

NP-12-0017  
May 3, 2012

10 CFR 52, Subpart A

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555-0001

Subject: Exelon Nuclear Texas Holdings, LLC  
Victoria County Station Early Site Permit Application  
Response to Request for Additional Information Letter No. 17  
NRC Docket No. 52-042

Attached is the response to the NRC staff question included in Request for Additional Information (RAI) Letter No. 17, dated April 10, 2012, related to Early Site Permit Application (ESPA), Part 2, Section 15.01. NRC RAI Letter No. 17 contained one (1) Question. This submittal comprises the complete response to RAI Letter No. 17, and includes response to the following Question:

15-3

When a change to the ESPA is indicated by a Question response, the change will be incorporated into the next routine revision of the ESPA, planned for no later than March 31, 2013.

This submittal completes the Exelon response to NRC RAI Letter No. 17, dated April 10, 2012.

Regulatory commitments established in this submittal are identified in Attachment 2.

If any additional information is needed, please contact David J. Distel at (610) 765-5517.

I declare under penalty of perjury that the foregoing is true and correct. Executed on the 3<sup>rd</sup> day of May, 2012.

Respectfully,



Marilyn C. Kray  
Vice President, Nuclear Project Development

May 3, 2012  
U.S. Nuclear Regulatory Commission  
Page 2

**Attachments:**

1. Question 15-3
2. Summary of Regulatory Commitments

cc: USNRC, Director, Office of New Reactors/NRLPO (w/Attachments)  
USNRC, Project Manager, VCS, Division of New Reactor Licensing (w/Attachments)  
USNRC Region IV, Regional Administrator (w/Attachments)

**RAI 15-3:****Question:**

RS-002, "Processing Applications for Early Site Permits," provides guidance regarding the information that the staff would expect to review with respect to the site characteristics and plant parameter envelope (PPE) for a proposed reactor site. The Victoria County Station ESP application, SSAR Chapter 2.0, Table 2.0-1, "Site Characteristics and Site-Related Design Parameters," provides such site-related information. However, Table 2.0-1, Part 1, "Site Characteristics," includes entries for site-specific values which the staff does not consider an acceptable response. Therefore, the NRC staff is requesting the following clarifications:

- (1) The values presented in the "Site-Specific Value" column in Table 2.0-1 should be the values pertaining to site characteristics, which (as defined in 10 CFR 52.1) are the actual physical, environmental, and demographic values based on the features of a specific site. Representing this value by simply referencing a regulatory requirement in Table 2.0-1 is not appropriate. Therefore, the staff requests the applicant revise Part 1 of the table to include the pertinent site-specific values.
- (2) The staff notes that in SSAR section 2.0 the applicant describes their PPE approach and indicates that selected or potential designs should fall within parameter values listed in Table 2.0-1 and values discussed elsewhere in the SSAR. For example, Table 2.0-1 includes reference to normal operation gaseous and liquid source terms, but does not also refer to the design basis accident (DBA) source term information presented in VCS ESP SSAR Chapter 15. In order to clarify which information constitutes a site characteristic or site-related design parameter and what values are used throughout the SSAR to address the PPE, the staff requests the applicant to revise SSAR section 2.0, including changes to Table 2.0-1, and consolidate this information accordingly.

**Response:**

SSAR Table 2.0-1, Part 1, is revised to remove the dose consequences (normal and post-accident) and the source term (normal) items for both liquid and gaseous releases from the listing of Site Characteristics. Table 2.0-1, Part 2, is revised to identify the source term items for gaseous releases (normal and post-accident) and the source term items for liquid releases (normal and post-accident), with applicable definitions, as Site-Related Design Parameters. The pertinent site-specific bounding values for these parameters are incorporated in Table 2.0-1 by reference to the applicable SSAR Tables. Reference to the regulatory requirement in Table 2.0-1 has been removed.

SSAR Sections 2.0.1, 2.0.2, and 2.0.3 are revised to provide further clarification of site characteristics and site-related design parameters as used in Table 2.0-1. As stated above, Table 2.0-1 is modified to identify and consolidate the liquid and gaseous release source term site-specific values for normal and post-accident releases as site-related design parameters. The dose consequence items previously listed in Table 2.0-1 have been removed.

**Associated ESPA Revisions:**

SSAR Sections 2.0 will be updated in a future revision of the ESPA as shown below.

The second paragraph of SSAR Subsection 2.0.1 is revised as follows:

The PPE developed in support of the VCS ESP application is based on data from selected light-water cooled reactor designs. To ensure that the resulting PPE has the flexibility to bound multiple reactor designs, these designs are selected to provide a broad cross of available light-water reactors. Brief descriptions of each of these reactor types are included in 1.10. The VCS site is not intended to be limited to the designs selected to create the PPE, but rather to provide a broad overall outline of a design concept and to include other potential designs if they can be demonstrated to fall within the ~~parameter~~ Site Characteristics and Site-Related Design Parameters values listed in Table 2.0-1, and the PPE design values discussed elsewhere in the SSAR.

The first paragraph of SSAR Subsection 2.0.2 is revised as follows:

Table 2.0-1 provides a summary listing of the proposed VCS site characteristics and site-related design parameters. Part 1 of the table lists important site characteristics that have been established by analyses presented throughout the SSAR and those that are necessary to establish the findings required by 10 CFR 52 and 10 CFR 100 on the suitability of the proposed VCS site. Part 2 of the table provides a listing of site-related design parameters and assumptions about the design of a nuclear power plant that might in the future be constructed on the VCS site. It is necessary to assume certain design parameters in order to assess site characteristics. The selected design parameter values are the single largest (or smallest) value for each category, applying engineering, safety and environmental conservatism as necessary to select the appropriate value. Definitions for each site characteristic and site-related design parameter and references to where additional information may be found are also provided in Table 2.0-1. This summary listing is intended to support development of a Table of Site Characteristics and Plant Design Parameters for the Early Site Permit.

The first paragraph of SSAR Subsection 2.0.3 is revised as follows:

The liquid and gaseous activity releases (source terms) during normal plant operation are shown in Tables 11.2.3-2 and 11.3.3-2, respectively, and Table 2.4.13-1 for the accidental release of radioactive liquid effluent source terms, for a single new unit, except for mPower. The mPower source terms are based on six units, as discussed in Chapter 11. The composite activities are based on the AP1000, APWR, ABWR,



ESBWR, and mPower designs. The PPE conservative bounding composite source term values presented in Tables 2.4.13-1, 11.2.3-2 and 11.3.3-2 are adopted as the bounding, ~~site-specific PPE~~site-related design parameter values. These bounding values were obtained by identifying the bounding activity for each radionuclide for the technologies identified in 1.10. Tables 11.2.3-2 and 11.3.3-2 are incorporated into Table 2.0-1 as the VCS site-related design parameter source term values for normal liquid and gaseous releases, respectively. SSAR Table 2.4.13-1 is incorporated into Table 2.0-1 as the VCS site-related design parameter source term values for accidental liquid releases. The analyses described in SSAR Sections 2.4.13, 11.2 and 11.3 demonstrate that the VCS site is capable of satisfying the dose consequence limits of 10 CFR 20, 10 CFR 50 Appendix I, 10 CFR 50.34(a)(1), and 10 CFR 100.

Two new paragraphs are added to the end of SSAR Subsection 2.0.3 as follows:

Tables 15.1-6, -8, -21, -29, -31, -33, -35, -37, -41, -43, -57, and -64 are incorporated into Table 2.0-1 as the VCS site-related design parameter source term values for Design Basis Accident gaseous release source terms.

These tables provide the design basis accident source terms for the bounding design basis accident dose consequence for each of the types of accidents analyzed for the VCS site. Table 15.1-5 provides a summary of the Design Basis Accidents analyzed for the VCS site for different types of reactor technologies. The Design Basis Accident analyses described in SSAR Chapter 15 demonstrate that the VCS site is capable of satisfying the dose consequence limits of 10 CFR 50.34(a)(1) and 10 CFR 100.

Table 2.0-1 is revised to re-locate the items for Source Term (Gaseous Release) and Source Term (Liquid Release) from Part 1 of the table to Part 2 of the table and revise the description of those items; to delete the items for Dose Consequences from gaseous and liquid releases in Part 1 of the table; and to add new items for post-accident liquid and gaseous source terms to Part 2 of the table:

**Table 2.0-1  
Site Characteristics and Site-Related Design Parameters**

**Part 1 — Site Characteristics**

Item	Site-Specific Value <sup>(a)</sup>	Description	References
<ul style="list-style-type: none"> <li>4–30 day @ LPZ</li> </ul>	1.19 x 10 <sup>-6</sup> sec/ m <sup>3</sup>		
Atmospheric Dispersion (X/Q) (Annual Average)	1.8 x 10 <sup>-5</sup> sec/m <sup>3</sup>	Maximum annual average atmospheric dispersion coefficient at the EAB.	Refer to Subsection 2.3.5.
<del>Dose Consequences (Gaseous Releases)</del>			
<ul style="list-style-type: none"> <li>Normal</li> </ul>	<del>10 CFR 20, 10 CFR 50 Appendix I</del>	<del>The estimated design radiological dose consequences due to gaseous releases from normal operation of the plant.</del>	<del>Refer to Chapter 11.</del>
<ul style="list-style-type: none"> <li>Post-Accident</li> </ul>	<del>10 CFR 50.34(a)(1), 10 CFR 100</del>	<del>The estimated design radiological dose consequences due to gaseous releases from postulated accidents.</del>	<del>Refer to Chapter 15.</del>
<del>Release Point (Gaseous Releases)</del>			
<ul style="list-style-type: none"> <li>Minimum Distance to the Site Boundary</li> </ul>	3274 feet	Minimum lateral distance from the release point to the site boundary.	Refer to Figures 2.1-3 and 2.1-6.
<del>Source Term (Gaseous Releases)</del>			
<ul style="list-style-type: none"> <li>Normal</li> </ul>	<del>Values in Table 11.3.3-2</del>	<del>The annual activity, by isotope, contained in routine plant airborne effluent streams.</del>	<del>Refer to Table 11.3.3-2.</del>
<del>Dose Consequences (Liquid Releases)</del>			
<ul style="list-style-type: none"> <li>Normal</li> </ul>	<del>10 CFR 20 Appendix B, 10 CFR 50 Appendix I</del>	<del>The estimated design radiological dose consequences due to liquid effluent releases from normal operation of the plant.</del>	<del>Refer to 11.2.</del>
<ul style="list-style-type: none"> <li>Post-Accident</li> </ul>	<del>10 CFR 20, 10 CFR 100</del>	<del>The estimated design radiological dose consequences due to liquid effluent releases from postulated accidents.</del>	<del>Refer to Subsection 2.4.13.</del>
<del>Source Term (Liquid Releases)</del>			
<ul style="list-style-type: none"> <li>Normal</li> </ul>	<del>Values in Table 11.2.3-2</del>	<del>The annual activity, by isotope, contained in routine plant liquid effluent streams.</del>	<del>Refer to Table 11.2.3-2.</del>

**Table 2.0-1**  
**Site Characteristics and Site-Related Design Parameters**  
**Part 2 — Site-Related Design Parameters**

<b>Item</b>	<b>Bounding Value<sup>(a)</sup></b>	<b>Description</b>	<b>References</b>
Release Point Elevation			
<ul style="list-style-type: none"> <li>• <b>Post-Accident</b></li> </ul>	Ground Level	The elevation above finished grade of the release point for releases due to an accident.	Refer to Subsection 2.3.4
<u>Source Term (Gaseous Releases)</u>			
<ul style="list-style-type: none"> <li>• <b>Normal</b></li> </ul>	<u>Values in Table 11.3.3-2</u>	<u>The bounding composite annual activity, by isotope, contained in routine plant airborne effluent streams</u>	<u>Refer to Table 11.3.3-2.</u>
<ul style="list-style-type: none"> <li>• <b>Post-Accident</b></li> </ul>	<u>Values in Tables 15.1-6, -8, -21, -29, -31, -33, -35, -37, -41, -43, -57, -64</u>	<u>Source terms associated with the bounding design basis accident dose analysis from the various reactor technologies</u>	<u>Refer to Section 15.1</u>
<u>Source Term (Liquid Releases)</u>			
<ul style="list-style-type: none"> <li>• <b>Normal</b></li> </ul>	<u>Values in Table 11.2.3-2</u>	<u>The bounding composite annual activity, by isotope, contained in routine plant liquid effluent streams</u>	<u>Refer to Table 11.2.3-2.</u>
<ul style="list-style-type: none"> <li>• <b>Post-Accident</b></li> </ul>	<u>Values in Table 2.4.13-1</u>	<u>Bounding composite source term concentrations for accidental release of radioactive liquid effluents</u>	<u>Refer to Subsection 2.4.13</u>

(a) Values shown are for a single unit, but would be the same value for each additional unit, unless a second bracketed number is provided. If a second bracketed number is provided, the first number represents the value for one unit and the bracketed number represents the value for two units.

**ATTACHMENT 2**

**SUMMARY OF REGULATORY COMMITMENTS**

**(Exelon Letter to USNRC, NP-12-0017, dated May 3, 2012)**

The following table identifies commitments made in this document. (Any other actions discussed in the submittal represent intended or planned actions. They are described to the NRC for the NRC's information and are not regulatory commitments.)

COMMITMENT	COMMITTED DATE	COMMITMENT TYPE	
		ONE-TIME ACTION (Yes/No)	Programmatic (Yes/No)
Exelon will revise the VCS ESPA SSAR Chapter 2 to incorporate the changes shown in the enclosed response to the following NRC RAI:  15-3 (Attachment 1)	Revision 2 of the ESPA SSAR planned for no later than March 31, 2013	Yes	No