

**From:** John Segala  
**To:** Grant, Eddie  
**Date:** 2/7/05 7:42AM  
**Subject:** Potential Exelon ESP DSER Open Items

Eddie,

Attached is a copy of the potential open item letter for the Exelon ESP DSER that was signed on February 4th.

The ADAMS Accession Number is ML050320230.

Thanks, John

**CC:** Gilles, Nanette

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**Subject:** Potential Exelon ESP DSER Open Items  
**Creation Date:** 2/7/05 7:42AM  
**From:** John Segala  
**Created By:** JPS1@nrc.gov

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|                           |          |
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| <b>Concealed Subject:</b> | No       |
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February 4, 2005

Ms. Marilyn Kray  
Vice President, Project Development  
Exelon Generation  
200 Exelon Way, KSA3-N  
Kennett Square, PA 19348

SUBJECT: POTENTIAL OPEN ITEMS FOR THE DRAFT SAFETY EVALUATION REPORT  
FOR THE EXELON EARLY SITE PERMIT APPLICATION

Dear Ms. Kray:

On September 25, 2003, Exelon Generation Company, LLC (Exelon) tendered its application for an early site permit (ESP) in accordance with Subpart A of Part 52 of Title 10 of the *Code of Federal Regulations* (10 CFR). The proposed site is co-located with the existing Clinton Power Station facility near Clinton, Illinois, hereafter identified as the Exelon Generation Company (EGC) ESP site. The U.S. Nuclear Regulatory Commission (NRC) formally accepted the application as a docketed application for an ESP on October 27, 2003. The NRC staff has reviewed the ESP application and is developing a draft safety evaluation report (DSER).

In the process of reviewing information provided by Exelon in its ESP application and in responses to staff requests for additional information (RAIs), the staff has tentatively concluded that certain additional information is still needed for the staff to be able to complete its final SER. Also, Exelon provided some information in response to RAIs that the staff received too late for consideration in this DSER. Both types of items may be referred to in the DSER as "open items."

In accordance with the review schedule provided to you in our October 27, 2003, and November 15, 2004, letters, the staff plans to issue the DSER to Exelon by letter on February 10, 2005. Exelon will have 14 days to review the DSER for proprietary information. After the 14 day proprietary review waiting period, the DSER will be made publically available.

In addition, the staff has not, at this time, completed its review of the information in Section 2.5, "Geology, Seismology, and Geotechnical Engineering," and Section 3.4.2, "10 CFR 100.23—Geologic and Seismic Siting Criteria," of Exelon's site safety analysis report (SSAR). Therefore, the staff plans to issue a supplemental DSER that will summarize the results of its technical evaluation of the suitability of the proposed EGC ESP site in terms of the site's seismology and geology. The staff plans to provide the schedule for the supplemental DSER in the DSER transmittal letter.

In the interest of expediting Exelon's response to the open items, we are enclosing with this letter a list and brief description of each open item tentatively identified by the staff (Enclosure 1). We emphasize that these open items are still under staff review, and, therefore, they may be changed or deleted. Further, additional open items may be identified as a result of management review of the DSER before the DSER is issued. We are providing the tentative open items solely for your convenience and for use as you see fit. To ensure that your

M. Kray

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responses address the staff-approved open items provided in the DSER, please do not respond to these open items before you receive the DSER. Also, because of the need to focus staff resources on timely completion of the DSER, we will not be able to meet with you to discuss any questions or concerns you may have on the tentative open items until after we issue the DSER.

We hope you find Enclosure 1 informative and useful. Please contact John Segala, the NRC's project manager for review of your ESP application, at (301) 415-1858 (or [jps1@nrc.gov](mailto:jps1@nrc.gov)) if you have any questions or comments concerning this matter.

Sincerely,

**/RA/**

William D. Beckner, Program Director  
New, Research and Test Reactors Program  
Division of Regulatory Improvement Programs  
Office of Nuclear Reactor Regulation

Docket No. 52-007

Enclosure: As stated

cc w/o encls: See next page

M. Kray

-2-

responses address the staff-approved open items provided in the DSER, please do not respond to these open items before you receive the DSER. Also, because of the need to focus staff resources on timely completion of the DSER, we will not be able to meet with you to discuss any questions or concerns you may have on the tentative open items until after we issue the DSER.

We hope you find Enclosure 1 informative and useful. Please contact John Segala, the NRC's project manager for review of your ESP application, at (301) 415-1858 (or jps1@nrc.gov) if you have any questions or comments concerning this matter.

Sincerely,

/RA/

William D. Beckner, Program Director  
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Office of Nuclear Reactor Regulation

Docket No. 52-007

Enclosure: As stated

cc w/o encls: See next page

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\*See previous concurrence

ADAMS ACCESSION NUMBER: ML050320230

|        |         |          |          |          |
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| DATE   | 2/1/05  | 2/1/05   | 2/3/05   | 2/4/05   |

OFFICIAL RECORD COPY

Exelon ESP

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**Exelon Early Site Permit Application  
Draft Safety Evaluation Report  
Tentative Open Items (subject to change)**

| <b>DSER Section</b> | <b>Subject</b>   |
|---------------------|--|
| 2.1.2.3             | Demonstrate that the applicant has the legal right to control the exclusion area, or has an irrevocable right to obtain such control.  |
| 2.3.1.3             | Identify the meteorological data to use in evaluating the performance of a mechanical draft cooling tower ultimate heat sink (UHS) with respect to maximum evaporation and minimum water cooling as discussed in Regulatory Guide 1.27.  |
| 2.3.1.3             | Identify an additional UHS design basis site characteristic for use in evaluating the potential for water freezing in the UHS water storage facility.  |
| 2.3.4.3             | Use appropriately conservative meteorological data and appropriately conservative distances from postulated release points to calculate relative concentrations for accidental airborne releases of radioactive materials.   |
| 2.4.1.3             | Define the extent of the vertical disturbance and the bounding elevations of all structures, systems, and components (SSCs). Additionally, SSAR Figure 1.2-4 does not identify either the elevations or the areal locations of the safety-related piping corridors. Since the intake pumps for the ESP facility UHS makeup water are safety-related structures, the applicant must state whether it covers these through the site grade specified in the PPE or proposes separate criteria for these structures.   |
| 2.4.1.3             | <p>(a) Provide a schematic representation of the complete UHS system for a future facility on the ESP site, including the intake, piping, any potential storage basins, the UHS cooling loop, and the cooling tower(s), clearly showing all components and water flow including discharges through these components.</p> <p>(b) Demonstrate that PPE make-up flow rate, an average of 555 gpm and a maximum of 1400 gpm, at the maximum inlet temperature of 95 EF, is sufficient to remove all waste heat from the UHS cooling tower(s) and that there are no limits on plant operation due to limited water supply or due to elevated water temperatures at the UHS intake for any facility constructed on the ESP site.</p> |
| 2.4.1.3             | Provide an authoritative source that may include State or county planning officials that can either provide details of a development plan in Clinton Lake's watershed or verify the absence of such a plan.  |
| 2.4.1.3             | Provide additional justification for why an increase in impervious area will not increase soil erosion.  |



| <b>DSER Section</b> | <b>Subject</b>   |
|---------------------|--|
| 2.4.2.3             | Provide a revised probable maximum precipitation (PMP) estimate using the current criteria of HMR 51.  |
| 2.4.2.3             | Provide additional justification for why an increase in area with impervious surface will decrease the duration of low-flow events.  |
| 2.4.2.3             | Provide references to projections from State or local authorities responsible for development plans in the area of concern to substantiate any prediction of future development.   |
| 2.4.2.3             | Address the differences between the applicant's and the staff's estimates of local intense precipitation at the ESP site for a 1-hour duration and for a 5-minute duration.  |
| 2.4.7.3             | Provide more details regarding the method and air temperature data set used in estimating the thickness of an ice sheet that may form on the surface of Clinton Lake and demonstrate that the ice thickness estimate is adequate.  |
| 2.4.7.3             | Provide a schematic diagram clearly showing the bounding dimensions and critical elevations of the ESP facility intake structure, including its conceptual plan and cross section, clearly indicating elevation of the basemat, elevation of the screen house opening, elevation of the normal plant heat sink makeup water intake pipe, elevation of the UHS makeup water intake pipe, and their relationship to the existing lake bed. |
| 2.4.7.3             | Quantify the reduction in water storage capacity of the submerged UHS pond in the event of a complete loss of Clinton Dam coincident with the presence of surface ice.   |
| 2.4.8.3             | Address the difference between the applicant's and the staff's estimates of the 30-day makeup water needed for the ESP facility UHS system.  |
| 2.4.8.3             | Provide a commitment to specific ESP facility normal and ultimate heat sink systems for the staff to conclude this review.   |
| 2.4.8.3             | Provide the volume requirements of the UHS for the CPS taking into consideration the latest power uprate.  |
| 2.4.8.3             | Address the staff's conclusion that the applicant has not adequately established the rationale for using the 5-year drought duration as opposed to a shorter duration drought with a significantly lower inflow estimate.  |
| 2.4.8.3             | Establish that the submerged UHS pond has adequate capacity to provide makeup water to the ESP facility UHS.   |
| 2.4.8.3             | Establish the monitoring and dredging needs for the UHS pond for the combined operation of the CPS facility and a future facility consistent with the PPE parameter for maximum thermal discharge.   |

| <b>DSER Section</b> | <b>Subject</b>  |
|---------------------|---|
| 2.4.12.3            | Provide the potential impact of future construction for the ESP facility on the piezometric gradient for the ESP site.  |
| 2.4.12.3            | Explain why the limited data used to estimate the three values required to calculate the average ground water velocity represent a basis for a velocity estimate. Provide values for the hydraulic gradient, saturated hydraulic conductivity, and effective porosity measured at the ESP site.   |
| 2.4.13.3            | Specify the maximum elevation at which any liquid radioactive waste releases can occur in the proposed ESP facility.  |
| 2.4.13.3            | Provide a thorough description of the local hydrologic setting, both that which exists currently and that which is expected after the disruption associated with the ESP construction activities, to ensure that an inward gradient will be maintained.   |
| 3.3.3.4             | Use appropriate meteorological data and appropriate distances from postulated release points to the EAB and the LPZ to estimate the site specific $\chi/Q$ values used in the radiological consequence evaluations.   |
| 13.3.1.3*           | Provide a response to RAIs 13.3-20(a–j).  |
| 13.3.2.3            | Provide copies of documentation of contacts and arrangements with local government agencies having emergency planning responsibilities within the plume exposure EPZ (potentially DeWitt, Macon, McLean, and Piatt Counties; the municipalities of Clinton, Wapella, and Weldon; and the Village of DeWitt) that address the expanded responsibilities associated with an additional reactor(s) at the Clinton site.          |
| 13.3.3.9.3          | Address the adequacy of the OSC, TSC, and EOF, and related equipment, in support of emergency response, and address with specificity such facility and equipment areas as location, size, structure, function, habitability, communications, staffing and training, radiological monitoring, instrumentation, data system equipment, power supplies, technical data and data systems, and record availability and management. |
| 13.3.3.11.3*        | Address the estimated time required for confirmation of evacuation and provide a response to RAIs 13.3-20(k–v)  |
| 13.3.3.11.3         | Provide information related to protective measures in State and local emergency plans and address the review of the draft ETE submitted by State and local organizations involved in emergency response for the site.   |
| 13.3.3.12.3         | Provide a description of State and local organizations' means for radiological decontamination of emergency personnel wounds, supplies, instruments, and equipment.   |
| 17.7.3              | Address 10 CFR Part 21 for ESP activities.  |

\* Items for which Exelon has provided information intended to address the open item, but which the NRC staff received too late for consideration in the DSER.