and 16 miles, respectively, east of the proposed site. No highways, railroads, or waterways traverse the proposed ESP exclusion area site boundary.

The staff has verified that the exclusion area distance is consistent with the distance the applicant used in its radiological consequence analyses described in Chapter 15, "Accident Analyses," of the SSAR. The applicant stated that, consistent with the licenses for the existing units, the gaseous effluent release limits for the proposed units would apply at or beyond the proposed ESP EAB; the liquid effluent release limits for the new units would apply at the end of the discharge canal, which is designated as the release point to unrestricted areas. The staff finds that these release points are acceptable for determining the radiation exposures to the public to meet the criterion "as low as reasonably achievable," cited in Appendix I, "Numerical Guides for Design Objectives and Limiting Conditions for Operation to Meet the Criterion 'As Low as is Reasonably Achievable,' for Radioactive Material in Light-Water-Cooled Nuclear Power Reactor Effluents," to 10 CFR Part 50. (See discussion of this subject in Section 5.9.3 of the staff's environmental impact statement for the North Anna ESP application.)

For the reasons set forth in Section 13.3 of this SER, the staff further finds that no physical characteristics unique to the proposed ESP site have been identified that could pose a significant impediment to the development of emergency plans.

2.1.1.4 Conclusions

As set forth above, the applicant has provided and substantiated information concerning site location and site area that would affect the design of SSCs important to safety of a nuclear power plant or plants of specified type falling within the applicant's PPE that might be constructed on the proposed ESP site. The staff has reviewed the applicant's information as described above, and concludes that it is sufficient for the staff to evaluate compliance with the siting evaluation factors in 10 CFR Part 100 and 10 CFR 52.17, and with the radiological consequence evaluation factors in 10 CFR 50.34(a)(1). The staff further concludes that the applicant provided information concerning site location and site area in sufficient detail to allow the staff to evaluate, as documented in Sections 2.1.2, 2.1.3, and 15.0 of this SER, whether the applicant has met the relevant requirements of 10 CFR Part 100 and 10 CFR 52.17.

2.1.2 Exclusion Area Authority and Control

2.1.2.1 Technical Information in the Application

In SSAR Section 2.1.2, the applicant presented information concerning its plan to obtain legal authority to determine all activities within the designated exclusion area, if it decides to proceed with the development of new reactor units at the proposed ESP site. The applicant stated the following:

> If Dominion decides to proceed with the development of new units, it would enter into and obtain appropriate regulatory approvals to purchase or lease the ESP site from Virginia Power and ODEC. The agreement or conveyance documents would provide for the mutual use of the NAPS site as a single exclusion area. As part of this agreement, each party would agree to immediately notify the other in the event of an emergency and to abide by the reasonable requests of the party declaring an emergency to exclude non-plant personnel and property from the exclusion area. The parties would also agree to work cooperatively to control third party activity that might otherwise present an unacceptable hazard to nuclear operations. Because the appropriate regulatory approvals of the conveyance and agreement (pursuant to Virginia Code, 56-77 and 56-580) would be a prerequisite to Dominion's development of the new units, such arrangements would be in place before issuance of a COL for the new units.

In request for information (RAI) 2.1.2-1, the staff asked the applicant for additional information regarding its approach to obtaining appropriate regulatory approvals to purchase or lease the ESP site. In its response, the applicant stated the following:

> Virginia State Corporation and possibly North Carolina Utilities Commission approval (other than NRC) would be required to purchase or lease the proposed ESP site. The current NAPS exclusion area boundary (EAB) would continue to be the EAB for the existing units and any new units. This single exclusion area includes property that is not part of the ESP site. The use of the current exclusion area for the new units would be established by agreement between Dominion Nuclear North Anna and other NAPS owners. Dominion has not determined a specified term for any lease. However, any lease would provide

> that (1) the term of the lease would not expire until after termination of all NRC licenses for any facilities on the leased property, and (2) the lease may not be canceled or terminated, prior to the termination of all NRC licensees for any facilities on the leased property, except with prior consent of the NRC (e.g., consent in connection with the transfer of licenses under 10 CFR 50.80).

In RAI 2.1.2-2, the staff requested additional information on how an agreement or conveyance document (e.g., a lease or deed) would provide for the use of the NAPS as a single exclusion area, in the event that additional reactors are constructed on the site. In its response, in a letter to the NRC dated August 10, 2004, the applicant stated the following:

> Any lease or deed would provide mutual use of the existing site and the leased premises as a single exclusion area and single restricted area for all nuclear units at the North Anna site. Each party would agree to immediately notify the other in the event of an emergency and to abide by the reasonable request of the party declaring the emergency condition to exclude non-plant personnel and property from the exclusion area. The parties would agree to work cooperatively to control third party activity within the exclusion area and prevent any such activity that might otherwise present an unacceptable hazard to nuclear operations. This approach is consistent with the single exclusion area established by agreement for the Indian Point units (when Units 1 and 2 were owned by the Consolidated Edison Company and Unit 3 was owned by the Power Authority of the State of New York) and for the Nine Mile Point and Fitzpatrick plants.

2.1.2.2 Regulatory Evaluation

In SSAR Sections 1.8 and 2.1.2, the applicant identified the applicable NRC regulations and regulatory guidance regarding exclusion area authority and control related to 10 CFR Part 52, Subpart A, "Early Site Permits," 10 CFR Part 100, and RS-002. The staff finds that the applicant correctly identified the applicable regulations and guidance. The staff considered 10 CFR 100.21(a) and 10 CFR 100.3, "Definitions," in reviewing the applicant's legal authority to determine all activities within the designated exclusion area. Section 100.21(a) requires that every site have an exclusion area, defined in 10 CFR 100.3 as:

> That area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area. This area may be traversed by a highway, railroad or waterway, provided these are not so close to the facility as to interfere with normal operations of the facility and provided appropriate and effective arrangements are made to control traffic on the highway, railroad, or waterway, in case of emergency, to protect the public health and safety... Activities unrelated to operation of the reactor may be permitted in an exclusion area under appropriate limitations, provided that no significant hazards to the public health and safety will result.

As stated in Section 2.1.2 of RS-002, the applicant must demonstrate, before issuance of an ESP, that it has an exclusion area and an LPZ, as defined in 10 CFR 100.3 and in accordance

with the requirements of 10 CFR Part 100. Furthermore, the applicant must show that it has the authority within the exclusion area, as required by 10 CFR 100.3, or it must provide reasonable assurance that it will have such authority before start of construction of a reactor(s) that might be located on the proposed ESP site.

2.1.2.3 Technical Evaluation

As noted in Section 2.1.2.1 of this SER, the applicant intends to reach appropriate legal terms with the present owners of the ESP site at such time as the applicant elects to construct a nuclear power plant on the site. The applicant has therefore not attempted to demonstrate that it currently has the authority to determine all activities, including exclusion or removal of personnel and property from the area, as required by 10 CFR 100.3. To meet the exclusion area control requirement of 10 CFR 100.21(a), "Non-Seismic Site Criteria," and 10 CFR 100.3, the applicant does not need to demonstrate total control of the property before issuance of the ESP. However, the applicant must provide reasonable assurance that it can acquire the required control, i.e., that it has the legal right to obtain control of the exclusion area. The applicant should demonstrate that it has the legal right to control the exclusion area, or has an irrevocable right to obtain such control. This is **Open Item 2.1-1**.

Should the NRC grant the ESP and the ESP holder decide to perform the activities authorized by 10 CFR 52.25, the ESP holder will need to obtain the authority to undertake those activities on the ESP site. In obtaining such a right, the ESP holder will also need to obtain the corresponding right to implement the site redress plan described in the staff's final environmental impact statement in the event no plant is built on the ESP site. This issue might be resolved through the applicant's actions to obtain control over the exclusion area or the legal right to obtain such control in addressing Open Item 2.1-1. If this issue is not resolved by the time the staff completes the FSER, the staff will include this item in any ESP that might be issued for the proposed site as **Permit Condition 2.1-1.**

The North Anna exclusion area extends into Lake Anna and the Waste Heat Treatment Facility (WHTF). Should the NRC grant the ESP and the ESP holder decide to apply for a COL (or for a construction permit [CP] and operating license [OL]), the ESP holder will need to make arrangements with the appropriate local, State, Federal, or other public agencies to provide for control of the portions of Lake Anna and the WHTF that are within the exclusion area. These public agencies, together with the ESP holder, will need authority over these bodies of water sufficient to allow for the exclusion and ready removal, in an emergency, of any persons present on them. This is **COL Action Item 2.1-2**. No State or county roads, railways, or waterways traverse the North Anna ESP exclusion area.

2.1.2.4 Conclusions

As set forth above, the applicant has provided and substantiated information concerning its plan to obtain legal authority to determine all activities within the designated exclusion area. The staff has reviewed the applicant's information and concludes that it is sufficient to evaluate compliance with the exclusion area control requirements of 10 CFR 100.21(a) and 10 CFR 100.3.

The applicant has appropriately described the exclusion area and the methods by which access and occupancy of the exclusion area will be controlled during normal operation and in the event of an emergency situation.

Based on the foregoing, the staff concludes that the applicant's exclusion area is acceptable and meets the requirements of 10 CFR Part 100. However, the applicant needs to demonstrate that it has or will have the authority to control all activities within the exclusion area, as described in the discussion of Open Item 2.1-1 above. Further, the ESP holder will need to demonstrate that it will have authority to perform the activities authorized by 10 CFR 52.25, should it choose to do so, and the corresponding right to implement the site redress plan, as described in the discussion of Permit Condition 2.1-1 above.

2.1.3 Population Distribution

2.1.3.1 Technical Information in the Application

In SSAR Section 2.1.3, the applicant estimated and provided the population distribution surrounding the proposed ESP site, up to a 50-mile radius, based on the most recent U.S. Census. The applicant also provided in this section the population densities, the resident population distribution within the LPZ, the nearest population center, and population densities up to a 50-mile radius from the proposed ESP site.

The population distribution provided by the applicant encompasses nine concentric rings at various distances out to 50 miles from the proposed ESP site and 16 directional sectors. The applicant also estimated and provided transient population data out to 50 miles based on recreational use of Lake Anna, Lake Anna State Park, two commercial campgrounds, the WHTF, and Paramount's King's Dominion Amusement Park.

In RAI 2.1.3-1, the staff requested that the applicant project population estimates, including weighted transient populations, up to 2065 (the projected year for the end of plant life). In its response, the applicant reestimated and provided resident and weighted transient populations up to 2065, thereby revising its original estimate of resident and weighted transient populations up to 2040. The applicant incorporated this response into Revision 3 of the SSAR.

In the revised Figure 2.1-14 of the SSAR, the applicant provided the cumulative population in 2000 and the projected cumulative population in 2065, as functions of the 10-mile to 50-mile radial distance from the proposed ESP site, as well as the population density curves spanning the same radial distances. The population density curves also included 500-persons-per-square-mile lines and 1000-persons-per-square-mile lines as a function of distance up to 50 miles from the site.

The applicant established the LPZ to ensure that the radiological consequences of design-basis reactor accidents at the LPZ meet the dose consequence evaluation factors set forth in 10 CFR 50.34(a)(1). The applicant described the LPZ in Section 2.1.3.4 of the SSAR. The LPZ is defined in 10 CFR 100.3 as "the area immediately surrounding the exclusion area which contains residents, the total number and density of which are such that there is a reasonable probability that appropriate measures could be taken in their behalf in the event of a serious accident." The LPZ for the ESP site is the same as the LPZ for the existing North Anna units; it

consists of a circle with a radius of 6 miles centered on the North Anna Unit 1 containment building. The applicant provided a map (Figure 2.1-2) of the LPZ and figures showing the current and projected population data for the LPZ, including transient persons.

The applicant described the population center in Section 2.1.3.5 of the SSAR. The population center is defined in 10 CFR 100.3 as a densely populated area containing more than about 25,000 residents. The applicant stated that the nearest population center with a population greater than 25,000 people which is likely to exist over the lifetime of the proposed ESP site is the city of Charlottesville, with a population of 45,049. The closest point of Charlottesville is 36 miles west of the ESP site. The next closest population center is Fredericksburg, which is 22 miles northeast of the proposed ESP site. Fredericksburg has a projected population of about 20,330 in 2065.

In RAI 2.1.3-2, the staff asked the applicant to describe appropriate protective measures that could be taken on behalf of the populace in the LPZ in the event of a radiological emergency. In its response, the applicant stated that, in the event of a radiological emergency, the plant staff would notify the Commonwealth of Virginia and local authorities. The plant staff would formulate protective action recommendations, as appropriate, and provide them to the Virginia Emergency Operations Center. The Commonwealth of Virginia would make a protective action decision and notify the affected populace.

2.1.3.2 Regulatory Evaluation

In SSAR Sections 1.8 and 2.1.3, the applicant identified the applicable NRC regulations and regulatory guidance regarding population distribution, as described in 10 CFR 52.17, 10 CFR Part 100, Regulatory Guide (RG) 4.7, "General Site Suitability Criteria for Nuclear Power Stations," issued April 1998, and RS-002. The staff finds that the applicant correctly identified the applicable regulations and guidance.

The staff considered the following regulatory requirements in its review of this section of the SSAR:

- 10 CFR 52.17, insofar as it requires each applicant to provide a description and safety assessment of the site, and insofar as it requires that site characteristics comply with 10 CFR Part 100

- 10 CFR Part 100, insofar as it establishes requirements with respect to population density

In particular, the staff considered the population density and use characteristics of the site environs, including the exclusion area, LPZ, and population center distance. The regulations in 10 CFR Part 100 provide definitions and other requirements for determining an exclusion area, LPZ, and population center distance.

As stated in Section 2.1.3 of RS-002, the applicable requirements of 10 CFR 52.17 and 10 CFR Part 100 are deemed to have been met if the population density and use characteristics of the site meet the following criteria:

- Either there are no residents in the exclusion area, or if residents do exist, they are subject to ready removal, in case of necessity.

- The specified LPZ is acceptable if it is determined that appropriate protective measures could be taken on behalf of the enclosed populace in the event of a serious accident.

- The population center distance (as defined in 10 CFR Part 100) is at least one and one-third times the distance from the reactor to the outer boundary of the LPZ.

- The population center distance is acceptable if there are no likely concentrations of greater than 25,000 people over the lifetime of a nuclear power plant or plants of specified type or falling within a PPE that might be constructed on the proposed site (plus the term of the ESP) closer than the distance designated by the applicant as the population center distance. The boundary of the population center shall be determined upon considerations of population distribution. Political boundaries are not controlling.

- The population data supplied by the applicant in the safety assessment are acceptable if (1) they contain population data for the latest census, projected year(s) of startup of a nuclear power plant or plants of specified type (or falling within a PPE) that might be constructed on the proposed site (such date(s) reflecting the term of the ESP) and projected year(s) of end of plant life, all in the geographical format given in Section 2.1.3 of RG 1.70, (2) they describe the methodology and sources used to obtain the population data, including the projections, (3) they include information on transient populations in the site vicinity, and (4) the population data in the site vicinity, including projections, are verified to be reasonable by other means, such as U.S. Census publications, publications from State and local governments, and other independent projections.

- If the population density at the ESP stage exceeds the guidelines given in RG 4.7, special attention to the consideration of alternative sites with lower population densities is necessary. A site that exceeds the population density guidelines of Regulatory Position C.4 of RG 4.7 can nevertheless be selected and approved if, on balance, it offers advantages compared with available alternative sites, when all of the environmental, safety, and economic aspects of the proposed and alternative sites are considered.

2.1.3.3 Technical Evaluation

The staff reviewed the population data in the site environs, as presented in the applicant's SSAR, to determine whether the exclusion area, LPZ, and population center distance for the proposed ESP site comply with the requirements of 10 CFR Part 100 and the acceptance criteria in Section 2.1.3.2 of this SER. The staff also evaluated whether, consistent with Regulatory Position C.4 of RG 4.7, the applicant should consider alternate sites with lower population densities. The staff also reviewed whether appropriate protective measures could be taken on behalf of the enclosed populace within the EPZ, which encompasses the LPZ, in the event of a serious accident.

The staff compared and verified the applicant's population data against U.S. Census Bureau Internet data. The staff also reviewed, as documented in Section 13.3 of this SER, the projected

population data provided by the applicant, including weighted transient populations for years 2010, 2020, 2030, 2040, 2050, 2060, and 2065. If the ESP were approved and issued in 2006, assuming a COL application is submitted near the end of the ESP term, with a projected startup of new units in about 2025 and an operational period of 40 years for the new units, the projected year for end of plant life is about 2065. Accordingly, the staff finds that the applicant's projected population data cover an appropriate number of years, and are reasonable.

The staff reviewed the transient population data provided by the applicant. The transient population up to a 50-mile radius is based on recreational use of Lake Anna, Lake Anna State Park, two commercial campgrounds, the WHTF, and Paramount's King's Dominion Amusement Park. The applicant stated that recreational use of Lake Anna, including Lake Anna State Park, is the greatest contributor to transient population in the area. The applicant collected information concerning transient population of the area from a number of contributing factors, including the number of boat ramps, wet slips, campsites, picnic areas, etc. Based on this information, the staff finds that the applicant's estimate of the transient population is reasonable.

The staff notes that no member of the public lives within the exclusion area.

The applicant evaluated design-basis accidents in Chapter 15 of the SSAR, and the staff independently verified the applicant's evaluation in Section 15 of this SER to demonstrate that the radiological consequences of design-basis reactor accidents at the proposed LPZ would be within the dose consequence evaluation factors set forth in 10 CFR Part 50.34(a)(1).

The distances to Charlottesville and Fredericksburg, the nearest population centers, are well in excess of the minimum population center distance of 7.8 miles (one and one-third times the distance of 6 miles from the reactor to the outer boundary of the LPZ). In addition, no population centers are closer than the population center distance specified by the applicant.

Therefore, the staff concludes that the proposed ESP site meets the population center distance requirement, as defined in 10 CFR Part 100. The staff has determined that there is no realistic likelihood that there will be a population center with 25,000 people within the 7.8-mile minimum population center distance during the lifetime of any new units that might be constructed on the site. This conclusion is based on projected cumulative resident and transient population within 10 miles of the site during the lifetime of any new units to the year 2065.

The staff evaluated the site against the criterion in Regulatory Position C.4 of RG 4.7 regarding whether it is necessary to give special attention to the consideration of alternative sites with lower population densities. The criterion is whether the population densities in the vicinity of the proposed site, including weighted transient population, projected at the time of initial site approval and within about 5 years thereafter, would exceed 500 persons per square mile averaged over any radial distance out to 20 miles (cumulative population at a distance divided by the area at that distance). The staff has determined that such population densities for the proposed site would be well below this criterion. Therefore, the staff concludes that the site conforms to Regulatory Position C.4 in RG 4.7, Revision 2. Assuming construction of new nuclear reactors at the proposed site beginning near the end of the term of the ESP, and based on its review of the applicant's population density data and projections, the staff finds that the site also meets the guidance of RS-002 regarding population densities over the lifetime of facilities that might be constructed at the site, in that the population density over that period

would be expected to remain below 500 persons per square mile averaged out to 20 miles from the site.

The staff reviewed information provided by the applicant regarding its ability to take appropriate protective measures on behalf of the populace in the LPZ in the event of a serious accident. The applicant stated in its response to RAI 2.1.3-2 that, in the event of a radiological emergency, the plant staff would notify the Commonwealth of Virginia and local authorities. The plant staff would formulate protective action recommendations, as appropriate, and provide them to the Virginia Emergency Operations Center. The Commonwealth of Virginia would make a protective action decision and notify the affected populace.

The staff finds that the applicant's response is satisfactory because it is consistent with emergency planning for the 10-mile plume exposure emergency planning zone (EPZ). The LPZ is located entirely within the 10-mile EPZ. Comprehensive emergency planning for the protection of all persons within the 10-mile EPZ, as addressed in Section 13.3 of this SER, would include those persons within the LPZ. Based on the information the applicant presented on this subject, and on the staff's conclusions discussed in Section 13.3 of this SER, the staff concludes that appropriate protective measures could be taken on behalf of the enclosed populace within the LPZ in the event of a serious accident.

2.1.3.4 Conclusions

As set forth above, the applicant has provided an acceptable description of current and projected population densities in and around the site. These densities projected at the time of initial plant operation (if one were to be constructed on the site) and within about 5 years thereafter are within the guidelines of Regulatory Position C.4 of RG 4.7. The applicant has properly specified the LPZ and population center distance. The staff finds that the proposed LPZ and population center distance meet the definitions in 10 CFR 100.3. Therefore, the staff concludes that the applicant's population data and population distribution are acceptable and meet the requirements of 10 CFR 52.17 and 10 CFR Part 100. In Section 15 of this SER, the staff documents that the radiological consequences of bounding design-basis accidents at the outer boundary of the LPZ meet the requirements of 10 CFR 52.17.

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