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52.17

September 30, 2005

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

Early Site Permit (ESP) Application for the Clinton ESP Site  
Docket No. 52-007

Subject: Revised Response to Draft Safety Evaluation Report (DSER) Items

Re: Letter, U.S. Nuclear Regulatory Commission (W. D. Beckner) to Exelon  
Generation Company, LLC, (M. Kray), dated February 10, 2005, Draft  
Safety Evaluation Report for the Exelon Early Site Permit Application

By correspondence dated October 7, 2004, Exelon Generation Company (EGC) submitted a response to the NRC's request for additional information (RAI) 3.3.4-2 as requested by the referenced US Nuclear Regulatory Commission (NRC) letter. EGC subsequently submitted a revised response to this RAI by correspondence dated July 14, 2005. This revised response did not include an update of a supplementary table (the "Table") that presents certain dispersion coefficient information used in the EGC ESP site safety analysis report.

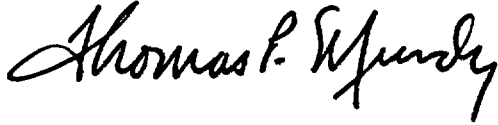
Recently, the NRC verbally requested that EGC provide an update of the Table. Enclosed herewith is EGC's revised response to RAI 3.3.4-2 containing the requested update. The enclosed response supersedes and replaces all previous EGC responses to this RAI. Further, as an aid to the NRC reviewer, the revisions from the original response are identified by strikeout of the deletions and underline of the added material in the enclosure. However, individual changes are not specifically identified in the Table shown in the attachment since the changes were comprehensive.

DOTB

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Page 2 of 3

Please contact Eddie Grant of my staff at 610-765-5001 if you have any questions regarding this submittal.

Sincerely yours,

A handwritten signature in black ink, reading "Thomas P. Mundy". The signature is written in a cursive style with a large, stylized "T" and "M".

Thomas P. Mundy  
Director, Project Development

TPM/erg

cc: U.S. NRC Regional Office (w/ enclosures)  
Mr. John P. Segala (w/ enclosures)

Enclosure

**AFFIDAVIT OF THOMAS P. MUNDY**

State of Pennsylvania

County of Chester

The foregoing document was acknowledged before me, in and for the County and State aforesaid, by Thomas P. Mundy, who is Director, Project Development, of Exelon Generation Company, LLC. He has affirmed before me that he is duly authorized to execute and file the foregoing document on behalf of Exelon Generation Company, LLC, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged and affirmed before me this 30<sup>th</sup> day of September, 2006.

My commission expires 10-6-07.

Vivia V. Gallimore

Notary Public

COMMONWEALTH OF PENNSYLVANIA

Notarial Seal  
Vivia V. Gallimore, Notary Public  
Kennett Square Boro, Chester County  
My Commission Expires Oct. 6, 2007

Member, Pennsylvania Association Of Notaries

**NRC Letter Dated: 07/27/2004**

**NRC RAI No. 3.3.4-2**

SSAR Table 3.3-2 summarizes the resulting doses at the ESP site for postulated DBAs using the AP1000, the advanced boiling water reactor (ABWR), and the ACR-700 as surrogate reactor designs. Please update the table for each DBA to include (1) AP1000, ABWR, and ACR-700  $\chi/Q$  values and doses used for the EAB and LPZ, and (2) the ratios of site-specific  $\chi/Q$ s to design certification  $\chi/Q$ s used.

**EGC RAI ID: R11-9**

**EGC RESPONSE via letter dated October 7, 2004:**

**Revisions shown by strikeout (of deletions) and underline (of additions).**

SSAR Table 3.3-2 summarizes the resulting EAB and LPZ doses at the ESP Site for the spectrum of postulated design basis accidents (DBA) that had offsite dose consequences as considered in the AP1000 and ABWR certification documents. In addition, projected EGC ESP Facility offsite doses were provided for the ESBWR and the ACR-700 for the limiting DBA (Loss of Coolant Accident). The ESBWR and ACR-700 offsite doses were projected based on estimated radioactive releases to the environment provided by the vendors and EGC ESP Site  $\chi/Q$  values since no certification documents have been submitted for these design concepts.

The revised text in SSAR Chapter 3.3.4 states that the AP1000 doses accepted by the NRC in the design certification were used in the scaling of AP1000 site doses as shown in Table 3.2-2. Table 3.3-2A was also revised comparing the ESP site and Westinghouse  $\chi/Q$ s use in the scaling process.

The bases for the AP1000 results presented in SSAR Table 3.3-2 ~~is~~ are presented in the supplementary table ~~ulation~~ attached to this RAI response. This table includes the AP1000 EAB and LPZ doses reviewed by NRC during the AP1000's design certification. Also included are ~~along with~~ the corresponding ratios of ESP Site  $\chi/Q$ s to Vendor specified  $\chi/Q$ s as a function of post accident time periods. The AP1000's EAB and total LPZ accident doses are given in the AP1000's Tier 2 Design Control Document (Rev. 14). The LPZ doses by time interval are not explicitly listed in the design control document but were obtained from Westinghouse for use in this ESP application.

As noted in the Application, the doses provided for the ABWR design basis accidents were not based on  $\chi/Q$  ratios of certified post accident offsite dose values but were calculated based upon the DBA activity releases as function of the post accident time period, the EGC ESP Site  $\chi/Q$  and Federal Guidance Reports 11 and 12 dose conversion factors. The ABWR doses are presented in terms of TEDE equivalent in lieu of thyroid and whole body doses (refer to the response to RAI 3.3.4-3 for the equivalent thyroid and whole body doses). Certification doses and  $\chi/Q$  ratios are not available for the ACR-700 or the ESBWR and therefore have not been included.

Table 3.3-2, "Design Basis Accident Off-site Dose Consequences" has been revised.

Table 3.3-2A, "Ratio of EGC ESP Site Short Term  $\chi/Q$  Values to AP1000 Design Certification (DC)  $\chi/Q$  Values," has been revised to provide the requested information.

RAI 3.3.4-2 Supplementary Table shows how the doses in the AP1000 design control document were scaled to obtain EGC ESP site doses.

[Note: The revised Tables 3.3-2 and 3.3-2A are not included in this letter. The revised SSAR tables attachment provided with the July 14, 2005 letter (which included these revised tables) remains valid and applicable.]

~~The following table provides the basis for the ratios presented in the tabulation attached to this RAI response.~~

<b>Table 3.3-2a</b> <b>Ratio of EGC ESP Site Short-Term x/Q Values to AP1000 Design Certification (DC) x/Q Values</b>			
<b>Post-Accident Time Period (hr)</b>	<b>EGC-ESP Site x/Q Values (ccm/m<sup>3</sup>)</b>	<b>AP1000-DC x/Q Values (ccm/m<sup>3</sup>)</b>	<b>x/Q Ratio (EGC Site / AP1000-DC)</b>
<del>EAB 0-2</del>	<del>1.85E-04</del>	<del>6.00E-04</del>	<del>3.08E-01</del>
<del>LPZ 0-8</del>	<del>2.40E-05</del>	<del>4.35E-04</del>	<del>4.84E-01</del>
<del>LPZ 8-24</del>	<del>1.68E-05</del>	<del>1.00E-04</del>	<del>1.68E-01</del>
<del>LPZ 24-96</del>	<del>7.18E-06</del>	<del>5.40E-05</del>	<del>1.33E-01</del>
<del>LPZ 96-720</del>	<del>2.11E-06</del>	<del>2.20E-05</del>	<del>0.50E-02</del>

~~Note 1. 2-hour period with greatest EAB dose consequences.~~

**ASSOCIATED EGC ESP APPLICATION REVISIONS:**

None

**ATTACHMENTS:**

RAI 3.3.4-2 Attachment (AP1000 Results Bases Tabulation)

U.S. Nuclear Regulatory Commission  
September 30, 2005  
Attachments

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**TABULATION OF THE BASES FOR THE AP1000 DESIGN BASIS ACCIDENT OFFSITE DOSES AT THE EGC ESP SITE**

	ESP EAB Dose TEDE (rem)	Vendor EAB Dose TEDE (rem)	ESP/Vendor EAB $\gamma/Q$ Ratio	ESP LPZ Dose TEDE (rem)	Vendor LPZ Dose TEDE	ESP/Vendor LPZ $\gamma/Q$ Ratio
<b>Steam Generator Tube Rupture Accident</b>						
<i>Accident-Initiated Iodine Spike -</i>						
0 to 2 hour	4.45E-01	9.00E-01	4.94E-01	-	-	-
0 to 8 hour	-	-	-	8.56E-02	6.28E-01	1.36E-01
8 to 24 hour	-	-	-	2.14E-02	1.69E-01	1.26E-01
<b>Total</b>	<b>4.45E-01</b>	<b>9.00E-01</b>		<b>1.07E-01</b>	<b>7.97E-01</b>	
<i>Pre-existing Iodine Spike -</i>						
0 to 2 hour	8.89E-01	1.80E+00	4.94E-01	-	-	-
0 to 8 hour	-	-	-	1.59E-01	1.16E+00	1.36E-01
8 to 24 hour	-	-	-	9.14E-03	7.24E-02	1.26E-01
<b>Total</b>	<b>8.89E-01</b>	<b>1.80E+00</b>		<b>1.68E-01</b>	<b>1.24E+00</b>	
<b>Loss of Coolant Accident</b>						
1.4 to 3.4 hour	1.23E+01	2.48E+01	4.94E-01	-	-	-
0 to 8 hour	-	-	-	2.96E+00	2.17E+01	1.36E-01
8 to 24 hour	-	-	-	9.71E-02	7.69E-01	1.26E-01
24 to 96 hour	-	-	-	3.17E-02	3.71E-01	8.53E-02
96 to 720 hours	-	-	-	2.70E-02	8.70E-01	3.10E-02
<b>Total</b>	<b>1.23E+01</b>	<b>2.48E+01</b>		<b>3.12E+00</b>	<b>2.38E+01</b>	
<b>Fuel Handling Accident</b>						
0 to 2 hour	2.77E+00	5.60E+00	4.94E-01	-	-	-
0 to 8 hour	-	-	-	4.77E-01	3.50E+00	1.36E-01
<b>Total</b>	<b>2.77E+00</b>	<b>5.60E+00</b>		<b>4.77E-01</b>	<b>3.50E+00</b>	

**Notes:**

Reference 1 reports total EAB and LPZ total doses.

LPZ doses by time interval are not reported in Reference 1. These doses were supplied by Westinghouse.

AP1000 X/Q values used by Westinghouse are from references 1 and 2.

**References:**

1. Westinghouse AP1000 Design Control Document, Tier 2 Material, Rev. 14
2. Westinghouse, Draft Safety Evaluation Open Item for Response 15.3-1 R5, June 21, 2004