Exelon Nuclear
200 Exelon Way
KSA3-N
Kennett Square, PA 19348

Telephone 610.765.5610
Fax 610.765.5755
www.exeloncorp.com

Exelon Nuclear

3/10/05
70FR 12022
(32)

2005 MAY 32 AM 9:30

June

May 24, 2005

U.S. Nuclear Regulatory Commission
ATTN: Chief, Rules Review and Directives Branch
Mail Stop T6-D59
Washington, DC 20555

Early Site Permit (ESP) Application for the Clinton ESP Site
Docket No. 52-007

Subject: Review of Draft Environmental Impact Statement

Enclosed are comments on draft NUREG-1815, the "Draft Environmental Impact Statement for an Early Site Permit (ESP) at the Exelon ESP Site." Thank you for the opportunity to participate in this process.

Please contact Bill Maher of my staff at 610.765.5939 if you have any questions regarding this submittal.

Sincerely yours,

Marilyn C. Kray

Marilyn C. Kray
Vice President, Project Development

SESP Review Complete

Template = ADM-013

E-RFDS=ADM-03

Add = T. Kenyon (TSK2)

TPM/wdm

cc: U.S. NRC Regional Office (w/enclosure)
Mr. Thomas Kenyon (OWFN 11 F-1) (w/enclosure)

Enclosure

DEIS Section	NRC Statement	Exelon Comment
General Comment	NRC's use of the word 'unit'.	In the ESP application, Exelon applied for a site to be reserved for a future nuclear facility (See Administrative Section 1.1). As stated in the Environmental Report in Section 1.1.3, the selection of the reactor design is still under consideration and a set of bounding parameters was determined using the reactor design-types listed. In the Site Safety Analysis Report, Section 1.2.3, Proposed Development, EGC describes where the EGC ESP facility will be located and that the facility may consist of a single reactor or multiple reactors (or modules) of the same reactor type. The use the term 'unit' implies that the EGC ESP would be restricted to a single reactor of the same design. Since the EGC ESP application was based on a set of bounding parameters and not on a single reactor design, the term 'unit' should be changed to 'facility' throughout the Draft Environmental Impact Statement.
Section 1.5, Page 1-7, Line 15	NRC's use of the word 'reactor'.	In the ESP application, Exelon applied for a site to be reserved for a future nuclear facility (See Administrative Section 1.1). As stated in the Environmental Report in Section 1.1.3, the selection of the reactor design is still under consideration and a set of bounding parameters was determined using the reactor design-types listed. In the Site Safety Analysis Report, Section 1.2.3, Proposed Development, EGC describes where the EGC ESP facility will be located and that the facility may consist of a single reactor or multiple reactors (or modules) of the same reactor type. The use the term 'reactor' implies that the EGC ESP would be restricted to a single reactor of the same reactor design. Since the EGC ESP application was based on a set of bounding parameters and not on a single reactor design term 'reactor should be changed to 'facility' throughout the Draft Environmental Impact Statement.
Section 2.1, Page 2-1	Sentence 17: "DeWitt County, which had a population of approximately 17,000 in 2000."	Unable to locate this data in ER or SSAR.
Section 2.1, Page 2-1, Line 23-24	"between the cities of Lincoln and Urbana-Champaign "	Site location of the ER lists the city as "Champaign-Urbana".

Section 2.1, Page 2-1, Line 35	"The ESP site is approximately 5 km (3 mi) northeast of the dam, "	Section 2.1.1.2, Site Area Map, final paragraph states that the CPS cooling water intake is about 3 mi northeast of this location. It does not say the ESP site is there.
Section 2.1, Page 2-5, Line 10	"around the lake up to the expected 212-m (697-ft) high-water mark."	Unable to find these elevation data in the ER or SSAR. A reference for this information or how this number was calculated should be provided.
Section 2.1, Page 2-5, Line 11	There were 972,616 visitors to the lake in 2000 (Exelon 2003a).	Unable to find these elevation data in the ER or SSAR. A reference for this information or how this number was calculated should be provided.
Section 2.2.2, Page 2-7, Lines 20-21	"to 210 m (690 ft) above MSL and 212 m (697 ft) above MSL along Clinton Lake (Exelon 2003a). "	The ER used the numbers 700-ft and 696-ft above MSL, respectively. ER data are referenced as USGS, 1990. ER Section 2.2.2 uses the 700 ft.
Section 2.2.2, Page 2-8, Lines 21-22	The southern section is approximately 30 km (20 mi) long with a width of 76 m (250 ft) (an area of 246 ha [610 ac]).	ER Sections 2.2.1,Site and Vicinity, and 2.2.2 Transmission Corridors and Off-Site Areas, 1st paragraph: "The southern section is approximately 8-mi long with a width of 250 ft (an area of 238 ac)."
Section 2.2.2, Page 2-8, Lines 23-24	The southern section runs southwest of the ESP site past Clinton Lake, and then turns south and terminates at the Oreana substation, just north of Decatur.	ER Section 2.2.2 Transmission Corridors and Off-Site Areas, 1st paragraph: "The southern section runs southeast of the EGC ESP Site past Clinton Lake and then turns south and runs toward the southern boundary of DeWitt County."
Section 2.2.2, Page 2-8, Line 36	"approximately 270 m (900 ft) above MSL in the north-central portion of the transmission."	ER Section 2.2.1 Site and Vicinity, 6th paragraph: "Elevations range from approximately 800-ft above MSL in the north-central portion of the vicinity"

Section 2.2.2, Page 2-9, Lines 8-9	The private airports include the Martin Airport, and the Thorp Airport, discussed previously in Section 2.1.	ER-Section 2.2.2 Transmission Corridors and Off-Site Areas, 7th para. should state that "The private airports are the Martin RLA Airport, Throp Airport, and Baker's Strip Airport discussed above in Section 2.2.1 (Bureau of Transportation Statistics, 2000)."
Section 2.2.2, Page 2-9, Line 26	McLean County published a regional comprehensive plan in August 1999 (McLean County 1999).	ER-Section 2.2.2 Transmission Corridors and Off-Site Areas, 11th para. should state that McLean County published a regional comprehensive plan in August 2000.
Section 2.4, Page 2-16, Line 31	Groundwater aquifers are described in Section 2.3.1.2 of the ER.	Groundwater aquifers are described in Section 2.3.1.3 of the ER and not 2.3.1.2.
Section 2.4, Page 2-16, Line 34	Discussion of geology.	As a point of clarification, while alluvium from stream deposits may be present over the glacially consolidated soils, much of the upper soil layer is dominated by loess, a wind blown silty to fine sand deposit.
Section 2.4, Page 2-17, Lines 4, 5 & 6	Statement regarding best management practices.	Items were left out in the sentence beginning "Assuming ". The idea is that if best management practices are used, excavation and disposal of site soils and the placement of imported fill, such as erosion and transport of sediments, should result in minimal impacts. The last part of the sentence, "the low relief terrain and geotechnical properties make landslides in the region of the site unlikely" is correct. The sentence should be changed to "Assuming best management construction practices would be employed, excavation and disposal of site soils and the placement of imported fills, should result in minimal impacts from erosion and transport of sediments. The low-relief terrain and geotechnical properties of the surficial materials make significant landslides in the region of the site unlikely."
Section 2.6.1.1 Page 2-18, Line 18	Two small gates near the service spillway are able to provide small releases to maintain minimum downstream flows.	CPS documents (e.g., USAR Section 2.4.8.1.4 Outlet Works and ER-OLS Section 2.4.1.4.1) indicate that there are three sluice gates that regulate the downstream releases of water from the lake.

Section 2.6.1.1, Page 2-19, Lines 13 – 21	Discussion of surface-water hydrology.	The context of these two paragraphs should be clarified to indicate it relates to the lake surface area and not the total lake watershed.
Section 2.6.1.2, Page 2-19, Line 25	Groundwater aquifers are described in Section 2.3.1.2 of the ER.	Groundwater aquifers are described in Section 2.3.1.3 of the ER and not 2.3.1.2.
Section 2.6.1.3, Page 2-20, Lines 10-12	Exelon collects flow measurements directly associated with current site operation that are required under the terms of the Exelon's existing NPDES permit.	This statement is incorrect. AmerGen Energy Company, LLC, holds the NPDES permit for the CPS. Exelon does not collect any flow measurements associated with the operation of CPS. The monitoring currently conducted by Exelon is limited to collecting quarterly water level measurements from three peizometers installed at the EGC ESP Site in July and August, 2002.
Section 2.6.1.3, Page 2-20, Lines 12-13	"Exelon proposes to augment its groundwater and aquifer characterization program...related to the CPS Operating License,..."	Exelon did not conduct the investigation programs prior to the construction of the CPS unit or related to the CPS Operating License. Item 1 should be revised to replace "its" with "the" so the sentence reads "augment the groundwater and aquifer characterization program". Similarly, Item 2 should be revised from, "continue its ongoing groundwater monitoring program related to the CPS Operating License" to read, "design and implement a groundwater monitoring program that will be conducted prior to construction activities.".
Section 2.6.1.3, Page 2-20, Line 25	"The lack of these measurements (water velocity) limits detailed process modeling of lake temperature and elevation levels."	The sentence stating that, "The lack of these measurements (water velocity) limits detailed process modeling of lake temperature and elevation levels" is not entirely accurate. There are other ways to model the potential thermal impacts of the station operation on Clinton Lake such as the hydrothermal model of the lake developed in 1989 by J.E. Edinger Associates Inc. The Edinger model examined lake temperature changes in Clinton Lake with changing lake levels and was calibrated with lake temperatures measured during the summer of 1988.
Section 2.6.1.3, Page 2-20, Line 28-30	These measurements would become part of Exelon's pre-application monitoring program.	This should be clarified to mean that the measurements taken would become part of the pre-construction monitoring program. The rationale for this clarification is that there could be a significant time period between CP/COL application and the commencement of construction activities.

Section 2.6.2.1, Page 2-21, Line 9	"When the CPS unit is operating, pumps draw water from Clinton Lake at a rate of 35,700 L/s (566,000 gpm)."	The 35,700 L/s (566,000 gpm) reported in the second sentence is the summer intake. During the winter, the intake is less (about 28,075 L/s or 445,000 gpm). The sentence should be revised to read "at a rate of 35,700 L/s (566,000 gpm) in the summer and 28,075 L/s (445,000 gpm) in the winter."
Section 2.6.3.1, Page 2-22, Line 9	Discussion of operational impacts of a new nuclear unit on Clinton Lake water quality.	Operational impacts of a new nuclear unit on Clinton Lake water quality are discussed in Section 5.3.3 of this EIS and not 5.2.2.
Section 2.6.3.1, Page 2-22, Line 18-19	Before a new nuclear unit could begin to operate, Exelon would be required to obtain a NPDES permit for the discharge.	As stated in the ER, the Exelon ESP facility would maintain the current limits specified in the CPS NPDES permit. A new NPDES permit would not be required but a modification to the existing permit would be required to add the Exelon ESP facility to the permit.
Section 2.6.3.2, Page 2-22, Line 24	"...there are no site-specific data available for the chemistry of groundwater underlying the ESP site."	This sentence is not accurate. Glacial drift groundwater chemistry data from selected site piezometers collected as part of the CPS investigations are presented in Table 2.3-20 of the ER.
Section 2.6.3.3, Page 2-22, Lines 39-41	Discussion of thermal monitoring.	The last two sentences of this paragraph read, "Clinton Lake is also part of the IEPA Bureau of Water's Ambient Lake Program. Additionally, thermal lake data is collected as part of the environmental monitoring program for the CPS (BOW 2004)." The BOW document (i.e., the "Draft Illinois 2004 Section 303(d) List") does not discuss the thermal data collection for the CPS. The reference citation should be moved to the end of the previous sentence. The sentence should read " IEPA Bureau of Water's Ambient Lake Monitoring Program (BOW 2004)." The reference should actually be (IEPA) and not (BOW). The second sentence should also be revised to "thermal lake data are collected as part of the monitoring program for Clinton Lake."

Section 2.6.3.3, Page 2-22, Lines 39-41	"Clinton Lake is also part of the IEPA Bureau of Water's ambient lake program. Additionally, thermal lake data is collected as part of the environmental monitoring program for the CPS (BOW 2004)."	The BOW document (i.e., the "Draft Illinois 2004 Section 303(d) List") does not discuss the thermal data collection for the CPS. The reference citation should be moved to the end of the previous sentence. The sentence should read " IEPA Bureau of Water's ambient lake program (BOW 2004)." The second sentence should also be revised to "thermal lake data are collected as part of the monitoring program for Clinton Lake."
Section 2.6.3.4, Page 2-23, Line 16	"Many of these same monitoring activities would be continued if the ESP unit was completed and would likely become part of the operational monitoring."	As the operation monitoring for the CPS was discontinued after 1991, the statement is not accurate. The sentence should be revised to read, "Many of these same monitoring activities will be considered in the development of the operational monitoring program to be implemented if the ESP unit were completed."
Section 2.6.3.4, Page 2-23, Lines 22-23	"Chemical monitoring of a variety of constituents is required, including pH, chloride, mercury, nitrate, suspended solids, and dissolved oxygen"	This sentence should be revised to identify if the constituents listed are monitored under the current CPS NPDES permit, or those that will be required as part of the chemical monitoring programs for the ESP Facility.
Section 2.7.2.3	"Exelon proposes to reinstate a fisheries monitoring program based on the one established in support of the 1973 CPS ER for the CP stage."	Fisheries monitoring, to the extent required pursuant to the Clean Water Act 316 regulations will be followed when developing the program.
Section 2.8.1, Page 2-40, Line 5	Total population in 2000 is listed as 764,366	ER-Section 2.5.1.2, population between 16 km and 80 km (10 mi and 50 mi), 1st para. Lists the population as 752,008.

Section 2.8.2.1, Page 2-47, Lines 11-21	Reference to information in Table 2-10 of the DEIS	Numbers in this table do not match those in Table 2.5-10 of the ER. The DEIS referenced BEA 2001; County and City Data Books, 1994a, 2000. The ER referenced USDOL 2002.
Section 2.8.2.1, Page 2-47, Line 32	Table 2-10 Regional Employment Trends, 1990 and 2000	Numbers in this table do not match those in Table 2.5-10 of the ER The DEIS referenced BEA 2001; County and City Data Books, 1994a, 2000. The ER referenced USDOL 2002.
Section 2.8.2.2	Exelon is listed as the entity paying taxes from 1996 through 2002.	Prior to 2000, Illinois Power owned and operated CPS. Therefore, Illinois Power paid taxes to the taxing entities. After the sale of CPS in 2000 to AmerGen Energy Company, LLC, AmerGen paid taxes to the taxing entities.
Section 2.8.2.2, Page 2-53, Line 5	Pre-deregulation taxes are stated as being paid based on depreciated assessed value.	Pre-deregulation taxes were based on depreciated book value not assessed value.
Section 2.8.2.7, Page 2-61, Line 1	Exelon is listed as the entity paying taxes.	Prior to 2000, Illinois Power owned and operated CPS. Therefore, Illinois Power paid taxes to the taxing entities. After the sale of CPS in 2000 to AmerGen Energy Company, LLC, AmerGen paid taxes to the taxing entities.
Section 2.9.2, Page 2-69, Lines 19-20	The DEIS discusses historic / archaeological sites and suggests the following, "Prior to construction, this area will need to be further investigated using appropriate methods such as tilling, surveying, and shovel-testing."	ER-Section 2.5.3 Historic Properties, final para. provides discussion that archaeological testing of the area to be disturbed by the new construction is not necessary. However, Exelon, will follow the IL SHPO guidelines.

<table>
<tr>
<td>Section 3.1,
Page 3-1,
Line 33</td>
<td>It is stated that the multiple units would be grouped into one operating unit.</td>
<td>Due to the nature of the ESP, it would more accurate to state that the multiple units could be grouped into one operating unit. There is no requirement to place these multiple units into one operating unit, e.g., 2-AP1000s.</td>
</tr>
<tr>
<td>Section 3.2</td>
<td>Statement regarding cooling tower blowdown.</td>
<td>Section 3.2.1.1, third paragraph should be corrected as follows:

A new nuclear unit would normally withdraw 2829 L/s (44,853 gpm) through the intake structure. Blowdown from the cooling tower(s) would return approximately 769 L/s (12,144 gpm) as blowdown to Clinton Lake via the discharge flume.

ER Table 3.3-3 needs to be corrected as noted below to show the correct blowdown total

TABLE 3.3-3
Cooling Water, Thermal Discharges to Clinton Lake
<table>
<tr><th>Service</th><th>Flow</th><th>Temperature</th><th>Source</th></tr>
<tr><td>NHS turbine cycle cooling tower blowdown</td><td>12,000 gpm normal, 49,000 gpm max</td><td>101°F</td><td>SSAR Table 1.4-1/PPE Section 2.5.4</td></tr>
<tr><td>UHS cooling tower blowdown</td><td>144 gpm normal, 700 gpm max</td><td>95°F</td><td>SSAR Table 1.4-1/PPE Section 3.5.3</td></tr>
<tr><td>Total Discharge from Cooling Towers</td><td>12,144 gpm normal, 49,700 gpm max</td><td>101°F</td><td></td></tr>
</table>
The blowdown flow in the ER text is based on the total from ER Table 3.3-3, which is incorrect since the total row is a repeat of the first row not the total. 12,000 + 144 = 12,144 and not 12,000 gpm. The table needs to be corrected for temperature since the revised wet bulb provided in the response to RAI 8-8 increases the discharge by 1 degree to 101 degrees F.</td>
</tr>
</table>

Section 3.2	Discussion of PPE	Section 3.2.2.1, second paragraph on Normal Cooling, should be revised as noted below: During normal operation at full power, based on the PPE, the cooling tower system is *required to reject a heat load of 4420 MW (15.1 x 109 Btu/hr) to the environment. The new* unit will reject this heat load using cooling towers. Based on the maximum wet bulb temperature of 86F, the maximum blowdown temperature is 38.3C (101F).

Section 3.2, Page 3-7	"During the review of a CP or COL application referencing an ESP, the staff will assess the environmental impacts of the construction and operation of a specific plant design. If the environmental impacts addressed in the ESP EIS are found to be bounding by the staff, no additional analysis of these impacts will be required, even if the ESP applicant employed the PPE approach. However, environmental impacts not considered or not bounded at the ESP stage have to be assessed at the CP or COL stage. In addition, measures and controls to limit adverse impacts will need to be identified and evaluated for feasibility and adequacy in limiting adverse impacts at the CP or COL stage. The inputs and assumptions that were used or considered during the staff's evaluation of the ESP application (listed in Appendices J and K) will provide the basis for the staff's verification review in which the staff must determine whether or not a specific design in a CP or COL application falls within the PPE, and the environmental impacts of the construction and operation of that specific design fall within the bounds of environmental impacts estimated by the staff at the ESP stage."	This paragraph is confusing and imprecise and should be reworded. At the CP/COL stage, Exelon and the NRC will determine if the plant-specific design falls within the PPE in the ESP EIS. If the design is bounded by the PPE, the findings in the ESP EIS remain valid. If the design is not bounded by the PPE, it will then be necessary to determine if the new information significantly effects the environmental impacts as described in the ESP EIS and to identify mitigation measures for any significant increases in environmental impacts.

Sections 3.2.1 & 3.2.2	Discussion of PPE	ER section 3.4.2.3, fifth paragraph should be revised as noted below; the CPS discharge flume will be modified to accommodate the EGC ESP Facility outflow. Engineering evaluations have not been performed to estimate the extent of the modifications but will be performed at the COL phase. The discharge from cooling tower blowdown will normally be 12,000 gpm with a maximum flow of 49,000 gpm (see Table 1.4-1 of the SSAR). The temperature of the blowdown discharge to the CPS discharge flume is estimated to be a maximum of 101°F. The blowdown temperature is dependent on the wet bulb temperature and will decrease with wet bulb temperatures less than 85F.
Sections 3.2.1 & 3.2.2	Discussion of PPE	ER Section 3.4.2.4, fourth paragraph should be revised as follows: The maximum discharge flow from the UHS cooling system to the UHS cooling towers is 26,125 gpm during normal operation and 52,250 gpm during shutdown (see Table 1.4-1 of the SSAR). The maximum heat load on the UHS cooling system is 2.25E+08 Btu/hr during normal operation and 4.11E+08 Btu/hr during shutdown. The discharge from UHS cooling tower blowdown is normally 144 gpm with a maximum blowdown of 700 gpm. The maximum temperature of the UHS blowdown discharge is 95°F.
Section 3.2, Page 3-2, Line 25	Appendix Table of PPE values	The DEIS refers to the Appendix for the complete set of PPE values. The Table in the Appendix is not current and a new updated Table should be provided or those values that have changed should be listed.
Section 3.2, Page 3-4, Line 11	It is stated that the selected reactor would be bounded by values.	It is more accurate to state that the selected reactor(s) would be bounded by values.
Section 3.2, Page 3-4, Line 22	Discussion of radiological consequences.	The DEIS indicates that the radiological consequences was based on the certified ABWR with an uprated power level of 4300 MW. The megawatt rating used in the EGC ESP application was for 3926 MWt. EGC did not use the uprated value for these analyses.

Section 3.2.2.1 Page 3-9, Lines 19-23	"Based on the PPE, during shutdown, the UHS system for each unit would reject 123 MW (420 x 106 Btu/hr) to the environment. Makeup water for the mechanical draft UHS cooling towers is withdrawn from the UHS reservoir. The reservoir is required to maintain an adequate supply of water for 30 days of emergency operation. Based on the PPE, the maximum blowdown discharged to the discharge canal is 54 L/s (850 gpm)".	In Section 3.4.2.4 of the ER – Ultimate Heat Sink – it is stated that, "The maximum discharge flow from the UHS cooling system to the UHS cooling towers is 26,125 gpm during normal operation and 52,250 gpm during shutdown (see Table 1.4-1 of the SSAR). The maximum heat load on the UHS cooling system is 2.25E+08 Btu/hr during normal operation and 4.11E+08 Btu/hr during shutdown. The discharge from UHS cooling tower blowdown is normally 100 gpm with a maximum blowdown of 700 gpm. The maximum temperature of the UHS blowdown discharge is 95°F". There is a slight disparity between the numbers reported in the ER versus those reported in the DEIS. It should be noted that the numbers reported in the ER are consistent with those reported in the PPE table. The numbers in the DEIS should be revised to reflect those in the PPE table and the ER.
Section 3.2.4.1, Page 3-11	"In the PPE approach, specific quantities and concentrations of chemicals or biocides used for proper water chemistry in the reactors are not identified and will need to be revisited in the CP or COL stage."	In this same page, the DEIS states that Exelon did provide bounding values for the blowdown. Therefore, at the CP/COL stage, Exelon will only need to demonstrate that those values in the PPE remain bound the plant-specific design.

Section 3.2.4.2, Page 3-12, Lines 7-12	"Sanitary systems during pre-construction and construction activities will include the use of portable toilets. During operation, sanitary system wastes will likely be handled through the existing CPS sanitary sewage treatment plant. Discharges from this plant will be controlled in accordance with an approved NPDES permit issued by the IEPA. Exelon (2003b) provided a bounding sanitary discharge rate to Clinton Lake of 3.8 L/s (60 gpm) normal and 6.2 L/s (98 gpm) maximum.	As stated in Section 3.6 text of the ER, " The normal and maximum amount of sanitary discharges to Clinton Lake for the selected composite reactor are presented in Table 3.6-2 and were obtained from Table 1.4-1 of the SSAR". Upon review of Table 3.6-2 of the ER the maximum discharge rate from the sanitary sewer system is stated as 198 gpm so there is a disparity between the numerical values reported in the DEIS and the ER. The numbers in the DEIS should be revised to reflect those in the PPE table and the ER.
Section 4.0, Page 4-1, Lines 10-13	Discussion of Site Redress Plan.	"The site redress plan allows for specific site-preparation activities to be conducted with approval of an ESP. The activities evaluated for the Exelon ESP site are those permitted by Title 10 of the Code of Federal Regulations (CFR), 50.10(a)(1) and 52.25(a). In the event that the ESP is approved and Exelon conducts site preparation activities but does not build the new nuclear unit, Exelon would be required to implement its site redress plan." *The correct 10 CFR callout should be 10 CFR 50.10(e) (1)*
Section 4.1.2, Page 4-3, Lines 16-19	"Exelon indicated that as a result of receiving an ESP, agreements would be made with the Regional Transmission Operator (RTO) and, if required, transmission lines would be upgraded in the event that the power demands and power production exceeded the line capabilities."	ER-Section 4.1.2 Transmission Corridors and Off-Site Areas – "As described in Section 3.7, an RTO or the owner, both regulated by FERC, will bear the ultimate responsibility for defining the nature and extent of system improvements, as well as the design and routing of connecting transmission." The ER statement correctly places sole responsibility on the RTO or owner, whereas the DEIS suggests responsibility on both the RTO and Exelon.

Section 4.3.1, Page 4-6, Line 10	The second sentence indicating that "the dewatering system would possibly change the available capacity of local wells."	This sentence is not entirely accurate. ER Section 4.2.2.3, indicates that based on the existing information, the closest shallow residential well (30-foot deep) is located approximately 0.73 miles southwest of the CPS. Potential construction-related impacts to this well, if any, will be dependent on the final embedment depth and the continuity of the more permeable zones within the shallow glacial till. The distance and generally low permeability of the shallow glacial materials will help to minimize impacts to the shallow wells.
Section 4.4.1.1	"However, the locations of associated equipment laydown and fill disposal areas and the conduit for the new intake are currently unknown and could, thus, impact wetland and forest habitat, depending on their ultimate locations. Nevertheless, Exelon would site these so as to preclude impacts to these wetlands".	The proposed power plant will not directly affect any forested areas or wetlands. The proposed new intake structure will affect an area of "Waters of the United States". The proposed transmission line has potential to affect small areas of forest and wetlands. These impacts will be avoided and/or minimized to the greatest extent practicable.
Section 4.4.1.1, Page 4-9, Line 38	It is stated that transmission system construction techniques would be determined during the CP/COL phase.	It would be more accurate to state that the transmission system construction techniques would be determined before or during the CP/COL phase.
Section 4.4.1.1, Page 4-13, Line 24-25	It is stated that the staff will conduct its own review of transmission line construction impacts at CP/COL.	If routing of the transmission system for the ESP is different than evaluated at the ESP, then the staff would review the construction impacts of the different routing.
Section 4.4.3, Page 4-26, Line 35-37	It is stated that Exelon would determine suitability of habitat for Indiana bat.	The transmission system operator, through the course of obtaining permits for any construction activities, would determine suitability of habitat for Indiana bat, not Exelon.

Section 4.5.3.1, Page 4-24, Line 12 Table 4-1, Page 4-46, Line 5 Section 5.5.3.2, Page 5-33, Line 3	" the [positive] impacts of construction on the economy of the region would be beneficial and SMALL everywhere in the region except DeWitt County, where the impacts could be MODERATE, and that mitigation would not be warranted."	It is more accurate to describe the impacts in that they would be "beneficial" and MODERATE.
Section 4.5.3.3, Page 4-27, Line 32	"Near the Exelon ESP site, 2500 cars and trucks and 1850 cars and trucks travel daily on Illinois..."	ER-Section 4.4.2.8 Transportation Facilities, 2nd para. – "Near the EGC ESP Facility, 2750 cars and trucks and 2000 cars and trucks travel daily on IL Route 54 and 10, respectively (IDOT, 2003)."
Section 4.5.3.5, Pages 4-30 & 4-31, Lines 29-35 & 1-7	Two sections discuss the potential shortage of housing in the region and the associated upward pressure on rent costs.	ER-Section 4.4.2.4 Housing Information, 2nd & 3rd para. – This section of the ER discusses that no families or households will be displaced as a result of rising rent costs due to an abundance of existing vacancies in the area. This is a contradiction to the statements in the DEIS. A reference should be provided as substantiation of the staff's position of this potential for housing shortage.
Section 4.6, Pages 4-34 & 4-35, Lines 36-40 & 5-13	Discussion of the previously disturbed nature of the construction area and states that: "Therefore, archaeological testing of this area does not appear to be warranted."	ER-Section 2.5.3 Historic Properties, final para., provides discussion that archaeological testing of the area to be disturbed by the new construction is not necessary. Nonetheless, Exelon, will follow the IL SHPO guidelines.
Section 4.12, page 4-44	Statement regarding construction impacts.	Add a sentence to Section 4.12 of the DEIS (as in 5.12): "The impact column designates negligible and beneficial impacts as SMALL."

Section 5.3.2, Page 5-5, Line 39	Statement regarding water-use impacts.	Outflows also include water over and through the dam.
Section 5.3.2, Page 5-6, Line 10	Statement regarding water-use impacts.	Outflows also include direct evaporation from the ESP unit.
Section 5.3.2, Page 5-6, Line 12	"Based on groundwater elevation measurements, the only time Clinton Lake would be expected to recharge the adjacent aquifer would be after the lake was refilled following an extended period of very low lake elevations."	Based on the measured water levels and gradients and the occurrence of the springs, the North Fork of Salt Creek and Salt Creek have been and, as part of Clinton Lake, continue to be, the discharge zone for shallow groundwater. Therefore, it is unclear why the Clinton Lake would need to recharge the aquifer if there was an extended period of very low lake elevations.
Section 5.3.2, Page 5-6, Line 23	"Evaporation estimates were based on calculations with Exelon's lake temperature model, discussed in Section 5.3.2 of the ER (Exelon 2003b)."	The temperature model is discussed in ER Section 5.2.1.

Section 5.3.2, Page 5-6, Line 29	Discussion of snowfall in period of record analysis.	The applicant did not exclude snowfall in the period of record analysis. The values for precipitation in the analysis include both rainfall depth (in inches) and the liquid equivalent depth of snow fall (in inches). This is the value that is reported directly in the source meteorological document MRCC (2002a). The EIS uses the perceived exclusion of snowfall as justification for using data from an adjacent watershed. With that issue now set aside there should be no reason for dismissing the well documented records from the Salt Creek watershed rather than the records from a considerably different adjacent watershed. If this adjacent watershed is used, any differences in the model results must first be considered differences in the watersheds and then as deficiencies in either one of the modeling approaches. Precipitation data that were used in the period of record analysis were obtained from the reference MRCC 2002a. Precipitation values included in this reference are the sum of rainfall depth and the water equivalent depth of snow fall. The inclusion of snow in the hydrologic analysis is stated in the Technical Memorandum; Clinton Lake Period of Record Analysis – Spreadsheet Column by Column Explanation, July 7, 2004 in the section "Model Limitations".
Section 5.3.2, Page 5-6, Line 34	Statement regarding water-use impacts.	The staff selected an adjacent stream for its analysis. Use of an adjacent stream would be proper when there are no meteorological or stream flow data available in the studied watershed. However, in this case, EGC had both records for a period before the lake is in place, after the lake is in place without the plant operating, and after the lake is in place with the plant operating. Therefore, the adjacent stream should not have been used for this analysis.

General Comments on Water Impacts in Sections 5, 7, 9, and 10	"The results of the staff analysis were that the frequency and magnitude of low water conditions are more frequent and deeper than those predicted by the applicant. However, the lack of pool elevation data made it impossible for the staff to perform an adequate calibration and verification of the approach. The analysis must be revisited at the construction permit (CP) or combined license (COL) application. The applicant has, however, committed to collect the pool elevation data that would be required to calibrate and verify the model results. Therefore, based on the Exelon ER and the staff's independent review, the staff concludes that during normal water years the water-use impacts would be SMALL, and mitigation would not be warranted. During low water years, however, the impact to the water level could be MODERATE until normal water conditions return."	As page 5-7 of the DEIS indicates, some of the assumptions in the staff's analysis are "very conservative." Additionally, page 5-37 of the DEIS states that the occurrence of a drought severe enough to impact the lake level is a "rare event." NEPA mandates that the EIS use realistic assumptions, not "very conservative" assumptions. Furthermore, in determining the environmental impacts, the EIS should account for the low probability of severe drought conditions in determining the overall environmental impacts. Additionally, the EIS should give greater weight to the fact that the impacts are temporary (see DEIS, p. 10-6). When all of these factors are taken into account, the impact should be designated as SMALL.

Section 5.3.2, Page 5-7, Line 4	Statement regarding cooling tower discharge.	We agree with the staff that a cooling tower will discharge approximately 80% of its heat load in the form of evaporation. However, EGC analysis indicates that Clinton Lake discharges 71% (average of the monthly values used in our period of record model) of its total heat load (heat from solar radiation as well as condenser heat load) by way of evaporation. This is 9% less than the staff's estimate. Thus, it is suggested that the staff use 71% rather than 80% for its value.
Section 5.3.2, Page 5-7, Line 13	Discussion of modeled results.	To put these modeled results in perspective, it would be beneficial to include actual low flow percentages (flow less than 5 cfs) measured at Rowell for the period without CPS (1978 –1987) and the period with CPS (1988-persent). These values show the "very conservative" assumptions the staff has used in the NRC model when compared to results with measured values at Rowell. Looking at the percentages at or below low flow at the Rowell gauge, EGC values are considerably lower in the range of pre-dam (4%), pre-CPS (<1%) and CPS (1%). The NRC model results are pre-CPS (23%) and CPS (43%). The watershed adjustment factor stated in the DEIS would not account for that much difference.
Section 5.3.2, Page 5-7, Line 18	Statement regarding minimum flow values.	EGC agrees with the comparison to minimum flow values with one plant operating. A comparison to minimum flows without a power plant does not appear to be relevant as there is a permitted and operating power plant on the site. If a comparison to natural conditions is desired it would seem appropriate to show minimum flow values for the time period before the plant and dam were in place.
Section 5.3.2, Page 5-7, Line 25	Statement regarding water-use impacts.	In this summary paragraph, it is important to note that the model results presented represent the most consumptive cooling process being considered in the ESP application and that other less consumptive processes are also being considered.
Section 5.3.3, Page 5-8, Line 24	It is stated that the water quality impacts are SMALL, with the exception of water temperature.	As stated in the ER, the Exelon ESP facility would maintain the current limits specified in the CPS NPDES permit. A new NPDES permit would not be required but a modification to the existing permit is required. Based on this information, the staff should have enough information to perform its assessment of impacts of water temperature.

Section 5.4.1.4, Page 5-12, Line 6-7	It is stated that it is unknown where and how much lakebed would be exposed, potential impacts could range from minimal to substantial. It is also stated that the issue would be evaluated in greater detail at CP/COL.	The staff has not asked for additional information that it felt would be needed to obtain to assess an impact level. In addition, it is unclear how the staff would evaluate this issue at CP/COL any differently than can be evaluated at ESP. With the known minimum lake level assumed in the ER, there should be sufficient information to conclude that the impacts would be considered SMALL.
Section 5.4.2.2, Page 5-19, Lines 23-26	The average lake temperature, determined by monitoring during the CPS pre-operational period (1985 and 1986), was 13.3C (55.9F) (IPC 1992). The average lake temperature monitored over 5 years after CPS operation (1987 through 1991) was 21.1C (70.0F) (IPC 1992). Thus, the CPS has increased lake temperatures approximately 7.8C (14F) over pre-operational conditions (IPC 1992).	Although the average temperatures presented are correct, the information presented may be overstated. Section 8 of "Environmental Monitoring Program Water Quality Report 1978-1991" also states, "the greater average temperature was partially due to a change in the sampling schedule. During the operational period, temperatures were not determined during some of the winter months" (see page 20).
Section 5.4.2.2, Page 5-21, Lines 33-35	Statement regarding aquatic impacts.	The third sentence states, "They currently range between 1.1 and 4.4C (2 and 8F) higher than those at the Rowell gauging station located 19.3 km (12 mi) downstream of the Clinton Dam (Exelon 2003b)." It should be noted that the difference is only based on measurements in the months of June, July and August (see ER Section 5.2.1.1.3).
Section 5.5.3.2, Page 5-35, Lines 5-15	Discussion of the potential shortage of housing in the region and the associated upward pressure on rent/house prices if new housing were to have to be constructed to house the construction workers.	ER-Section 4.4.2.4 Housing Information, 2nd & 3rd para. – This section of the ER discusses that no families or households will be displaced as a result of rising rent costs due to an abundance of existing vacancies in the area. This is a contradiction to the statements in the DEIS. A reference should be provided to substantiate the staff's claim as to this potential for housing shortage.

General Comments on Housing in Section 5, 9, and 10	"Based on the information provided by Exelon and the staff's independent review, the staff concludes that potential impacts of a new nuclear unit on housing would be SMALL to MODERATE in DeWitt County and potentially in Piatt and Logan Counties. Market forces, represented by increased housing demand, would result in more housing being built, which, over time, would mitigate any housing shortages."	This conclusion appears doubtful, given the fact that the availability of housing in the region "could easily accommodate the expected workforce of 580 new employees." DEIS, p. 5-38. Therefore, this impact should be categorized as SMALL.
Section 5.5.3.4, Page 5-37, Line 40	A statement is made here pertaining to reduce the units power or shutdown of CPS and the Exelon ESP units.	It should be stated that there is a potential to reduce the power or shutdown of the CPS and/or Exelon ESP facility.
Section 5.9.4, Page 5-57, Line 2-3	It is stated that the relationship between current LWR and the specific design would be verified at CP/COL.	The ER provided justification as to why occupational exposure for new nuclear units are bounded by occupational exposure from currently operating LWRs. Therefore, there exists sufficient information at this time to determine the impacts from such exposures. If these parameters are not bounded at CP/COL, they would then have to be assessed.
Section 5.10, Page 5-60, Line 26-28	It is stated that the consequences of Severe Accidents are based on the ABWR and AP1000.	As stated in the ER, the GEIS provides the basis for the environmental impacts of severe accidents. Examples of this generic rationale were provided in response several RAIs using the ABWR and AP1000. Exelon is requesting an assessment of impact based on the GEIS supported by the examples given in response to RAIs.
Section 5.10.1, Page 5-66, Line 17-19	It is stated that the environmental impacts of design basis accidents for gas-cooled reactors have not been evaluated and would need to be evaluated at CP/COL.	It is more accurate to state that the design basis accidents for LWRs have been determined to be SMALL. Assuming that EGC selects a design that did not form the basis of its PPE, it may be necessary, during the review at CP/COL, to determine whether the impacts associated with design basis accidents for the selected reactor design are bounded by the ESP.

Section 5.10.2, Page 5-66, Line 40	Reference in Section 5.10	In the above-mentioned section, the reference Exelon 2004b does not exist in Section 5.0 and should be changed to Exelon 2004.
Section 5.10.2, Page 5-70, Line 17-18 —— Page 5-71, Line 15-17 —— Page 5-76, Line 25-26 —— Page 5-77, Line 9-10	It is stated that the environmental impacts of severe accidents for gas-cooled reactors have not been evaluated and would need to be evaluated at CP/COL.	It is more accurate to state that the severe accidents for LWRs have been determined to be SMALL. The NRC requested additional information asking EGC to justify the generic conclusion that was used in the ER Section 7.2.2. EGC responded, on 7/23/04, by providing example evaluations that were used to justify the generic evaluation used in the ER. These evaluations concluded that the consequences due to severe accidents at the CPS site listed in NUREG-1437 remain valid for the purposes of evaluating the environmental impacts of severe accidents at the EGC ESP site. As such, EGC believes that, during the review at CP/COL, a determination will be made as to whether the impacts associated with severe basis accidents for the selected reactor design are bounded by the ESP.
Section 5.10.2, Page 5-71, Line 4, 10	It is stated that Exelon owns Clinton Lake.	AmerGen Energy Company, LLC owns Clinton Lake.
Table 5-11, Page 5-72, Line 8	Values listed in Population Dose category.	In the above-mentioned table, the value of 3.80E-10 under the Population Dose category is incorrect and should be 3.80E-09.

Table 5-12, Page 5-74	Population Dose from Water Ingestion values.	There was not enough information given in Section 5 text to duplicate the values in the last column of Table 5-12 - Population Dose from Water Ingestion (page 5-74), so the values could not be verified. Information or reference to information should be provided.
Section 5.11, Page 5-78, Line 34	It is stated that the discharge rate of 5 cfs is a NPDES permit condition of the existing CPS.	The 5 cfs discharge rate is specified in the CPS dam permit (No. DS2001236). It is actually part of the approved O&M Plan and EAP attached to the permit rather than a 'condition' directly specified in the permit. The reference to the 5 cfs can be found (on page 7) in the Operation Plan (Section 1 General, Subsection 3) Outlet Works, that reads, "The lake outlet works is provided primarily to maintain a minimum flow of 5 cfs to the creek downstream of the dam". The minimum reservoir release of 5 cfs is necessary to satisfy commitments made in the CPS Final Environmental Statement.
Table 5-13	Comparison of Environmental Risks for ABWR.	There was not enough information given in Section 5.0 text to verify the numerical values for early and latent cancer risks in the last column of Table 5-13 - Comparison of Environmental Risks for ABWR or a Surrogate AP1000 at the Exelon ESP site with Risks for Five Sites Evaluated in NUREG 1150 (page 5-75). Information or reference to information should be provided.
Table 5.15, Page 5-81, Line 13	It is stated that the impacts on the economy would be SMALL to MODERATE.	It should be noted that the impacts to the economy would be beneficial and SMALL to MODERATE.
Table 5.15, Page 5-81, Line 14-15	It is stated that the impacts on the economy would be SMALL to LARGE.	It should be noted that the impacts to the economy would be beneficial and SMALL to LARGE.
Table 5-15, Page 5-82, Line 1	Housing ranked as a SMALL to MODERATE impact.	There is insufficient information provided in this section supporting the impact conclusion.

Section 6.0, Page 6-1, Line 11-15	It is stated that the transportation impacts of radioactive materials would have to be evaluated if a different reactor design was selected from those calculated in the EGC ESP.	It should be stated that the transportation impacts of radioactive materials would have to be evaluated if the reactor design selected at CP/COL had environmental impacts greater than those evaluated in the EGC ESP.
Section 6.1.1, Page 6-7, Line 15-21	Bounding PPE power rating of 6,800MW(t) (assuming two AP1000 units) with an associated plant capacity factor of 0.95 from the PPE table.	The staff used the bounding PPE power rating of 6,800MW(t) (assuming two AP1000 units) with an associated plant capacity factor of 0.95 from the PPE table in order to estimate impacts from the LWRs for comparison to Table S-3 values. It appears that a ratio of the Net MW(e) for the bounding advanced reactor to that of the reference reactor was used to calculate the impacts in Table S-3. As stated in Section 6.1.1, page 6-7, lines 15-21 "The fuel cycle impacts in Table S-3 are based on a reference 1000-MW(e) LWR operating at an annual capacity factor of 80 percent for a net electric output of 800 MW(e). In the following review and evaluation of the environmental impacts of the fuel cycle, the staff considered the capacity factor in the PPE of 95 percent with a total net electric output of 2200 MW(e) for a new nuclear unit at the ESP site (Exelon 2003); this is approximately three times the impact values in Table S-3 (see Table 6-1). Throughout this chapter, this will be referred to as the 1000- MW(e) LWR-scaled model,- reflecting 2200 MW(e) for the site." It is agreed that the ESP bounding LWR reactor may have approximately three times the net electrical generation capacity but it is overly conservative to state that, based on this methodology, the new breed of reactors would yield three times the impact values presented in Table S-3. Additional supporting information is needed to justify the use of this methodology.

Section 6.1.1.5, Page 6-10, Lines 21-37	Discussion of radioactive effluents estimated to be released to the environment from waste management activities.	Using these data, the staff has calculated the 100-year environmental dose commitment to the U.S. population from the LWR-supporting fuel cycle for one year of operation of the 1000-MW(e) LWR-scaled model. This calculation estimates that the overall whole body gaseous dose commitment to the U.S. population from the fuel cycle (excluding reactor releases and the dose commitments due to radon-222 and technetium-99) would be approximately 12 person-Sv (1200 person-rem) per year of operation of the 1 000-MW(e) LWR-scaled model; this reference reactor-year is scaled to reflect the total electric power rating for the site for a year. The additional whole body dose commitment to the U.S. population from radioactive liquid effluents due to all fuel cycle operations other than reactor operation would be approximately 6 person-Sv (600 person-rem) per year of operation of the 1000-MW(e) LWR-scaled model. Thus, the estimated 100-year environmental dose commitment to the U.S. population from radioactive gaseous and liquid releases due to these portions of the fuel cycle is approximately 18 person-Sv (1800 person-rem) to the whole body per reference reactor-year. Intuitively, these figures appear to be improper. However, the DEIS has not presented sufficient information to substantiate the gaseous and liquid effluent doses as to how the values were calculated in order to come to the same conclusion as the staff in that there are gaseous and liquid effluent doses of 1,200 person rem and 600 person-rem.

Section 6.1.2, Page 6-16, Lines 6-11	" One of the other-than-LWRs considered by Exelon, the Gas Turbine-Modular Helium Reactor (GT-MHR), is a four-module, 2400-MW(t), nominal 1140-MW(e) unit assumed to operate at an annual capacity factor of 88 percent for a net electric output of 1032 MW(e). Therefore, the maximum number of GT-MHR units that could be sited at the Exelon ESP site and remain below the 2200-MW(e) total net electric output PPE for the site is two (i.e., 2 x 1032). This would result in a factor of 2.5 (i.e., 2064/800) for comparison with Table S-3 and LWRs."	It should be noted that 1140 x .88 = 1003.2 therefore the paragraph should read: "One of the other-than-LWRs considered by Exelon, the Gas Turbine-Modular Helium Reactor (GT-MHR), is a four-module, 2400-MW(t), nominal 1140-MW(e) unit assumed to operate at an annual capacity factor of 88 percent for a net electric output of 1003 MW(e). Therefore, the maximum number of GT-MHR units that could be sited at the Exelon ESP site and remain below the 2200-MW(e) total net electric output PPE for the site is two (i.e., 2 x 1003). This would result in an approximate factor of 2.5 (i.e., 2006/800) for comparison with Table S-3 and LWRs."

Section 6.1.2, Page 6-16, Lines 20-25	"Exelon (2003) compared the impacts in Table S-3 LWR with those of the gas-cooled reactor designs. The comparison used an annual fuel loading as a starting point and then proceeded in reverse direction through the fuel cycle (i.e., fuel fabrication, enrichment, conversion, milling, mining, radioactive waste). Table 6-3 provides an estimate of the impacts for each phase of the uranium fuel cycle, assuming that the ESP site would host two GT-MHR units or one PBMR unit with the multiplier factors described above."	The wording in the last sentence should be changed to read, "Table 6-3 provides an estimate of the impacts for each phase of the uranium fuel cycle, assuming that the ESP site would host two-four module GT-MHR units or one-eight module PBMR unit with the multiplier factors described above."
Section 6.1.2.1, Page 6-16, Lines 29-33	"The quantity of UO2 required for reactor fuel is a key parameter. The more UO2 required, the greater the environmental impacts (i.e., more energy, greater emissions, and increased water usage). The 1000-MW(e) LWR-scaled model described in Section 6.1.1 would require the equivalent of 120 MT of enriched U02 annually. This compares to 14.3 to 15.3 MT of enriched UO2 annually for the gas-cooled reactor technologies."	In Section 5.7.2.3.1 of the ER - Fuel Fabrication/Operations - it is stated that, "The reference LWR required 35 MTU of new fuel on an annual basis. This is equivalent to 40 MT of enriched UO2, the annual output needed from the fuel fabrication plant. In comparison, the normalized annual fuel needs for the new gas-cooled reactor technologies ranged from 4.3 MTU to 5.3 MTU, approximately 88 percent to 85 percent lower than the reference plant." If the staff is going to use the multipliers of 2.5 for the GT-MHR and 1.5 for the PBMR in the DEIS when comparing to the 1000 MW(e) reference reactor, then the values for the required MT of enriched UO2 should be 2.5 X 4.3 = 10.75 and 1.5 x 5.3 = 7.95 and not 14.3 and 15.3 listed in the DEIS.

<table>
<tr>
<td>Table 6.3,
Page 6-17,
Line 10</td>
<td>Numerical values for the PBMR</td>
<td>The numerical value for the PBMR is incorrect and should be 569. It is stated in Table 5.7.1 of the ER - Gas Cooled Fuel Cycle Impact Evaluation - under the UF6 Production category that the annual UF6 (MT) required would be 379 before normalization therefore 1.5 x 379 = 569 and not 659.</td>
</tr>
<tr>
<td>Table 6.3,
Page 6-17,
Line 19</td>
<td>"Category of Low-level waste from reactor decontamination and decommissioning (Ci per reference reactor-year) - data is not available."</td>
<td>In Table 5.7.1 of the ER - Gas Cooled Fuel Cycle Impact Evaluation - the following information is listed.

TABLE 5.7-1
Gas-Cooled Fuel Cycle Impact Evaluation
<table><tr><th>Reactor Technology Facility/Activity</th><th>Reference LWR (Single unit) (~1,000 MWe) 80% Capacity</th><th>GT-MHR (4 Modules) (2,400 MWt total) (~1,140 MWe total) 88% Capacity</th><th>PBMR (8 Modules) (3,200 MWt total) (~1,320 MWe total) 95% Capacity</th></tr><tr><td>LLW from Reactor Decontamination & Decommissioning Ci per RRY</td><td>1,500</td><td>--[b]</td><td>2.2E+04 (5.30E+05 Ci after 24 years operation and 2 years decay)[a]</td></tr></table></td>
</tr>
<tr>
<td>Section 6.1.2.1
Page 6-18,
Line 11-14</td>
<td>"By comparison with the fuel fabrication impacts for LWR technologies, the staff concludes that the environmental impacts from producing gas-cooled reactor fuel likely would be small, but these impacts will need to be assessed at the CP or COL stage, when the staff will consider the environmental data that is available on a large-scale, fuel fabrication facility for gas-cooled reactors."</td>
<td>The analyses in, "Early Site Permit Environmental Report Sections and Supporting Documentation. Engineering Design File, Number 3747, INEEL, Idaho Falls, Idaho" provided a basis for estimating impacts that were bounded by Table S-3 values. It would be more appropriate to state that the fuel fabrication impacts would have to be evaluated if the reactor design selected at CP/COL had environmental impacts greater than those evaluated at the ESP.</td>
</tr>
</table>

<table>
<tr>
<td>Section 6.1.2.2
Page 6-18,
Lines 27-29</td>
<td>"To produce 120 MT of enriched U02 for the 1000-MW(e) LWR-scaled model, the enrichment plant needs to produce about 156 MT of UF6, which requires approximately 400 MT of SWUs (Exelon 2003)."</td>
<td>This is not a direct quote from the ER. From Section 5.7.2.3.2 of the ER - Uranium Enrichment - the quote should have been, "In order to produce the 40 MT of enriched UO2 for the reference LWR, the enrichment plant needed to produce 52 MT of UF6, which required 127 MT of SWU (USNRC, 1976)." The quote should have been followed by the Staff's sentence, "In order to produce 120 MT of enriched U02 for the 1000-MW(e) LWR-scaled model, the enrichment plant needs to produce about 156 MT of UF6, which requires approximately 400 MT of SWUs."</td>
</tr>
<tr>
<td>Section 6.1.2.6,
Page 6-20,
Lines 3-10</td>
<td>"Table S-3 (see Table 6-1) of 10 CFR 51.51 (a) states that there are 3.4 x 1014 Bq (9100 Ci) of low-level waste generated annually from operation of the reference LWR; operation of the1000-MW(e) LWR-scaled model would result in 1 x 1015 Bq (27,300 Ci) of low-level waste annually. Gas-cooled reactor technologies are projected to generate 3.6 x 1012 Bq to 1 x 1014 Bq (98 to 2750 Ci) of low-level waste scaled annually, far below the amounts generated by the reference LWR (Exelon 2003). "</td>
<td>However in Table 5.7.1 of the ER - Gas Cooled Fuel Cycle Impact Evaluation - the following information is listed:

TABLE 5.7-1
Gas-Cooled Fuel Cycle Impact Evaluation
<table>
<tr><th>Reactor Technology Facility/Activity</th><th>Reference LWR (Single unit) (~1,000 MWe) 80% Capacity</th><th>GT-MHR (4 Modules) (2,400 MWt total) (~1,140 MWe total) 88% Capacity</th><th>PBMR (8 Modules) (3,200 MWt total) (~1,320 MWe total) 95% Capacity</th></tr>
<tr><td>Solid Radioactive Waste</td><td></td><td></td><td></td></tr>
<tr><td>Annual LLW from reactor operations</td><td>9,100 Ci</td><td>1,100 Ci; 98 m^3</td><td>65.4 Ci; 800 drums</td></tr>
</table>
In addition, the staff has not consistently applied their 2.5 (GT-MHR) and 1.5 (PBMR) multiplier approach used throughout the other sections of the document. For example if we use the 2.5 (GT-MHR) and 1.5 (PBMR) multiplier approach then the sentence should read, "Table S-3 (see Table 6-1) of 10 CFR 51.51 (a) states that there are 3.4 x 1014 Bq (9,100 Ci) of low-level waste generated annually from operation of the reference LWR; operation of the1000-MW(e) LWR-scaled model would result in 1 x 1015 Bq (27,300 Ci) of low-level waste annually. Gas-cooled reactor technologies are projected to generate 5.1 x 1014 Bq to 8.5 x 1014 Bq (1.5 x 9,100 = 13,650 to 2.5 x 9,100 = 22,750 Ci) of low-level waste scaled annually, far below the amounts generated by the reference LWR."</td>
</tr>
</table>

Section 6.1.2.7, Page 6-20, Lines 22-25	"Exelon expects that low-level waste impact from decontamination and decommissioning will be comparable to or less than that of the reference LWR (Exelon 2003). On this basis, the staff concludes that the environmental impacts from solid low-level radioactive waste generated during decontamination and decommissioning for gas-cooled reactors would likely be small, but these impacts will need to be assessed again at the CP or COL stage."	EGC disagrees that further assessment at CP/COL is warranted. Based on the analyses presented in, "Early Site Permit Environmental Report Sections and Supporting Documentation. Engineering Design File, Number 3747, INEEL, Idaho Falls, Idaho" it is believed that there exists enough information to conclude that the impacts are comparable and the associated impacts are SMALL. The Decommissioning and Decontamination Impacts would have to be evaluated at the CP/COL stage if the reactor design selected has environmental impacts greater than that evaluated at ESP.
Section 6.2, Page 6-21, Lines 16-18	"Non-radiological impacts during accident conditions were estimated as one fatal injury per reference reactor-year and one nonfatal injury in 10 reference reactor-years."	The staff has misquoted the information in Table S-4 of 10 CFR 51.52 and the sentence should read, "Non-radiological impacts during accident conditions were estimated as one fatal injury per 100 reference reactor-years and one nonfatal injury in 10 reference reactor-years."

<table>
<tr>
<td>Section 6.2,
Page 6-22,
Lines 12-16</td>
<td>"Five of the designs are LWRs and include the ACR-700 (3964 MW(t)/unit); the ABWR (4300 MW(t)/unit; the AP1000 (6800 MW (t)/unit); the ESBWR (4000 MW(t)/unit), and the IRIS (3000 MW(t)/unit). For the ACR-700 and AP1000 reactor designs, two reactors make up a unit. For the IRIS design, three reactors (modules) make up a unit. For the remaining LWR designs, one reactor makes up a unit."</td>
<td>In Section 3.2 of the ER - Reactor Power Conversion System - it is stated that, "The bounding parameters indicate that the proposed reactor(s) could generate up to 6,800-MW core thermal power. In general, the ABWR (one unit) is rated at 3,926 MWt, the AP1000 (two units) is rated at 6,800 MWt, the IRIS (three units) is rated at 3,000 MWt, the GT-MHR (four modules) is rated at 2,400 MWt, the PMBR (eight modules) is rated at 3,200 MWt, the ESBWR (one unit) is rated at 4,000 MWt, and the ACR-700 (two units) is rated at 3,966 MWt." In Section 3.8 of the ER - Transportation of Radioactive Materials it is stated that, "The standard configuration for these reactor technologies (assumed in this analysis) is as follows. The ABWR is a single unit, 4,300 MWt, nominal 1,500 MWe boiling water reactor. The ESBWR is a single unit, 4,000 MWt, nominal 1,390 MWe boiling water reactor. The AP1000 is a single unit, 3,400 MWt, nominal 1,117-1,150 MWe pressurized water reactor. The IRIS is a three module pressurized water reactor configuration for a total of 3,000 MWt and nominal 1,005 MWe, and the ACR-700 is a twin unit, 3,964 MWt, nominal 1,462 MWe, LWR with a heavy water moderator."

The PPE table states the following values for MWt:

<table>
<tr><th colspan="3">MWt for Proposed Reactors</th></tr>
<tr><th>Reactor Type</th><th>Lines 12-14 - page 6-22 of the DEIS</th><th>PPE Table</th></tr>
<tr><td>ABWR</td><td>4300/unit</td><td>3926 (1 module)</td></tr>
<tr><td>AP1000</td><td>6800/unit (2 modules)</td><td>6800 (2 modules)</td></tr>
<tr><td>ESBWR</td><td>4000/unit</td><td>4000 (1 module)</td></tr>
<tr><td>ACR-700</td><td>3964/unit (2 modules)</td><td>3966 (2 modules)</td></tr>
<tr><td>IRIS</td><td>3000/unit (3 modules)</td><td>3006 (3 modules)</td></tr>
<tr><td>GT-MHR</td><td>2400/unit (4 modules)</td><td>2400 (4 modules)</td></tr>
<tr><td>PBMR</td><td>3200/unit (8 modules)</td><td>3200 (8 modules)</td></tr>
</table>

There is a difference in the MW(t) for the ACR-700, IRIS and the ABWR.</td>
</tr>
</table>

Section 6.2, Page 6-22, Lines 27-28	"The ACR-700, ABWR, AP1000, and ESBWR designs exceed the 3800-MW(t) core thermal power-level limit." However in Appendix G - page G.4 - lines 20-22 - it is stated that, "As shown above, single unit ABWR and ESBWR plants exceed the 3800 MW(t) condition in 10 CFR 51.52 (a)(1). In addition, the twin reactor ACR-700 site exceeds the core thermal power condition."	There is no information given about the AP1000. This sentence should read, "The ACR-700 (3,964 MW(t) /unit - 2 modules each producing 1,982 MW(t)), ABWR (single module unit producing 4,300 MW(t)), AP1000 (6,800 MW(t) /unit - 2 modules each producing 3,400 MW(t)), and ESBWR (single module unit producing 4,300 MW(t)) designs exceed the 3800-MW(t) core thermal power-level limit."

Section 6.2, Page 6-23	"Exelon used a sensitivity analysis to show that transportation impacts from advanced LWR designs would be bounded by the criteria identified in Table S-4 (Exelon 2003). Exelon referenced the related discussion and information in NUREG-1437, Addendum 1 (NRC 1999) to support its basis for exceeding 4 percent uranium-235 enrichment and 33,000 MWd/MTU. However, as discussed above, NUREG-1437, Addendum 1 applies to reactors that are listed in NUREG-1437, Appendix A and not to any other reactor designs. Exelon also used a sensitivity analysis to show that transportation impacts from the advanced gas-cooled reactor designs would be bounded by the criteria identified in Table S-4 (Exelon 2003); however, as discussed previously, this type of analysis does not adequately meet the requirements of 10 CFR 51.52."	EGC disagrees with the staff's conclusion. 10 CFR 51.52 does not prohibit the use of sensitivity analyses to determine the environmental impacts of transportation of fuel from reactors not covered by the criteria in Section 51.52.

Table 6.4,

Page 6-25

Values reported for each of the proposed reactors that denote site electric generation capacity MW(e) and capacity factors.

From the ER, SSAR, and PPE table some of the values could be verified specifically the ones for the Gas Cooled Reactors. However information regarding MW(e) for the LWRs was not listed in the PPE Table and therefore not verifiable in the DEIS in Table 6.4. From reviewing the table and sections of the DEIS the following table presents the staff's values for each of the proposed reactors. A basis for these values should be provided as they form the basis for the staff's conclusions.

Reactor Type	# of Units	MW(t)	MW(e)	Eff.	MW(e) Net
ABWR	1	3926 total	1500	.95	1425
AP1000	2	3400/unit = 6800 total	1150/module = 2300/unit	.95	2185
ESBWR	1	4000 total	1500	.95	1425
ACR-700	2	1983/unit = 3966 total	731/module = 1462/unit	.90	1316
IRIS	3	1000/unit = 3000 total	335/module = 1005/unit	.96	965
GT-MHR	4	600/unit = 2400 total	285/module = 1140/unit	.88	1003
PBMR	8	400/unit = 3200 total	165/module = 1320/unit	.95	1254

In addition, values for plant capacity factors specified in the DEIS differ marginally from those reported in the PPE table.

Plant Capacity Factors		
Reactor Type	Table 6.4 of the DEIS	PPE Table
ABWR	.95	.92
AP1000	.95	.93
ESBWR	.95	.92
ACR-700	.90	.93
IRIS	.96	.95
GT-MHR	.88	.96
PBMR	.95	.95

WDM: This is the comment and state where they came from. WS: See revised response.

Table 6-5, Page 6-26 — Table G-3, Page G-8	Numerical values presented for Radiological Impacts of Transporting Unirradiated Fuel to Advanced Reactor Sites.	There is not enough information presented to be able to verify the numerical values presented in Table 6-5 (page 6-26) or Table G-3 (page G-8) of the DEIS - Radiological Impacts of Transporting Unirradiated Fuel to Advanced Reactor Sites.
Section 6.2.1.2, Page 6-27, Line 32-34 — Section 6.2.2.3, Page 6-36, Line 30-32	It is stated that the environmental impacts of other-than-LWR fuel performance needs to be assessed at CP/COL.	It should be stated that the environmental impacts of other-than-LWR fuel performance would have to be evaluated if the reactor design selected at CP/COL had environmental impacts greater than those evaluated in the EGC ESP.
Section 6.2.2.1, Page 6-29, Lines 1-4	"For purposes of this analysis, their design was assumed to be the same as those used for the existing LWRs. Spent fuel shipping cask designs for gas-cooled reactors will be evaluated at the CP or COL stage if the applicant references such designs."	All casks designed for the shipment of spent fuel from advanced LWRs or Gas Cooled reactors will have to comply with the shipping requirements specified in 10 CFR 20 and therefore additional information regarding the design is not warranted. Therefore, the environmental impacts associated with Fuel Transportation are SMALL.

Section 6.2.2.1, Page 6-29, Lines 24-29

"The bounding cumulative doses to the exposed population given in Table S-4 are: * 0.04 person-Sv (4 person-rem) per reference reactor-year to transport workers * 0.03 person-Sv (3 person-rem) per reference reactor-year to general public (onlookers) * 0.03 person-Sv (3 person-rem) per reference reactor-year to general public (along route). Population doses to the crew and the onlookers for all the reactor types, including the reference reactor found in Table 6-7, exceed Table S-4 values."

Upon review of Table 6-7 - Routine (Incident-Free) Population Doses from Spent Fuel Transportation, Normalized to Reference LWR - page 6-31 - and Table G-7 - Routine (Incident-Free) Population Doses from Spent Fuel Transportation, Normalized to Reference LWR Net Electrical Generation - page G-18 - a lot of the reported values do not exceed Table S-4 criteria. For example from Table 6-7 and G-7 for the Clinton Site (bold values indicate exceedance of Table S-4 values):

ABWR/ESBWR (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
2.9	**10**	0.18	4	3	3

AP-1000 (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
2.8	**9.7**	0.18	4	3	3

ACR-700 (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
6.4	**22**	0.41	4	3	3

IRIS (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
2.5	**8.5**	0.16	4	3	3

GT-MHR (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
2.4	**8.2**	0.15	4	3	3

PBMR (person-rem)			**Table S-4 Value (person-rem)**		
Crew	Onlookers	Along Route	Crew	Onlookers	Along Route
0.80	2.8	0.051	4	3	3

Table 6-10, Page 6-36	Values in the second column - Annual Waste Volume m3/yr -	For the AP-1000 and IRIS the value should be 110 (2 x 55) and 75 (3 x 25), respectively.
Section 6.3, Page 6-39	"At the end of the operating life of a power reactor, the NRC regulations require that the facility undergo decommissioning. Decommissioning is the removal of a facility safely from service and the reduction of residual radioactivity to a level that permits termination of the NRC license. The regulations governing decommissioning of power reactors are found in 10 CFR 50.82, 50.75, and 50.82."	10 CFR 50.82 is repeated twice in the last sentence.
Section 6.2.4, Page 6-39, Line 24-26	It is stated that if the ACR-700 and IRIS were chosen, the transportation accident analysis would be performed at CP/COL.	In the ESP application, Exelon applied for a site to be reserved for a future nuclear facility (See Administrative Section 1.1). As stated in the Environmental Report in Section 1.1.3, the selection of the reactor design is still under consideration and a set of bounding parameters was determined using a listing of reactor design-types listed. Therefore, the statement of selection of a particular reactor design for future analysis is not appropriate. Nonetheless, it would be more accurate to state that the environmental impacts of LWR transportation accident analysis is SMALL and other-than-LWR fuel performance would be evaluated if the reactor design selected at CP/COL and environmental impacts greater than those evaluated at ESP.
Section 6.3, Page 6-40, Line 12	It is stated that if an other-than-LWR design were chosen, the decommissioning impacts analysis would be performed at CP/COL.	It would be more accurate to state that the environmental impacts of LWR decommissioning analysis is SMALL and other-than-LWR decommissioning impacts would be evaluated if the reactor design selected at CP/COL and environmental impacts greater than those evaluated at ESP.

Section 7.6, Page 7-7, Lines 27-30	Conclusion that cumulative impacts on housing will be SMALL to MODERATE.	This cumulative impact is based on earlier sections in the DEIS that discuss the potential for an upward trend in house/rent prices as a result of the influx of construction workers to the area. The ER contradicts these sections and therefore this statement in the DEIS is dependent on the validity of those earlier presumptions. There is insufficient information in the DEIS to support this conclusion. A reference should be provided as to this potential for housing shortage.
Section 10.1, Page 10-5, Line 38	The NRC states, "Hydrological, water use, and water quality impacts during operation would primarily be the result of the operation of the proposed wet cooling power system during periods of reduced water supply in Clinton Lake and downstream."	It should be noted that the wet cooling power system has been used as the bounding condition.
Appendix G Page G-4, Line 6	Discussion of thermal rating of the ABWR.	There is some disparity about the thermal rating of the ABWR which in Appendix G of the DEIS (page G-4, line 6), the value is stated as 4,300 MW(t) but in Section 1.3.1 of the SSAR - Advanced Boiling Water reactor - the thermal rating is reported as 3,926 MW(t). In addition there is some disparity about the thermal rating for the ACR-700 which in Appendix G of the DEIS (page G-4, line 12), is stated as 1982 MW(t)/reactor x two reactors per site = 3964 MW(t) per site. However in section in Section 1.3.5 of the SSAR - Advanced CANDU Reactor - the thermal rating is reported as 3,983 MW(t).
Appendix G, Page G-4, Lines 28-30	"The average enrichments for the other advanced LWR fuels exceed the 4 percent uranium-235 by weight condition in 10 CFR 51.52(a)(2)."	There is insufficient information in the DEIS to support this statement. A reference should be provided for this statement.

Table G-5, Page G-14, Lines 17-18	The population density value at stops (30,000 persons/Km2) used in the RADTRAN run.	The population density value at stops (30,000 persons/Km2) seems very high. Most of the routes from the selected cities utilize freeways with rest stops or check stations well away from residential areas (or, at least, at a favorable distance that dose rates from the cask would not be a contributing factor) and the density in and around truck stops would seem to be much less than that presented. This value should be re-evaluated and re-verified.
Table G-13, Page G-32, Line 3	Waste Generation Information.	In the second column of Table G-13 - labeled DOE (2003) Waste Generation Information, there is no reference DOE (2003) listed in the reference table at the end of Appendix G. The reference should be INEEL (2003).
Appendix K-12, Line 6	Statement regarding construction impacts.	The statement "A NOI will be filed with the federal and state agencies to receive authorization for land disturbance under the general storm water permit. A SWPPP will also be prepared in accordance with the requirements of the general permit. A NOT will be filed with the IEPA upon completion of construction and stabilization of the disturbed areas" is made in ER Section 4.2.1.2.2.
Appendix K-13, Lines 5 and 6	Statement regarding storm water sediment.	Statement is found in ER Sections 4.6.3.7.2.2 and 4.2.2, rather than 4.6.3.7.2.1 and 4.2.1.2.2 as identified.
Appendix K-14, Line 2	Statement regarding downstream release.	The statement considered by the NRC regarding maintaining the 5 cfs discharge minimum could not be found on page 5.2-6 or the rest of Section 5.2.
Appendix K, Page K-14, Line 6	Statement regarding makeup water for the normal (non-safety) plant operations.	The second sentence of the statement needs to be revised. "The makeup water for the normal (non-safety) plant operations will be taken up through a new intake structure located next to the CPS intake structure on the northern basin of Clinton Lake, should read, " The makeup water... located 65 feet south of the CPS... of Clinton Lake". In addition, the EIS Statement Sections for this item needs to be revised. It is currently identified as "Lance," which is not a Section of the Statement.
Appendix J, Table J-1, Various sections	Table J-1	Table J-1 appears to be based on an earlier version of the SSAR, in that some elements have since been included in PPE Table 1.4-1 in the SSAR, but are missing from Table J-1 in the DEIS. Specifically, Table J-1 is missing PPE Elements 2.1 "Air Temperatures", 3.1 "Ambient Air Requirements", 4. "Containment Heat Removal System", and 14, "HVAC Systems". These revisions were previously made in response to NRC RAI 2.3.1-8.

Appendix J, Table J-2, PPE Element 1.22 "Snow Load"	Table J-2 site characteristic value snow load is 35 lb/ft2.	ER Section 2.3.1.2.3 and SSAR Section 2.7.3.3, both entitled "Heavy Snow and Severe Glaze Storms", indicate that the snow load is 40 lb/ft2, a point that was clarified in several RAI responses to NRC (i.e., NRC RAI's 2.3.1-5, 2.3.1-6, and 2.3.1-10).
Appendix S Table S-3	Discussion of multiplier approach based on a ratio of the electrical rating for the proposed gas-cooled plants versus the reference LWR.	The staff has adopted a multiplier approach based on a ratio of the electrical rating for the proposed gas-cooled plants versus the reference LWR i.e., 2.5 for the GT-MHR and 1.5 for the PBMR and then has applied these factors to the impacts cited in Table S-3 of 10 CFR 51.51(b). The NRC also utilized this same approach when estimating the impacts from the proposed advanced LWR reactor designs. Although a very simplified approach to estimating the impacts from these types of advanced reactors where there is currently very little information available, it is a very conservative method. Please provide additional supporting information to justify the use of this methodology

Table 6-4, Page 6-25 ___ Table G-1, Page G-5	Numerical values reported in Table 6-4 and Appendix G.	Most of the numerical values in Table 6-4 -page 6-25 - and Table G-1 - page G-5 - of the DEIS need to be re-calculated based on the information presented above and those reported in Appendix G of the DEIS. In addition text in the sections should be revised to reflect these any changes that would result from the re-calculation. In Appendix G - page G.2 of the DEIS - which supports Table 6.4 it is stated that, "The surrogate AP1000 is a 1150-MW(e) advanced PWR power plant. The initial core load was estimated to be 84.5 MTU per reactor and annual reload requirements were estimated at 24.4 MTU/yr per reactor. The data in INEEL (2003) also indicated that the average uranium mass in an unirradiated surrogate AP1000 fuel assembly was 0.583 MTU and that 12 fuel assemblies per truck shipment would be transported. This resulted in **about 14 truck shipments to supply the initial core and about 3.8 truck shipments per year to support refueling.** For a site with two reactors, these estimates would be doubled." If the staff then adds the initial load of 28 to refuel loadings (7.6 reloads per year x 39 years) to equal 324, not the 322 as stated in Table 6.4 and Table G-1 - line 7 - for the AP1000. The same applies to the ACR-700, Appendix G - line 9 - page G-5 - which supports Table 6.4. It is stated that, "The AP-1000 is an advanced design Canada Deuterium Uranium (CANDU) reactor assumed to generate 731 MW(e). It was stated in INEEL (2003) that the initial core load for the ACR-700 included 61.3 MTU per reactor and the annual refueling requirements are 33.1 MTU/yr per reactor. Each fuel assembly contains 18 kg of uranium (INEEL 2003). This corresponds to 3406 fuel assemblies in the initial core loading and 1839 fuel assemblies per year for refueling. A range of truck shipment capacities was given in INEEL (2003) to be from 180 to 240 fuel assemblies per truck shipment. **This equates to 15 to 19 truck shipments to supply the initial core load and from 7.7 to 10.2 annual refueling shipments.** For a site with two reactors, these estimates would be doubled. If the staff then added the initial loading of 19 to refuel loadings (10.2 annual reloads x 39 years) = 416, not the 628 as stated in Table 6.5. The same applies to the IRIS reactor, where in appendix G - page G-2 - lines 22-29 - which supports Table 6.4. It is stated that, "The International Reactor Innovative and Secure (IRIS) design is a 335-MW(e) advanced PWR. It requires an initial core load of 48.67 MTU or 89 fuel assemblies per unit (546.9 kg of uranium per fuel assembly) (INEEL 2003). For refueling, the IRIS reactor was assumed to require an additional 6.26 MTU/yr of unirradiated fuel per reactor or

		approximately 40 unirradiated fuel assemblies every 3.5 years. INEEL (2003) indicates that a "typical" site may contain three reactors. Assuming each truck shipment carries eight fuel assemblies, the initial core load requires **28 truck shipments per three-reactor site and annual refueling requires an additional 4.3 truck shipments per year per three-reactor site.** If the staff adds the initial loading of 28 to refuel loadings (4.3 annual reloads x 39 years of operation) = 195, not the 201 as stated in Table 6.4. On page G-2 of Appendix G - line 36 - it is stated that, "Annual average reload requirements **are 510 fuel assemblies** per reactor." However in Table 3.8-2 of the ER, this value is stated as **520 elements per reload.** It is unclear why the staff is only using values for the AP-1000 - one module site, as shown in Table 6-4/G-1.

Table 6.4 and G-1 of the DEIS should be revised to reflect the following:

Reactor Type	Number of Shipments/Site			Site Electric Generation MW(e)	Capacity Factor	Normalized Shipments per 1100 MW(e)
	Initial Core	Annual Reload	Total			
Reference LWR (WASH-1238)	18	6	252	1100	0.80	252
ABWR/ESBWR	30	6.1	268	1500 (1 reactor site)	0.95	165 (1 reactor site only)
AP1000	14	3.8	162 (1 module) or 324 (2 modules)	1150/module = 2300/unit	0.95	131 (1 module site)
ACR-700	19	10.2	417 (1 module) or 834 (2 modules)	731/module = 1462/unit	0.90	279 (2 module site)
IRIS	28	4.3	196 (3 module site))	335/module = 1005/unit	0.96	178 (3 module site)
GT-MHR	51	20	831 (4 module site)	285/module = 1140/unit	0.88	729 (4 module site)
PBMR	44	20	824 (8 module site)	165/module = 1320/unit	0.95	113 (8 module site)

Since the numerical values in the last column of Table 6.4 - page 6-25, are used to calculate the values in the first column of Table 6.4 - page 6-26 of the DEIS. Conversely the numerical values in the last column of Table G-1 - page G-5, are used to calculate the values in the first column of Table G-3 - page G-8 of Appendix G, the tables should be changed to reflect the following:

Plant Type	**Normalized Average Annual Shipments**	**Cumulative Annual Dose, Person-Sv/yr per 1100 MW(e)**		
		Workers	**Public-Onlookers**	**Public-Along Route**
Reference LWR (WASH-1238)	6.3	1.10E-04	4.2E-04	1.0E-05
ABWR/ESBWR	4.1	7.43E-05	2.84E-04	6.76E-06
AP1000	3.3	5.88E-05	2.25E-04	5.35E-06
ACR-700	7.0	1.25E-04	4.79E-04	1.14E-05
IRIS	4.5	8.02E-05	3.06E-04	7.29E-06
GT-MHR	18.2	3.29E-04	1.25E-03	2.99E-05
PBMR	14.5	2.50E-04	9.6E-04	2.3E-05
10 CFR 51.52, Table S-4 Condition	< 1 per day	4.00E-02	3.00E-02	3.00E-02