

**RAS 11993**

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION  
ATOMIC SAFETY AND LICENSING BOARD

**DOCKETED 07/20/06**

**SERVED 07/20/06**

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

July 20, 2006

ORDER

On April 17, 2006, this Board issued an order requesting documents and briefings from the Applicant and the NRC Staff, to assist the Board in the mandatory portion of its review of the Application of Exelon Generation Company, LLC (EGC) for a 10 C.F.R. Part 52 early site permit (ESP) for its existing Clinton nuclear power station site in DeWitt County, Illinois, for the possible construction of one or more new nuclear reactors.<sup>1</sup> The NRC Staff filed a motion for reconsideration which we granted in part and denied in part<sup>2</sup>, following which the Staff filed an appeal to the Commission<sup>3</sup> and requested of this Board a stay of our Order pending resolution of their appeal.<sup>4</sup> In granting that stay, this Board noted that because of the facts that “all parties

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<sup>1</sup> See Licensing Board Order (Request for Documents and Briefings) (April 17, 2006) (unpublished).

<sup>2</sup> See NRC Staff Motion for Reconsideration (April 27, 2006) [hereinafter Motion for Reconsideration]. While the Staff did promptly produce a copy of the requested FSER following its completion, it took issue with nearly all other requests made by the Board.

<sup>3</sup> See NRC Staff Petition for Interlocutory Review of the Licensing Board’s May 3, 2006 Order (May 23, 2006).

<sup>4</sup> See NRC Staff Motion for Stay (May 8, 2006); See also Licensing Board Order (Granting Motion to Stay) (May 9, 2006) (unpublished) [hereinafter Order Granting Stay].

have a strong interest in the fair and efficient management of this proceeding, and that the Applicant has timely produced to the Board its portion of the requested documents, the Board will commence its review of the Applicant's documents and the NRC Staff's Final Safety Evaluation Report in an effort to minimize delay and/or hardship."<sup>5</sup> Having at that point received the final Staff safety evaluation report (FSER), the Board began, and has now completed, its preliminary review of that document.<sup>6</sup>

Based upon that review, the Board propounds to the Staff the inquiries set forth in Attachment A hereto.<sup>7</sup>

The Board notes that it has obtained, from the NRC Electronic Reading Room, copies of the official transcripts of ACRS proceedings in respect of this application, and is commencing its review thereof.<sup>8</sup> The Staff should expect further inquiries resulting from our review of these transcripts to the extent that matters arise that were not raised by our review of the FSER to date.

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<sup>5</sup> Order Granting Stay at 2.

<sup>6</sup> We note, for the Commission's edification, that this particular review, conducted in the absence of the requested Staff explanations, outlines and briefings, has required more than four hundred person hours of time on the part of this Board.

<sup>7</sup> These queries are made in furtherance of the Board's obligation to "inquire whether the NRC Staff performed an adequate review and made findings with reasonable support in logic and in fact," Exelon Generation Co., LLC (Early Site Permit for Clinton ESP Site), CLI-05-17, 62 NRC 5, 39 (2005). We note, in this regard, as we have repeatedly emphasized, that Commission regulations require that we determine whether "the application and the record of the proceeding contain sufficient information, and the review of the application by the Commission's staff has been adequate to support an affirmative finding [by the Staff]." 10 C.F.R. § 2.104(b)(2).

<sup>8</sup> We note, not without concern, the fact that the Staff, when asked in our Order dated April 17, 2006, at 2, to provide copies of information related to the ACRS reviews responded "[t]he Staff is not in possession or control of ACRS records," Motion for Reconsideration at 5 - a response we find to be disingenuous as these transcripts, recording multiple meetings and consisting of hundreds of pages of dialogue, are available on a publically accessible NRC website and Staff failed to point out their existence or direct the Board to their location. Such assistance would certainly have helped to expedite this proceeding.

The Staff shall file responses to the inquiries included in Attachment A not later than noon on Friday, August 11, 2006.

IT IS SO ORDERED.

THE ATOMIC SAFETY  
AND LICENSING BOARD<sup>9</sup>

*/RA/*

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Dr. Paul B. Abramson, Chairman  
ADMINISTRATIVE JUDGE

*/RA/ by E. Roy Hawkens for./*

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Dr. Anthony J. Baratta  
ADMINISTRATIVE JUDGE

*/RA by Paul B. Abramson for./*

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Dr. David L. Hetrick  
ADMINISTRATIVE JUDGE

Rockville, Maryland  
July 20, 2006

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<sup>9</sup> 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 FSER INQUIRIES

Page	Section	INQUIRY
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.
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?
2-12	2.21	<u>Nearby Industrial, Transportation, and Military Facilities.</u> What is the 6-mile radius circle in Fig. 2.2.1-1?
2-18	2.2.3.4	<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.
2-28	2.3.1.3	<u>Meteorological Characteristics.</u> Deliver to the Board three copies of the PPNL technical evaluation report upon which the staff based its conclusion that "the applicant's design-based tornado site characteristics are acceptable."
2-29	2.3.1.3	The staff concludes that "the applicant's 48-hr PMWP site characteristic value of 16.6 inches of water is acceptable" based upon the staff's approximately 10% higher estimate, which the staff concludes is "most likely the result of" the fact that the staff used a smaller drainage area (10 square-mile vs 296 square-mile). This reduction by a factor of nearly 30 in drainage area led the staff to only a 10% larger PMWP. Explain in depth how the staff found these results comparable and compatible with those of the applicant.

Page	Section	INQUIRY
2-33	2.3.1.3	<p>The staff states that if in the future the ESP site is no longer in compliance with the terms and conditions of the ESP vis-a-vis climactic conditions, the staff “will seek to modify or impose requirements on the site.” Where is this documented as a permit condition or COL Action item? If it is not, explain why not.</p> <p>In addition, we note that at least some of the climatic data are very old - for the period from 1936 to 1975 (see p. 2-30). Explain why more recent data is not available or, if it is, explain why it was not used.</p>
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>
2-35	2.3.2.1	<p><u>Local Meteorology</u>. The staff states that the applicant made a qualitative comparison between temperature/humidity data for the years 1972-77 and 2000-02, concluding that the two datasets were compatible. What is the staff’s assessment of the validity of the comparison and the applicant’s conclusion, how does that comport with the statements in the second paragraph of Sec 2.3.2.3 regarding a shift in the data being possibly caused by the creation of Clinton Lake, and how are these shifts incorporated into the staff’s conclusions regarding the use of this data?</p>
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>
2-44	2.3.4.1	<p>Site-specific <math>\chi/Q</math> values for 0-2 hours are probably conservative because the highest value for the 16 directional sectors is chosen and then compared with another computation (value equaled or exceeded 5 percent of the total time). The code then uses the larger of the two values. The calculation is not clearly described, but it seems biased toward high values if there is much variability among the directions. Describe and define this bias.</p>
2-47	2.3.4.3	<p>The staff made an independent evaluation and “obtained PAVAN results similar to that of the applicant.” Supply enough of the staff’s numerical results to enable the Board to assess this matter.</p>
2-50	2.3.5.1	<p>Explain the categories in the headings of Table 2.3.5-1 (depleted or not, decay or not).</p>
2-52	2.3.5.3	<p>The staff made an independent evaluation. Supply enough of the staff’s numerical results to enable the Board to assess this matter.</p>

Page	Section	INQUIRY
2-50 to 52	2.3.5.2	<u>Long Term Diffusion Estimates</u> . The staff identified a number of regulations and regulatory guidance which should have been identified and complied with by the applicant but, impliedly, were not. Are these failures encompassed by COL Action Item 2-3-3 and the statement at the end of section 2.3.5.4 that “[a]ny COL or CP applicant will need to confirm”? If not, how were these failures dealt with?
2-66	2.4.1.3	<u>Hydrologic Engineering</u> . The staff states that it determined that 50 ft horizontal clearance between CPS and ESP piping was acceptable. Why? Is this point made moot by the staff’s statement that “DSEER permit Conditions 2.4-1 and 2.4-2 are not necessary because COL Action Item 2.4-1 is sufficient.” If not, how is this matter resolved?
2-75	2.4.2.3	Change 1-minute <sup>2</sup> to 1-mi <sup>2</sup> in the last paragraph.
2-79	2.4.2.3	The table labeled “SER Table 2.4.14-1” does not appear to exist. (see last full paragraph).
2-91	2.4.3.3	According to the text on p. 2-90, Fig. 2.4-8 is for outflow only. The caption of the table should be corrected.
2-104	2.4.5.4	<u>Probable Maximum Surge and Seiche Flooding</u> . The staff “concludes that the applicant partially conforms to GDC 2.” Is this meant to be an endorsement? If not, what is the remedy? What is the upshot of only partial compliance?
2-107	2.4.6.4	Again the staff states that “the applicant partially conforms to GDC 2.” Is this also meant to be an endorsement? If not, what is the remedy?
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).
2-113	2.4.7.2	What is the “second item above” mentioned in the 2 <sup>nd</sup> last line?
2-115	2.4.7.3	What is the relevance of Fig. 2.4-12?
2-123	2.4.7.3	Provide the documentation that memorializes the staff statement that “[t]hese design issues will be reviewed by the Staff at the COL stage”?
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?

Page	Section	INQUIRY
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?
2-129	2.4.8.1	<u>Cooling Water Canals and Reservoirs</u> . The applicant concluded that “the compacted soil-cement layer would protect the submerged UHS dam and baffle dike.” How did the staff confirm this statement?
2-132	2.4.8.1	<u>Cooling Water Canals and Reservoirs</u> . The applicant stated the velocities over the crest and toe of the submerged UHS dam is an unnecessary detail for an ESP and that the section would be revised to delete discussion. Since excessive water velocity over an obstruction can lead to erosion of the structure, a discussion of these velocities would seem very pertinent to the acceptability of the UHS under adverse water conditions. Why did the staff agree?
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).
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?
2-147	2.4.10.1	<u>Flooding Protection Requirements</u> . The FSER indicates that the staff requested (in RAI 2.4.10-1) that the applicant discuss differences in the methods it used to determine certain design wind speeds, including a 67 mph speed that was apparently not discussed (a response from the applicant on this speed is not mentioned in this section at all). How did the staff address this failure and why was it acceptable?
2-149	2.4.11.1	Explain “dividing by 0.7 to conservatively adjust the forced-evaporation rate” (2 <sup>nd</sup> last paragraph).
2-151	2.4.11.1	Explain or give a reference for the statement that “normal operation would be at a concentration ratio higher than four” (2 <sup>nd</sup> last paragraph).
2-161	2.4.12.3	Should “dry” be inserted before “cooling system for the ESP facility” (start of 4 <sup>th</sup> line 3 <sup>rd</sup> paragraph)?
2-162	2.4.12.3	Should “be” be changed to “by” in line 1?
2-166	2.4.13.3	Clarify “maximum embedment depth from the PPE.” Is something missing here? (last full paragraph).
2-173	2.4.15.2.2	Clarify apparent confusion about UHS heat loads (paragraph 3). Compare with page 2-174 (last paragraph).

Page	Section	INQUIRY
2-193	2.5.1.1. 2	Explain “swallow-holes” (last paragraph).
2-197	2.5.1.3. 1	Explain “rupture sets” (1 <sup>st</sup> paragraph).
2-210	2.5.2.1. 4	<u>Vibratory Ground Motions</u> . Explain more fully the concept of “deaggregation of the PSHA results” (last paragraph).
2-214	2.4.2.1. 5	<u>Vibratory Ground Motions</u> . The discussion of Fig. 2.5.2-3 in the last paragraph seems to be inconsistent with the data in the figure. For example, which bar corresponds to the high-frequency controlling earthquake, and which three bars correspond to the high-frequency deaggregation earthquakes? How is the low-frequency data to be interpreted?
2-216	2.5.2.1. 5	<u>Vibratory Ground Motions - Site Response Analysis</u> . How were the “pairings” of the 60 randomized velocity profiles with the 60 sets of randomized shear modulus and damping curves performed? Describe the facts and logic underlying the staff’s evaluation of those pairings. What is the mathematical foundation for the use of an arithmetic mean of 60 individual response spectral ratios, what facts underlie the evaluation, and what was the staff’s logic in assessment of that approach?
2-220 et. seq.	2.5.2.1. 6	<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 $10\text{exp-}5$ frequency follow from the observation that “ $10\text{exp-}5$ 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 $10\text{exp-}5$ 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.

Page	Section	INQUIRY
2-235	2.5.2.1. 6.1	Should the reference to Equation 2.5.2-15 be a reference to 2.5.2-11 (3 <sup>rd</sup> line below 2 <sup>nd</sup> equation)?
2-194 2-244 2-275 2-292	2.5.1.2 2.5.2.2 2.5.3.2 2.5.4.2	These sections regarding regulatory evaluation state no conclusion by the staff regarding whether or not the applicant has complied with the relevant regulation. Provide a concise statement of facts and the logic of the staff assessing whether or not the applicant has complied with all relevant regulations and regulatory guidance in this part of the application.
2-259 2-252	2.5.2.3. 3	On p 2-252, the staff “concur with the applicant’s decision to increase the maximum magnitude distributions of the WVSZ and central Illinois source zone” whereas on p. 2-250, after noting that the applicant had so concluded, the staff stated that it “considers the applicant’s maximum magnitude range and weighting are appropriate for the WVSZ.” Reconcile these statements.
2-253 2-254	2.5.2.3. 3	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. 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.
2-256	2.5.2.3. 5	The staff notes that it found large variability in soil strength and stiffness, and noted that the applicant used a randomized process to make its computations but, because the upper 60 ft will be replaced during construction with fill material, used a single site velocity model. Was the velocity used by applicant for this region representative of the compacted fill material or was it based upon the results of the randomization? Explain the facts and logic of the staff’s acceptance of this part of the applicant’s computation.
2-257	2.5.2.3. 5	The staff refers to the applicant’s description of computation of a range of modulus and damping curves through “a randomization process.” Provide a brief description of the “randomization” process and a concise description of the facts and logic underlying the staff conclusions regarding that process.

Page	Section	INQUIRY
2-273	2.5.2.3. 6.4	Here the staff “rejects the applicant’s conclusion that the ESP site, after the application of the high frequency reduction factors, is suitable for any design based on the RG 1.60 DRS.” In the next section (2.5.2.4), the staff concludes, that the “performance based approach is an advancement.” However, the staff does not conclude that this approach is wholly acceptable. If it is, state so and provide, in brief, the facts and logic undergirding that conclusion (in addition to and expanding upon the general statements already contained in 2.5.2.4). In addition, the staff made no mention in its conclusions of the rejection mentioned above, and, without giving any supporting logic, concluded that the proposed ESP site is acceptable from a geologic and seismologic standpoint and meets the requirements of 10 CFR 100.23.” Provide a brief discussion of the facts and logic supporting that conclusion.
2-290	2.5.4.1. 8	<u>Stability of Subsurface Materials and Foundations.</u> Explain “blowcount procedure” here, rather than referring to a Reg. Guide.
2-295	2.5.4.3. 2	Explain “Atterberg Limits” (center of page).
2-297	2.5.4.3. 2	Are these EPRI curves (last paragraph) the same ones shown in Figures 2.5.4-2 and 2.5.4-3? (See the discussion on page 2-280.)
2-300	2.5.4.3. 2	Explain the following statement: “...the staff concludes that the low laboratory- to field- S-wave velocity ratios are not significant.”
2-303	2.5.4.3. 8	Explain “earthquake drains” (last line and first line of following page).
3-3 to 4	3.5.1.6. 3	<u>Aircraft Crash Risk.</u> In its technical evaluation of aircraft crash risk, the staff discusses the risk from a series of potential sources, finding each to be below the threshold of $10 \times 10^{-7}$ for a DBA. Did the staff treat these risks as entirely separate for DBA requirement purposes, or does table 3.5.1.6-2 indicate otherwise? If so, explain the regulatory and other legal basis for not treating these as additive; and, if not, explain clearly how all the various aircraft crash risks were treated as a group, and, in either case, explain concisely the facts and logic undergirding the staff determination.
11-2	11.3.1 and 2	<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?
13-1	13.3	<u>Emergency Planning.</u> Throughout this section, there is no mention of the lessons learned from recent studies of the problems experienced with the emergency plans developed for the New Orleans area during Hurricane Katrina. How did the staff ensure that the applicable lessons learned were included in the ESP emergency plan?

Page	Section	INQUIRY
13-2	13.3.1.1	Change "Evaluation" to "Evacuation" in Footnote 1.
13-7	13.3.1.1	<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?
13-8	12.3.1.1	<u>Significant Impediments to the Development of Emergency Plans.</u> The applicant relies heavily on the 1993 ETE results in the discussion of transport-dependent permanent population. How did the staff confirm the validity of these assumptions in light of the lessons learned from Hurricane Katrina?
13-9	12.3.1.1	<u>Significant Impediments to the Development of Emergency Plans.</u> The applicant stated that the time distribution for mobilization and preparation of the permanent population spans a period of 2 hours. The estimate is based upon the 1993 ETE. How did the staff confirm the continued validity of the estimates in the 1993 ETE as a result of the lessons learned from Hurricane Katrina, particularly for transport dependent and special populations?
13-11	12.3.1.1	<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?
13-14	13.3.2.1	<u>Emergency Planning.</u> The staff cites the content of a letter from the applicant to IDNS notifying IDNS of the applicant's intent to take credit for certain matters set out in certain IPRA volumes, and stating that IDNS Director Ortziger's signature attests to IDNS' awareness of the applicant's position. Does the staff assert that this is legally sufficient? Explain concisely what conclusion the staff has drawn from this letter and how the staff has evaluated this assertion. Was this part of Open Item 13.3-2? If so, how was this resolved? If not, what is the staff's resolution that enabled them to conclude that this Open Item was resolved? (See p. 13-16)

Page	Section	INQUIRY
13-16	13.3.2.3	The staff states that it has “identified in Open Item 13.3-2 that the applicant’s documentation of contacts and arrangements with local government agencies . . . did not address the expanded responsibilities associated with an additional reactor(s) at the Clinton site.” Explain how the applicant’s response is acceptable (given the potential increase in the number of reactors).
13-42	13.3.3.9 .3	<u>Emergency Planning</u> . The staff mentions that the applicant’s response to Open Item 13.3-3 was to the effect that the ESP application addressed major features of the TSC and OSC. The staff found this to be an insufficient response to this Open Item ( <u>see</u> p. 13-43). The staff notes that the COL will address any details not included. While this may indeed be factually accurate, what was the staff’s evaluation of this response and does this Open Item remain open or convert to a COL Action Item, or something less specific? If it is a COL action item, why is it not listed in Appendix A.2?
13-43	13.3.3. 9.4	The “staff concludes that the proposed major feature H is not consistent with the guidance in RS-002 and Supplement 2. Therefore, this feature is unacceptable.” Why did this not give rise to a Permit Condition or a COL Action Item?
13-59	13.3.3. 11.3	Explain in depth the staff’s reason for disregarding the manual RTM-96.
13-61	13.3.3. 11.3	What is the “adverse frequency” mentioned in line 1?
13-62	13.33. 11.3	Should the words “was needed” in line 2 of the first complete paragraph be deleted?
15-2	15.1	Why was Table 3.3-2 of the SSAR not reproduced in this section?
15-2	15.1	Should the reference to Table 3.3-2B be to Table 3.3-2A (middle of page)?
15-3	15.1	Identify the Federal Guidance Reports 11 and 12 cited in the first paragraph.
15-3	15.1	The first paragraph does not seem to identify which $\chi/Q$ values were used for the AP-1000 design. Identify those values.
15-5	15.3.1	<u>Selection of DBAs</u> . The applicant stated that the design basis accidents (DBA’s ) analyzed in the proposed AP1000 and certified ABWR DCD’s are expected to bound the DBA’s of the other reactors being considered. Explain the rationale used to confirm this statement by the applicant, particularly concerning the fact that the PPE includes not only LWR’s but also gas cooled reactors that have significantly different DBA behavior.

Page	Section	INQUIRY
15-7	15.3.4	The first paragraph states that the site-specific $\chi/Q$ values (Table 15.3-2) were used for the AP-1000 design. The last paragraph states that the postulated values for the AP-1000 (Table 15.3-1) were used. The latter statement is repeated in the second paragraph on page 15-8. It appears that either approach meets the regulatory requirements, but clarification is needed.
17-1 17-16 17-17	17.1 17.7	<u>Quality Assurance</u> . Provide to the Board three copies of Inspection Report 0520007/2004001 referred to in this section as describing the results of the staff's QA inspection and forming a large part of the basis for the staff conclusions relating to QA matters.
17-3	17.1.2	The staff states that "the applicant is not required to develop an organization to comply with the criteria of Appendix B to 10 CFR Part 50." Similar comments appear in each subsection on Regulatory Evaluation in every section of Chapter 17. Are early site permits exempt from Appendix B? If so, why did the staff submit requests for additional information about quality assurance?
17-4	17.1.3.2	The staff states that it "reviewed several CH2M Hill procedures in detail. Provide a concise discussion of why other procedures were not reviewed in detail, how the staff reached any conclusions regarding those unaudited procedures, and the legal, factual and logical basis for any conclusion the staff reached on those other procedures.
17-21 17-22 17-23 17-30 17-31	17.8.2 17.9.2 17.10.2 17.14.2 17.15.2	According to the staff, the applicant has asserted the matters in Section 17.8 do not apply to ESP activities. It appears to the Board that only certain ESP activities are exempt from Appendix B. Similar statements are made with respect to Sections 17.9, 17.10, 17.14, & 17.15. Explain these in sufficient depth for Board confirmation.
17-33	17.16.3. 2	Provide to the Board copies of all CARs mentioned in this section (of which the staff currently has originals or copies in its possession). The staff notes that the applicant identified deficiencies in QA to CH2M Hill and that CH2M Hill subsequently corrected them ( <u>see</u> p. 17-34). The staff also states that the applicant assured the staff that procedural deficiencies had been corrected. The staff then determined that these findings do not have a significant impact and that they had been adequately addressed. The staff does not indicate that it made any effort, beyond asking the applicant, to determine whether or not this is the case. Provide the factual and legal basis for these staff conclusions.
17-38	17.18.3 1	Some contractors and subcontractors were not audited "since they were operating under their own previously accepted 10 CFR Part 50, Appendix B, quality processes (e.g. Parsons)." Explain how this exemption is consistent with the obligation of adequate oversight.

Page	Section	INQUIRY
17-39	17.18.3.2	The staff concludes that they reviewed the qualifications of the CH2M HILL personnel who performed the audits and concluded that these personnel “appeared to have adequate qualifications.” What process was employed by the applicant and/or the staff to check these qualifications? Why is the staff not certain? State the legal basis for acceptability of a superficial check that only enabled the staff to conclude the personnel “appeared” to have the necessary qualifications.
A-3	A.1	Permit Condition 4: Should the two words “is necessary” at the end be deleted?
A-23	A.4	Should the figure on page A-23 be identified as Fig. 2.4.15 ( <u>see</u> p. 2-176)?
A-24	A.4	Should Fig. 2.5.2-16 be an exact copy of the figure on p. 2-243? There are differences in the curves in the two figures.
NA	General	<p>Additionally, the staff should address the following general inquiry prompted by an issue arising on numerous occasions:</p> <p>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. 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 2.2.1.4-2.2.2.4 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.</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 REQUESTING STAFF RESPONSES TO ATTACHMENT A REGARDING CLINTON ESP FSER INQUIRIES 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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Docket No. 52-007-ESP  
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ATTACHMENT A REGARDING CLINTON ESP FSER INQUIRIES

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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 20<sup>th</sup> day of July 2006