PMVictoriaESPPEm Resource

From: Terry, Tomeka
Sent: Tuesday, May 22, 2012 6:40 PM
To: Joshua.Trembley@exeloncorp.com
Cc: Wescott, Konstance L.; Avci, Halil I.; Kamboj, Sunita; Fringer, John; Palmrose, Donald
Subject: Draft Non Rad Health, Non-Rad Waste, Rad Waste, and Health Physics RAIs
Attachments: Draft Health Physics RAIs 6505-6509.doc; Non Radiological Health RAI 6455 (2).doc; Rad Waste & Non Rad Waste RAIs(2).doc

JT,

Attached are draft RAIs for Non-radiological Health, Non-Radioactive Waste, Radioactive Waste Management Systems, and Health Physics. Please let me know, if you have any questions.

Thanks!
Tomeka

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Draft Health Physics RAIs 6505-6509.doc	52730	
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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 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 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." 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.

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 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 FY 2080 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^2 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. Table 5.4-4 does not provide doses for all receptors (adult, teen, child, and infant). Provide clarification/ justification that there are no milk pathways within 5 miles of liquid effluent discharge location. 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 environmental report (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." Acknowledge the presence of certain threatened and endangered species on 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). In the discussion include which surrogate species could represent the different observed threatened and endangered species. 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 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 environmental report (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). 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 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 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.” ER Section 9.3.3 discusses alternative sites but the discussion does not include health impacts from radioactive effluent releases. Include a discussion in ER about how health impacts from radioactive effluent releases from VCS and alternative sites. Also make a comparison of health impacts from radioactive effluent releases amongst these sites.

Request for Additional Information No. 6455 Revision 0

Victoria County Station ESP
Exelon Texas
Docket No. 52-042
SRP Section: ESP EIS 4.8 - Nonradiological Health Impacts
Application Section: Part 3, Environmental Report Sections 2.7.7, 5.3.4, and 9.3.3

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 4.8-1

NRH 4.4.1-1 ESRP Section 4.4.1 directs the staff to review the physical impacts of construction-related activities on the community. Existing gas/oil wells are mentioned multiple places in the Environmental Report (ER) but potential impacts to the construction workers from these wells are not discussed. Discuss impacts to construction workers from existing oil and gas wells on the VCS site.

NRH 4.4.1-2 ESRP 4.4.1 requires evaluating impacts associated with noise generated during construction activities. ER Section 2.7.7 includes a table of estimated long-term equivalent sound pressure levels from different phases of construction at three distances but it is not clear why these three distances were selected. Provide a list of locations that are vulnerable to noise impacts. Provide the distances from the proposed construction activity to the nearest sensitive areas and associated noise impacts.

NRH 5.3.4.1-1 ESRP Section 5.3.4 directs the staff to review the human health impacts associated with the plant's cooling system. ER Section 5.3.4.1 states that the maximum temperature of the effluent would be 100 F. ER Section 5.3.2 states that Segment 1803 of the Guadalupe River (where the blowdown would occur) has been assigned a site-specific, absolute maximum temperature criterion of 93 F. Provide an explanation of how liquid discharges at 100 F as noted in Section 5.3.4.1 (and others) would meet the state regulation that the liquid discharge temperature be less than 93 F.

NRH 5.3.4.1-2 ESRP Section 5.3.4 directs the staff to review the human health impacts associated with the plant's cooling system. Historical and recent (especially since 2008) algal blooms in the vicinity of the site should be discussed along with their health impact to members of the public who may come in contact with them. ER Section 5.3.4.1 discusses impacts of etiological agents. The discussion includes brown tide and golden algae, but does not include discussion on red tide (health impacts or whether it would occur in the vicinity of VCS site or not). Provide the causes and health impacts of different algal blooms discussed (including Karenia brevis that causes red tide) in ER Section 5.3.4.1.

NRH 5.3.4.1-3 ESRP Section 5.3.4 directs the staff to review the human health impacts associated with the plant's cooling system. Has the Texas Department of State Health Services been contacted concerning the incidence of etiological agents in Texas within Segment 1803 of the Guadalupe River? State agencies may be able to provide more recent data than the CDC on waterborne disease and outbreaks. The latest data

provided in ER Section 5.3.4.1 is from 2008 (i.e., four years old). Provide documentation of any correspondence with the Texas Department of State Health Services in support of the evaluation of etiological agents in the vicinity of the discharge from the VCS units into the Guadalupe River.

NRH 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." ER Section 9.3.3 discusses alternative sites but the discussion does not include health impacts of etiological agents. Provide discussion of health impacts of etiological agents (e.g., from cooling water discharge) and cumulative health impacts (from other activities) at alternative sites. Include statement in ER about how air quality, noise, and etiological agent impacts compare between all sites (VCS and alternatives).

Request for Additional Information No. 6454 Revision 0

Victoria County Station ESP
Exelon Texas
Docket No. 52-042
SRP Section: ESP EIS 3.4.3 - Radioactive Waste Management Systems
Application Section: Part 3, Environmental Report Section 3.5

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 3.4.3-1

RW 3.5.-2 - ESRP Section 3.5 directs the staff to review the applicant's design of radioactive waste management and effluent control systems presented in the ER. The blowdown discharge location for liquid effluent release is upstream of the raw water makeup intake structure (ER Figure 2.3.1-1). The releases upstream have a potential to get in the cooling basin through the raw water makeup system downstream. This mechanism could result in contaminating the cooling basin. ESRP Section 5.4.2 directs the staff to review the applicant's evaluation of doses due to radioactive gaseous and liquid effluent discharges presented in the ER. Licensees are responsible for evaluating any new exposure pathways and the resultant radiological hazards associated with the return of radioactive material to the operating facility and its subsequent discharge to the environment. As described in Regulatory Guide 1.109, “Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10 CFR Part 50, Appendix I,” Revision 1, issued October 1977, licensees must evaluate any new exposure pathways to members of the public that contribute 10 percent or more of the total effluent dose and include these dose assessments in their demonstration of compliance with Appendix I to 10 CFR Part 50. (ML072120368). Provide an evaluation of the potential radioactivity buildup concentration (pCi/L) in the cooling basin from the operation of proposed VCS units. Additionally, based on the radioactivity buildup concentration in the cooling basin, provide estimate of dose impacts to different receptors.

RW 3.5-3 - ESRP Section 5.5.2 directs the staff to review the applicant's evaluation of impacts from storage or disposal of mixed radioactive wastes presented in the ER. A list of potential sources of mixed waste generated from operations along with the disposal plans and estimated health effects related to mixed waste testing and storage is needed. According to ESRP Section 3.5, principal release points for radioactive material to the environment and the direct radiation sources stored onsite out-of-plant as solid waste (e.g., independent fuel storage) need to be identified. Provide volume/concentration information for the different categories of radioactive waste (such as low level radioactive waste, mixed waste, spent fuel) generated from operation of the proposed VCS units. Specify the disposal options of different categories of radioactive waste generated from the operations of the proposed VCS units

Request for Additional Information No. 6530 Revision 0

Victoria County Station ESP
Exelon Texas
Docket No. 52-042
SRP Section: ESP EIS 3.4.4 - Nonradioactive Waste Systems
Application Section: Part 3, Environmental Report Section 3.6

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 3.4.4-1

NRW 3.6-1 - ESRP Section 5.5.1 directs the staff to review the applicant's evaluation of impacts from nonradioactive effluent discharges presented in the ER. Sufficient detail of nonradioactive wastes is needed to assess the potential nonradioactive waste system impacts (ESRP Section 5.5.1). The data needed includes quantities of wastes, their pollutant concentration at points of release (ESRP Section 3.6.3), and frequency of waste discharges to water, land, and air. Provide the volume of different categories of nonradioactive waste (such as industrial waste, municipal waste, construction debris, spoils generated from dredging activities, sludge, sanitary waste, hazardous waste) generated from construction and operation of the proposed VCS units. Specify the disposal options/impacts associated with disposal of different categories of nonradioactive waste.

Request for Additional Information No. 6531 Revision 0

Victoria County Station ESP
Exelon Texas
Docket No. 52-042
SRP Section: ESP EIS 9.3 - Alternatives Sites
Application Section: Part 3, Environmental Report Section 9.3.3

QUESTIONS for Environmental Projects Branch 2 (RAP2)

ESP EIS 9.3-1

NRW 9.3.3-1- ESRP 9.3 requires comparison of the proposed and alternative sites for various topics including “nonradioactive waste disposal.” ER Section 9.3.3 discusses alternative sites but the discussion does not include impacts of nonradioactive waste disposal. Provide discussion of impacts of nonradioactive waste disposal and cumulative impacts (from other activities) at alternative sites. Include statement in ER about how nonradioactive waste disposal impacts compare between all sites (VCS and alternative sites).