

## PMVictoriaESPPEm Resource

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**From:** Terry, Tomeka  
**Sent:** Wednesday, June 06, 2012 3:31 PM  
**To:** Joshua.Trembley@exeloncorp.com  
**Cc:** VictoriaESP Resource  
**Subject:** Environmental Request for Additional Information Letter No. 12 Related to Radiological Health Impacts for Victoria County Station Early Site Permit Application  
**Attachments:** ML12150A152 - Environmental Request for Additional Information Letter No. 12 Related to Radiological Health Impacts for Victoria County Station Early Site Permit Application..pdf

JT,

Attached is Radiological Health Impacts RAIs. Please let me know if you have any questions.

Thanks!  
Tomeka

**Hearing Identifier:** Victoria\_ESP\_Public  
**Email Number:** 684

**Mail Envelope Properties** (0A64B42AAA8FD4418CE1EB5240A6FED18A39491552)

**Subject:** Environmental Request for Additional Information Letter No. 12 Related to Radiological Health Impacts for Victoria County Station Early Site Permit Application  
**Sent Date:** 6/6/2012 3:31:04 PM  
**Received Date:** 6/6/2012 3:30:58 PM  
**From:** Terry, Tomeka

**Created By:** Tomeka.Terry@nrc.gov

**Recipients:**  
"VictoriaESP Resource" <VictoriaESP.Resource@nrc.gov>  
Tracking Status: None  
"Joshua.Trembley@exeloncorp.com" <Joshua.Trembley@exeloncorp.com>  
Tracking Status: None

**Post Office:** HQCLSTR02.nrc.gov

Files	Size	Date & Time
MESSAGE	138	6/6/2012 3:30:58 PM
ML12150A152 - Environmental Request for Additional Information Letter No. 12 Related to Radiological Health Impacts for Victoria County Station Early Site Permit Application..pdf		114951

**Options**  
**Priority:** Standard  
**Return Notification:** No  
**Reply Requested:** No  
**Sensitivity:** Normal  
**Expiration Date:**  
**Recipients Received:**

May 31, 2012

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

SUBJECT: ENVIRONMENTAL REQUEST FOR ADDITIONAL INFORMATION  
LETTER NO. 12 RELATED TO RADIOLOGICAL HEALTH IMPACTS FOR  
VICTORIA COUNTY STATION EARLY SITE PERMIT APPLICATION

Dear Ms. Kray:

By letter dated March 25, 2010, Exelon Nuclear Texas Holdings, LLC (Exelon) submitted its application to the U.S. Nuclear Regulatory Commission (NRC) for an early site permit (ESP) for the Victoria County Station (VCS) site in accordance with the requirements contained in Title 10 of the *Code of Federal Regulations* (CFR) Part 52, "Licenses, Certifications and Approvals for Nuclear Power Plants." The NRC staff is performing a detailed review of this application to enable the staff to reach a conclusion regarding the environmental impacts of the proposed action.

The NRC staff has identified that additional information is needed to continue portions of the environmental review. The staff's request for additional information (RAI) is contained in the enclosure to this letter.

To support the review schedule, you are requested to respond within 45 days of the date of this letter. However, your staff has requested the following response times for each question:

**45 days**

**60 days**

HP-1	HP-5.4.1-2
HP-5.4.1-1	HP-5.4.1-3
HP-5.4.1-4	
HP-5.4.1-5	
HP-5.4.1-6	
HP-5.4.1-7	
HP-5.4.1-8	
HP-5.4.3.1	
HP-5.4.3-2	
HP-5.4.4-1	
HP-5-11-1	
HP-6.2-1	
HP-9.3.3-1	

M. Kray

- 2 -

If you are unable to provide a response within 45 or 60 days, please state when you will be able to provide the response. In the event the response submitted is incomplete, please indicate in the response when the complete response will be provided. If changes are needed to the ESP application, the staff requests that the RAI response include the proposed wording changes. Your response should also indicate whether any of the information provided is to be withheld as exempt from public disclosure pursuant to 10 CFR 2.390.

If you have any questions or comments concerning this matter, you may contact me at 301-415-1488 or via e-mail at [Tomeka.Terry@nrc.gov](mailto:Tomeka.Terry@nrc.gov).

Sincerely,

**/RA/**

Tomeka Terry, Environmental Project Manager  
Environmental Projects Branch 2  
Division of New Reactor Licensing  
Office of New Reactors

Docket No. 52-042  
eRAI Tracking Nos. 6505-6509

Enclosure:  
As stated

cc: w/enclosure see next page

M. Kray

- 2 -

If you are unable to provide a response within 45 or 60 days, please state when you will be able to provide the response. In the event the response submitted is incomplete, please indicate in the response when the complete response will be provided. If changes are needed to the ESP application, the staff requests that the RAI response include the proposed wording changes. Your response should also indicate whether any of the information provided is to be withheld as exempt from public disclosure pursuant to 10 CFR 2.390.

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Sincerely,

**/RA/**

Tomeka Terry, Environmental Project Manager  
Environmental Projects Branch 2  
Division New Reactor Licensing  
Office of New Reactors

Docket No.: 52-042  
eRAI Tracking Nos. 6505-6509  
Enclosure:  
As stated

cc: w/enclosure see next page

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**ADAMS Accession Number: ML12150A152**

**NRO-002**

OFFICE	NRO/DNRL/ LA	NRO/DNRL/EPB2/PM
NAME	ARedden*	TTerry
DATE	05/25/2012	05/31/2012

\* Approval captured electronically in the electronic RAI system.

**OFFICIAL RECORDS COPY**

Request for Additional Information  
No. 6505 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042

SRP Section: ESP EIS 4.9 -Radiation Exposure to Construction Workers  
Application Section: Part 3, Environmental Report (ER) Section 4.5

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 4.9-1

HP- 1 According to ESRP 4.5 Section I, information is needed for "the number and principal location of construction workers who will be exposed to the radiation sources described above and the total amount of time per year that they will spend at those locations." The ER Section 4.5 does not provide the basis for the assumption that NNE direction is the most representative location for construction worker dose estimates. Provide the basis for the assumption that the NNE direction is the most representative location for construction worker dose estimates.

Enclosure

Request for Additional Information  
No. 6506 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042

SRP Section: ESP EIS 5.0 - Operational Impacts at the Proposed Site  
Application Section: Part 3, Environmental Report (ER) Section 5.4

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 5.0-1

HP- 5.4.1-1 ESRP Section 5.4.1 directs the staff to review the description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms. The following information is needed to perform the dose calculation from liquid effluent releases: (1) the transit times and dilution factors at each appropriate receptor location and transit times to unrestricted area boundaries and diluted stream flows at these boundaries; and (2) the predicted dilution factors at specified locations. Provide justification/clarification for the transit time used in the LADTAP calculations for liquid discharges for the different receptors. Provide justification/clarification for the transit time used in LADTAP code dose calculations for liquid discharges for different receptor intake locations (commercial fish and invertebrate catch locations, drinking water intake locations, irrigation water intake locations).

HP- 5.4.1-2 ESRP Section 5.4.1 directs the staff to review the description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms. Projected population for 5 years from the time of the licensing action under consideration is needed to perform dose calculations. Provide justification for applying 2000 census data for 50-mile population to project the future population for FY2080 as listed in Table 5.4-1 of the ER. Provide justification for continued use of 2000 census data for projecting the future 50-mile population for the population dose estimation.

HP-5.4.1-3 ESRP Section 5.4.1 directs the staff to review the description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms. Present and known future drinking water intake locations within 80 km (50 mi) of the plant radwaste discharge (downstream or radius) are needed to perform dose calculations. Table 5.4-1 of the ER lists liquid pathway parameter values for "50-mile drinking water population" based on the current municipal water usage in the 12 counties within 50 miles of the plant from the Guadalupe River but does not provide any known future intake locations. Provide the present and known future drinking water intake locations within 50 miles of the facility radionuclide effluent discharge.

HP-5.4.1-4 According to ESRP Section 5.4.1, the following information is needed to perform dose calculations – "the present commercial fish and invertebrate catch (in kg/yr) from waters within 80 km (50 mi) downstream (or 80-km [50-mi] radius for lake or coastal sites) of the plant radwaste discharge...." Table 5.4-1 of the ER lists liquid pathway parameter values for 50-mile sport fishing harvest, commercial fishing harvest, sport invertebrate harvest, and commercial invertebrate harvest but does not provide references/justifications for the in-between parameters used in these estimations.

Provide the following information:

- Reference/justification for assumption that 50% of fish consumed within 50 miles are from the Guadalupe River
- Reference/justification for assumption that 2.75% of population engages in sport fishing
- Reference/justification for assumption that 2.75% of population engages in sport invertebrate harvest

HP-5.4.1-5 ESRP Section 5.4.1 directs the staff to review the identification and description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms. The irrigation rate,...for irrigated land using water withdrawn within 80 km (50 mi) of the plant radwaste discharge (downstream or radius) is needed to perform dose calculations. Table 5.4-1 of the ER lists irrigation rate used, but does not provide references/justifications for the value used. Provide the reference/justification for assumption that irrigation rate is 110 l/m<sup>2</sup> per month.

HP-5.4.1-6 According to ESRP 5.4.1, the following information is needed to perform site-specific analysis – “unusual animals, plants, agricultural practices, game harvests, or food processing operations having the potential for contributing 10% or more to either individual or population doses .....” Section 2.2 of the ER does not address any unusual animals, plants, agricultural practices, game harvests (e.g., organized seasonal deer hunting), or food processing operations. Provide discussion on the unusual animals, plants, agricultural practices, game harvests, or food processing operations having the potential to contribute 10% or more to either individual or population doses in areas affected by liquid effluents, as well as food-processing operations involving large quantities of water.

HP-5.4.1-7 ESRP Section 5.4.1 directs the staff to review the identification and description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms. Section 5.4.2.1 of the ER lists consumption of milk in areas irrigated with contaminated water as one pathway in calculating doses to the MEI from liquid effluent releases but Irrigated milk pathway is not included in ER Table 5.4-4. Provide justification/clarification why milk pathway is not included in calculating the MEI dose from liquid effluent releases. Provide clarification/ justification that there are no milk pathways within 5 miles of liquid effluent discharge location. Table 5.4-4 does not provide doses for all receptors (adult, teen, child, and infant). Provide doses for all receptors (adult, teen, child, and infant) from liquid effluent releases.

HP-5.4.1-8 ESRP Section 5.4.1 directs the staff to review the identification and description of the environmental pathways by which radiation and radioactive effluents can be transmitted from the proposed plant to living organisms presented in the ER. Table 5.4-3 lists the receptor locations exposed to gaseous effluent. Meat animal distance is at the residence location but the meat animal can spend time closer to the power block. Provide justification/verification of the nearest meat animal location.

HP-5.4.3-1 According to ESRP Section 5.4.3, the applicant's estimated maximum individual doses should be compared with the design objectives of 10 CFR 50 Appendix I with respect to radiological impacts to individuals from the radiological effluent releases from reactors. Table 5.4-6 in the ER lists total body and skin dose at the site boundary from gaseous effluent releases. However, the site



boundary location only considers plume and ground doses. For comparison to the limits in 10 CFR 50 Appendix I, the total dose utilized is to be at the nearest MEI and should also include all pathway doses at the MEI. This change would also affect the results in Table 5.4-7. Re-evaluate the dose values listed for MEI in Table 5.4-6 from gaseous effluent releases. Note: **This is also submitted as a safety RAI6303.**

HP-5.4.3-2 According to ESRP Section 5.4.3, the individual dose equivalent to any member of the public from all nuclear fuel cycle facilities must be considered against the limits of 40 CFR 190 and 10 CFR 20.1301(e). Table 5.4-7 in the ER lists the total dose to maximally exposed individual from VCS site, but the estimated dose values do not match with the dose values listed in Table 5.4-6 (e.g., the thyroid dose listed in Table 5.4-6 is 11 mrem/yr from gaseous effluent, this implies that the dose from two units would be 22 mrem from gaseous effluents but the value listed in Table 5.4-7 for thyroid dose is 16 mrem/yr). Provide justification of the site dose values listed in Table 5.4-7.

HP-5.4.4-1 According to ESRP Section 5.4.4, "the biota to be considered in this evaluation should include those in the pathways identified in ESRP 5.4.1, those appearing on the endangered/threatened species lists, and others of significance." Provide justification/verification of the level of exposure of certain threatened and endangered species on and within 50 miles of the proposed VCS site (ER Section 2.4.1.5 includes the discussion on threatened and endangered species such as whooping cranes, bald eagle, white-tailed hawk, etc). Provide discussion on the relationship of the calculated biota doses for surrogate species to the endangered/threatened species observed on the proposed VCS site.

Request for Additional Information  
No. 6507 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: ESP EIS 7.0 - Cumulative Impacts  
Application Section: Part 3, Environmental Report (ER) Section 5.11.6

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 7.0-1

HP-5.11-1 ESRP Section 5.11 directs the staff to review the potential cumulative environmental impacts associated with proposed project presented in the ER. Section 5.11.6 of the ER discusses cumulative radiological health impacts for the proposed VCS site from the operation of the South Texas Nuclear Power Plant (STP), but does not discuss other nuclear facilities (such as Goliad Project). The ER does not discuss cumulative radiological health impacts of the alternative sites. Provide an explicit statement regarding how contributions from existing and proposed nuclear power plants and other nuclear facilities within 50 mi radius are incorporated in the assessment of cumulative radiological health impacts for the proposed VCS site and other alternative sites.

Request for Additional Information  
No. 6508 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042

SRP Section: ESP EIS 5.0 - Operational Impacts at the Proposed Site  
Application Section: Part 3, Environmental Report (ER) Section 6.2.2

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 5.0-2

HP-6.2-1 ESRP Section 6.2 directs the staff to review the proposed radiological environmental monitoring plan. Section 6.2.2.1 on page 6.2-2 of the ER lists the pathways/media monitored but does not include any pathway linked to identify leakage from the blowdown discharge piping. Provide a description of the leakage monitoring program for the blowdown discharge piping.

Request for Additional Information  
No. 6509 Revision 0

Victoria County Station ESP  
Exelon Texas  
Docket No. 52-042  
SRP Section: ESP EIS 9.3 - Alternative Sites  
Application Section: Part 3, Environmental Report (ER) Section 9.3

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 9.3-1

HP- 9.3.3-1 ESRP 9.3 requires comparison of the proposed and alternative sites for various topics including “radiological and non-radiological health impacts.” The ER Section 9.3.3 discusses alternative sites but the discussion does not include health impacts from radioactive effluent releases. Provide a discussion of health impacts from radioactive effluent releases from each alternative site.