

RAS 12127

NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

DOCKETED 08/17/06

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Before Administrative Judges:

Dr. Paul B. Abramson, Chairman  
Dr. Anthony J. Baratta  
Dr. David L. Hetrick

In the Matter of

EXELON GENERATION COMPANY, LLC

(Early Site Permit for Clinton ESP Site)

Docket No. 52-007-ESP

ASLBP No. 04-821-01-ESP

August 17, 2006

ORDER

(Reconsidering Inquiry 88; Following up on the Staff's Response to Inquiries; and Requiring Supplementation Regarding FSER Follow-Up Items not treated as COL Action Items)

Remaining before the Board at this point is the portion of the July 31, 2006 NRC Staff Response to Licensing Board's Order of July 20, 2006, relating to reconsideration of one of our inquiries.<sup>1</sup> Upon full consideration, we grant the motion in part and deny in part.

I. Inquiry 88 Revisited

Turning first to the Staff's motion for reconsideration of the last of our inquiries (number 88), the Staff requests that the Board either withdraw or amend the inquiry on the basis that the Commission's July 26 Order provides:

"[a] 'mandatory hearing' Board must narrow its inquiry to those topics or sections in Staff documents that it deems most important and **should concentrate on portions of the documents that do not on their face adequately explain the logic, underlying facts and applicable regulations and guidance.** It serves no purpose for the Staff to produce volumes of documents and information supporting facts and conclusions that are of small

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<sup>1</sup> See NRC Staff Response to Licensing Board's Order of July 20, 2006, Requiring Answers to Inquiries and the Provision of Documents; Motion to Extend Time for Answering Certain Inquiries and For Reconsideration Regarding One of the Inquiries (July 31, 2006) [hereinafter Staff Motion].

importance and are beyond dispute.”<sup>2</sup> (emphasis added)

Here, the Staff both misconstrues the Commission’s directive and incorrectly assesses our need for the requested information. The overarching principle of our review being to examine the facts and logic of the Staff’s decision, the Commission has simply directed that we focus our review on “portions of the documents that do not on their face adequately explain the logic, underlying facts and applicable regulations and guidance.”<sup>3</sup> Our need is created by the fact that in certain instances the Applicant’s assertions are mentioned in the FSER, implying they have a material role in the Staff’s determination, but those assertions are not discussed at all in the ensuing technical discussion. Therefore, the Board is unable to identify either how, if at all, those facts relate to the related decisions or the logic of those decisions.

As we have stated in most of our previous rulings in this proceeding, we are charged with understanding the factual underpinning of the Staff’s conclusions and ensuring those conclusions arise logically from those facts, and only the Staff is in a position to set out those facts and describe that logic. Thus, this is far more than a mere question of proper allocation of resources as between the Staff and the Board. In the end, this Board must be able to deduce, from the record, whether the recited facts lead logically to the Staff’s conclusions, and in the instances we have indicated, we are unable to do so without further information. This does not imply that the Board views its charge to include “second-guessing” the Staff or ensuring that the Staff reaches the “right” conclusions, but only that we must determine whether the conclusions of the Staff are sound from the facts and logic the Staff itself set out in the record.<sup>4</sup> In this

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<sup>2</sup> See Exelon Generation Co., LLC (Early Site Permit for Clinton ESP Site), CLI-06-20, 64 NRC \_\_, \_\_ (slip op. at 8) (July 26, 2006).

<sup>3</sup> Id. The balance of the previous quotation merely expounds on the undesirable effects of not so focusing our review, and is irrelevant to this reconsideration.

<sup>4</sup> Furthermore, we cannot fathom what has motivated the Staff (and Staff counsel) in this proceeding (and, from the records therein, in the other ESP proceedings) to take such a

regard, two factors are relevant to the requested reconsideration:

First, the Commission's directive says a great deal more than, as the Staff would have it, the "Board must narrow its inquiry to those topics or sections in Staff documents that it deems most important" and that "[i]t serves no purpose for the Staff to produce volumes of documents and information supporting facts and conclusions that are of small importance and are beyond dispute."<sup>5</sup> Indeed we have previously "narrowed our inquiry" to topics whose importance we cannot assess at all because the Staff has not indicated the role of those "topics" in their decisions. Further, as we have indicated, the portions of the Commission's guidance upon which the Staff focuses its motion merely supplement the fundamental precept (also set out explicitly in that same cited guidance) that Boards "should concentrate on portions of the documents that do not on their face adequately explain the logic, underlying facts and applicable regulations and guidance" - which is precisely what this Board has done in this instance.<sup>6</sup>

Second, the Staff apparently misapprehends our need for the information requested by

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diametrically opposed approach to providing assistance to the Licensing Board from that taken by the Staff and counsel in the proceeding related to the Louisiana Energy Services, L.P. (National Enrichment Facility) Proceeding. In that proceeding, the Staff and their counsel cooperated at every turn and complied in each instance, in spirit as well as substance, with the licensing board's efforts to better understand the logic of, and facts supporting, the Staff conclusions which we have been directed, from the outset, by the Commission to explore, understand and verify or disaffirm. (See, e.g., Licensing Board Order (Memorializing Board Questions/Areas of Concern for Mandatory Hearing) (Jan. 30, 2006) (unpublished), where the Board requested narrative summaries to aid its review of the application and the Staff complied without motion for reconsideration or appeal, see NRC Staff's Proposed Findings of Fact and Conclusions of Law in the Mandatory Hearing (Apr. 10, 2006)). However, here, and apparently in the other ESP proceedings, when the Board asked for assistance substantially similar to that responsively rendered in the enrichment proceeding, at every turn the Board has been met with requests to reconsider and arguments that the Board is overreaching. In our view, this approach has been counterproductive and is already leading to delays.

<sup>5</sup> Staff Motion at 3 (quoting CLI-06-20, 64 NRC at \_\_ (slip op. at 8)).

<sup>6</sup> Id.

inquiry 88 wherein we directed:

“the staff should address the following general inquiry prompted by an issue arising on numerous occasions: Throughout the FSER, subsections entitled ‘Technical Information in the Application’ frequently recite, ‘Section XXX of the Application states that [then asserting some important fact],’ and the ensuing subsection entitled ‘Technical Analysis’ in some instances makes mention ONLY of matters which were the subject of RAIs. To indicate the logic of its conclusions, the staff shall identify in a written table to be delivered to the Board, subsection-by-subsection, each asserted fact or technical conclusion expressly referenced in a subsection entitled ‘Technical Information in the Application’ that was NOT verified by the staff together with a brief explanation as to why that matter was not verified.”<sup>7</sup>

In each of the subsections entitled “Technical Information in the Application,” the Staff has recited specific technical facts asserted by the Applicant, and we must assume that the Staff found those facts to be of sufficient import to warrant such reference and, therefore, impliedly, that those facts play a material role in the Staff’s logic leading to their conclusion. However, in numerous instances, the Staff has made no further mention of some (or many) of those asserted facts, whereas in other instances those asserted facts were explicitly mentioned

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<sup>7</sup> We note that Staff has in fact provided a generalized response, stating that “[t]he staff verifies or performs confirmatory analysis with respect to information submitted by the applicant when the information is subject to judgment, interpretation or assumptions made by the applicant. Confirmatory analysis involves verification of information through the staff’s exercise of independent assumptions, interpretations or analytic modeling. Verification of factual information (e.g., telephone conversations, letters, e-mail correspondence, etc.) would constitute an audit and is normally not a part of the staff’s review process.

“For example, site hazard analysis involving projection of data (such as air traffic growth) up through the expiration date of an Early Site Permit or an Operating License typically would be subjected to a confirmatory analysis by the staff because usually there are a number of ways of making assumptions and performing analytic modeling in the projection analysis. However, information on currently existing hazard conditions (e.g., current air traffic rates) typically are taken from established sources such as the Federal Aviation Administration or the Department Of Transportation and are not verified. The Board’s example of regarding the pipeline owner agreement to notify the applicant of any transport of propane or some other high-volatility substance through the pipeline is viewed to be the latter case. It is a declaration on the part of the applicant under oath or affirmation and normally is not subjected to an audit.” Staff Motion, Responses to Attachment A Inquiries (July 31, 2001).

or discussed further. It is simply not possible for a Board to infer from that circumstance any logic whatsoever about how those assertions or facts, which are not subsequently mentioned, are involved in a Staff conclusion on the subject matter of that subsection. Nor, obviously, is it possible, in these circumstances, for a Board to ascertain whether those facts are important to the Staff's conclusions. If indeed such facts were important enough for mention, then the Board needs to know that they were verified, and if not, why.<sup>8</sup> Furthermore, in these circumstances, we would have expected the Staff, in response to our inquiry, to advise us of the role(s), if any, that those facts played in the logic of the Staff conclusion involving the matter for which they are cited. Perhaps we left too much unsaid or expected too much from our readers. We note, however, that to make clear our intent, we provided, in Inquiry 88, two examples as guidance.<sup>9</sup> In the Board's view, these instructions were perfectly clear. However, whether or not that is the case, the requested information was, and remains, necessary to comprehend the facts supporting, and the logic of, the Staff's conclusions.

Nonetheless, noting that in other queries we have inquired about certain specific instances of the aforesaid type, we have reconsidered inquiry 88 as requested by the Staff.

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<sup>8</sup> As we observed supra note 3, the Staff has implied in their response that these facts may not be relevant to their decision or that they were indeed important and assumed to be true on the basis that they were in effect, made by the Applicant under oath.

<sup>9</sup> See Licensing Board Order (Requiring Answers to Inquiries) (July 20, 2006) (unpublished). "An example requiring such additional information is subsection 2.2.1.1 - 2.2.2.1: 'The SSAR states that the pipeline owner has agreed to notification protocols if propane or other high-volatility substances are moved through the pipeline,' while subsection 2.2.1.3 - 2.2.2.3 makes no mention whatsoever of these pipeline owner protocols. A counter example, requiring no additional information from the staff would be subsection 2.4.13.1 wherein the FSER states that the applicant's position is that the high water table results in an inward directed hydraulic gradient. Subsequently in subsection 2.4.13.3, the staff notes that it 'requested additional information regarding the likelihood for liquid effluents to reach a surface water body,' and 'determined that the applicant should also specify the maximum elevation at which any liquid radioactive waste releases can occur,' in an effort to ascertain the validity of the conclusory statements in the SSAR Section being evaluated, and eventually caused the Staff to add a COL Action Item."

What we are asking of the Staff is, in summary, where, in certain sections identified below, the Staff identified a fact or assertion, to tell us whether or not it played a role in the Staff decision and if so, whether the Staff verified that fact or assertion and if not why not. Therefore, inquiry 88 is hereby amended for clarity and reduce its reach to the following:

With respect to the Sub-Sections addressing “Hydrologic Engineering” 2.4, “Geology, Seismology, and Geotechnical Engineering” 2.5, “Significant Impediments to the Development of Emergency Plans” 13.3.1, and “Protective Response” 13.3.3.11 of the FSER, the Staff shall deliver to the Board, not later than August 31, a table indicating each fact or technical conclusion referred to in a subsection of the FSER entitled “Technical Information in the Application” which was not expressly referred to in the succeeding subsection entitled “Technical Evaluation” and explaining (a) whether or not that fact or technical conclusion was verified, and if not, why not<sup>10</sup>, and (b) how, if at all, that fact or conclusion undergirds (and the role that fact plays in the logic of) the Staff’s conclusion regarding the matter subject of that subsection. To the extent that such fact(s) or conclusion(s) play no such role, Staff may so indicate, but should also indicate briefly the reason that fact is recited.

The Board is simply not in a position to make a judgement regarding the import of such assertions or facts in the absence of this Staff information.

## II. Follow-Up to Staff Responses to Other Inquiries

The Board has reviewed the Staff’s responses to the Board’s July 20, 2006 inquiries, and has identified specific responses that fail to satisfy the Board’s need for adequate information regarding the Staff’s review. Thus, based upon that review, the Board propounds to the Staff the follow-up inquiries set forth in Attachment A hereto.

## III. Supplementation of the FSER

The Board has previously expressed its concern regarding the documentation of issues that have been identified as needing further review and evaluation at the COL stage. The Staff

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<sup>10</sup> To the extent such facts are taken by the Staff to be true on the basis that they are in the nature of an affirmation or declaration under oath by the Applicant, to shorten the response a general notation may be used (i.e. “affirmation”) rather than spelling out this reason.

has prudently identified and labeled a number of issues as “COL Action Items,” documented throughout the FSER and in Appendix A.2. Our concern, however, lies with those issues for which the Staff states that further evaluation and review is required but were neither treated as COL Action Items, nor tabulated or recorded in a manner which will alert a future COL reviewer. (See, e.g., Follow-up Inquiry for Question #2, and Question regarding page 2-29 in Attachment A).

The Early Site Permit proceeding is intended to promote efficiency in the review of the applications; however, this efficiency is defeated if the Staff charged with the review of a COL application must comb the pages of an ESP FSER for issues that the have not been documented as COL action items, but have, nonetheless, been found to need additional review and evaluation at the COL stage. Accordingly, the Staff shall tabulate all such matters in a supplement to this FSER so that the Staff and COL applicant will be alerted to the need to address them.<sup>11</sup>

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<sup>11</sup> This is of particular importance given that the life of the permit may be up to 20 years and a COL application may not be submitted until late in that period. This Board suggests that such a table contain four columns indicating: (a) the subsection and page of the FSER; (b) the subject matter for which consideration is delayed; (c) whether or not such delay impacts the Applicant’s right to commence site preparation activities; and (d) is so, why.

The Staff shall file its answers to the questions contained herein and those follow-up questions in Attachment A no later than noon EDT on Thursday, September 14, 2006.

It is so ORDERED.

THE ATOMIC SAFETY  
AND LICENSING BOARD\*

**/RA/**

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Dr. Paul B. Abramson, Chairman  
ADMINISTRATIVE JUDGE

**/RA/**

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Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

**/RA by P. Abramson for/**

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Dr. David L. Hetrick  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
August 17, 2006

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\* Copies of this order were sent this date by Internet e-mail transmission to: (1) Counsel for EGC, and (2) Counsel for the NRC Staff.



## ATTACHMENT A

### CLINTON ESP Follow-up FSER INQUIRIES

Q#	Page	Section	INQUIRY
1	1-9	1.7	<u>Summary of Combined License Action Items.</u> How did the staff ensure that COL action items identified by the applicant in the SSAR are all included and consistent with the COL action items discussed in this section and Appendix A.2. Also for completeness, this section should reference Appendix A.2, COL Action Items Table.
			<u>Response</u> A review of the type described in this question was not performed. Because COL action items constitute information requirements but do not form the only acceptable set of information addressed in the final safety analysis report, the staff did not identify an exhaustive list of COL action items. Instead, as stated in section A.2 of this report, "The staff identified . . . COL action items with respect to individual site characteristics in order to ensure that particular significant issues are tracked and considered during the review of a later application . . . ."
			<u>Follow-up Inquiry</u> Is there any difference between the list of COL Action Items identified by the Applicant and that of the Staff? If so, which list is correct and what is the foundation for the differences?
2	2-7	2.1.3.1	<u>Population Distribution.</u> The applicant estimated the population distribution within a 50-mile radius of the proposed ESP site based on the most recent U.S. Census data. Then population estimates up to 2060 were projected. How did the staff determine, and what is their evaluation of, the basis for the applicant's population projection?

Q#	Page	Section	INQUIRY
			<p><u>Response</u></p> <p>The 2nd and 3rd paragraphs on page 2-9 of the FSER (NUREG-1844) discuss that the staff compared the applicant's population data by comparing them with US Census Bureau internet data. The staff also reviewed the population projection data provided by the applicant to year 2060, based on year 2000 census data. The applicant used population projections for 2010 and 2020 for each county provided by Illinois State University. Based on these data, the applicant estimated the expected population change rates (percent change) between 2000 and 2010 and between 2010 and 2020 for each county. The applicant then assumed that the expected population change rate for the four 10-year increments between 2020 and 2060 would be similar to the estimated population change rate between 2010 and 2020. These population rates were then applied using U.S. Census Bureau data from 2000 to each census block within a county. Population forecasts for each sector were calculated by assuming an even distribution of population throughout the census block. The applicant estimated transient population using the same growth percentages. The staff considered this applied assumption by the applicant reasonable in calculating the population projections to year 2060. The staff also reviewed and considered appropriate the bases, sources and calculations of transient populations provided by the applicant and addressed in 3rd paragraph on page 2-9.</p>
			<p><u>Follow-up Inquiry</u></p> <p>The Staff states that it "considered the applied assumption by the applicant reasonable in calculating the population projections to year 2060." How did the Staff come to this determination? What was the Staff's logic and basis? Does the Staff know of any other population projections to year 2060 that have been performed? Is so, how do the applicant's projections compare to those?</p>
4	2-18	2.2.3.4	<p><u>Nearby Industrial, Transportation, and Military Facilities.</u> The staff "concludes that the site location is acceptable." However, the staff identified, in other parts of Section 2.2, a number of areas wherein the staff will review and evaluate impacts at the COL stage. Did the staff mean to state that the site location is acceptable subject to satisfactory results of those reviews? If so, provide an appropriate amendment to the FSER identifying all such conditions to this approval.</p>

Q#	Page	Section	INQUIRY
			<p><u>Response</u></p> <p>In Section 2.2 of the FSER the staff identified the need for assessing design-specific interactions that could arise between the nearby existing unit and any new units that may be constructed on the proposed site. In the absence of a specific new unit design and its geographic placement in relation to the existing unit, it is not feasible to identify specific hazards that may be introduced by the proximate co-location of the existing and new units. Examples of potential hazards may include site proximity missiles (e.g., turbine missiles), as well as accidental airborne chemical (toxic) or radiological releases. In the absence of specific design details, including plant location and orientation, these types of interface hazards cannot be evaluated at the ESP stage. However, hazards of this type had been addressed satisfactorily for the existing unit, such that it is reasonable to expect that they also can be evaluated and, if need be, accommodated for a new unit. On this basis, the staff found the proposed site to be acceptable in conjunction with the need for additional review and evaluation at the COL stage.</p> <p><u>Follow-up Inquiry</u> See Part III of the Order to which this table is appended.</p>
na	2-29	2.3.1.3	<p><b><u>Additional Inquiry</u></b></p> <p>Section 2.3.1.3, pg 2-29 states, “the staff has chosen not to include the proposed ground snow load value of 40 lbf/ft<sup>2</sup> as an ESP site characteristic. Once the roof design is known, the COL or CP applicant has the option to demonstrate that the 48-hour PMWP could neither fall nor remain entirely on top of the 100-year snowpack and/or building roofs.”</p> <p>It would appear that this is an open COL item since the design load will need to be determined at the COL stage based on the structure of the roof design. Yet, Appendix A.2 does not include this as an item in section 2.3, nor does table A.3, Site Characteristics, include it as an open item. Please explain where this and similar items that are not defined are tabulated as open or missing items. <u>See also</u> Part III of the Order.</p>
8	2-34	2.3.1.4	<p>The staff states that it also reviewed the applicant’s PPE values (referring to the Applicant’s SSAR Section 1.3) and finds them to be reasonable. The staff goes on to state that it “did not perform a detailed review of these parameters.” Provide the staff documents wherein the referenced (not-detailed) review is documented and the staff’s conclusions that the PPE values are reasonable is explained. If no such document exists, provide a written explanation of the facts underlying and the logic supporting this staff conclusion.</p>

Q#	Page	Section	INQUIRY
			<p><u>Response</u>  In reference to page 2-34, no specific staff document exists that documents the staff's conclusions that the PPE values are reasonable. NRR review standard RS-002, Processing Applications for Early Site Permits, provides guidance that "[e]ach staff reviewer should determine whether the PPE values are sufficient to support the review, and that the PPE values are not unreasonable for consideration in the staff findings to comply with 10 CFR Part 52, Subpart A." (ADAMS Accession No. ML040700236 - three copies of page 16 are provided.)</p>
			<p><u>Follow-up Inquiry</u>  The Staff's reference to NRR review standard RS-002 is unresponsive to our original inquiry. As originally requested, the Staff shall provide a written explanation of the facts underlying and the logic supporting this staff conclusion that PPE values are reasonable.</p> <p>Also, the Staff shall explain why the lack of information regarding other reactor designs is addressed thoroughly in the FEIS in connection with a variety of environmental impacts associated with the use of a PPE and such information is not addressed at all in the FSER.</p>
10	2-39	2.3.2.3	<p><u>Local Meteorology.</u> Supply information on flooding and other effects from the 14.25 inches of rain in one day (May 8, 1961) at Clinton sufficient for the Board to comprehend the staff's conclusions.</p>

Q#	Page	Section	INQUIRY
			<p><u>Response</u>  The staff's conclusion in Section 2.3.2.4 states that the applicant's identification and consideration of the meteorological characteristics of the site and surrounding area meet the requirements of 10 CFR 100.20(c) and 10 CFR 100.21(d). §100.20(c) states that the meteorological characteristics of the site that are necessary for safety analysis or that may have an impact upon plant design (such as maximum probable precipitation) must be identified and characterized. §100.21(d) states that the physical characteristics of the site (including meteorology and hydrology) must be evaluated and site parameters (e.g., site characteristics) established such that potential threats from such physical characteristics will pose no undue risk to the type of facility to be located at the site. The staff estimated the local intense precipitation rate for the ESP site to be 18.15 in./h and identified this value as a Site Characteristic in Section 2.4.2.3 of the SER. The local intense precipitation site characteristic of 18.15 in./h clearly bounds the highest recorded 1-day precipitation total of 14.25 inches of rain and will be used to mitigate impacts of local site flooding based on grading and drainage design at the COL stage. Note that SER Section 2.4.2 provides additional information pertaining to identifying and evaluating floods at the site.</p>
			<p><u>Follow-up Inquiry</u>  The Board is interested in the actual effects of the May 8, 1961 rainfall. The Staff shall provide any specific information it has regarding the effects of the 14.25 inches of rain at Clinton on May 8, 1961.</p>
19	2-91	2.4.3.3	<p>According to the text on p. 2-90, Fig. 2.4-8 is for outflow only. The caption of the table should be corrected.</p>
			<p><u>Response</u>  The hydrograph shows the flow time history and includes inflow as well as outflow from the reservoir.</p>
			<p><u>Follow-up Inquiry</u>  According to the text on page 2-90, Fig. 2.4-8 is for outflow only; however, comparison with Fig. 2.4-6 suggests that Fig. 2.4-8 is for inflow only. Please clarify.</p>

Q#	Page	Section	INQUIRY
22	2-109	2.4.7.1	<u>Ice Effects.</u> The staff states “the applicant will revise the SSAR to include additional information on ice depth.” Has this been done? Was it part of the revision provided in response to RAI 2.4.7-4? If so, what is the staff’s assessment of the additional information and compliance of the revised section of the SSAR? If it has not been done, when is it expected and when is the staff’s evaluation thereof expected? Is this addressed by the applicant’s commitment to “consider ice sheet effects at the COL stage”? (See p. 2-108).
			<u>Response</u> Yes. Please see page 2-122 bottom paragraph.
			<u>Follow-up Inquiry</u> The Staff’s reply is non-responsive as the referenced page 2-122 does not provide any discussion of the Staff’s assessment of the Applicant’s information. What is the Staff’s assessment of the additional information and compliance of the revised section of the SSAR?
24	2-115	2.4.7.3	What is the relevance of Fig. 2.4-12?
			<u>Response</u> See page 2-114 2 <sup>nd</sup> paragraph from bottom.
			<u>Follow-up Inquiry</u> The Staff’s answer is unresponsive. To clarify, explain “stage-discharge” and state the relevance of Fig. 2.4-12 to “ice-jam-induced stage increase of 2.0 ft.”
26	2-128	2.4.8.1	<u>Cooling Water Canals and Reservoirs.</u> The applicant stated that the overtopping of the dam would occur for a duration of 2.5 hours. How did the staff confirm this duration?
			<u>Response</u> The dam is not safety related. The lag time for overtopping the dam has no safety consequence.
			<u>Follow-up Inquiry</u> Explain why the lag time for overtopping the dam has no safety consequence.
27	2-128	2.4.8.1	<u>Cooling Water Canals and Reservoirs.</u> “The applicant stated in the SSAR Section 2.4.8.1.3 that the ESP facility requires no changes to the auxiliary spillway.” How did the staff confirm this statement?
			<u>Response</u> The safety related water supply does not depend on the design of the auxiliary spillway.

Q#	Page	Section	INQUIRY
			<u>Follow-up Inquiry</u> Is the Staff not required to confirm (because the safety related water supply is not dependent) the applicant's statement that "the ESP facility requires no changes to the auxiliary spillway"?
30	2-137	2.4.8.3	<u>Cooling Water Canals and Reservoirs.</u> Explain more fully why a "depth-averaged model may not be conservative" (see last full paragraph).
			<u>Response</u> Paragraphs 1 and 2 on page 2-138 provide a fuller discussion and the reason for closing the issue.
			<u>Follow-up Inquiry</u> The cited discussion does not address why the depth-averaged model is or is not conservative. The Staff shall address that issue.
31	2-138	2.4.8.1	<u>Cooling Water Canals and Reservoirs.</u> The estimate of the makeup needs for the UHS is given as 87 ac. ft. by the applicant. Later the applicant states that the ESP facility NHS may use either dry cooling in combination with wet cooling, or only wet cooling. Did the staff verify that the makeup needs would still be only 87 ac. ft. with a wet cooled NHS?
			<u>Response</u> NHS is a non-safety function. Please see page 2-172, full paragraphs 2 and 3 for a more detailed explanation.
			<u>Follow-up Inquiry</u> The Staff's reply is non-responsive, it does not provide a clear answer to our original inquiry. The Staff shall address the Board's original question.
33	2-149	2.4.11.1	Explain "dividing by 0.7 to conservatively adjust the forced-evaporation rate" (2 <sup>nd</sup> last paragraph).
			<u>Response</u> As described in response to Q #29, the staff explanation is provided in the .3 section. The 0.7 factor is an adjustment for 100% load factor. This is a conservative assumption related to the existing CPS unit. On page 2-156 staff discusses the conservative assumptions made in its independent analysis of low water condition. Staff has identified COL Action Item 2.4-11 for plant shutdown protocol that needs to be established during a COL review.
			<u>Follow-up Inquiry</u> Explain the origin of the number 0.7, and why "this is a conservative assumption related to the existing CPS unit."

Q#	Page	Section	INQUIRY
44	2-220 et. seq.	2.5.2.1.6	<p><u>Safe Shutdown Earthquake.</u> Provide a brief summary of the differences between the currently accepted methodology and the different “performance based” approach used by the applicant, describing the facts which underlie the staff’s assessment of this new approach and outlining, in bullet form, the logic of the staff’s conclusion that this methodology is acceptable. The Board seeks a concise summary here - do not merely regurgitate the content of this section (which, we note, includes a derivation of this approach). Why does the staff believe that an assumed beta of 0.4 [page 2-235] is acceptable? How does the conclusion that the objective is satisfied for a mean 10exp-5 frequency follow from the observation that “10exp-5 annual frequency of core damage from seismic events corresponds to 50% of U.S. nuclear power reactors where a full seismic PRA has been done”? (See pp. 2-238 - 239) Why is this an appropriate standard? Provide a concise statement of facts and logic supporting the staff conclusion in clause (4) on p. 2-240 that the “target 10exp-5 annual performance goal results in a plant that is as safe as the plants currently operating.” Explain how that conclusion comports with the earlier statements to the effect that it corresponds to 50% of currently operating plants. Explain how the response to the foregoing questions correlates with the discussion on pp. 2-263 - 268.</p> <p><u>Response</u> Section 2.5.2.1.6 provides a description of the performance-based approach including a derivation of the underlying equations and model parameters; however, it does not contain the staff evaluation of the performance-based approach. The staff evaluation of the performance-based approach is provided in Section 2.5.2.3.6. Section 2.5.2.3.6 provides an evaluation of the target performance goal, model parameters (i.e., beta), and other modeling assumptions.</p> <p><u>Follow-up Inquiry</u> The Staff’s answer is not responsive to the Board’s inquiry; the Staff shall address the original question.</p>



Q#	Page	Section	INQUIRY
48	2-253 2-254	2.5.2.3.3	<p>The staff states that “the estimates of uncertainty or variability about the median ground motion predictions are considerably higher for recent ground motion attenuation relationships” compiled by EPRI compared to its original study, and therefore, the applicant decided to use the updated model. Explain how the staff assessed this increased uncertainty and the logic of acceptance of this updated model.</p> <p>Explain the relevance to this application of the fact that staff has concluded that Dominion, during the review of <u>North Anna</u>, had adequately resolved staff concerns regarding development by EPRI of new ground motion models for CEUS with respect to the staff’s evaluation of an application for an ESP for North Anna. Concisely describe the facts and logic of any such relevance and the applicability of the staff concerns regarding the North Anna application to this matter.</p>
			<p><u>Response</u></p> <p>The staff did not evaluate the original ground motion attenuation model used for the 1986 EPRI PSHA for its review of the Clinton ESP application. In the mid 1980's, there were only a few attenuation models developed for the Central and Eastern United States (CEUS). Over the ensuing 20 years, several new attenuation models for the CEUS have been developed. The 2004 EPRI ground motion model uses a combination of 13 different CEUS attenuation relationships. The staff focused its review on the 2004 EPRI ground motion model rather than the obsolete 1986 EPRI ground motion model.</p> <p>The staff performed a detailed review of the 2004 EPRI ground motion model for the Dominion (North Anna) ESP application, since its was the first application received by the staff. For the Clinton ESP review, the staff asked only for clarification of the distance conversion method used for the 2004 EPRI ground motion model.</p>
			<p><u>Follow-up Inquiry</u></p> <p>The Staff states that it “performed a detailed review of the 2004 EPRI ground motion model for the Dominion (North Anna) ESP application.” What is the basis for the Staff determination that the details of those findings need not be incorporated into the Clinton ESP FSER?</p>
52	2-290	2.5.4.1.8	<p><u>Stability of Subsurface Materials and Foundations.</u> Explain “blowcount procedure” here, rather than referring to a Reg. Guide.</p>

Q#	Page	Section	INQUIRY
			<p><u>Response</u> The term “blowcount” refers to the applicant’s use of the Standard Penetration Test (SPT) blowcount procedure. This procedure is used for all site explorations to determine the strength and stability of the subsurface soil layers.</p>
			<p><u>Follow-up Inquiry</u> The prior answer is incomplete because the procedure is only named; the Staff shall explain the procedure.</p>
58	11-2	11.3.1 and 2	<p><u>Radiological Effluent Release Dose Consequences From Normal Operations.</u> The applicant estimated bounding quantities of radioactive gas and liquid waste that might be discharged to support their capability to comply with 10 C.F.R. Part 20. How did the staff verify the adequacy of these bounding values?</p>
			<p><u>Response</u> The staff did not perform any independent verification of the applicant’s estimated bounding quantities of radioactive gaseous and liquid waste to meet the concentration values in Appendix B to 10 CFR Part 20. However, the staff did perform independent calculations of dose to members of the public, using the applicant’s source term data, meteorological data, and liquid dispersion data.</p>
			<p><u>Follow-up Inquiry</u> Explain the logic and basis for the Staff’s decision to accept the applicant’s estimated bounding quantities of radioactive gaseous and liquid waste without verification. Is the Staff planning to perform any independent verification at the COL stage?</p>
61	13-7	13.3.1.1	<p><u>Significant Impediments to the Development of Emergency Plans.</u> The applicant references a 1993 evacuation time estimate (ETE) that assumes it could take up to 1 hour to assemble school buses to evacuate school children and that some of these buses may be located at the school. Recent trends in school system bus operations have led to the contracting out of bus services to private companies. As a result, a contractor may serve multiple schools or even school districts with the same buses, which might lead to wait times in excess of an hour. How did the staff confirm the validity of this 1-hour assumption?</p>
			<p><u>Response</u> The staff did not confirm the validity of this 1-hour assumption.</p>
			<p><u>Follow-up Inquiry</u> Explain the logic and basis for the Staff’s decision not to confirm the validity of the applicant’s 1-hour assumption. Is the Staff planning to confirm the validity of this assumption at the COL stage? What other inputs were not confirmed by the Staff?</p>

Q#	Page	Section	INQUIRY
64	13-11	13.3.1.1	<p><u>Significant Impediments to the Development of Emergency Plans.</u>  The applicant indicates that park and ride shuttles would be used to transport the transient population attending the Pork and Apple Festivals. Did the staff confirm that the buses used for such shuttles are not the same ones used to transport school children? Also, this section gives an estimate of a maximum attendance of 50,000. How did the staff verify that this estimate is valid for the projected time period to 2060?</p>
			<p><u>Response</u>  The staff did not confirm that the busses used for the park and ride shuttles were the same ones used to transport school children. The staff did not verify the projected attendance at the festival.</p>
			<p><u>Follow-up Inquiry</u>  Explain the Staff's logic and basis for its decision not to verify that the busses used for the park and ride shuttles were not the same ones used to transport school children and its decision not to verify the projected attendance at the festival. Is the Staff planning to verify this data at the COL stage?</p>
na	13-3	13.3.1.1	<p><b><u>Additional Inquiry</u></b>  Section 13.3.1.1 of the SER describes the Technical Information in the Application on significant impediments to the development of emergency plans. This section references the NETVAC program. Please provide a description of the NETVAC program along with a discussion of the verification and validation of the code that was done by the applicant, the staff, and others. The Staff's responses to the Board's questions No. 61 and 64 (also the subject of the two preceding follow-up inquiries) state that the staff did not confirm the validity of the assumptions concerning bussing. Are these assumptions used as inputs to the NETVAC code?  If so, how sensitive are the results of the NETVAC code to these assumptions?  What other inputs to the NETVAC code were not confirmed by the staff?</p>

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of	)	
	)	
EXELON GENERATION COMPANY, LLC	)	Docket No. 52-007-ESP
	)	
	)	
(Early Site Permit for Clinton ESP Site)	)	

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing LB ORDER (RECONSIDERING INQUIRY 88; FOLLOWING UP ON THE STAFF'S RESPONSE TO INQUIRIES; AND REQUIRING SUPPLEMENTATION REGARDING FSR FOLLOW-UP ITEMS NOT TREATED AS COL ACTION ITEMS) have been served upon the following persons by deposit in the U.S. mail, first class, or through NRC internal distribution.

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Washington, DC 20555-0001

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Docket No. 52-007-ESP  
LB ORDER (RECONSIDERING INQUIRY 88; FOLLOWING UP  
ON THE STAFF'S RESPONSE TO INQUIRIES; AND REQUIRING  
SUPPLEMENTATION REGARDING FSER FOLLOW-UP ITEMS  
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[Original signed by Evangeline S. Ngbea]

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Office of the Secretary of the Commission

Dated at Rockville, Maryland,  
this 17<sup>th</sup> day of August 2006