PSEGESPeRAIPEm Resource

From: Chowdhury, Prosanta
Sent: Wednesday, June 01, 2011 8:17 AM
To: 'PSEGRAIResponses@pseg.com'
Cc: PSEGESPeRAIPEm Resource; 'David.Lewis2@pseg.com'; 'James.Mallon@pseg.com'; 'David.Robillard@pseg.com'; Colaccino, Joseph; Silvia, Andrea; Clark, Phyllis; McLellan, Judith; Caverly, Jill; Giacinto, Joseph; Raione, Richard
Subject: PSEG Site ESPA FINAL RAI 31 (eRAI 5720) SRP-02.04.13 (RHEB)
Attachments: PSEG Site ESPA Final RAI 31 (eRAI 5720).pdf

Please find attached RAI 31 for the PSEG Site ESP Application. A draft of the RAI was provided to you on May 17, 2011. You informed via email on May 31, 2011, that you would not need a clarification call involving this specific RAI, and therefore, we are issuing this RAI as final with no changes made to it.

The schedule we have established for review of your application assumes technically correct and complete responses within 30 calendar days of receipt of RAIs. For any RAIs that cannot be responded to within 30 calendar days, it is expected that a date for receipt of this information will be provided to the staff within the 30-calendar day period so that the staff can assess how this information will impact the published schedule.

If you have any questions, please contact me.

Prosanta Chowdhury
Project Manager
EPR Projects Branch
Division of New Reactor Licensing
Office of New Reactors
301-415-1647

Hearing Identifier: PSEG_Site_EarlySitePermit_RAI
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Subject: PSEG Site ESPA FINAL RAI 31 (eRAI 5720) SRP-02.04.13 (RHEB)
Sent Date: 6/1/2011 8:17:07 AM
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From: Chowdhury, Prosanta

Created By: Prosanta.Chowdhury@nrc.gov

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Request for Additional Information No. 31

Application Revision 0

FINAL

6/01/2011

PSEG Site ESP
PSEG Power LLC, PSEG Nuclear LLC
Docket No. 52-043
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)

02.04.13-3

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to identifying and evaluating hydrological features of the site relating to hydrology and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain how tidal influences from the Delaware River have been taken into account and the rationale to support the premise that the predominant groundwater flows in the Alluvium and the Vincentown are westward towards the Delaware River.

02.04.13-4

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to identifying and evaluating hydrological features of the site relating to hydrology and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain the hydrologic basis for the apparent groundwater divide in the marshes that result in the predominant groundwater flow towards the east in the eastern portions of the site over the period of record.

02.04.13-5

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to factors important to hydrological radionuclide transport (such as soil, sediment, and rock characteristics, adsorption and retention coefficients, ground water velocity, and distances to the nearest surface body of water) and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain why a release to the Delaware River at western edge of the site is considered the most conservative scenario, while it appears that a release to the marsh in the east would receive less dilution than western release to the river and therefore would be a more conservative scenario.

02.04.13-6

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to factors important to hydrological radionuclide transport (such as soil, sediment, and rock characteristics, adsorption and retention coefficients, ground water velocity, and distances to the nearest surface body of water) and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain the impact of Delaware River dredging next to the shoreline on the net groundwater discharge to the river and associated gradient in the Alluvium, and the potential for enhanced tidal influence on groundwater levels in the Alluvium due to the dredging.

02.04.13-7

In accordance with the requirements of 10 CFR Part 100 as they relate to identifying and evaluating effects of accidental releases of radioactive liquid effluents in ground and surface waters on existing users and known and likely future users in the vicinity of the site and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#3 Characteristics that Affect Transport), please explain the release scenario assuming direct discharge to the Alluvium and why the discharge is to the Alluvium rather than the construction fill, and the potential for tidal action to significantly enhance a release discharge volume within the fill and Alluvium.

02.04.13-8

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to factors important to hydrological radionuclide transport and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain the level of confidence and conservatism regarding the maximum groundwater velocity given the length of the data record.

02.04.13-9

In accordance with the requirements of 10 CFR Part 100 as they relate to identifying and evaluating effects of accidental releases of radioactive liquid effluents in ground and surface waters on existing users and known and likely future users in the vicinity of the site and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#3 Characteristics that Affect Transport), please explain why some of the radionuclide fractions generated do not need to be considered.

02.04.13-10

In accordance with the requirements of 10 CFR Part 100 as they relate to identifying and evaluating effects of accidental releases of radioactive liquid effluents in ground and surface waters on existing users and known and likely future users in the vicinity of the site and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#3 Characteristics that Affect Transport), please explain the assumptions used in the analysis presented in Sections 2.4.13.1.6 through 2.4.13.1.9 and how the analysis incorporates conservatism of assumptions and parameters with respect to estimated receptor concentrations.

02.04.13-11

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to factors important to hydrological radionuclide transport and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain dilution factor derivations, and the specific factor by which the concentration of each radionuclide would be lessened due to the retardation.

02.04.13-12

In accordance with the requirements of 10 CFR 100.20(c) (3) as it relates to factors important to hydrological radionuclide transport and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#2 Pathways), please explain the following:

(1) Section 2.4.13.1.9 (Potential Migration to Deeper Aquifers) and the assumptions that radionuclides enter the Vincentown Formation and travel towards the Delaware River, flow in the Vincentown was determined to be toward the river even from a potential release on the east side of the power block, and easterly migration is not expected.

(2) Why the entire Vincentown Formation thickness would be available for infiltration from the overlying Alluvium. In short, clarify assumptions used for discussion of release in Vincentown Formation.

(3) Why one part of the text narrative says the Vincentown outcrops in the river and another part says that contaminants would need to migrate through the Kirkwood Aquitard and Alluvium to reach the river, i.e., clarify alternative pathway description for migration through the Vincentown to the Delaware River.

(4) Why the analysis for the Alluvium is considered more conservative than for the Vincentown and if this conclusion based on the nominal travel times.

(5) In more detail, explain the statement that the rate of induced downward migration would slow in the event of a release and clarify the factors that would slow downward migration.

(6) Justification for why dilution of radionuclide concentrations in a pumping well to less than detectable levels is compliant with requirements, and clarify the conservative assumptions in the downward and then horizontal migration in the PRM Formation.

02.04.13-13

In accordance with the requirements of 10 CFR Part 100, as they relate to identifying and evaluating effects of accidental releases of radioactive liquid effluents in ground and surface waters on existing users and known and likely future users in the vicinity of the site, and as recommended in Standard Review Plan 2.4.13 SRP Acceptance Criteria (#3 Characteristics that Affect Transport), please provide the following calculation packages:

- Digital copies of groundwater flow model input and output files in native formats with explanations of data and formats
- Digital copies of files used for radionuclide transport analysis in native formats with explanations of data and formats

- Digital copies of input and output files used for the aquifer test analysis in native formats with explanations of data and formats