

April 19, 2011

Ms. Marilyn C. Kray  
Vice President  
New Plant Development  
Exelon Generation  
200 Exelon Way  
Kennett Square, PA 19348

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION LETTER NO. 08  
(SRP SECTIONS: 02.03.02 – LOCAL METEOROLOGY, 02.04.03–PROBABLE  
MAXIMUM FLOOD ON STREAMS AND RIVERS, 02.04.12 - GROUNDWATER  
AND 02.04.13-ACCIDENTAL RELEASES OF RADIOACTIVE LIQUID  
EFFLUENTS IN GROUND AND SURFACE WATER) RELATED TO THE  
VICTORIA COUNTY STATION EARLY SITE PERMIT APPLICATION

Dear Ms. Kray:

By letter dated March 25, 2010, Exelon Nuclear Texas Holdings, LLC (Exelon) submitted an early site permit application for Victoria County Station pursuant to 10 CFR Part 52. The Nuclear Regulatory Commission (NRC) staff is performing a detailed review of this application.

The staff has identified that additional information is needed to continue portions of the review and the request for additional information (RAI) is contained in the enclosure to this letter. Exelon is requested to respond within 30 days of the date of this letter. However, the Exelon staff has requested the following response times for each question:

<b>30 days</b>	<b>45 days</b>	<b>90days</b>	<b>120 days</b>
02.03.02-1	02.04.12-5	02.04.12-8	02.04.12-2
02.04.03-10	02.04.12-6		02.04.13-1
02.04.03-2			
02.04.12-1			
02.04.12-3			
02.04.12-4			
02.04.12-7			
02.04.12-9			
02.04.13-2			

M. Kray

- 2 -

If the RAI response involves changes to application documentation, Exelon is requested to include the associated revised documentation with the response.

Should you have questions, please contact Tekia Govan at (301) 415-6197 or [Tekia.Govan@nrc.gov](mailto:Tekia.Govan@nrc.gov).

Sincerely,

***/RA/***

Tekia V. Govan, Project Manager  
BWR Projects Branch  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-042

Enclosure: Request for Additional Information

M. Kray

- 2 -

Should you have questions, please contact Tekia Govan at (301) 415-6197 or [Tekia.Govan@nrc.gov](mailto:Tekia.Govan@nrc.gov).

Sincerely,

*/RA/*

Tekia V. Govan, Project Manager  
BWR Projects Branch  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-042

Enclosure: Request for Additional Information

Docket No. 52-042

Enclosure: Request for Additional Information

Distribution:

TGovan, NRO

JGiacinto, NRO

LGoldin, OGC

NRO\_DNRL\_BWR

SGreen, NRO

KQuinlan, NRO

ZGran, NRO

SPrice, OGC

JCaverly, NRO

RSchaaf, NRO

JGiacinto, NRO

E-RAI Tracking No: 5626, 5363, 5360 , 5361

ADAMS Accession No.: ML111090422

OFFICE	BC: NRO/RHEB	BC: NRO/RSAC	PM:DNRL:BWR
NAME	JGiacinto*	RSchaef*	TGovan*
DATE	1/28/2011	3/21/2011	4/19/2011

**\*Approval captured electronically in the electronic RAI system.**

**OFFICIAL RECORD COPY**

Request for Additional Information No. 5626 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: 02.03.02 - Local Meteorology  
Application Section: Local Meteorology

QUESTIONS for Siting and Accident Conseq Branch (RSAC)

02.03.02-1

10 CFR 100.20(c) states, in part, that the staff will take the meteorological characteristics of the site into consideration in determining the acceptability of a site for a stationary power reactor. 10 CFR 100.21(c) further states that site atmospheric dispersion characteristics must be evaluated and dispersion site characteristics so that radiological effluent release limits associated with normal operation and radiological dose consequences of postulated accidents meet regulatory criteria. RG 1.23, Revision 1 provides guidance on how the atmospheric stability classes should be determined. Stability class is an important parameter in evaluating atmospheric dispersion site characteristics.

Using the July 1, 2007 through June 30, 2009 onsite hourly meteorological dataset, the staff calculated the percentage of time local conditions conformed to each of the 7 Pasquill stability classes specified in RG 1.23. The staff found large differences between these calculated percentages and the percentages reported in VCS ESP SSAR Tables 2.3.2-4 and 2.3.2-5, for stability classes A, B, and C.

Please provide a detailed description of how the stability classes presented in the SSAR were determined.

Request for Additional Information No. 5363 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: 02.04.03 - Probable Maximum Flood (PMF) on Streams and Rivers  
Application Section: 2.4.3

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.03-1

In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request the applicant provide clarification and details regarding the hydraulic routing of the PMF flood, in particular, regarding the sequencing of the antecedent and maximum events and related initial and boundary conditions boundary.

02.04.03-2

In accordance with 100.20(c) and 52.79(a)(1)(iii), the NRC staff request the applicant provide the adopted elevation-capacity curve for the Coletto Creek Dam reservoir.

Request for Additional Information No. 5360 Revision 0

4/19/2011

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: 02.04.12 - Groundwater  
Application Section: 2.4.12

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.12-1

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, the NRC Staff requests that the Applicant provide a detailed description of how the previous site model, the existing regional (e.g., TWDB GAM) studies and site specific parameters and data were integrated into the development of the current groundwater flow model for the site.

02.04.12-2

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plan 2.4.12 "Groundwater" acceptance criteria, additional information concerning the groundwater flow modeling is required for the NRC Staff's evaluation of the Application.

Please:

- (A) Provide the technical basis for the conservative assumptions used for flow modeling extending to the hydraulic conductivity (Section 2.4.12-C-3.5) and the assumption of a maximum K for clay layers with respect to basin seepage and ground water mounding.
- (B) Discuss the model calibration and apparent spatial correlation of residuals and specifically the tendency for the model to under estimate higher observed heads and over estimate lower observed heads and the impact on simulated gradients, flow paths and transport.
- (C) Provide the technical basis and background for the vertical conductivity values from Reference 2.4.12-C-9 that were used for site specific groundwater flow modeling.
- (D) Provide the basis for determining elevations of drains, constant head, and river cells representing canal, river, creeks and seeps and the impact of elevation estimate errors on calibration and postulated pathways.

- (E) Discuss areas where the predicted water levels are above land surface for pre-construction and post-construction particularly around the proposed cooling basin, and the impacts to calibration and simulations. Of particular concern are areas around the toe of the cooling basin where steep gradients are created by seepage and subsequent drainage by Dry Kuy Creek.
- (F) Discuss the hydraulic conductivity zones used for model layer 1, cooling basin leakage, the bottom of the cooling basin with respect to differences in the hydraulic properties of various hydrogeologic units, and the basin sensitivity simulations.

#### 02.04.12-3

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by SRP 2.4.12 "Groundwater" acceptance criteria, the NRC Staff requests that the Applicant provide a detailed description and justification for the horizontal and vertical hydraulic properties of the construction fill described in FSAR Section 2.4.12.3.2.

#### 02.04.12-4

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and recommended by Standard Review Plan 2.4.12 "Groundwater" acceptance criteria, please describe the effects of well drilling techniques and well testing methods, including slug tests, pumping tests and borehole permeable tests, on the hydrogeologic properties presented in this section. Also, please discuss the role of well construction on the test results, factors that account for the many orders of magnitude difference in aquifer properties, and rationale used to select the parameter values for the site conceptual and numerical model.

#### 02.04.12-5\

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plan 2.4.12 "Groundwater" acceptance criteria, the NRC Staff requests that the Applicant provide: (1) A detailed description of how various site specific hydro-lithologic units were defined, particularly the distinction between the upper shallow and lower shallow aquifer units subdividing the Chicot aquifer; and (2) A discussion of the importance or influence of holes in confining units beneath the footprint of the site and cooling basin on vertical groundwater gradients and movement during post-construction.

#### 02.04.12-6

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plans 2.4.12 "Groundwater" acceptance criteria, the NRC Staff requests that the Applicant provide: (1) Two orthogonal cross-sections across the site with the hydro-

lithologic units labeled consistent with site nomenclature and include the vertical direction of ground water flow and the potentiometric surfaces for the hydrologic layers; and (2) Two orthogonal cross sections (replacing or adding to FSAR, Rev0, Figure 2.4.12-26), of the model grid that approximate the location of the two hydro-stratigraphic cross-sections in (1) above.

#### 02.04.12-7

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plan 2.4.12 "Groundwater" acceptance criteria,, the NRC Staff requests that the Applicant describe the ground water/surface water interactions in the drainage ditch around the outside of the embankment (FSAR, Rev0, page 2.4.12-12). Also, please exclude descriptions of potential engineering modifications to the cooling basin design in this (2.4.12) section.

#### 02.04.12-8

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plans 2.4.12 "Groundwater" and 2.4.13 "Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters" acceptance criteria,, the NRC Staff requests that the Applicant discuss the hydraulic connections between river hydrographs, the level in Linn Lake and the water levels measured in wells on the eastern side of the site (OW2348 U/L). Describe the potential hydraulic communication postulated in the FSAR (Rev0, page 2.4.12-22) and causal mechanisms for the pervasive downward trend in well hydrographs and if the model is in agreement with the observed pattern of vertical gradients.

#### 02.04.12-9

In accordance with the requirements of 10 CFR 100.20(c) "Factors to be considered when evaluating sites" relating to hydrology and, 10 CFR 52.79(a) "Contents of applications; technical information in final safety analysis report" relating to hydrologic characteristics of the proposed site, and as recommended by Standard Review Plan 2.4.12 "Groundwater" acceptance criteria, the NRC Staff requests that the Applicant discusses the proposed potable water supply wells to be drilled in the Evangeline aquifer and the potential impact of pumping from this well on vertical gradients and groundwater pathways in Section 2.4.12.3 of the FSAR.

Request for Additional Information No. 5361 Revision 0

Victoria County Station ESP

Exelon Texas

Docket No. 52-042

SRP Section: 02.04.13 - Accidental Releases of Radioactive Liquid Effluents in Ground and Surface Waters

Application Section: 2.4.13

QUESTIONS for Hydrologic Engineering Branch (RHEB)

02.04.13-1

In accordance with 10 CFR 100.20(c), 10 CFR 20 Appendix B, Table 2, Column 2, 10 CFR 52.79(a) requirements and criteria of SRP 2.4.12 and SRP 2.4.13, the NRC staff request that the applicant discuss the development of the groundwater transport model, parameters and the associated conservatism incorporated into the parameters and simulations.

02.04.13-2

In accordance with 10 CFR 100.20(c), 10 CFR Appendix B, 10 CFR 52.79(a) requirements, criteria of SRP 2.4.12 and SRP 2.4.13, the NRC staff request that the applicant provide the following calculation packages:

- Digital copies of files used for radionuclide transport analysis with explanations of data and formats.