

**From:** Nanette Gilles  
**To:** Eddie Grant; Tom Mundy  
**Date:** Wed, Jul 14, 2004 11:16 AM  
**Subject:** DRAFT REQUESTS FOR ADDITIONAL INFORMATION

Please find attached a package of preliminary questions, in the form of draft requests for additional information (RAIs) for the Clinton ESP review. These questions pertain to the staff's review in the areas of hydrology, site hazards, and general information. Exelon may request a phone call to seek clarification on the questions before they are issued by letter. Please contact me to let me know if you wish to arrange such a call or if you have other questions.

Sincerely,

Nanette Gilles  
Senior Project Manager  
Office of Nuclear Reactor Regulation  
U.S. Nuclear Regulatory Commission  
Phone (301) 415-1180

**CC:** chris.cook@pnl.gov; Goutam Bagchi; Kazimieras Campe; Michael Scott; Raj Anand; Vail, Lance W

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**Subject:** DRAFT REQUESTS FOR ADDITIONAL INFORMATION  
**Creation Date:** Wed, Jul 14, 2004 11:16 AM  
**From:** Nanette Gilles

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**DRAFT**  
**Exelon Early Site Permit Application**  
**SSAR Section 2.2, Nearby Industrial, Transportation, and Military Facilities**  
**Requests for Additional Information**

SSAR Section 2.2.2, Descriptions

RAI 2.2.2-1

In reference to Section 2.2.2.5.3, describe the types of aircraft and provide estimates of the annual number of operations for the three private airstrips within 6 miles of the proposed ESP site.

RAI 2.2.2-2

In reference to Section 2.2.2.5.3, clarify the statement "... ESP safety related facilities would have to be sighted within a footprint of 386,000 ft<sup>2</sup> in order to meet the 1.0E-07 impact probability criterion. This area is **less** than the effective impact area computed for Clinton, which ranges from 235,000 ft<sup>2</sup> to 192,000 ft<sup>2</sup>." The use of the word "**less**" appears to be incorrect.

RAI 2.2.2-3

In reference to Section 2.2.2.5.3, clarify what is meant by "separation distance" in the phrase "... do not fully credit the separation distance of 4 of the 5 runways resulting in the tabulated probabilities being conservative." Also, describe how this separation distance relates to the probabilities provided in CPS USAR Table 3.5-7.

SSAR Section 2.2.3, Evaluation of Potential Accidents

RAI 2.2.3-1

In reference to Sections 2.2.3 and 2.2.3.1.1, transportation accidents on State Route 54 passing about 1 mile from the EGC ESP Facility are described as not needing to be considered as design basis events for the CPS. This conclusion is described as being valid for the EGC ESP Facility on the basis of similar proximity and traffic volumes. This does not address other relevant EGC ESP Facility parameters that may not be the same as those for the CPS and that can affect the capacity of the proposed facility to withstand the effects of the potential accidents.

For example, in Section 2.2.3.1.1, overpressure is judged to not require specific design considerations on the basis of the separation distance being similar or greater than that for the CPS. Separation distance provides a basis for estimating the overpressure, but does not address the capacity of a facility to withstand its effects. Hence, structural design capacity for withstanding a given overpressure is needed to support the conclusion that an overpressure accident need not be considered as a design basis event.

Similarly, in Section 2.2.3.1.3, conclusions of "no adverse effects" regarding postulated toxic gas hazards for the CPS are judged to apply to the EGC ESP Facility, primarily on the basis of similar separation distances. Describe the extent to which plant features (e.g., control room habitability system design) may be required in order to support the "no adverse effect" conclusion for the EGC ESP Facility.

DRAFT  
Exelon Early Site Permit Application  
SSAR Sections 2.4, Hydrologic Engineering and 3.2, Thermal Discharges  
Requests for Additional Information

SSAR Section 2.4.1, Hydrologic Description

RAI 2.4.1-1

Please provide survey coordinates (including elevations) for the bounding areas of all ESP safety related structures including intake tunnels and piping corridors. Also provide the coordinates of existing aquifers in the bounding areas, particularly perched aquifers.

RAI 2.4.1-2

Please identify any limits on plant operation due to either water supply or intake water temperature for the ESP unit (e.g. need to derate or shutdown reactors if the intake temperature exceeds a certain threshold). Estimate the frequency and duration of the applicability of these operating limits.

RAI 2.4.1-3

The application states that no dams exist upstream of Clinton Lake that could affect the availability of water to the ESP site. Please provide references that confirm this assertion and that no future dams upstream of the site are currently proposed.

RAI 2.4.1-4

Please provide any information regarding proposed land use changes that might result in increased bed load in the tributaries upstream of Clinton Lake or sediment deposition in the UHS.

RAI 2.4.1-5

Table 2.4-2 shows percentage of rainfall as runoff and mean lake evaporation. Please provide copies of the references for these estimates.

SSAR Section 2.4.2, Floods

RAI 2.4.2-1

The Probable Maximum Precipitation (PMP) for Clinton Dam was obtained using Hydrometeorological Report No. 33 (HMR 33); however, the current standards are ANSI/ANS-2.8-1992, HMR 51, and HMR 52. Please explain why the current standards were not used. Also, please explain why an estimate based on HMR 33 is conservative relative to an estimate based on HMR 51 and HMR 52.

#### RAI 2.4.2-2

Please provide a description of likely changes to both upstream land use and downstream water demand that would alter either the intensity or frequency of flood risk and low-flow conditions.

#### RAI 2.4.2-3

Please document any historical hillslope failures in the watershed. Also, please analyze the ability of a hypothetical hillslope failure to impact the plant. What would be the maximum terminal height of such a hypothetical wave?

#### RAI 2.4.2-4

Please document any seismically-induced seiches in Clinton Lake.

#### RAI 2.4.2-5

Please demonstrate that the drainage capacity at the existing grade is sufficient to accommodate local intense precipitation. If the capacity is not sufficient, please describe any active safety-related drainage systems that will be installed for the new units.

#### SSAR Section 2.4.3, Probable Maximum Flood on Streams and Rivers

##### RAI 2.4.3-1

Please describe the status of the U.S. Army Corps of Engineers SPRAT computer program referenced in Section 2.4.3.3 and any software quality assurance measures that were used to augment use of this software in support of the ESP application.

##### RAI 2.4.3-2

Please explain how the wave runup calculations were bounded through the examination of the Combined Events Criteria indicated in ANS 2.8 1992 Standard. Discuss coincident wave calculation and the basis for applying a 40 mph design wind.

#### SSAR Section 2.4.7, Ice Effects

##### RAI 2.4.7-1

Please discuss the potential for ice sheet collision impacts on the intake structure and quantify the force of impact.

##### RAI 2.4.7-2

Please explain how the ice sheet thickness identified in Section 2.4.7 was calculated, and provide the input assumptions.

RAI 2.4.7-3

Please describe the relationship (layout and depth) of the ESP intake relative to the current CPS intake.

RAI 2.4.7-4

Please describe the site characteristics of frazil and anchor ice formation.

RAI 2.4.7-5

Please discuss the impacts to ice formation if the existing unit were no longer operating.

RAI 2.4.7-6

Please discuss whether or not ice sheet formation is likely to constrain the intake depth.

RAI 2.4.7-8

Please describe the reduction of UHS capacity caused by a loss of Clinton Dam during periods when an ice sheet is covering the lake.

SSAR Section 2.4.8, Cooling Water Canals and Reservoirs

RAI 2.4.8-1

Please explain how the cooling needs for the CPS and ESP facilities were calculated as discussed in Section 2.4.8.1.5.

RAI 2.4.8-2

Please discuss how the flow velocities were computed over the crest and toe of the submerged UHS dam discussed in Section 2.4.8.1.5. Please provide figures indicating where the toe of the UHS dam is relative to the fill shown in Figures 2.4-14 and 2.4-15.

RAI 2.4.8-3

Please describe lake drawdown calculations.

RAI 2.4.8-4

Please describe how UHS capacity loss due to sediment or debris loads during extreme events was estimated.

SSAR Section 2.4.9, Channel Diversions

RAI 2.4.9-1

Please provide references to studies related to geological features or other characteristics that preclude any likelihood of channel diversion upstream of the site.

### SSAR Section 2.4.10, Flooding Protection Requirements

#### RAI 2.4.10-1

A design wind of 40 mph was mentioned in the second paragraph of Section 2.4.10 and earlier in Section 2.4.3.6. In the third paragraph of Section 2.4.10, 48 and 67 mph winds are mentioned for wave run up consideration at the intake facility. Please discuss the differences in these design winds and the methods for determining both these design winds.

### SSAR Section 2.4.12, Dispersion, Dilution, and Travel Times of Accidental Releases of Liquid Effluents in Surface Waters

#### RAI 2.4.12-1

Please provide additional information regarding the likelihood for liquid effluents to reach a surface water body.

### SSAR Section 2.4.13, Groundwater

#### RAI 2.4.13-1

Please provide a description of the local subsurface environment adequate to understand groundwater pathways from the plant including subsurface disturbances of local strata from structures and perched aquifers.

### SSAR Section 3.2.2, Ultimate Heat Sink

#### RAI 3.2.2-1

Please provide a schematic that describes water circulation in the UHS.

#### RAI 3.2.2-2

Please describe the consequences of a failure of the baffle in the UHS.

## SSAR Section 1.5, USNRC Regulatory Guides

### RAI 1.5-1

Please provide a comprehensive listing of NRC regulations applicable to the Exelon early site permit (ESP) SSAR and the affected SSAR sections, similar to that provided in Table 1.5-1 for NRC Regulatory Guides. Also, please update Table 1.5-1 to include all applicable Regulatory Guides or confirm that it is complete as is. For example, please state whether 10 CFR 100.21(f) and Regulatory Guide 4.7 apply to SSAR Section 3.4.1.6, "Site Characteristics - Security Plans."