March 15, 2007

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

SUBJECT: ISSUANCE OF EARLY SITE PERMIT FOR EXELON GENERATION COMPANY, LLC (ESP-001)

The U.S. Nuclear Regulatory Commission (NRC) has issued early site permit (ESP) ESP-001 to Exelon Generation Company, LLC, pursuant to Section 52.24, "Issuance of Early Site Permit," of Title 10 of the *Code of Federal Regulations* (10 C.F.R. § 52.24) and in view of the report of the Advisory Committee on Reactor Safeguards dated March 24, 2006, the Atomic Safety and Licensing Board's initial decision dated December 28, 2006, and the Commission decision dated March 8, 2007. This permit expires on March 15, 2027.

Pursuant to 10 C.F.R. Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," an application for a construction permit under 10 C.F.R. Part 50, "Domestic Licensing of Production and Utilization Facilities," or an application for a combined license under 10 C.F.R. Part 52 may reference ESP-001 during the period ESP-001 remains valid. Any references also are subject to the terms and conditions specified in ESP-001. The ESP does not authorize site preparation or preliminary construction activities except as specified in the permit.

I have enclosed a copy of ESP-001. A related notice will be forwarded to the Office of the *Federal Register* for publication. If you have questions regarding ESP-001, please contact Ms. Joelle L. Starefos at 301-415-8488, or jls1@nrc.gov.

Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Enclosure:
As stated

cc w/encl: See next page

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Sincerely,

/RA/

David B. Matthews, Director
Division of New Reactor Licensing
Office of New Reactors

Enclosure:
As stated

cc w/encl: See next page
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EXELON GENERATION COMPANY, LLC

EXELON GENERATION COMPANY, LLC, ESP SITE

DOCKET NO. 52-007

EARLY SITE PERMIT

Early Site Permit No. ESP-001

1. The U.S. Nuclear Regulatory Commission (the NRC or the Commission) has found the following:

   A. The application for an early site permit (ESP) filed by Exelon Generation Company, LLC (EGC or the permit holder) complies with the applicable requirements of the Atomic Energy Act of 1954, as amended, and the applicable rules and regulations of the Commission, and all required notifications to other agencies or bodies have been duly made;

   B. Based on consideration of the site criteria contained in Title 10, Part 100, "Reactor Site Criteria," of the *Code of Federal Regulations* (10 C.F.R. Part 100), a reactor, or reactors, having design characteristics that fall within the site characteristics and controlling parameters of the Exelon Generation Company, LLC, ESP Site can be constructed and operated without undue risk to the health and safety of the public;

   C. There is reasonable assurance that the permit holder will comply with the regulations in 10 C.F.R. Chapter I and the health and safety of the public will not be endangered;

   D. Issuance of an ESP to the permit holder will not be inimical to the common defense and security or the health and safety of the public;

   E. There is no significant impediment to the development of emergency plans, as referenced in 10 C.F.R. § 52.17(b)(1) and 10 C.F.R. § 52.18, "Standards for Review of Applications." The descriptions of contacts and arrangements made with Federal, State, and local governmental agencies with emergency planning responsibilities, as set forth in 10 C.F.R. § 52.17(b)(3), are acceptable. Major features A, B, C, D, E, F, G, I, J, K, L, O, and P of the emergency plan are acceptable to the extent specified in NUREG-1844, "Safety Evaluation Report for an Early Site Permit (ESP) at the Exelon Generation Company, LLC (EGC) ESP Site;"

   F. The issuance of this ESP, subject to the Environmental Protection Plan and the conditions for the protection of the environment set forth herein, is in accordance with the National Environmental Policy Act of 1969, as amended, and with applicable sections of 10 C.F.R. Part 51, "Environmental Protection Regulations for Domestic Licensing and Related Regulatory Functions," as referenced by Subpart A of 10 C.F.R. Part 52, "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants," and all applicable requirements therein have been satisfied;

G. The site redress plan incorporated into this permit demonstrates that there is reasonable assurance that redress carried out under the plan, if required, will achieve an environmentally stable and aesthetically acceptable site suitable for whatever non-nuclear use may conform with local zoning laws, and those activities described in the site redress plan will not result in any significant adverse environmental impact that cannot be redressed.

2. Based on the foregoing findings, and pursuant to Sections 103 and 185 of the Atomic Energy Act of 1954, as amended, 10 C.F.R. Part 52, the Initial Decision of the Atomic Safety and Licensing Board, dated December 28, 2006 (LBP-06-28), and the Commission Memorandum and Order dated March 8, 2007 (CLI-07-12), the NRC hereby issues Early Site Permit No. ESP-001 to Exelon Generation Company, LLC, for a site located approximately 6 miles east of the city of Clinton in central Illinois, and adjacent to an existing nuclear power reactor, for additional nuclear power plants, which may be modular, designed to operate at no more than 6800 megawatts thermal, collectively, as described in the application and amendments thereto (the application) filed in this matter by the permit holder, and as described in the evidence received at the public hearing on that application.

3. This ESP shall be deemed to contain and is subject to the conditions specified in the Commission's regulations in 10 C.F.R. Chapter I; is subject to all applicable provisions of the Atomic Energy Act of 1954, as amended, and rules, regulations, and orders of the Commission now or hereafter in effect; and is subject to the following conditions specified or incorporated below:

A. The characteristics of the EGC ESP Site set forth in Appendix A to this ESP are hereby incorporated into this ESP;

B. The controlling values of parameters set forth in Appendix B to this ESP are hereby incorporated into this ESP;

C. The combined license (COL) action items set forth in Appendix C to this ESP are hereby incorporated into this ESP. These COL action items identify certain matters that an applicant submitting an application that references this ESP shall address in the final safety analysis report (FSAR). These items constitute information requirements but are not the only acceptable set of information in the FSAR. An applicant may depart from or omit these items, provided that it identifies and justifies the departure or omission in the FSAR. In addition, these items do not relieve an applicant from any requirement in 10 C.F.R. Chapter I that governs the application. After issuance of a construction permit (CP) or COL, these items are not requirements for the permit holder or licensee unless such items are included in a permit or license condition;

D. The values of plant parameters considered in the environmental review of the application and set forth in Appendix D to this ESP are hereby incorporated into this ESP;

E. The following safety conditions apply:

(1) The permit holder shall enter into an agreement granting it an exclusive and irrevocable option to purchase, enter a long-term lease, and/or other legal right in the land required to satisfy the requirements of 10 C.F.R. Part 100 for the ESP facility. The agreement shall be obtained and executed before submission of an application for a CP or COL seeking authority to construct and operate a nuclear power plant referencing the ESP.

(2) The permit holder shall obtain the right to implement the site redress plan set forth in Appendix E before initiating any activities authorized by 10 C.F.R. §52.25, "Extent of Activities Permitted."

(3) The permit holder or an applicant referencing this ESP for a CP or COL application shall ensure that the hydraulic gradient will always point inwards into the radwaste holding and storage facility from ambient ground water during construction and operation of the ESP facility, including the time during which recovery of ground water occurs to near its pre-dewatering elevation; shall institute a ground water monitoring program at the ESP site to continuously monitor and verify that the central assumption for preclusion of radioactive release to ground water is not violated; and shall keep this monitoring system in place and the monitoring program in operation for the life of the ESP facility, including its decommissioning.

(4) An applicant referencing this ESP for a CP or COL application shall ensure that radioactive waste management systems, structures, and components, as defined in Regulatory Guide 1.143, for a future reactor include features to preclude accidental releases of radionuclides into potential liquid pathways.

(5) An applicant referencing this ESP for a CP or COL application shall either remove or replace or improve the soils above 60 ft below the ground surface to reduce any liquefaction potential.

F. The site redress plan and Figures 2.1-4 and 2.1-5, set forth in Appendix E to this ESP, are hereby incorporated into this ESP.

(1) The holder of this ESP may perform the activities authorized by 10 C.F.R. § 52.25 only insofar as such activities are described in the site redress plan. The holder of this ESP may perform activities not described in the site redress plan only with prior NRC approval. A request to perform such activities shall describe how such activities will be redressed, and, if the request is granted, the site redress plan shall be deemed to include this additional description of site redress.

(2) The holder of this ESP may change the site redress procedures set forth in the site redress plan set forth in Appendix E without obtaining Commission approval provided that the changes do not decrease the effectiveness of the plan.

G. The permit holder shall notify the NRC Regional Administrators for Regions II and III and the operator of Clinton Power Station of the permit holder's plans to begin the site preparation and preliminary construction activities described in the site redress plan at least 120 days before commencement of such activities, and shall certify in that notification to the NRC that it has obtained all other permits, licenses, and certifications required for these activities;

H. The permit holder or an applicant referencing this ESP for a CP or COL application is prohibited from conducting any activity authorized by 10 C.F.R. § 52.25 without first submitting to the NRC:

(a) a copy of a 401 certification (which constitutes the certification required under Section 401 of the Federal Water Pollution Control Act), issued by the Illinois Environmental Protection Agency (IEPA) under 35 Illinois Administrative Code Part 395, or

(b) its determination that no 401 certification is required.

The permit holder or an applicant referencing this ESP for a CP or COL application shall submit to the IEPA annually (with a copy to the NRC) or some other mutually agreed upon periodicity, an advisory letter regarding any activities it expects to conduct under this permit for the following period (e.g., 1 year), including a determination of whether such activities require a 401 certification. For those site preparation or limited construction activities which the permit holder has determined do not require a 401 certification, the permit holder is prohibited from conducting those activities for 30 days of the date of the advisory letter unless it receives a formal written response from the IEPA. No such notification is required if no work is expected to be performed under this permit for the designated period.

I. The following environmental condition applies:

(1) Any activities performed pursuant to 10 C.F.R. § 52.25 are subject to the conditions for the protection of the environment set forth in the Environmental Protection Plan attached as Appendix F to this ESP.

J. An applicant for a construction permit or combined license referencing this ESP shall develop an Environmental Protection Plan (EPP) for construction and operation of the proposed reactor and include the EPP in the application. The portion of the EPP directed to operation shall include the environmental conditions required by 10 C.F.R. § 50.36b.

4. In accordance with 10 C.F.R. § 52.37, “Reporting of Defects and Noncompliance; Revocation, Suspension, Modification of Permits for Cause,” the holder of this ESP is subject to the requirements of 10 C.F.R. Part 21, “Reporting of Defects and Noncompliance,” as of the date of issuance of this ESP.

5. This ESP is effective as of its date of issuance and shall expire at midnight on March 15, 2027.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

R. W. Borchardt, Director
Office of New Reactors

Enclosures:
- Appendix A: Characteristics of the Exelon Generation Company, LLC ESP Site
- Appendix B: Controlling Values of Parameters
- Appendix C: Combined License (COL) Action Items
- Appendix D: Values of Plant Parameters Considered in the Environmental Review of the Application
- Appendix E: Site Redress Plan
- Appendix F: Environmental Protection Plan

4. In accordance with 10 C.F.R. § 52.37, "Reporting of Defects and Noncompliance; Revocation, Suspension, Modification of Permits for Cause," the holder of this ESP is subject to the requirements of 10 C.F.R. Part 21, "Reporting of Defects and Noncompliance," as of the date of issuance of this ESP.

5. This ESP is effective as of its date of issuance and shall expire at midnight on March 15, 2027.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

R. W. Borchardt, Director
Office of New Reactors

Enclosures:
Appendix A: Characteristics of the Exelon Generation Company, LLC ESP Site

Appendix B: Controlling Values of Parameters

Appendix C: Combined License (COL) Action Items

Appendix D: Values of Plant Parameters Considered in the Environmental Review of the Application

Appendix E: Site Redress Plan

Appendix F: Environmental Protection Plan

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DATE	03/14/2007	03/15/2007		

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Appendix A: Characteristics of the Exelon Generation Company, LLC, ESP Site

Site Characteristic		Value	Definition
2.1—Introduction			
Exclusion Area Boundary		The perimeter of a 3362-ft (0.64-mi) radius circle from the center of the proposed ESP facility footprint	The area surrounding the reactor, in which the reactor licensee has the authority to determine all activities including exclusion or removal of personnel and property from the area
Low Population Zone		13,182 ft (2.5 mi) radius circle from the center of the proposed ESP facility footprint	The area immediately surrounding the exclusion area which contains residents
Population Center Distance		22 mi	The minimum allowable distance from the reactor to the nearest boundary of a densely populated center containing more than about 25,000 residents
2.3—Meteorology			
Ambient Air Temperature and Humidity			
Maximum Dry-Bulb Temperature	2% annual exceedance	88 °F with 74 °F concurrent wet-bulb	The ambient dry-bulb temperature (and coincident wet-bulb temperature) that will be exceeded 2% of the time annually
	1% annual exceedance	91 °F	The ambient dry-bulb temperature that will be exceeded 1% of the time annually

Site Characteristic		Value	Definition
	0.4% annual exceedance	94 °F with 77 °F concurrent wet-bulb	The ambient dry-bulb temperature (and coincident wet-bulb temperature) that will be exceeded 0.4% of the time annually
	100-yr return period	117 °F	The ambient dry-bulb temperature that has a 1% annual probability of being exceeded (100-yr mean recurrence interval)
Minimum Dry-Bulb Temperature	99% annual exceedance	0 °F	The ambient dry-bulb temperature below which dry-bulb temperatures will fall 1% of the time annually
	99.6% annual exceedance	-6 °F	The ambient dry-bulb temperature below which dry-bulb temperatures will fall 0.4% of the time annually
	100-yr return period	-36 °F	The ambient dry-bulb temperature for which a 1% annual probability of a lower dry-bulb temperature exists (100-yr mean recurrence interval)
Maximum Wet-Bulb Temperature	1% annual exceedance	78 °F	The ambient wet-bulb temperature that will be exceeded 1% of the time annually
	0.4% annual exceedance	80 °F	The ambient wet-bulb temperature that will be exceeded 0.4% of the time annually
	100-yr return period	86 °F	The ambient wet-bulb temperature that has a 1% annual probability of being exceeded (100-yr mean recurrence interval)

Site Characteristic	Value	Definition
Basic Wind Speed		
Fastest Mile	75 mi/hr	The fastest-mile wind speed to be used in determining wind loads, defined as the fastest-mile wind speed at 33 ft (10 m) above the ground that has a 1% annual probability of being exceeded (100-yr mean recurrence interval)
3-Second Gust	96 mi/hr	The 3-second gust wind speed to be used in determining wind loads, defined as the 3-second gust wind speed at 33 ft (10 m) above the ground that has a 1% annual probability of being exceeded (100-yr mean recurrence interval)
Design-Basis Tornado		
Maximum Wind Speed	300 mi/hr	Maximum wind speed resulting from passage of a tornado having a probability of occurrence of 10^{-7} per yr
Translational Speed	60 mi/hr	Translation component of the maximum tornado wind speed
Rotational Speed	240 mi/hr	Rotation component of the maximum tornado wind speed
Radius of Maximum Rotational Speed	150 ft	Distance from the center of the tornado at which the maximum rotational wind speed occurs
Maximum Pressure Drop	2.0 lbf/in²	Decrease in ambient pressure from normal atmospheric pressure resulting from passage of the tornado

Site Characteristic	Value	Definition
Maximum Rate of Pressure Drop	1.2 lbf/in²/s	Rate of pressure drop resulting from the passage of the tornado
Winter Precipitation		
100-yr Snowpack	24.4 lbf/ft²	Weight of the 100-yr return period snowpack (to be used in determining normal winter precipitation loads for roofs)
48-Hr Probable Maximum Winter Precipitation	16.6 in. of water	Probable maximum precipitation during the winter months (to be used in conjunction with the 100-yr snowpack in determining extreme winter precipitation loads for roofs)
Ultimate Heat Sink Ambient Air Temperature and Humidity		
Meteorological Conditions Resulting in the Minimum Water Cooling During Any 1 Day	81°F wet-bulb temperature with coincident 87.6 °F dry-bulb temperature	Historic worst 1-day daily average wet-bulb temperature and coincident dry-bulb temperature
Meteorological Conditions Resulting in the Minimum Water Cooling During Any Consecutive 5 Days	79.7 °F wet-bulb temperature with coincident 86.2 °F dry-bulb temperature	Historic worst 5-day daily average wet-bulb temperature and coincident dry-bulb temperature
Meteorological Conditions Resulting in the Maximum Evaporation and Drift Loss During Any Consecutive 30 Days	74.7 °F wet-bulb temperature with coincident 82 °F dry-bulb temperature	Historic worst 30-day daily average wet-bulb temperature and coincident dry-bulb temperature
Short-Term (Accident Release) Atmospheric Dispersion		
0–2 hr χ/Q Value @ EAB (5% value)	2.52×10^{-4} s/m³	The 0–2 hr atmospheric dispersion factor to be used to estimate dose consequences of design-basis accidents at the EAB

Site Characteristic	Value	Definition
0–8 hr χ/Q Value @ LPZ (5% value)	3.00×10^{-5} s/m³	The 0–8 hr atmospheric dispersion factor to be used to estimate dose consequences of design-basis accidents at the LPZ
8–24 hr χ/Q Value @ LPZ (5% value)	2.02×10^{-5} s/m³	The 8–24 hr atmospheric dispersion factor to be used to estimate dose consequences of design-basis accidents at the LPZ
1–4 day χ/Q Value @ LPZ (5% value)	8.53×10^{-6} s/m³	The 1–4 day atmospheric dispersion factor to be used to estimate dose consequences of design-basis accidents at the LPZ
4–30 day χ/Q Value @ LPZ (5% value)	2.48×10^{-6} s/m³	The 4–30 day atmospheric dispersion factor to be used to estimate dose consequences of design-basis accidents at the LPZ
Long-Term (Routine Release) Atmospheric Dispersion		
Annual Average Undepleted/No Decay χ/Q Value @ EAB	2.04×10^{-6} s/m^3	The maximum annual average EAB undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ EAB	2.04×10^{-6} s/m^3	The maximum annual average EAB undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual

Site Characteristic	Value	Definition
Annual Average Depleted/8.00-Day Decay χ/Q Value @ EAB	1.84×10^{-6} s/m^3	The maximum annual average EAB depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ EAB	1.46×10^{-8} 1/m^2	The maximum annual average EAB D/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Milk Cow	1.10×10^{-6} s/m^3	The maximum annual average milk cow undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Milk Cow	1.10×10^{-6} s/m^3	The maximum annual average milk cow undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Milk Cow	9.63×10^{-7} s/m^3	The maximum annual average milk cow depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ Nearest Milk Cow	6.76×10^{-9} 1/m^2	The maximum annual average milk cow D/Q value for use in determining gaseous pathway doses to the maximally exposed individual

Site Characteristic	Value	Definition
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Goat Milk	9.90×10^{-8} s/m^3	The maximum annual average goat milk undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Goat Milk	9.72×10^{-8} s/m^3	The maximum annual average goat milk undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Goat Milk	7.28×10^{-8} s/m^3	The maximum annual average goat milk depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ Nearest Goat Milk	4.21×10^{-10} 1/m^2	The maximum annual average [goat milk][1] D/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Garden	1.10×10^{-6} s/m^3	The maximum annual average garden undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Garden	1.10×10^{-6} s/m^3	The maximum annual average garden undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual

[1] Correction from NUREG-1844, May 2006, Appendix A: "meat animal" to "goat milk."

Site Characteristic	Value	Definition
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Garden	9.63×10^{-7} s/m^3	The maximum annual average garden depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ Nearest Garden	6.76×10^{-9} 1/m^2	The maximum annual average garden D/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Meat Animal	1.10×10^{-6} s/m^3	The maximum annual average meat animal undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Meat Animal	1.10×10^{-6} s/m^3	The maximum annual average meat animal undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Meat Animal	9.63×10^{-7} s/m^3	The maximum annual average meat animal depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ Nearest Meat Animal	6.76×10^{-9} 1/m^2	The maximum annual average meat animal D/Q value for use in determining gaseous pathway doses to the maximally exposed individual

Site Characteristic	Value	Definition
Annual Average Undepleted/No Decay χ/Q Value @ Nearest Resident	1.50×10^{-6} s/m^3	The maximum annual average resident undepleted/no decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Undepleted/2.26-Day Decay χ/Q Value @ Nearest Resident	1.49×10^{-6} s/m^3	The maximum annual average resident undepleted/2.26-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average Depleted/8.00-Day Decay χ/Q Value @ Nearest Resident	1.34×10^{-6} s/m^3	The maximum annual average resident depleted/8.00-day decay χ/Q value for use in determining gaseous pathway doses to the maximally exposed individual
Annual Average D/Q Value @ Nearest Resident	6.76×10^{-9} 1/m^2	The maximum annual average resident D/Q value for use in determining gaseous pathway doses to the maximally exposed individual
2.4—Hydrology		
Hydrology		
Proposed Facility Boundaries	Appendix A, Figure 1 (FSER Figure 2.4-15)[2] shows the proposed facility boundary	ESP site boundary map
Site Grade	735 ft MSL	Finished plant grade at the ESP site

[2] Correction from NUREG-1844, May 2006, Appendix A: "FSER Figure 2.4.14" to "FSER Figure 2.4-15"

Site Characteristic	Value	Definition
Highest Ground Water Elevation	733.5 ft MSL	The maximum elevation of ground water at the ESP site
Probable Maximum Flood (PMF) elevation	709.8 ft MSL	The maximum hydrostatic water surface elevation at the ESP site
Coincident Wind Wave Activity	6.4 ft	Increment of change in water surface elevation due to wind waves
Storm Surge	0.3 ft	Increment of change in water surface elevation due to storm surge
Combined Effects Maximum Water Surface Elevation	716.5 ft MSL	Sum of hydrostatic water surface elevation, wind wave activity, and storm surge; maximum water surface elevation at the ESP site
Local Intense Precipitation	18.15 in. during 1 hr	Maximum potential rainfall at the immediate ESP site
Lake Surface Icing	27 in.	Ice sheet thickness at Clinton Lake (based on maximum cumulative degree-days below freezing)
Maximum Cumulative Degree-Days	1141.5 in Fahrenheit	A measure of severity of winter weather conditions conducive to ice formation
Frazil and Anchor Ice	The ESP site has the potential for formation of frazil and anchor ice	Accumulated ice formation in a turbulent flow condition

Site Characteristic		Value	Definition
2.5—Geology, Seismology, and Geotechnical Engineering			
Basic Geologic and Seismic Information			
Capable Tectonic Structures		------	No fault displacement potential within the investigative area
Vibratory Ground Motion			
Design Response Spectra (Safe-Shutdown Earthquake)		Appendix A, Figure 2 (FSER Figure 2.5.2-16)	Site-specific response spectra
Stability of Subsurface Materials and Foundations			
Minimum Bearing Capacity (Static)		[50,000][3] lbs/ft^2 (25 tsf)	
Minimum Shear Wave Velocity	0–50 ft	820 fps	Propagation of shear waves through foundation materials
	50–285 ft	1090 fps	
	285–310 ft	2580 fps	

[3] Correction from NUREG-1844, May 2006, Appendix A: "50,0000" to "50,000."

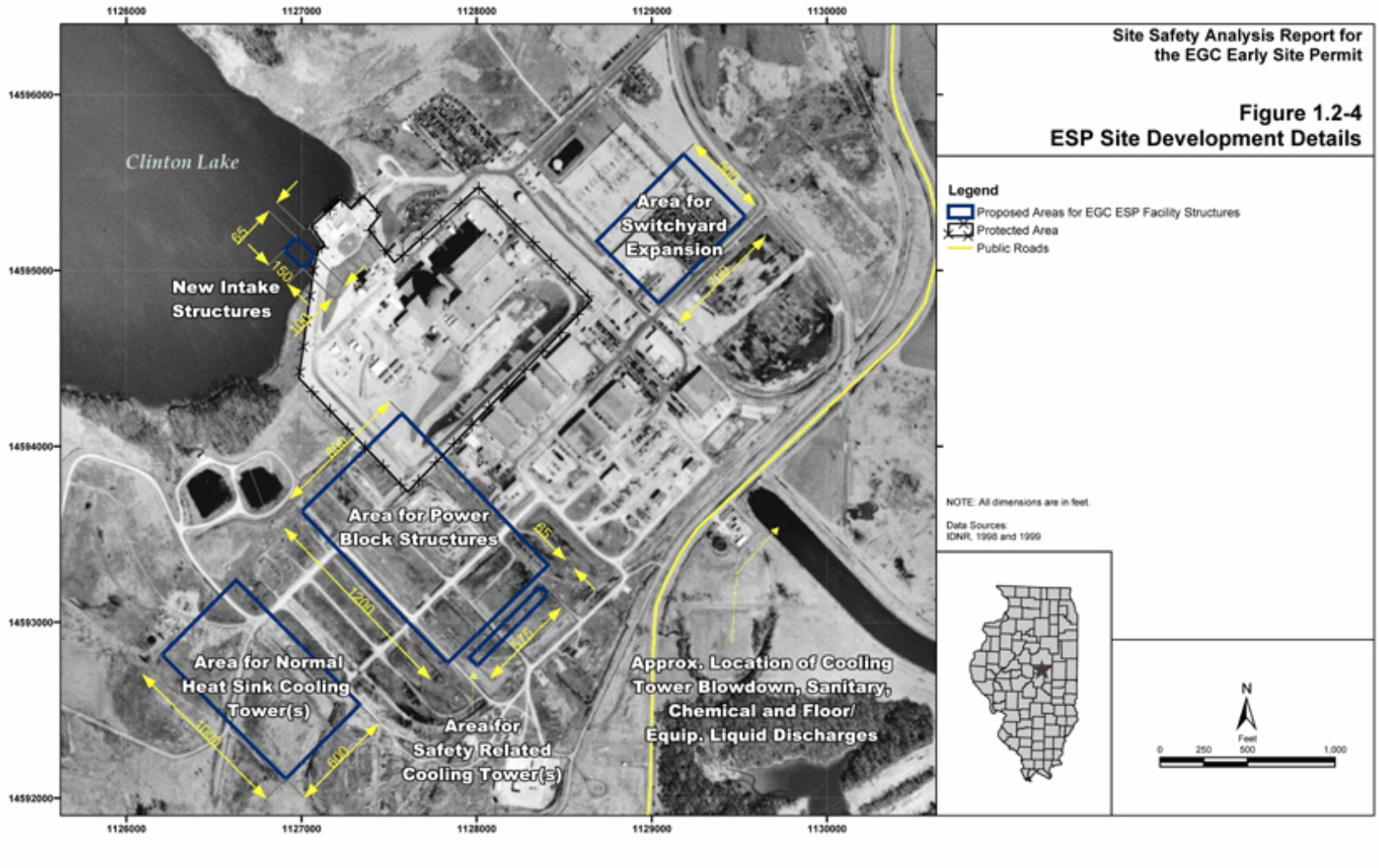

Figure 1 (FSER Figure 2.4-15)[4] The proposed facility boundary for the ESP site

[4] Correction from NUREG-1844, May 2006, Appendix A: "SER Figure 2.4.14" to "FSER Figure 2.4-15"

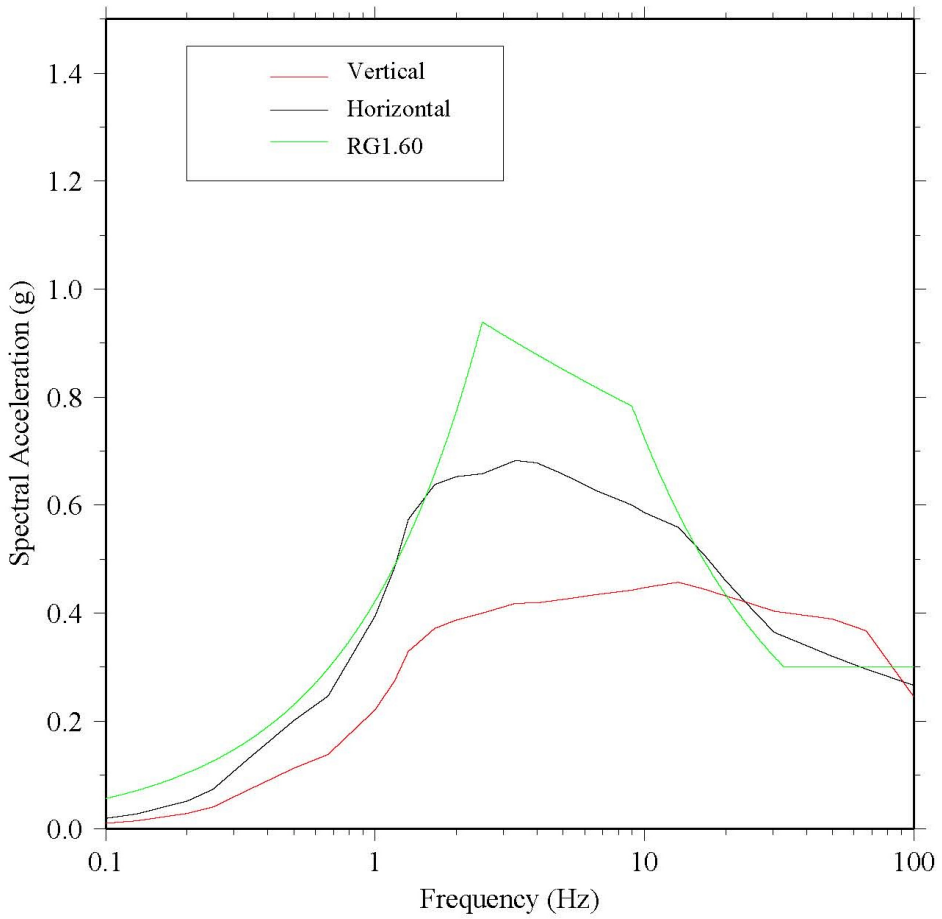

Figure 2 (FSER Figure 2.5.2-16) EGC ESP horizontal and vertical ESP SSE as well as the RG 1.60 DRS anchored at 0.3g [5]

[5] Correction from NUREG-1844, May 2006, Appendix A: this Figure reflects the corrected SER Figure 2.5.2-16 as found in the body of the NUREG document; "FSER Figure 2.5.2-16" to "FSER Figure 2.5.2-16"

Appendix B: Controlling Values of Parameters

Bounding Parameters	Value	Definition
2.4—Hydrology		
Makeup flow rate to mechanical draft cooling towers	555 gpm	Average makeup water needed for mechanical draft cooling towers of the ultimate heat sink for the proposed facility
Maximum inlet temperature to CCW heat exchanger	95 °F	Maximum allowable temperature of water on inlet side of the condenser
Evaporation rate	31,500 gpm (70.2 cfs)	Forced evaporation for the ESP facility under normal operation

Design-Basis Accident Source Term Plant Parameters[6]

Main Steam Line Break Outside Containment (BWR and PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-3: AP1000 Main Steam Line Break, Curies Released to Environment by Interval, Accident-Initiated Iodine Spike				
Isotope	**0 to 2 hr**	**2 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**
I-130	4.198E-01	9.950E-01	1.583E+00	1.009E+00
I-131	2.600E+01	5.730E+01	1.558E+02	4.134E+02
I-132	4.617E+01	9.739E+01	2.238E+01	1.819E-01
I-133	4.908E+01	1.137E+02	2.269E+02	2.553E+02
I-134	1.343E+01	1.859E+01	2.651E-01	8.415E-07
I-135	3.235E+01	7.739E+01	7.828E+01	1.772E+01
Kr-85m	6.855E-02	1.141E-01	6.796E-02	6.177E-03
Kr-85	2.824E-01	8.462E-01	2.250E+00	6.686E+00
Kr-87	2.755E-02	1.342E-02	5.291E-04	8.602E-08
Kr-88	1.124E-01	1.372E-01	4.037E-02	8.269E-04
Xe-131m	1.277E-01	3.791E-01	9.810E-01	2.700E+00
Xe-133m	1.585E-01	4.506E-01	1.038E+00	2.054E+00
Xe-133	1.178E+01	3.454E+01	8.644E+01	2.161E+02
Xe-135m	3.043E-03	1.325E-05	0	0
Xe-135	3.098E-01	6.896E-01	8.351E-01	3.384E-01
Xe-138	3.985E-03	1.138E-05	0	0
Cs-134	1.899E+01	1.951E-01	5.185E-01	1.540E+00
Cs-136	2.822E+01	2.862E-01	7.428E-01	2.060E+00
Cs-137	1.366E+01	1.407E-01	3.739E-01	1.112E+00
Cs-138	1.012E+01	1.018E-03	4.424E-07	0

[6] Not applicable to the General Electric Advanced Boiling Water Reactor Design certified in Appendix A to 10 CFR Part 52 with the reactor design-basis accident source term specified in U.S. Atomic Energy Commission Technical Information Document, TID-14844, “Calculation of Distance Factors for Power and Test Reactor Sites” (1962).

Main Steam Line Break Outside Containment (BWR and PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-4: AP1000 Main Steam Line Break, Curies Released to Environment by Interval, Pre-existing Iodine Spike				
Isotope	**0 to 2 hr**	**2 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**
I-130	3.592E-01	1.417E-01	2.093E-01	1.334E-01
I-131	2.402E+01	1.211E+01	3.096E+01	8.216E+01
I-132	3.052E+01	4.142E+00	8.061E-01	6.552E-03
I-133	4.335E+01	1.898E+01	3.534E+01	3.976E+01
I-134	6.742E+00	1.633E-01	1.429E-03	4.535E-09
I-135	2.600E+01	8.156E+00	7.542E+00	1.707E+00
Kr-85m	6.855E-02	1.141E-01	6.796E-02	6.177E-03
Kr-85	2.824E-01	8.462E-01	2.250E+00	6.686E+00
Kr-87	2.755E-02	1.342E-02	5.291E-04	8.602E-08
Kr-88	1.124E-01	1.372E-01	4.037E-02	8.269E-04
Xe-131m	1.277E-01	3.791E-01	9.810E-01	2.700E+00
Xe-133m	1.585E-01	4.506E-01	1.038E+00	2.054E+00
Xe-133	1.178E+01	3.454E+01	8.644E+01	2.161E+02
Xe-135m	3.043E-03	1.325E-05	0	0
Xe-135	3.098E-01	6.896E-01	8.351E-01	3.384E-01
Xe-138	3.985E-03	1.138E-05	0	0
Rb-86	NA	NA	NA	NA
Cs-134	1.899E+01	1.951E-01	5.185E-01	1.540E+00
Cs-136	2.822E+01	2.862E-01	7.428E-01	2.060E+00
Cs-137	1.366E+01	1.407E-01	3.739E-01	1.112E+00
Cs-138	1.012E+01	1.018E-03	4.424E-07	0
NA = Rb-86 contribution considered negligible for this accident.				

Reactor Coolant Pump Locked Rotor Accident (PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-10A: AP1000 Locked Rotor Accident, Curies Released to Environment, No Startup Feedwater	
Isotope	**0 to 1.5 hr**
I-130	8.447E-01
I-131	3.774E+01
I-132	2.789E+01
I-133	4.855E+01
I-134	2.884E+01
I-135	4.188E+01
Kr-85m	8.158E+01
Kr-85	7.576E+00
Kr-87	1.204E+02
Kr-88	2.079E+02
Xe-131m	3.772E+00
Xe-133m	2.021E+01
Xe-133	6.664E+02
Xe-135m	3.240E+01
Xe-135	1.591E+02
Xe-138	1.288E+02
Rb-86	1.330E-02
Cs-134	1.290E+00
Cs-136	5.634E-01
Cs-137	7.740E-01
Cs-138	6.080E +00

Reactor Coolant Pump Locked Rotor Accident (PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-10B: AP1000 Locked Rotor Accident, Curies Released to Environment, Startup Feedwater Available		
Isotope	**0 to 2 hr**	**2 to 8 hr**
I-130	1.171E-01	1.329E+00
I-131	5.394E+00	7.513E+01
I-132	3.450E+00	1.484E+01
I-133	6.862E+00	8.291E+01
I-134	2.760E+00	2.980E+00
I-135	5.679E+00	5.221E+01
Kr-85m	1.048E+02	1.744E+02
Kr-85	1.010E+01	3.026E+01
Kr-87	1.431E+02	6.965E+01
Kr-88	2.619E+02	3.197E+02
Xe-131m	5.026E+00	1.492E+01
Xe-133m	2.685E+01	7.636E+01
Xe-133	8.874E+02	2.601E+03
Xe-135m	3.282E+01	1.429E-01
Xe-135	2.082E+02	4.635E+02
Xe-138	1.301E+02	3.717E-01
Rb-86	1.828E-03	2.730E-02
Cs-134	1.822E-01	2.403E+00
Cs-136	8.451E-02	7.786E-01
Cs-137	1.099E-01	1.411E+00
Cs-138	7.291E-01	3.349E+00

Control Rod Ejection (PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-12: AP1000 Control Rod Ejection Accident, Curies Released to Environment by Interval, Pre-existing Iodine Spike					
Isotope	**0 to 2 hr**	**2 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**	**96 to 720 hr**
I-130	4.897E+00	7.276E+00	4.321E+00	2.030E-01	2.946E-04
I-131	1.358E+02	2.452E+02	2.313E+02	3.101E+01	1.675E+01
I-132	1.528E+02	9.936E+01	9.852E+00	8.236E-03	0
I-133	2.722E+02	4.396E+02	3.176E+02	2.280E+01	2.410E-01
I-134	1.663E+02	2.851E+01	1.367E-01	4.478E-08	0
I-135	2.387E+02	2.974E+02	1.186E+02	2.393E+00	7.322E-05
Kr-85m	1.123E+02	6.480E+01	3.868E+01	1.767E+00	2.511E-05
Kr-85	5.012E+00	5.599E+00	1.492E+01	3.353E+01	2.877E+02
Kr-87	1.823E+02	2.596E+01	1.025E+00	8.366E-05	0
Kr-88	2.912E+02	1.184E+02	3.491E+01	3.589E-01	8.407E-09
Xe-131m	4.938E+00	5.457E+00	1.416E+01	2.864E+01	1.162E+02
Xe-133m	2.666E+01	2.809E+01	6.485E+01	8.450E+01	5.311E+01
Xe-133	8.789E+02	9.581E+02	2.404E+03	4.267E+03	8.446E+03
Xe-135m	7.341E+01	5.304E-02	4.333E-09	0	0
Xe-135	2.148E+02	1.720E+02	2.088E+02	4.347E+01	1.793E-01
Xe-138	2.987E+02	1.378E-01	3.194E-09	0	0
Rb-86	3.623E-01	7.272E-01	6.956E-01	8.674E-02	3.417E-02
Cs-134	3.082E+01	6.216E+01	6.030E+01	7.760E+00	5.164E+00
Cs-136	8.787E+00	1.751E+01	1.666E+01	2.049E+00	6.584E-01
Cs-137	1.793E+01	3.616E+01	3.509E+01	4.520E+00	3.051E+00
Cs-138	1.086E+02	7.046E+00	1.682E-03	0	0

Steam Generator Tube Rupture (PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-14: AP1000 Steam Generator Tube Rupture Accident, Curies Released to Environment by Interval, Accident Initiated Iodine Spike			
Isotope	**0 to 2 hr**	**2 to 8 hr**	**8 to 24 hr**
I-130	8.870E-01	1.619E-01	8.238E-01
I-131	4.363E+01	1.142E+01	6.761E+01
I-132	1.472E+02	4.857E+00	1.291E+01
I-133	9.334E+01	1.996E+01	1.084E+02
I-134	5.587E+01	6.043E-02	5.942E-02
I-135	7.614E+01	9.880E+00	4.378E+01
Kr-85m	5.530E+01	1.929E+01	7.529E-03
Kr-85	2.204E+02	1.085E+02	1.339E-01
Kr-87	2.393E+01	3.612E+00	9.119E-05
Kr-88	9.222E+01	2.651E+01	5.429E-03
Xe-131m	9.961E+01	4.876E+01	5.909E-02
Xe-133m	1.238E+02	5.914E+01	6.609E-02
Xe-133	9.192E+03	4.468E+03	5.291E+00
Xe-135m	3.443E+00	5.862E-03	0
Xe-135	2.455E+02	1.019E+02	7.101E-02
Xe-138	4.560E+00	5.068E-03	0
Rb-86	NA	NA	NA
Cs-134	1.626E+00	6.053E-02	2.163E-01
Cs-136	2.417E+00	8.860E-02	3.144E-01
Cs-137	1.173E+00	4.366E-02	1.560E-01
Cs-138	5.639E-01	2.914E-06	5.730E-07
NA = Rb-86 contribution considered negligible for this accident.			

Steam Generator Tube Rupture (PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-15: AP1000 Steam Generator Tube Rupture Accident, Curies Released to Environment by Interval, Pre-existing Iodine Spike			
Isotope	**0 to 2 hr**	**2 to 8 hr**	**8 to 24 hr**
I-130	1.794E+00	5.388E-02	2.680E-01
I-131	1.206E+02	5.267E+00	3.064E+01
I-132	1.416E+02	7.428E-01	1.923E+00
I-133	2.160E+02	7.634E+00	4.062E+01
I-134	2.741E+01	4.401E-03	4.227E-03
I-135	1.272E+02	2.696E+00	1.165E+01
Kr-85m	5.530E+01	1.929E+01	7.529E-03
Kr-85	2.204E+02	1.085E+02	1.339E-01
Kr-87	2.393E+01	3.612E+00	9.119E-05
Kr-88	9.222E+01	2.651E+01	5.429E-03
Xe-131m	9.961E+01	4.876E+01	5.909E-02
Xe-133m	1.238E+02	5.914E+01	6.609E-02
Xe-133	9.192E+03	4.468E+03	5.291E+00
Xe-135m	3.443E+00	5.862E-03	0
Xe-135	2.455E+02	1.019E+02	7.101E-02
Xe-138	4.560E+00	5.068E-03	0
Rb-86	NA	NA	NA
Cs-134	1.626E+00	6.053E-02	2.163E-01
Cs-136	2.417E+00	8.860E-02	3.144E-01
Cs-137	1.173E+00	4.366E-02	1.560E-01
Cs-138	5.639E-01	2.914E-06	5.730E-07
NA = Rb-86 contribution considered negligible for this accident.			

Failure of Small Lines Carrying Primary Coolant Outside Containment (BWR and PWR)
Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-18: AP1000 Small Line Break Accident, Curies Released to Environment, Accident-Initiated Iodine Spike	
Isotope	**0 to 0.5 hr**
I-130	1.887E+00
I-131	9.256E+01
I-132	3.494E+02
I-133	2.007E+02
I-134	1.580E+02
I-135	1.680E+02
Kr-85m	1.241E+01
Kr-85	4.398E+01
Kr-87	7.047E+00
Kr-88	2.212E+01
Xe-131m	1.993E+01
Xe-133m	2.500E+01
Xe-133	1.843E+03
Xe-135m	2.588E+00
Xe-135	5.202E+01
Xe-138	3.645E+00
Cs-134	4.157E+00
Cs-136	6.163E+00
Cs-137	2.996E+00
Cs-138	2.214E+00

Large-Break Loss-of-Coolant Accident (BWR and PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-22: AP1000 Design Basis Loss of Coolant Accident, Curies Released to Environment by Interval					
Isotope	**1.4 to 3.4 hr**	**0 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**	**96 to 720 hr**
Halogen Group					
I-130	5.65E+01	1.12E+02	5.37E+00	7.10E-01	1.27E-02
I-131	1.69E+03	3.49E+03	2.66E+02	2.39E+02	7.19E+02
I-132	1.24E+03	2.14E+03	1.64E+01	1.46E-02	0
I-133	3.24E+03	6.54E+03	3.83E+02	1.04E+02	1.04E+01
I-134	6.63E+02	1.14E+03	2.96E-01	6.79E-08	0
I-135	2.56E+03	4.89E+03	1.58E+02	6.09E+00	3.16E-03
Noble Gas Group					
Kr-85m	1.42E+03	3.77E+03	1.87E+03	8.56E+01	1.22E-03
Kr-85	8.32E+01	3.49E+03	7.06E+02	1.59E+03	1.36E+04
Kr-87	1.10E+03	2.14E+03	4.97E+01	4.05E-03	0
Kr-88	3.12E+03	6.54E+03	1.70E+03	1.75E+01	4.09E-07
Xe-131m	8.27E+01	1.14E+03	6.79E+02	1.37E+03	5.57E+03
Xe-133m	4.44E+02	1.54E+03	3.15E+03	4.11E+03	2.58E+03
Xe-133	1.47E+04	5.19E+04	1.16E+05	2.06E+05	4.07E+05
Xe-135m	1.07E+01	3.59E+01	2.14E-07	0	0
Xe-135	3.16E+03	9.64E+03	1.01E+04	2.11E+03	8.68E+00
Xe-138	3.14E+01	1.20E+02	1.58E-07	0	0
Alkali Metal Group					
Rb-86	3.05E+00	6.32E+00	2.99E-01	9.83E-02	5.13E-01
Cs-134	2.59E+02	5.38E+02	2.57E+01	9.11E+00	7.74E+01
Cs-136	7.34E+01	1.52E+02	7.16E+00	2.28E+00	9.88E+00
Cs-137	1.51E+02	3.13E+02	1.50E+01	5.32E+00	4.57E+01
Cs-138	1.51E+02	3.30E+02	2.18E-03	0	0

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-22: AP1000 Design Basis Loss of Coolant Accident, Curies Released to Environment by Interval					
Isotope	**1.4 to 3.4 hr**	**0 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**	**96 to 720 hr**
Tellurium Group					
Sr-89	9.25E+01	1.85E+02	9.24E+00	3.19E+00	2.26E+01
Sr-90	7.96E+00	1.59E+01	7.99E-01	2.84E-01	2.44E+00
Sr-91	9.70E+01	1.81E+02	5.46E+00	1.35E-01	7.06E-04
Sr-92	6.85E+01	1.13E+02	1.01E+00	5.15E-04	0
Sb-127	2.42E+01	4.80E+01	2.29E+00	5.67E-01	7.82E-01
Sb-129	5.12E+01	8.94E+01	1.51E+00	4.95E-03	4.90E-08
Te-127m	3.16E+00	6.30E+00	3.16E-01	1.11E-01	8.71E-01
Te-127	2.05E+01	3.83E+01	1.15E+00	2.75E-02	1.33E-04
Te-129m	1.07E+01	2.15E+01	1.07E+00	3.65E-01	2.36E+00
Te-129	1.89E+01	2.83E+01	2.69E-02	3.54E-08	0
Te-131m	3.17E+01	6.20E+01	2.64E+00	3.35E-01	7.81E-02
Te-132	3.23E+02	6.40E+02	3.02E+01	7.04E+00	7.83E+00
Ba-139	5.45E+01	8.30E+01	1.49E-01	9.91E-07	0
Ba-140	1.63E+02	3.25E+02	1.61E+01	5.11E+00	2.17E+01
Noble Metals Group					
Mo-99	2.15E+01	4.25E+01	1.98E+00	4.29E-01	3.78E-01
Tc-99m	1.48E+01	2.66E+01	6.05E-01	5.27E-03	1.33E-06
Ru-103	1.73E+01	3.46E+01	1.73E+00	5.93E-01	3.99E+00
Ru-105	8.20E+00	1.44E+01	2.48E-01	8.86E-04	1.17E-08
Ru-106	5.71E+00	1.14E+01	5.73E-01	2.03E-01	1.70E+00
Rh-105	1.03E+01	2.02E+01	8.81E-01	1.29E-01	4.14E-02

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-22: AP1000 Design Basis Loss of Coolant Accident, Curies Released to Environment by Interval					
Isotope	**1.4 to 3.4 hr**	**0 to 8 hr**	**8 to 24 hr**	**24 to 96 hr**	**96 to 720 hr**
Lanthanide Group					
Y-90	8.09E-02	1.60E-01	7.44E-03	1.59E-03	1.35E-03
Y-91	1.19E+00	2.37E+00	1.19E-01	4.12E-02	3.00E-01
Y-92	7.91E-01	1.35E+00	1.80E-02	2.86E-05	0
Y-93	1.22E+00	2.28E+00	7.08E-02	1.98E-03	1.42E-05
Nb-95	1.60E+00	3.19E+00	1.59E-01	5.44E-02	3.55E-01
Zr-95	1.59E+00	3.18E+00	1.59E-01	5.52E-02	4.08E-01
Zr-97	1.43E+00	2.74E+00	1.03E-01	6.73E-03	3.71E-04
La-140	1.68E+00	3.29E+00	1.46E-01	2.36E-02	9.62E-03
La-141	1.03E+00	1.79E+00	2.71E-02	6.41E-05	2.01E-10
La-142	5.40E-01	8.31E-01	2.09E-03	3.39E-08	0
Nd-147	6.17E-01	1.23E+00	6.06E-02	1.90E-02	7.29E-02
Pr-143	1.39E+00	2.78E+00	1.37E-01	4.40E-02	1.94E-01
Am-241	1.20E-04	2.39E-04	1.20E-05	4.27E-06	3.68E-05
Cm-242	2.83E-02	5.65E-02	2.83E-03	9.98E-04	8.08E-03
Cm-244	3.47E-03	6.93E-03	3.48E-04	1.24E-04	1.06E-03
Cerium Group					
Ce-141	3.90E+00	7.78E+00	3.88E-01	1.32E-01	8.45E-01
Ce-143	3.47E+00	6.78E+00	2.93E-01	4.05E-02	1.14E-02
Ce-144	2.95E+00	5.89E+00	2.96E-01	1.05E-01	8.68E-01
Pu-238	9.18E-03	1.83E-02	9.21E-04	3.27E-04	2.82E-03
Pu-239	8.08E-04	1.61E-03	8.10E-05	2.88E-05	2.48E-04
Pu-240	1.18E-03	2.37E-03	1.19E-04	4.22E-05	3.63E-04
Pu-241	2.66E-01	5.31E-01	2.67E-02	9.48E-03	8.14E-02
Np-239	4.49E+01	8.87E+01	4.08E+00	8.15E-01	5.70E-01

Fuel Handling Accident (BWR and PWR)

Isotopic time-dependent fission product release rates to the environment

REF: Exelon Generation Company Site Safety Analysis Report, Revision 4, Table 3.3-30: AP1000 Fuel Handling Accident, Curies Released to Environment	
Isotope	**0 to 2 hr**
I-130	2.512E+00
I-131	3.763E+02
I-132	3.014E+02
I-133	2.401E+02
I-134	0
I-135	3.938E+01
Kr-83m	0
Kr-85m	3.418E+02
Kr-85	1.109E+03
Kr-87	0
Kr-88	0
Kr-89	0
Xe-131m	5.544E+02
Xe-133m	2.801E+03
Xe-133	9.658E+04
Xe-135m	1.262E+03
Xe-135	2.490E+04
Xe-137	0
Xe-138	0
Notes: 1. Activity is based on a 24-hr shutdown period before fuel movement begins. 2. Source term and pool DF based on Regulatory Guide 1.183.	

Appendix C: Combined License (COL) Action Items

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.1– Geography and Demography			
2.1-1	2.1.1	A COL or CP applicant should provide latitude, longitude, and Universal Transverse Mercator coordinates for new unit(s) on the ESP site.	Exact unit locations not known at ESP stage.
2.1-2	2.1.2	A COL or CP applicant should make arrangements with the appropriate local, State, Federal, or other public agencies to provide for control of the portions of Clinton Lake that lies within the exclusion area.	Such arrangements not required at ESP stage.
2.2 – Nearby Industrial, Transportation, and Military Facilities			
2.2-1	2.2.1.3–2.2.2.3	A COL or CP applicant should assess design-specific interactions between the existing and new units and, if necessary, propose measures to account for such interactions.	New unit design and specific location not known at ESP stage.
2.3 - Meteorology			
2.3-1	2.3.2	A COL or CP applicant should, as part of detailed engineering, assess the potential impact of natural and/or mechanical cooling towers on the design and operation of the new facility.	Cooling tower location and design not known at ESP stage.
2.3-2	2.3.4	A COL or CP applicant should assess dispersion of airborne radioactive materials to the control room.	Control room location and design not known at ESP stage.
2.3-3	2.3.5	A COL or CP application should verify specific release point characteristics and specific locations of potential receptors of interest used to generate the long-term (routine release) atmospheric dispersion site characteristics.	Exact release points and receptor locations not known at ESP stage.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.4 - Hydrology			
2.4-1	2.4.1.3	The COL applicant to ensure that the ESP facility intake piping is installed with adequate clearance from the CPS facility piping.	The feasibility of the use of the existing discharge tunnel from the abandoned units is not known at the ESP stage.
2.4-2	2.4.1.3	The COL applicant should provide the detail design of the UHS system, if a UHS is required by the selected reactor type for the ESP facility.	The design of the UHS system depends on the reactor design. Reactor design not known at ESP stage.
2.4-3	2.4.2.3	The COL applicant should design the ESP intake structures to withstand the combined effects of PMF, coincident wind wave activity, and wind setup, as discussed further in Section 2.4.3 of this SER.	The requirement of a UHS and the necessity of protection of its intake structure from flooding is dependent on reactor design, which has not been selected at the ESP stage.
2.4-4	2.4.2.3	The COL applicant should demonstrate that the ESP site drainage from local intense precipitation at the ESP site can be discharged to Clinton Lake without relying on any active drainage systems that may be blocked during this event.	Detailed design of the plants, including the site grade are beyond the scope of an ESP review.
2.4-5	2.4.7.3	The COL applicant should demonstrate that the intake structure can withstand the effects of any ice sheet crushing, bending, buckling, splitting, or a combination of these modes.	The requirement of an ESP facility UHS intake structure is dependent on whether the selected reactor design requires a UHS. The reactor design has not been selected at the ESP stage.
2.4-6	2.4.7.3	The COL applicant should design the ESP facility UHS intake to maintain a minimum water temperature of 40 °F at all times to preclude formation of frazil and anchor ice on the intake inlet.	The requirement of an ESP facility UHS intake structure is dependent on whether the selected reactor design requires a UHS. The reactor design has not been selected at the ESP stage.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.4-7	2.4.7.3	The COL applicant should ensure that the ice sheet formed on Clinton Lake would not constrain the intake. This is predicated on the ESP facility UHS intake being located at an elevation of 668 ft MSL.	The requirement of an ESP facility UHS intake structure is dependent on whether the selected reactor design requires a UHS. The reactor design has not been selected at the ESP stage.
2.4-8	2.4.8.3	The COL or CP applicant should ensure that any water-cooled UHS that may be required by a selected reactor type for the ESP facility is designed to a maximum 30-day makeup water requirement not exceeding 87 ac-ft.	The ESP water budget analysis relies on independent UHS reservoirs only, but need for a UHS is not known at the ESP stage.
2.4-9	2.4.8.3	The COL or CP applicant should establish that the ESP facility NHS is designed such that there is no over-reliance on the UHS for frequent plant shutdowns.	The requirement of an ESP facility UHS system is dependent on whether the selected reactor design requires a UHS. The reactor design has not been selected at the ESP stage.
2.4-10	2.4.8.3	The COL or CP applicant should ensure the monitoring and any required dredging of the submerged UHS pond.	The reliance of the ESP facility UHS on water available in the submerged UHS pond is dependent on the selected reactor type requiring a UHS. The reactor design has not been selected at the ESP stage.
2.4-11	2.4.11.3	The COL Applicant should develop a plant shutdown protocol when the water surface elevation in Clinton Lake falls to 677 ft MSL.	The requirement of an ESP facility UHS intake structure is dependent on whether the selected reactor design requires a UHS. The reactor design has not been selected at the ESP stage.
2.4-12	2.4.12.3	The COL applicant should ensure that ground water would not be used for either normal or safety-related plant operations.	The normal and safety-related requirements for the ESP facility depend on the selected reactor type. The reactor design has not been selected at the ESP stage.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.4-13	2.4.12.3	The COL or CP applicant should establish conservative groundwater flow velocities and conservative soil properties that are representative of the hydrogeologic conditions at the ESP site.	Exact location and design not known at ESP stage.
2.4-14	2.4.13.3	The COL or CP applicant should conclusively prove that there will be no likely scenario that can lead to liquid radioactive release to the ambient groundwater, either above the ambient groundwater table, or below it.	The maximum elevation at which any radioactive releases can occur within the ESP facility will depend on the chosen reactor design. The reactor design has not been selected at the ESP stage.
2.5 - Geology, Seismology, and Geotechnical Information			
2.5.4-1	2.5.4	A COL or CP applicant should submit the analyses of soil-rock-structure interaction for the ESP site.	Exact unit locations and design not known at ESP stage.
2.5.4-2	2.5.4	A COL or CP applicant should address the guidance recommended in RG 1.132 regarding drilling and sampling.	Exact unit locations and design not known at ESP stage.
2.5.4-3	2.5.4	A COL or CP applicant should submit plot plans and the profiles of all seismic Category I facilities for comparison with the subsurface profile and material properties.	Exact unit locations and design not known at ESP stage.
2.5.4-4	2.5.4	The COL or CP applicant should submit excavation and backfill plans for NRC review.	Exact unit locations and design not known at ESP stage
2.5.4-5	2.5.4	The COL applicant should inform the NRC staff (1) if it encounters previously unknown geologic features that could represent a hazard to the plant and (2) when site excavations are open for examination and evaluation.	Exact unit locations and design not known at ESP stage.
2.5.4-6	2.5.4	A COL or CP applicant should assess groundwater conditions as they affect foundation stability or detailed dewatering plans.	Exact unit locations and design not known at ESP stage.
2.5.4-7	2.5.4	The COL or CP applicant should perform a complete static stability assessment (including bearing capacities, settlement analyses, and lateral load assessment) and to ensure that the bearing capacities meet the minimum value of 25 tsf.	Exact unit locations and design not known at ESP stage.

Action Item No.	SER Section	Subject To Be Addressed	Reason for Deferral
2.5.4-8	2.5.4	The COL or CP applicant should describe the design criteria and methods, including the FOSs from the design analyses.	Exact unit locations and design not known at ESP stage.
2.5.5-1	2.5.5	A COL or CP applicant should conduct a more detailed dynamic analysis of the stability of the existing slope and any new slopes using the safe-shutdown earthquake (SSE) ground motion.	Locations of safety-related structures relative to the existing or new slopes not known at ESP stage.
2.5.6-1	2.5.6	The COL applicant should perform evaluations (if appropriate) at the COL stage to assess the performance of the submerged dam forming the UHS under the ESP SSE ground motion.	Exact unit location and design not known, therefore, need for UHS cannot be determined at ESP stage.
11.1 - Radiological Effluents			
11.1-1	11.1	A COL or CP applicant should verify that the calculated radiological doses to members of the public from radioactive gaseous and liquid effluents for any facility to be built on the Exelon ESP site are bounded by the radiological doses included in the ESP application and reviewed by the NRC.	Specific details of how the new facility will control, monitor, and maintain radioactive gaseous and liquid effluents not known at ESP stage.
13.6 - Industrial Security			
13.6-1	13.6	A COL or CP applicant should provide specific designs for protected area barriers.	Exact locations and design of barriers not known at ESP stage.

Appendix D: Values of Plant Parameters Considered in the Environmental Review of the Application

Table D-1
Plant Parameters Considered in the Environmental Review

PPE	Section	PPE Value	Site Characteristic Value
1.	Structure		
1.1	Building Characteristics		
1.1.1	Height	234 ft above grade	Not Applicable
1.1.2	Foundation Embedment	140 ft below grade	Not Applicable
1.2	Precipitation (for Roof Design)		
1.2.1	Maximum Rainfall Rate	(a)	18.15 in./hr (6.08 in./5 min)
1.2.2	Snow Load	(a)	40 lb/ft^2
1.3	Safe Shutdown Earthquake (SSE)		
1.3.1	Design Response Spectra	(a)	Site Specific Determination: Figure 2.5-12
1.3.2	Peak Ground Acceleration	(a)	0.35 g
1.3.3	Time History	(a)	NUREG/CR-6728
1.3.4	Capable Tectonic Structures or Sources	(a)	No active faults: <25 mi Possible faults: >25 mi <200 mi
1.4	Site Water Level (Allowable)		
1.4.1	Maximum Flood (or Tsunami)	(a)	26.1 ft below grade
1.4.2	Maximum Ground Water	(a)	1.5 ft below grade
1.5	Soil Properties Design Bases		
1.5.1	Liquefaction	(a)	None at site below 60 ft below ground surface (bgs) Soils above 60 ft bgs to be replaced or improved
1.5.2	Minimum Bearing Capacity (Static)	(a)	50,000 lbs/ft^2
1.5.3	Minimum Shear Wave Velocity	(a)	0-51 ft = 820 fps 50-285 ft = 1090 fps 285-310 ft = 2580 fps
1.6	Tornado (Design Bases)		
1.6.1	Maximum Pressure Drop	(a)	2.0 psi
1.6.2	Maximum Rotational Speed	(a)	240 mph
1.6.3	Maximum Translational Speed	(a)	60 mph
1.6.4	Maximum Wind Speed	(a)	300 mph
1.6.6	Radius of Maximum Rotational Speed	(a)	150 ft
1.6.7	Rate of Pressure Drop	(a)	1.2 psi/sec
1.7	Wind		
1.7.1	Basic Wind Speed or 3-second gust	(a) (a)	75 mph 96 mph
1.7.2	Importance Factors	1.11 (Safety Related)	Not Applicable

PPE	Section	PPE Value	Site Characteristic Value
2.	Normal Plant Heat Sink		
2.1	Ambient Air Temperatures		
2.1.1	Normal Shutdown Ambient Temperature (1% exceedance)	(a)	91°F
2.1.2	Normal Shutdown Max Wet Bulb Temperature (1% exceedance)	(a)	78°F
2.1.3	Normal Shutdown Min Ambient Temperature (1% exceedance)	(a)	0°F
2.1.4	Rx Thermal Power Max Ambient Temperature (0% exceedance)	(a)	117°F
2.1.5	Rx Thermal Power Max Wet Bulb Temperature (0% exceedance)	(a)	86°F
2.1.6	Rx Thermal Power Min Ambient Temperature (0% exceedance)	(a)	-36°F
2.3	Condenser		
2.3.2	Condenser/Heat Exchanger Duty	15.08 E+09 Btu/hr	Not Applicable
2.4	Mechanical Draft Cooling Towers		
2.4.1	Acreage	50 ac	Not Applicable
2.4.3	Blowdown Constituents and Concentrations	See Table D-2	Not Applicable
2.4.4	Blowdown Flow Rate	12,000 gpm (49,000 gpm max.)	Not Applicable
2.4.5	Blowdown Temperature	100°F	Not Applicable
2.4.7	Evaporation Rate	31,500 gpm (b)	Not Applicable
2.4.8	Height	60 ft	Not Applicable
2.4.9	Makeup Flow Rate	42,000 gpm	Not Applicable
2.4.10	Noise	55 dBa @ 1000 ft	Not Applicable
2.4.12	Cooling Water Flow Rate	1,200,000 gpm	Not Applicable
2.4.13	Heat Rejection Rate (Blowdown)	12,000 gpm (49,000 gpm max.) @ 100°F	Not Applicable
2.4.14	Maximum Consumption of Raw Water	60,000 gpm	Not Applicable
2.5	Natural Draft Cooling Towers		
2.5.1	Acreage	34.5 ac total (with 3 x 2.75 ac per reactor basin, 8.25 ac total for basins)	Not Applicable
2.5.3	Blowdown Constituents and Concentrations	See Table D-2	Not Applicable
2.5.4	Blowdown Flow Rate	12,000 gpm (49,000 gpm max.)	Not Applicable
2.5.5	Blowdown Temperature	100°F	Not Applicable
2.5.7	Evaporation Rate	31,500 gpm (b)	Not Applicable
2.5.8	Height	550 ft	Not Applicable
2.5.9	Makeup Flow Rate	42,000 gpm	Not Applicable
2.5.10	Noise	55 dBa @ 1000 ft	Not Applicable

PPE	Section	PPE Value	Site Characteristic Value
2.5.12	Cooling Water Flow Rate	1200,000 gpm	Not Applicable
2.5.13	Heat Rejection Rate (Blowdown)	12,000 gpm normal (49,000 gpm max.) @ 100°F	Not Applicable
2.5.14	Maximum Consumption of Raw Water	60,000 gpm	Not Applicable
3.	Ultimate Heat Sink		
3.1	Ambient Air Requirements		
3.1.1	Maximum Ambient Temperature (0% exceedance)	(a)	117°F
3.1.2	Maximum Web Bulb Temperature (0% exceedance)	(a)	86°F
3.1.3	Minimum Ambient Temperature (0% exceedence)	(a)	-36°F
3.1.4	Maximum 30-day Average Web Bulb Temperature	(a)	74.7°F
3.1.5	Coincident 30-day Average Dry Bulb Temperature	(a)	82°F
3.1.6	Maximum 1-day Average Web Bulb Temperature	(a)	81°F
3.1.7	Coincident 1-day Average Dry Bulb Temperature	(a)	87.6°F
3.1.8	Maximum 5-day Average Wet Bulb Temperature	(a)	79.7°F
3.1.9	Coincident 5-day Average Dry Bulb Temperature	(a)	86.2°F
3.1.10	Maximum Cumulative Degree-Days Below Freezing	(a)	1141.5 degree-days
3.1.11	Maximum Ambient Temperature (1% exceedance)	(a)	91°F
3.1.12	Maximum Wet Bulb Temperature (1% exceedance)	(a)	78°F
3.1.13	Minimum Ambient Temperature (1% exceedance)	(a)	0°F
3.2	CCW Heat Exchanger		
3.2.1	Maximum Inlet Temp. to CCW Heat Exchanger	95°F	Not Applicable
3.2.2	CCW Heat Exchanger Duty	225 E+06 Btu/hr 411.4E+06 Btu/hr (Shutdown)	Not Applicable
3.3	Mechanical Draft Cooling Towers		
3.3.1	Acreage	0.5 ac	Not Applicable
3.3.3	Blowdown Constituents and Concentrations	See Table D-2	Not Applicable
3.3.4	Blowdown Flow Rate	144 gpm expected (700 gpm max.)	Not Applicable
3.3.5	Blowdown Temperature	95°F	Not Applicable
3.3.7	Evaporation Rate	411 gpm (700 gpm max.)	Not Applicable
3.3.8	Height	60 ft	Not Applicable

PPE	Section	PPE Value	Site Characteristic Value
3.3.9	Makeup Flow Rate	555 gpm (1400 gpm max)	Not Applicable
3.3.10	Noise	55 dBa @ 1000 ft	Not Applicable
3.3.12	Cooling Water Flow Rate	26,125 gpm normal (52,250 gpm shutdown)	Not Applicable
3.3.13	Heat Rejection Rate (blowdown)	144 gpm expected (700 max. gpm) @ 95°F	Not Applicable
4.	Containment Heat Removal System (Post-Accident)		
4.1	Ambient Air Requirements		
4.1.1	Maximum Ambient Air Temperature (0% exceedance)	(a)	117°F
4.1.2	Minimum Ambient Air Temperature (0% exceedance)	(a)	-36°F
5.	Potable Water/Sanitary Waste System		
5.1	Discharge to Site Water Bodies		
5.1.1	Flow Rate	60 gpm expected (198 max gpm)	Not Applicable
5.2	Raw Water Requirements		
5.2.1	Maximum Use	198 gpm	Not Applicable
5.2.2	Monthly Average Use	90 gpm	Not Applicable
6.	Demineralized Water System		
6.1	Discharge to Site Water Bodies		
6.1.1	Flow Rate	110 gpm expected	Not Applicable
6.2	Raw Water Requirements		
6.2.1	Maximum Use	720 gpm	Not Applicable
6.2.2	Monthly Average Use	550 gpm	Not Applicable
7.	Fire Protection System		
7.1	Raw Water Requirements		
7.1.1	Maximum Use	2500 gpm	Not Applicable
7.1.2	Monthly Average Use	10 gpm	Not Applicable
8.	Miscellaneous Drain		
8.1	Discharge to Site Water Bodies		
8.1.1	Flow Rate	75 gpm total (150 gpm max)	Not Applicable

PPE	Section	PPE Value	Site Characteristic Value
9.	Unit Vent/Airborne Effluent Release Point		
9.1	Atmospheric Dispersion (χ/Q) (Accident)		
9.1.1	0-2 hr @ EAB (sec/m^3)	(a)(c)	2.52E-04 (5%) 3.56E-05 (50%)
9.1.2	0-8 hr @ LPZ (sec/m^3)	(a)(c)	3.00E-05 (5%) 3.40E-06 (50%)
9.1.3	8-24 hr @ LPZ (sec/m^3)	(a)(c)	2.02E-05 (5%) 2.85E-06 (50%)
9.1.4	1-4 day @ LPZ (sec/m^3)	(a)(c)	8.53E-06 (5%) 1.85E-06 (50%)
9.1.5	4-30 day @ LPZ (sec/m^3)	(a)(c)	2.48E-06 (5%) 1.00E-06 (50%)
9.2	Atmospheric Dispersion (χ/Q)(Annual Average)	(a)	2.04E-06 sec/m^3 @ EAB[(d)]
9.3	Dose Consequences	(a)	
9.3.1	Normal	(a)	10 CFR 20, 10 CFR 50 Appendix I, and 40 CFR 190 dose limits. Refer to SSAR 3.1.1 and 3.1.1.2 and ER 5.4
9.3.2	Post-Accident	(a)	10 CFR 50.34(a)(1) and 10 CFR 100 dose limits. Refer to SSAR 3.3 and ER 7.1
9.4	Release Point	(a)	
9.4.2	Elevation (Normal)	(a)	Ground Level
9.4.3	Elevation (Post-Accident)	(a)	Ground Level
9.4.4	Minimum Distance to Site Boundary	(a)(c)	1025 m (3362 ft)
9.4.7	Minimum Distance to LPZ	(a)	4018 m (2.5 mi)
9.5	Source Term		
9.5.1	Gaseous (Normal)	See Table D-3 for isotopic breakdown.	Not Applicable
9.5.2	Gaseous (Post-Accident)	Based on limiting DBAs[(f)]. (Refer to SSAR 3.3)	Not Applicable
9.5.3	Tritium (Normal)	See Table D-3	Not Applicable
10.	Liquid Radwaste System		
10.1	Dose Consequences		
10.1.1	Normal	(a)	10 CFR 20, 10 CFR 50 Appendix I, 40 CFR 190 dose limits. Refer to SSAR 3.1.2 and 3.1.2.2 and ER 5.4

PPE	Section	PPE Value	Site Characteristic Value
10.2	Release Point		
10.2.1	Flow Rate	Average daily discharge for 292 days per year with dilution flow of 2400 gpm	Not Applicable
10.3	Source Term		
10.3.1	Liquid	See Table D-4 for isotopic listing.	Not Applicable
10.3.2	Tritium	See Table D-4	Not Applicable
11.	Solid Radwaste System		
11.2	Solid Radwaste		
11.2.1	Activity	See Table D-5	Not Applicable
11.2.2	Principal Radionuclides	See Table D-5	Not Applicable
11.2.3	Volume	15,087 ft^3/yr avg.	Not Applicable
13.	Auxiliary Boiler System		
13.1	Exhaust Elevation	110 ft above grade	Not Applicable
13.2	Flue Gas Effluents	See Table D-6	Not Applicable
14.	Heating, Ventilating, and Air Conditioning System		
14.1	Ambient Air Requirements		
14.1.1	Non-safety HVAC Max Ambient Temperature (1% exceedance)	(a)	91°F
14.1.2	Non-safety HVAC Min Ambient Temperature (1% exceedance)	(a)	0°F
14.1.3	Safety HVAC Max Ambient Temperature (0% exceedance)	(a)	117°F
14.1.4	Safety HVAC Min Ambient (0% exceedance)	(a)	-36°F
15.	Onsite/Offsite Electrical Power System		
15.1	Acreage		
15.1.1	Switchyard	15 ac	Not Applicable
16.	Standby Power System		
16.1	Diesel		
16.1.2	Diesel Exhaust Elevation	30 ft above grade	Not Applicable
16.1.3	Diesel Flue Gas Effluents	See Table D-7	Not Applicable
16.2	Gas-Turbine		
16.2.2	Gas-Turbine Exhaust Elevation	60 ft	Not Applicable
16.2.3	Gas-Turbine Flue Gas Effluents	See Table D-8	Not Applicable
16.2.5	Gas-Turbine Fuel Type	Distillate	Not Applicable

PPE	Section	PPE Value	Site Characteristic Value
17.	Plant Characteristics		
17.3	Megawatts Thermal	6800 MW(t)	Not Applicable
17.4	Plant Design Life	60 years	Not Applicable
17.5	Plant Population		
17.5.1	Operation	580 people	Not Applicable
17.5.2	Refueling/Major Maintenance	1000 people	Not Applicable
18.	Construction		
18.2	Acreage		
18.2.1	Laydown Area	29 ac	Not Applicable
18.2.2	Temporary Construction Facilities	52 ac	Not Applicable
18.3	Construction		
18.3.1	Noise	76-101 dBa at 50 ft	Not Applicable
18.4	Plant Population		
18.4.1	Construction	3150 people (max.)	Not Applicable
18.5	Site Preparation Duration	18 months	Not Applicable

(a) Surrogate PPE value not used since actual site characteristic value is available.
(b) 5 percent margin added to vendor supplied PPE quantity to establish value.
(c) Re-evaluated site accident 5% χ/Qs using 36 months of data for the period 1-1-2000 to 12-31-2002 and a minimum distance of 805 m. Also shown are the 50% Chi/Qs used in the ER accident assessments.
(d) LPZ = low population zone
(e) EAB = exclusion area boundary
(f) DBA = design basis accident

Table D-2
Blowdown Constituents and Concentrations EGC ESP Facility

Constituent	Concentration (ppm)[a]		
	River Source	Well/Treated Water	Envelope
Chlorine demand	10.1		10.1
Free available chlorine	0.5		0.5
Chromium			NA
Copper		6	6
Iron	0.9	3.5	3.5
Zinc		0.6	0.6
Phosphate		7.2	7.2
Sulfate	599	3,500	3,500
Oil and Grease			NA
Total dissolved solids		17,000	17,000
Total suspended solids	49.5	150	150

[a] Assumed cycles of concentration equals 4.

Table D-3
Composite Average Annual Normal Gaseous Release ECG ESP Facility

Isotope	Release - Ci/yr	Isotope	Release - Ci/yr
Kr-83m	8.38E-04	Sr-89	6.00E-03
Kr-85m	7.20E+01	Sr-90	2.40E-03
Kr-85	8.20E+03	Y-90	4.59E-05
Kr-87	3.00E+01	Sr-91	1.00E-03
Kr-88	9.20E+01	Sr-92	7.84E-04
Kr-89	2.41E+02	Y-91	2.41E-04
Kr-90	3.24E-04	Y-92	6.22E-04
Xe-131m	3.60E+03	Y-93	1.11E-03
Xe-133m	1.74E+02	Zr-95	2.00E-03
Xe-133	9.20E+03	Nb-95	8.38E-03
Xe-135m	4.05E+02	Mo-99	5.95E-02
Xe-135	6.60E+02	Tc-99m	2.97E-04
Xe-137	5.14E+02	Ru-103	3.51E-03
Xe-138	4.32E+02	Rh-103m	1.11E-04
Xe-139	4.05E-04	Ru-106	1.56E-04
I-131	2.59E-01	Rh-106	1.89E-05
I-132	2.19E+00	Ag-110m	2.00E-06
I-133	1.70E+00	Sb-124	1.81E-04
I-134	3.78E+00	Sb-125	1.22E-04
I-135	2.41E+00	Te-129m	2.19E-04
C-14	1.46E+01	Te-131m	7.57E-05
Na-24	4.05E-03	Te-132	1.89E-05
P-32	9.19E-04	Cs-134	6.22E-03
Ar-41	4.00E+02	Cs-136	5.95E-04
Cr-51	3.51E-02	Cs-137	9.46E-03
Mn-54	5.41E-03	Cs-138	1.70E-04
Mn-56	3.51E-03	Ba-140	2.70E-02
Fe-55	6.49E-03	La-140	1.81E-03
Co-57	1.64E-05	Ce-141	9.19E-03
Co-58	4.60E-02	Ce-144	1.89E-05
Co-60	1.74E-02	Pr-144	1.89E-05
Fe-59	8.11E-04	W-187	1.89E-04
Ni-63	6.49E-06	Np-239	1.19E-02
Cu-64	1.00E-02	Total (w/o H-3)	24,045
Zn-65	1.11E-02	H-3	3,530
Rb-89	4.32E-05	Total	27,575

Table D-4
Composite Average Annual Normal Liquid Release EGC ESP Facility

Isotope	Release - Ci/yr	Isotope	Release - Ci/yr
C-14	4.40E-04	Rh-103m	9.86E-03
Na-24	3.26E-03	Ru-106	1.47E-01
P-32	1.80E-04	Rh-106	1.47E-01
Cr-51	7.70E-03	Ag-110m	2.10E-03
Mn-54	2.60E-03	Ag-110	2.80E-04
Mn-56	3.81E-03	Sb-122	4.12E-04
Fe-55	5.81E-03	Sb-124	1.78E-03
Fe-59	4.00E-04	Sb-125	2.00E-04
Ni-63	1.40E-04	Te-129m	2.40E-04
Cu-64	7.51E-03	Te-129	3.00E-04
Co-56	5.19E-03	Te-131m	1.80E-04
Co-57	7.19E-05	Te-131	6.00E-05
Co-58	6.72E-03	I-131	2.83E-02
Co-60	9.11E-03	Te-132	4.80E-04
Zn-65	8.20E-04	I-132	3.28E-03
W-187	2.60E-04	I-133	1.34E-02
Np-239	3.11E-03	I-134	1.70E-03
Br-84	4.00E-05	Cs-134	1.99E-02
Rb-88	5.40E-04	I-135	9.94E-03
Rb-89	4.41E-05	Cs-136	1.26E-03
Sr-89	2.00E-04	Cs-137	2.66E-02
Sr-90	3.51E-05	Cs-138	1.90E-04
Sr-91	9.00E-04	Ba-137m	2.49E-02
Y-90	3.11E-06	Ba-140	1.10E-02
Y-91	1.10E-04	La-140	1.49E-02
Sr-92	8.00E-04	Ce-141	1.80E-04
Y-91m	2.00E-05	Ce-143	3.80E-04
Y-92	6.00E-04	Pr-143	2.60E-04
Y-93	9.00E-04	Ce-144	6.32E-03
Zr-95	1.04E-03	Pr-144	6.32E-03
Nb-95	1.91E-03		
Mo-99	1.14E-03	Total (w/o H-3)	5.53E-01
Tc-99m	1.10E-03	H-3	3,100
Ru-103	9.86E-03	Total	3,100.553

Table D-5
Composite Principal Radionuclides in Solid Radwaste EGC ESP Facility

Radionuclide	**Quantity Ci/yr**
Fe-55	1,761.37
Fe-59	2.70
Co-60	395.92
Mn-54	347.22
Cr-51	97.14
Co-58	187.20
Zn-65	51.40
Nb-95	162
Ag-110m	2.18
Zr-95	76.45
Ba-137m	1014
Ba-140	1.06
La-140	1.21
Cs-134	628
Cs-136	0.06
Cs-137	1014
Sr-89	1.77
Sr-90	2.48
Y-90	2.48
I-131	81.91
I-133	4.55
Na-24	0.44
Rh-106	0.12
Ru-103	2.18
Ru-106	1.37
Sb-124	11.29
Ce-141	0.14
Ce-144	0.11
Gd-153	3.09
Other	72.86
Total (rounded to nearest hundred)	5,900

Table D-6
Emissions from Auxiliary Boilers EGC ESP Facility

Pollutant Discharged	**Quantity (lbs/yr)**
Particulates	34,500
Sulfur oxides	115,000
Carbon monoxide	1,749
Hydrocarbons	100,200
Nitrogen oxides	19,022

Note: Emissions are based on 30 days per year of operation

Table D-7
Emissions from Standby Diesel Generators EGC ESP Facility

Pollutant Discharged	Quantity (lbs/yr)
Particulates	1,620
Sulfur oxides	5,010
Carbon monoxide	4,600
Hydrocarbons	3,070
Nitrogen oxides	28,968

Note: Emissions are based on 4 hr/month operation for each of the generators

Table D-8
Standby Power System Gas Turbine Flue Gas Effluents EGC ESP Facility

Fuel: Distillate 20°F Ambient 9,890 Btu/kWH (LHV)
10,480 Btu/kWH (HHV)
96,960 lb/hr Fuel Consumption Rate

Effluent	PPMVD	Quantity (lbs/yr)
NO_x (PPMVD @ 15% 0_2)	95	-
NO_x as NO_2	-	725
CO	25	85
UHC	10	20
VOC	5	10
SO_2	55	470
SO_3	5	30
Sulfur Mist	-	50
Particulates	-	22
Exhaust Analysis	**% Vol**	
Argon	0.86	
Nitrogen	72.56	
Oxygen	11.2	
Carbon Dioxide	5.19	
Water	9.87	

Note: Emissions are based on 4 hr/month operation for each of the generators

Appendix E: Site Redress Plan

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Tables

Figures

1.0 Description of Site Preparation Activities

The purpose of this chapter is to present information about site preparation activities that may be performed prior to construction of the Exelon Generation Company (EGC), Limited Liability Company (LLC) Early Site Permit (ESP) Facility in accordance with the requirements stipulated in Title 10 Code of Federal Regulations (CFR) 50. This chapter further provides information about the selected site. Contained in this chapter is the following information:

- Site Description and History (Section 1.1)
- Site Ownership (Section 1.2)
- Physical Activities (Section 1.3).

1.1 Site Description and History

The following sections provide a brief description and history of the selected site that must be redressed in the event that the ESP expires or the site is abandoned after site preparation work is done. The following sections specifically address the selected site location, community participation and relations, zoning, plant description; and present (2003) site conditions.

1.1.1 Selected Site Location

The EGC is the Applicant for this ESP and will hereafter be referred to as the EGC or Applicant. The site chosen by the Applicant for an ESP, as allowed under 10 CFR Part 52, Subpart A, is co-located at the existing nuclear power plant, the Clinton Power Station (CPS) Site. The chosen site will be hereinafter generally referred to as the EGC ESP Site. The CPS Site is owned by AmerGen Energy Company (AmerGen), LLC and located in Harp Township, DeWitt County, approximately 6 miles (mi) east of the City of Clinton in Illinois. The EGC ESP Facility will be located south of the existing CPS. The EGC ESP Facility is located between the cities of Bloomington and Decatur to the north and south, respectively, and Lincoln and Champaign-Urbana to the west and east, respectively.

1.1.2 Community Participation and Relations

Representatives from EGC contacted members of the surrounding community during the period of August 21 through September 1, 2002, to gather input from residents who may be affected by the construction, operation, and redress of the EGC ESP Facility. The representatives conducted interviews with approximately 40 community members to generalize the opinion of the community toward the possible building of an additional nuclear facility at the site. A Clinton Community Advisory Panel had been established for the purpose of community relations and communicates with the residents as needed. The general consensus was that the community was optimistic about the construction of the EGC ESP Facility. The surrounding community generally felt that the CPS was being operated safely and efficiently, and believed the EGC ESP Facility would operate just as safely and efficiently. The community also agreed that the EGC ESP Facility would greatly help the economy.

1.1.3 Zoning

As stated in Chapter 2 of the Environmental Report (ER) for the EGC ESP, the site of the EGC ESP Facility and the CPS is zoned as industrial.

1.1.4 Plant Description

The EGC ESP Facility will be essentially independent of the CPS. With the exception of using the CPS Ultimate Heat Sink (UHS) as an emergency source of makeup water, no CPS safety-related systems or equipment will be shared or cross-connected. Clinton Lake will be used as the normal source of makeup for the cooling water system. In addition, the existing CPS discharge flume will be modified, as necessary, to accommodate the additional outfall from the EGC ESP Facility.

The EGC ESP Facility will be a large industrial facility similar in general appearance to the existing CPS. A cooling tower or towers may be used for normal cooling depending on the selected cooling design.

The existing switchyard will be expanded to accommodate the output of the new facility and to provide the necessary off-site power. The switchyard area intended for the cancelled second reactor at the CPS will be utilized for this purpose and the existing transmission right-of-way will be used.

Raw water for cooling water makeup and other plant services will be provided from a new intake structure to be located on Clinton Lake adjacent to the existing CPS intake structure. Plant discharges will use the existing CPS discharge flume as a discharge path to Clinton Lake.

The locations for the new structures are depicted in Figure 2.1-4 and Figure 2.1-5 of the ER for the EGC ESP. Redress activities are discussed further in the following sections.

1.1.5 Present (2003) Site Condition

Initially, two identical units were planned at the CPS. However, construction on the second unit was canceled in 1983. A complete description of the present site conditions can be found in Chapter 2 of the ER for the EGC ESP and will not be repeated in this plan.

When the agreement between AmerGen and the Applicant is executed and AmerGen's rights to the EGC ESP Facility site are relinquished, the Applicant will photographically document and survey the site and pre-existing conditions prior to performing any preconstruction activities (see Section 1.2). The photographic record will be used as a baseline for returning the site to its pre-existing condition post-redress. In addition, the Applicant will perform an inventory of existing buildings and structures within the EGC ESP Site. The redress of disturbed areas that exist as part of the present site condition (i.e., prior to the onset of preconstruction activities) is not within the scope of this redress plan.

1.2 Site Ownership

Currently, AmerGen owns the selected site chosen for the location of the EGC ESP Facility. AmerGen owns and operates the CPS, and manages areas contiguous to the CPS.

Prior to the on-set of preconstruction activities, AmerGen will grant sufficient rights to the Applicant for the property that is the subject of the Application for the EGC ESP for the purposes of advancing the authorization granted by the issuance of an ESP or a limited work authorization.

1.3 Physical Activities

After the granting of the EGC ESP and at the Applicant's discretion, the Applicant may choose to perform none, some, or all of the activities listed below. Prerequisites to preconstruction activities that must be fulfilled prior to performing preconstruction activities include, but are not limited to the following:

- Documentation of existing site conditions within the EGC ESP Site;

- Coordination of the movement of the existing CPS protected area boundary, as required. These activities will be coordinated with the CPS to accomplish the movement of structures reflected in the CPS licensing basis in a manner consistent with its operating license and the applicable regulations governing that license;

- Movement, demolition, or ownership transfer of existing CPS buildings and structures within the EGC ESP Site. These activities will be coordinated with the CPS to accomplish the movement, demolition, or ownership transfer of structures reflected in the CPS licensing basis in a manner consistent with its operating license and the applicable regulations governing that license; and

- Obtaining the necessary permits to perform preconstruction activities, such as local building permits, Illinois Environmental Protection Agency (IEPA) National Pollutant Discharge Elimination System (NPDES) permit, IEPA Clean Water Act (CWA), IEPA General Stormwater Permit, etc.

Once the above list of prerequisites has been achieved, planned preconstruction activities may proceed and may include none, some, or all of the activities specified below:

- Preparation of the site for construction of the facility (including such activities as clearing, grading, construction of temporary access roads and borrow areas) as allowed by 10 CFR 50.10(e)(1)(i);

- Installation of temporary construction support facilities (including items such as warehouse and shop facilities, utilities, concrete mixing plants, docking and unloading facilities, and construction support buildings) as allowed by 10 CFR 50.10(e)(1)(ii);

- Excavation for facility structures as allowed by 10 CFR 50.10(e)(1)(iii);

- Construction of service facilities (including facilities such as roadways, paving, railroad spurs, fencing, exterior utility and lighting systems, transmission lines, and sanitary sewerage treatment facilities as allowed by 10 CFR 50.10(e)(1)(iv);

- Drilling sample/monitoring wells or additional geophysical borings as allowed by 10 CFR 50.10(e)(1)(v);

- Construction of plant cooling tower structures that are not safety-related as allowed by 10 CFR 50.10(e)(1)(v);

- Construction of plant intake structures that are not safety-related as allowed by 10 CFR 50.10(e)(1)(v);

- Installation of non-safety-related fire detection and protection equipment as allowed by 10 CFR 50.10(e)(1)(v);

- Expansion of the existing CPS switchyard to accommodate the construction of the proposed EGC ESP Facility;

- Expansion of the CPS transmission system;

- Modification of the existing CPS discharge flume, as necessary, to accommodate the EGC ESP Facility outflow; and

- Construction of any other additional structures, systems, and components, which do not prevent or mitigate the consequences of postulated accidents that could cause undue risk to the health and safety of the public.

1.4 References

10 CFR 50 Code of Federal Regulations. "Domestic Licensing of Production and Utilization Facilities."

10 CFR 52. Code of Federal Regulations. "Early Site Permits; Standard Design Certification; and Combined Licenses for Nuclear Power Plants."

2.0 Site Redress Plan

Presented in this section is information that describes the applicable elements of the site redress plan, such as general information about the site redress plan, specific regulatory requirements that must be followed in the planning and implementation of redress activities, description of the site redress plan, any impacts to or associated with existing redress and decommissioning plans, and the financial responsibility of the Applicant regarding redress associated with any site preparation activities that have been performed in the event the ESP expires or the EGC ESP site is abandoned. This information is addressed in the following sections:

- General (Section 2.1)
- Site Redress Criteria (Section 2.2)
- Description of Redress Plan (Section 2.3)
- Impacts on Existing Redress and Decommissioning Plans (Section 2.4)
- Financial Responsibility (Section 2.5).

2.1 General

A redress plan is required if the Applicant intends to perform any of the activities allowed by 10 CFR 50.10(e)(1) without first obtaining the separate authorization required by that section. Specifically, the Applicant must determine the scope and extent of any site investigation or preparation activities to be conducted prior to applying for a construction permit. In addition, the Applicant must address such measures that may be necessary to restore the site to a condition suitable for other appropriate use in the event the project does not proceed to construction or the site is abandoned.

Site redress activities described in the Application for the EGC ESP are specific to the effect of planned preconstruction activities. For example, redress for limited site investigation activities will be much smaller in scope than redress associated with large-scale clearing, grading, or facility construction activities. Redress activities also reflect specific land use and zoning requirements of local municipal, county, and state jurisdictions, in addition to more broadly applicable federal requirements and industry standards.

Lastly, redress activities take into account both pre-existing site conditions and a range of potential future use scenarios including:

- Future site ownership and use;
- Habitat replacement, as applicable (e.g., wetlands, threatened and endangered species);
- Recontouring, revegetation, and replanting cleared areas;
- Potential liabilities associated with any facility or structure, which are to remain following the completion of redress activities; and
- Potential contamination left on site, either predating, or as a result of the Applicant's actions.

The overall objective of this plan is to reconfigure and redress the site as efficiently and effectively as possible to provide an environmentally stable, self-draining, self-maintaining, and aesthetically acceptable site that can be left unattended post-redress.

In planning for site redress, two general categories of conceptual options will be considered:

- Topographic approaches, which accomplish the overall objective and preserve the potential of the site for future industrial or other designated uses.
- Completion or addition of site development features that enhance the value of the site for future industrial or other designated uses.

If the EGC ESP expires or the Applicant abandons the reactor development and preconstruction activities have been performed, the Applicant will redress the site to preexisting conditions (as depicted in the baseline photographic record) or to the specifications of the future owners in accordance with applicable regulations.

Redress activities will begin (in concert with the state or local land use authority and industrial development authorities) either at the time that the EGC ESP expires or when reactor construction plans are formally abandoned. This will include actions necessary to terminate or transfer state and local permits and identify site features or improvements that will remain, and those that must be removed. A detailed redress scope and schedule will be implemented, consistent with this plan once the permit expires or reactor construction plans are abandoned. The schedule will include one year of preparation to secure additional input from regulators and local municipalities. Redress activities are expected to commence at the end of that year and will require two to five years to complete. The redress activities will comply with the applicable environmental requirements (local, state, federal). If, prior to commencement, industrial or other acceptable uses for the site are identified and committed to that are consistent with the

development plan for the site, then redress of preconstruction activities would comply with these envisioned plans. At the Applicant's discretion, they may involve the local community in redress planning activities prior to performing any redress of the site.

2.2 Site Redress Criteria

Regulatory requirements for redress are contained in 10 CFR 50 and 10 CFR 52. Once site ownership is assured and the EGC ESP is granted, the Applicant plans to perform none, some, or all, of the activities listed in Section 1.3. The Applicant bases this redress plan on the requirements of 10 CFR 52.17(c). Redress carried out under this plan will achieve an environmentally stable and aesthetically acceptable site suitable for whatever non-nuclear use that conforms to state and local zoning laws. If the activities permitted by 10 CFR 50 are performed at the selected site, after an ESP has been granted, and this site is not referenced in an application for a construction permit under 10 CFR 50 or a combined operating license (COL) under 10 CFR 52, Subpart C while the permit remains valid, then the EGC ESP will remain in effect beyond its expiration date solely for the purposes of redressing the site. The Applicant agrees to redress the selected site in accordance with the terms of this Site Redress Plan for the EGC ESP as required by 10 CFR 52.17(c). If, before redress is complete, a use not envisioned in the redress plan is found for the site or parts thereof, the Applicant plans to follow the redress plan to the greatest extent practical consistent with the identified alternate use.

Prior to the commencement of site redress activities, environmental control of local water quality, air quality, stormwater runoff, solid waste, and the protection of critical ecological elements, if any, will be maintained in compliance with the approved IEPA NPDES Permit and IEPA CWA, local air quality standards, and local and site solid waste disposal criteria.

2.3 Description of Redress Plan

Presented in the following sections is information regarding planned physical activities that are allowed and may be performed prior to construction of the actual facility; controls that will be implemented during redress activities to limit impacts on- and off-site if site preparations activities are performed; restoration of the site to its baseline state following redress activities; and any potential liabilities. This information is discussed in detail in the following sub-sections:

- Physical Activities (Section 2.3.1)
- Controls to Mitigate Impacts During Redress Activities (Section 2.3.2)
- Future Site Ownership and Use (Section 2.3.3)
- Use of Applicant-Constructed Facilities for Future Use (Section 2.3.4)
- Habitat Replacement (Section 2.3.5)
- Restoration of Sensitive Water Resource Features (Section 2.3.6)
- Recontouring, Revegetation, and Replacement of Cleared Areas (Section 2.3.7)
- Potential Liabilities (Section 2.3.8)
- Potential Contamination (Section 2.3.9).

2.3.1 Physical Activities

As stated in Section 1.3, preconstruction activities are planned after the the EGC ESP is granted. The following section describes redress activities and controls to mitigate environmental impacts from those activities.

2.3.1.1 Redress of Test Wells or Borings

After application approval and the EGC ESP is granted, there may be a need to drill additional test and monitoring wells or boreholes that will have to be redressed. The Illinois Department of Public Health (IDPH) regulates water or monitoring well abandonment along with the IEPA Bureau of Land Programs. Any sampling wells, monitoring wells, or boreholes left in place prior to redress will be abandoned in accordance with these applicable state requirements.

2.3.1.2 Preparation of the Site for Construction of the EGC ESP Facility

Prior to initiating construction activities, the following activities will be performed in order to prepare for site construction activities:

- The necessary permits will be obtained to perform preconstruction activities, such as local building permits, IEPA NPDES, IEPA CWA, IEPA General Stormwater Permit, etc.
- The movement, demolition, or ownership transfer of existing buildings and structures within the proposed EGC ESP Site will occur.
- All or some of the selected site will be cleared of vegetation.
- Existing holes, if any, will be filled and the site graded to remove unwanted topographic features.
- The existing CPS protected area fence may be moved or expanded to accommodate preconstruction activities.
- If required, the selected site will be enclosed in a perimeter fence for liability and security reasons.
- Outside lighting will be installed to support the proposed preconstruction activities.
- Trenching will be performed to lay in underground utilities in order to service temporary support facilities and structures.
- Temporary borrow areas will be identified and access roads constructed to accommodate lay down areas and preconstruction activities.
- Warehouse and shop facilities, concrete mixing plants, docking and unloading facilities, and construction support buildings will be constructed.
- Railroad spurs will be extended or constructed to support the on- and off-site transportation of materials and equipment.
- The area along Clinton Lake where the proposed new intake structure will be constructed will be prepared for construction.
- The existing CPS discharge flume will be modified to accommodate the EGC ESP Plant outflow.

- Agreements will be made with the Regional Transmission Operator (RTO). In addition, if required, transmission lines will be upgraded in the event that the power demands and power production exceed the present (2003) line capabilities.

- Areas will also be identified for the EGC ESP Facility support structures and excavated prior to the construction of these facilities.

- Currently existing (2003) structures within the selected EGC ESP Site will be selectively evaluated and either retained, moved, or demolished.

- If required, new test or monitoring wells will be installed.

- Fire protection and detection systems will be installed to protect new structures.

- Existing roads may be relocated to accommodate the EGC ESP Facility structures or activities.

There are several borrow areas and access roads that were previously constructed in order to support the construction of the second proposed, but never completed, reactor unit at the CPS. These will be utilized to the fullest extent practical consistent with the plan for construction of the EGC ESP Facility.

2.3.1.2.1 Redress

In the event that the above activities are performed and the site permit expires before it is referenced in an application for a construction permit under 10 CFR 50 or a COL under 10 CFR 52, Subpart C, then the site will be redressed to achieve an environmentally stable and aesthetically acceptable site suitable so that non-nuclear use conforms with local zoning laws. Specifically, if it is not practical or warranted to sell or transfer the improvements to new owners, the structures, utilities, fences, paved roadways, etc., will be removed. In addition, the site will be regraded, revegetated, and restored to its pre-existing condition as documented by the baseline photographic record. Listed below are the items that will require redress:

- Test or monitoring wells, if any, will be redressed in accordance with IEPA requirements.

- Fire protection and detection systems will be removed, if necessary.

- If allowed, the perimeter fencing will be left in place for liability and security reasons.

- Facilities and structures will be demolished, unless deemed useful for future or existing industrial development; the demolition debris will be properly disposed at the site or area landfills.

- Useable equipment will be removed from the site and dispositioned accordingly.

- If necessary, underground utilities will be removed and terminated at the source.

- If necessary, overhead lighting and perimeter fencing will be removed from the site.

- If cooling towers have been constructed, they will be removed, if necessary, and

dispositioned at the site or local area landfills.

- The new intake structure will be removed, if necessary, and the debris dispositioned accordingly at the site or area landfills. The shoreline will then be restored to its preexisting condition.

- The CPS discharge flume will be redressed such that the flume no longer accommodates the EGC ESP Plant outflow.

- If necessary, transmission poles and lines will be removed and the lines will be terminated at the CPS switchyard.

- Asphalt roadways will be removed, if necessary, and dispositioned at area landfills or in accordance with local requirements.

- Gravel roadbeds will be recontoured to match the existing terrain and, if in excess, will be used as fill material during the recontouring phase.

- Borrow pits will be filled and graded for contour.

- Railroad spur extensions will be removed and dispositioned accordingly.

- Existing excavations, if any, will be filled and the site graded to remove unwanted topographic features. Additional fill material will be acquired as necessary to regrade and recontour the area appropriately.

- The site will be regraded, contoured, and re-seeded or surfaced with aggregate for erosion control and good self-drainage to existing sediment ponds or to Clinton Lake.

2.3.2 Controls to Mitigate Impacts During Redress Activities

Methods that will be utilized for environmental control and regulatory compliance during redress include noise control, traffic control, erosion and sediment controls, air quality control, control of potential pollutant sources (effluents, wastes, spills, and material handling), stock pile management, and spill prevention, control, and response.

2.3.2.1 Noise Control

During redress activities, ambient noise levels on and off site will increase. Noise levels will be controlled by an engineering design and compliance with the following criteria:

- Occupational Safety and Health Administration (OSHA) noise exposure limit to workers, and workers' annoyance determined through consideration of acceptable noise levels for offices, control rooms, etc. (29 CFR 1910);

- Federal noise pollution control regulations; and

- State or local noise pollution control regulations, as applicable.

The many pieces of large industrial equipment needed for demolition, clearing, excavating, grading, trash disposal, and land filling operations will be the source of noise pollution in the area. Standard noise dampening devices on trucks and other equipment are expected to be sufficient to keep off-site noise levels well below acceptable levels. In addition, major redress activities will be constrained to weekdays and other activities will be limited on weekends.

OSHA 29 CFR 1910.95 requires that a hearing conservation program be developed to control and protect on-site workers from excessive noise levels during redress activities. As stipulated in 29 CFR 1910, should noise levels become excessive, a hearing conservation program containing the following will be implemented:

- Hearing protection (earplugs or muffs) will be provided at no cost to employees.
- Noise monitoring will be conducted at the work location where employees are exposed to excessive noise.
- Annual audiometric exams will be provided for noise-exposed employees.
- Exposed employees will be notified of noise monitoring and audiometric exam results.
- Records will be kept of noise monitoring and audiometric exams results.
- Training will be provided on use/maintenance and limitations of hearing protection.

Procedures and a hearing conservation program will be developed at the site for redress activities.

2.3.2.2 Traffic Control

As discussed in Section 4.6 of the ER for the EGC ESP, the roads and highways within the immediate vicinity of the site will experience an increase in use during redress activities, especially at the beginning and end of the workday. The personnel involved in redress activities are expected to be living in areas dispersed nearly uniformly in all directions from the site, and will travel relatively uniformly in all directions. Thus, no significant congestion problems are expected due to the redress activities. Traffic and traffic control impacts may include, but are not limited to:

- Working adjacent to or in active roadways (day/night);
- Traffic control zones;
- Traffic control device installation and removal;
- Flagging;
- Inspection and maintenance of traffic control devices;
- Heavy equipment; and
- General roadway traffic control zone safety.

During redress activities, traffic control on and off site will adhere to the applicable local, state, and federal requirements.

2.3.2.3 Erosion and Sediment Controls

It is anticipated that the majority of the area that is within the footprint of the EGC ESP Site will be paved, covered with gravel, or be covered by an existing structure prior to redress activities. The runoff from these areas will be collected and controlled by a stormwater drainage system, which will most probably discharge into Clinton Lake. During redress activities, disturbances to the existing ground surface will potentially increase the current sediment load via runoff to Clinton Lake. Site grading and drainage during redress will be designed to avoid erosion during the redress period and in compliance with a comprehensive Stormwater Pollution Prevention Plan (SWPPP), which is required by the Illinois Environmental Protection Agency, the Illinois Pollution Control Rules (35 Illinois Administrative Code [IAC], Subtitle C, Chapter I), and the federal CWA (33 United States Code 1251). Redress activities must be properly controlled and monitored or erosion from improperly graded areas could lead to the runoff of large amounts of sediments off site or to nearby surface waters. Redress activities at the selected site will conform to the following goals and criteria, as applicable, and if required:

- Erosion and sedimentation controls will comply with the requirements specified in this redress plan and, if appropriate, with a stormwater pollution prevention plan.

- Erosion and sediment controls will be implemented during redress to retain sediment on site to the greatest extent practicable.

- In accordance with the manufacturer's specifications and good engineering practices, control measures will be selected, installed, and maintained. If periodic inspections or other information indicate that a control measure is ineffective, the control measure will be modified or replaced as necessary.

- In the event that sediment escapes the site during redress activities, off-site accumulations of sediment will be removed to minimize off-site impacts, if possible.

- Sediment will be removed from sediment traps or sedimentation ponds as needed.

- Good housekeeping practices will be implemented that prevent litter, demolition debris, and chemicals exposed to stormwater from becoming a pollutant source for stormwater discharges.

- Erosion and sediment runoff will be controlled through the use of structural and/or stabilization practices. Structural control practices may include the use of straw bales, silt fences, earth dikes, drainage swales, sediment traps, and sediment basins. Stabilization practices may include temporary seeding, permanent seeding, mulching, geotextiles, sod stabilization, vegetative buffer strips, protection of trees, and preservation of mature vegetation.

Several different structural controls may be used to control the quality of the stormwater running off the site to Clinton Lake or the local community. Table 2.3-1 lists the controls that may be implemented during redress activities. The final location of these controls will be based on site conditions just prior to the commencement of redress activities.

Stabilization practices that may be implemented are listed in Table 2.3-2. Final stabilization will consist of revegetation at final grade conditions. In addition, the following general erosion control requirements will be implemented during redress activities:

- Where practical, disturbed soil areas will be reseeded with maintenance seed (if activities are temporary) or permanent seed mix (for permanent or final cover) as soon as possible after redress activities are either temporarily or permanently stopped.

- Where practical, excelsior blankets will be mulched or installed and slopes greater than 3H:1V will be reseeded, depending on the length, exposure, and texture of the soils on the slope. Mulch may be natural and consist of slash, brush, manure, and vegetation previously chipped and stockpiled; clean straw, free from noxious weed seed, mold, and other harmful elements; or wood cellulose fiber. Mulch will be applied as soon as possible after seeding to reduce runoff and promote vegetation.

- Sidehill slopes will be furrow-contoured as practical. Otherwise the final grading will be performed in a manner that will result in tracks and depressions contoured across the slope instead of down the "fall-line." This will not only minimize wind erosion, but will also "roughen" the earth to provide a microclimate of wind protection for new plants, and will help conserve precipitation for use in growth of new seed. This results in a reduction of sediment erosion.

- The time that bare soil is exposed before stabilized will be minimized.

- The disturbance to existing vegetation will be minimized.

- Where slope cuts have developed from erosion (particularly along the faces of flood detention structures), loose material will be removed, and the area will be filled with suitable soils to the original profile of the bank or slightly above the original profile. If the cut is not completely filled, the steeper area at the brow of the cut will encourage erosion and may cause redevelopment of the cut. The area upstream from the cut will be carefully inspected to determine whether there is an irregularity in the ground profile that will cause stormwater to concentrate and erode the soils. Any such irregularity will be removed. This will allow the water to run off the site as sheet flow.

- No solid materials, including demolition materials, will be discharged to waters of the United States (U.S.), unless authorized under an approved permit.

The erosion and sediment control measures and other protection measures will be maintained in effective operating condition. Maintenance will be performed on an "asneeded" basis and as specified by state and local permits. Specific maintenance requirements include, but are not limited to:

- Routine removal of sediment and other debris collected behind silt fences or hay bales.

- Routine cleaning of sediment from detention ponds.

- Replacement of gravel and sediment from entrances/exits, as needed based on visual inspection.

2.3.2.4 Air Quality Controls

Dust, smoke, and engine exhaust are sources of air pollution. During redress activities, a number of controls will be imposed to mitigate air emissions from sources, including good drainage and dry weather wetting. In addition, the most traveled roads will be paved, to reduce dust generated by vehicular traffic. Bare areas will be seeded to provide ground cover, where necessary. Applicable air pollution control regulations will be adhered to as they relate to open burning or the operation of fuel burning equipment. Permits and operating certificates will be secured where required. Fuel burning equipment will be maintained in good mechanical order to reduce excessive emissions. Reasonable precautions will be taken to prevent accidental brush or forest fires. Water sprinkling of laydown, storage, and parking areas, unpaved roads, and other areas of the site will be used to control the resuspension of dust.

Overall air pollution impacts from redress activities are expected to be minimal. A slight increase in air emissions will result from the increase in vehicular traffic, and the generation of dust during redress. In Illinois, dust generated as a part of redress activities is exempt from state permit requirements pursuant to 35 IAC 201.146(tt). Nevertheless, dust emissions will be mitigated to the greatest extent practical.

2.3.2.5 Potential Pollutant Sources (Effluents, Wastes, Spills, and Material Handling)

During redress activities, there are many possible pollutant sources. Contained in the following sections is a list of possible pollutant sources and specific measures to control discharges of those pollutant sources on and off site during redress activities.

2.3.2.5.1 Vehicle Fueling

Fueling stations will have temporary secondary containment around the fuel tanks. For specifics, see Section 2.3.2.7.

2.3.2.5.2 Truck Washout/Decontamination Areas

Where truck washout and decontamination areas are necessary, they will be located on the site. Typically, these areas are located within an impoundment where the water is contained. No washwater will be allowed to run off the site or enter local, state, or federal waters.

2.3.2.5.3 Loading and Unloading Areas

Areas with reduced potential for spills to become pollution sources may be designated for loading and unloading. Cleanup in such 'designated areas' may occur less frequently, but no less than once per day. Soils or other materials spilled during loading and unloading (outside of designated areas) will be cleaned up promptly, including soils on the outside of the trucks (i.e., the side rails) and on the ground or road surface.

2.3.2.5.4 Vehicle and Equipment Maintenance

Vehicle and equipment maintenance activities, such as lubrication or equipment repair that could result in oil spills or grease spills, will be performed in an enclosed building, if practical, in an area designated for this purpose. Spills will be cleaned up promptly. Precautions will be taken to prevent the release of pollutants to the environment from vehicle maintenance.

Precautions will include the use of drip pans, mats, and other similar methods. Oil contaminated materials will be stored in metal containers and disposed off site in accordance with state and local regulations. Spill kits will be maintained for prompt cleanup of oil spills.

2.3.2.5.5 Material Handling and Storage

The following material handling practices will be implemented during redress activities:

- Materials on the site will be stored in areas designated for that purpose.
- Suitable measures will be taken in storage areas to reduce the likelihood of a discharge, such as straw bale barriers around the storage area.
- Equipment not in use will be stored in a designated area.
- Used oil tanks will be emptied as frequently as necessary to avert overflow. The area will be kept free of trash and spilled oil. Tanks containing waste will have secondary containment.
- Garbage receptacles will be equipped with covers. This includes receptacles containing materials that may be carried by the wind or containing water-soluble materials (e.g., paint).
- Storage containers including drums and bags will be stored away from traffic to prevent accidental spills.
- Containers will be kept closed except as necessary to add or remove material.
- Containers will be stored in such a manner to prevent corrosion that could result from contact between the container and ground surface, which results in a release of material.
- Containers will be appropriately labeled to show the name, type of substance, health hazards, and other appropriate information.
- Material safety data sheets (MSDS) for substances used or stored on the site will be available for review and use.
- Hazardous substances such as used oil, anti-freeze, spent solvents, discarded paint cans, etc. will be controlled, stored and disposed of in accordance with the applicable MSDS.

2.3.2.6 Stock Pile Management

In general, stockpiles for redress activities will be managed in the following manner:

- Stockpiles of excavated soils will be placed on plastic sheeting or other suitable material, if required, near the excavation areas.
- If practical, stockpiles will be provided with liner, cover, and perimeter berm in order to prevent rupture, release or infiltration of liquids, and to prevent the re-suspension

dispersion of dust. If it is not possible to cover stockpiles, the installation of a temporary sprinkler system to inhibit dust dispersion may be necessary.

- Polyethylene sheeting or other suitable material will be used for liners and covers.
- A perimeter berm, typically hay bales placed beneath the liner around the edge, will be constructed to allow for collection of any free liquids that drain from the stockpile.
- Accumulated free liquids will be pumped and treated, if required, or otherwise removed to a sanctioned area or container.
- Covers and perimeter berms will be secured in place when not in use and at the end of each workday, or as necessary to prevent wind dispersion or runoff from major precipitation events.

2.3.2.7 Spill Prevention, Control, and Response

The IEPA NPDES Permit will provide a description of procedures to be used for spill prevention and response. During redress, the project-specific waste management and health and safety plans will contain spill prevention, control, and response procedures that address site and activity specific conditions. These plans will be maintained on site. The general procedures for addressing spill prevention, control, and response are provided in the following sections.

2.3.2.7.1 Spill Prevention

Fuel and waste tanks located on soil will be bermed with a perimeter dike of suitable native material, or will be placed inside an open tank capable of containing 110 percent of the maximum capacity of the tank in case of rupture. When practical, the areas inside the dike will be covered with an oil resistant membrane to minimize soil contamination in the event of a spill.

Fuel and waste tanks located on concrete or steel foundations will be bermed with appropriate materials suitable for each application. These materials will allow for the containment of 110 percent capacity of the tank while minimizing contamination of the surrounding area.

Redress projects requiring fuel or waste tanks will maintain a sufficient number of spill kits to contain minor spills and leaks.

2.3.2.7.2 Mitigation of Spills

Fueling operations and vehicle maintenance will be performed at designated facilities, when practical.

Spill sumps will be constructed adjacent to fuel and oil tanks. Drip pans will be used underneath oil barrels to contain fluids that are used during redress activities. In addition, spills of toxic or hazardous materials will be reported promptly to an on-site authority or designee.

The following procedure will be followed for the cleanup of small spills:

- Upon detection of any spill, personal safety will be the first priority. Then the area of the spill and the nature of the spilled material will be evaluated in order to determine whether

remedial actions could result in additional health hazards, escalation of the spill, or facility damage that may escalate the problem. If such conditions exist, a guard will be posted near the area (if practical) and the on-site authority, or designee, will be promptly notified.

- The source of the spill will be identified (if possible), and the flow of pollutants will be stopped if it can be done in a safe manner as described above.

- Pertinent facts and information will be recorded about the spill, including the following:

  - Type of pollutant;
  - Location;
  - Apparent source;
  - Estimated volume; and
  - Time of discovery.

- Absorbent materials will be spread on the area to soak up as much of the liquid as possible and prevent infiltration into the soil.

- As soon as possible, the contaminated soil and absorbent material will be excavated and transported to a designated site for collection of such material.

- If prompt transfer of the contaminated soil is not practical, the contaminated soil will be excavated and placed on polyethylene sheeting or other suitable material of sufficient thickness, and form a small berm to prevent breakout or infiltration.

The following procedure will be followed for the cleanup of medium to large spills:

- Upon detection of any spill, personal safety will be first priority. The area of the spill and the nature of the spilled material will be evaluated in order to determine whether remedial actions could result in additional health hazards, escalation of the spill, or facility damage that may escalate the problem. If such conditions exist, a guard will be posted near the area (if practical). In addition, the on-site health and safety personnel, or designees, and other parties will be promptly notified. The responsible on-site authority will, in turn, notify appropriate agencies (e.g., National Response Center).

- The source of the spill will be identified (if possible), and the flow of pollutants will be stopped if it can be done in a safe manner as described above.

- Pertinent facts and information will be recorded about the spill including the following:

  - Type of pollutant;
  - Location;
  - Apparent source;
  - Estimated volume; and
  - Time of discovery.

- Appropriate equipment (e.g., front-end loader) will be promptly dispatched to the spill and a berm or berms will be constructed downstream of it to minimize the spread.

- Additional resources will be mobilized as necessary to address the spill.

- Spill cleanup will commence when the lateral spread has been contained and the notifications have been made.

- Free liquid will be bailed or pumped into the appropriate container.

- When the liquid has been bailed to the soil layer, absorbent materials will be applied to the surface and transferred to the appropriate container.

- The remaining contaminated soils and absorbent material will be excavated and transferred to a temporary contaminant stockpile underlaid with polyethylene sheeting or other suitable material of sufficient thickness. The edges will be bermed to provide a dam to prevent inflow of water or leakage of the liquid.

- Contaminated soil and absorbent material will be disposed as appropriate.

2.3.2.7.3 National Response Center

The National Response Center will be contacted when a release containing a hazardous substance or oil in an amount equal to or in excess of a reportable quantity occurs during a 24-hour period. This has been established under either 40 CFR 110, 40 CFR 117, or 40 CFR 302.

2.3.3 Future Site Ownership and Use

As detailed in Section 4.1.1.3 of the ER for the EGC ESP, there are no federal, state, or regional land use plans for the area. However, DeWitt County has published a countywide comprehensive plan, which designates the site for industrial land use (University of Illinois, 1992). This plan, which guides future land use throughout the county, has designated the site for transportation and utility use. Further, the county land use plan targets expansion and spin-off development from the existing power plant as ways to realize further economic development in DeWitt County.

Future site ownership and use might include the following:

- Development as an industrial complex;
- Coal gasification plant;
- Private sector experimental facility;
- Low level radioactive waste storage facility;
- Interim spent nuclear fuel storage area;
- Hazardous waste management facility;
- Experimental use by state and local municipalities;
- Local area land fill;
- Recreation area; or
- Some type of preserve.

Although any one of the specific uses identified above could emerge as a development option, it is highly unlikely that the area will be used for anything other than for industrial development.

2.3.4 Use of Applicant-Constructed Facilities for Future Use

If the land and any improvements cannot be sold to a commercial venture or reindustrialized, and if it is not practical or warranted to transfer or sell the improvements to the owners of the adjacent CPS or a local municipality, then the structures, utilities, fences, paved roadways, etc., will be removed. In addition, the site will be regraded, revegetated, and restored to its pre-existing condition, in accordance with state or local zoning laws and in compliance with local, state, and federal regulations.

2.3.5 Habitat Replacement

No habitat replacement activities are anticipated as part of this redress plan. Preconstruction activities will occur at the location of an existing power facility, specifically the CPS, which is designated for industrial use. The site is mostly comprised of impervious surfaces, crushed stone, existing structures, and contains no habitat or land use other than that designated specifically for the EGC ESP Facility and ancillary structures.

As summarized in Section 4.1 of the ER for the EGC ESP, the selected EGC ESP Site has no special agricultural resources (such as prime or unique farmland) because there is no land classified as agricultural within the EGC ESP Site. There are no known significant mineral resources (sand and gravel, coal, oil, natural gas, and/or ores) within the proposed site. With the exception of the new water intake structure area, no preconstruction or redress activities within the proposed site will take place within a floodplain, coastal zone, or wild and scenic river. There are four minor areas (less than 1 acre [ac]) within the CPS Site boundary that have been identified as wetland areas. None are within the EGC ESP Site, and therefore will not be impacted by preconstruction or redress activities. It is not anticipated that redress activities will impact agricultural areas, wetlands, a floodplain, or coastal zone, or visually impact a wild and scenic river.

Transmission system improvements will be required to support the EGC ESP Facility, but the Applicant does not anticipate any significant habitat replacement activities to be required from those improvements. Additions to the system and any redress will likely be the responsibility of the RTO. For the purposes of this redress plan, the Applicant has made several assumptions based on the existing transmission corridors and discussions with the RTO. For a complete discussion of the probable transmission corridor construction scenario, see Chapter 3.7 of the ER for the EGC ESP. The Applicant anticipates that any modifications will be located within or immediately adjacent to the existing substation at the CPS and along existing transmission corridors. The anticipated transmission line improvements will be sited entirely within the existing utility rights-of-way.

Construction of the proposed transmission line improvements will temporarily impact these lands and will be limited to the use of the existing access roadway along the right-of-way and the placement of footings for the poles. There will be no direct impacts outside of the existing utility right-of-way. The transmission line improvements will likely consist of the placement of new poles and the stringing of new lines along the existing maintained right-of- way. These limited disturbances will not adversely impact habitats nor require habitat replacement during redress activities.

As concluded in Section 4.3 of the ER for the EGC ESP, redress activities are not anticipated to adversely affect land use or habitats; wildlife resources; federally-listed threatened and

endangered species; state-listed threatened and endangered species; species of commercial or recreational value; and important habitats at the site or in the site vicinity. Wildlife species, including species of recreational value, potentially occurring within the site or vicinity may be temporarily displaced during redress activities. It is expected that these species would return to the site or site vicinity following the completion of redress activities.

2.3.6 Restoration of Sensitive Water Resource Features

The following information regarding the restoration of sensitive water resource features is from Chapter 4 of the ER for the EGC ESP, and is summarized in the following sections.

2.3.6.1 Intake Structure

Redress of the EGC ESP Facility water intake structure will not significantly impact open water habitats of Clinton Lake. The new water intake structure area will be located in the vicinity of the CPS cooling water intake structures. The loss of open water habitat resulting from these redress activities, regarding the water intake structure, will be insignificant in comparison to the amount of open water habitat found in Clinton Lake. When the site is redressed, the shoreline will be returned to its pre-existing state, unless state or local land use authorities agree that the structure may be left in place and not redressed.

2.3.6.2 Groundwater

The hydrologic alterations anticipated to result from redress activities might also include the temporary changes in groundwater levels from dewatering of any necessary excavations. It is not anticipated that any new excavations will be necessary during redress activities; therefore, dewatering will not be required.

2.3.6.3 Freshwater Streams

The dam located between the two fingers of Clinton Lake releases water from the lake to Salt Creek at a minimum rate of 5 cfs. Potential impacts to Salt Creek resulting from redress activities involving hydrologic alterations at the [site] will be buffered by Clinton Lake. Proper safeguards will be used to minimize impacts to Clinton Lake during redress activities and thereby prevent long-term impacts to downstream habitats.

2.3.6.4 Lakes and Impoundments

During redress activities, Clinton Lake may be impacted due to increased erosion and sediment transport (i.e., water quality). However, this will be minimized by compliance with the controls specified in Section 2.3.2.3 of this redress plan. Redress activities that require erosion control measures will be in compliance with a SWPPP as required by the IEPA and the federal CWA (33 United States Code 1251). Where necessary, special erosion control measures will be implemented to minimize impacts to the lake, lake users and active CPS operations.

During redress activities, erosion control measures will be used to contain eroded soil on the site and remove sediment from stormwater prior to leaving the site. Design measures will be incorporated to avoid concentrated flow that has a high potential to transport sediment. Visual inspections of erosion control measures will be incorporated into the project to monitor the effectiveness of the control measures and to aid in determining if other mitigation measures are necessary. Mitigation measures will be incorporated into the requirements of the contract and

the SWPPP. Beyond redress activities, stormwater management practices will be incorporated into the site design to minimize the long-term delivery of sediment to the lake.

Redress activities along Clinton Lake might include actions necessary to remediate any preparatory functions performed to accommodate the new intake structure for the EGC ESP Facility. The hydrologic alterations resulting from redress of the new intake structure area would be mainly related to sediment transport. If required to be removed, the area will be temporarily isolated from the lake by cofferdams, or like structures, and dewatered. The water will be pumped back into the lake so that changes in water quantity, circulation, or flow patterns are minimized. Redress of the intake structure area will be designed to control the shoreline and bank erosion in order to minimize impacts to Clinton Lake and the CPS UHS from increased sedimentation. Special erosion and siltation control measures will be incorporated with lakeshore redress activities in order to minimize these impacts. Any significant sediment deposition in the immediate vicinity and in and around the CPS intake structure area will be removed.

2.3.7 Recontouring, Revegetation, and Replacement of Cleared Areas

As stated previously, if the land and any improvements cannot be sold to a commercial venture or re-industrialized, and if it is not practical or warranted to transfer or sell the improvements to the owners of the adjacent CPS or a local municipality, then the area will be redressed in accordance with this plan. As indicated herein, the site will be regraded, revegetated, and restored to its pre-existing condition, in accordance with state or local zoning laws and in compliance with local, state, and federal regulations.

2.3.8 Potential Liabilities

Once the Applicant has transferred ownership of any existing facilities or structures designated for re-use, completed the required redress activities, met the applicable regulatory requirements, and terminated the state and local permits, the Applicant will have no further liability with regard to site redress.

2.3.9 Potential Contamination

The area that has been selected for preconstruction activities is currently (2003) owned by AmerGen and is in close proximity to the CPS. The area has been identified as a clean area by the owner.

Any potential spills from preconstruction or redress activities will be remediated in compliance with the requirements of this plan. The area will be returned to its baseline state post-redress.

2.4 Impacts on Existing Redress and Decommissioning Plans

At the 2003 publication of this Application, the selected site is owned by AmerGen, and decommissioning of the CPS and contiguous areas is currently AmerGen's responsibility. Present CPS decontamination and decommissioning (D&D) plans include the site where the Applicant proposes to build the reactor. Once the Applicant has secured control of the selected site, CPS personnel will have to revisit and revise the present D&D plans to reflect this. It will be the Applicant's responsibility to redress the EGC ESP Site, in accordance with the requirements of this plan, in the event that the improvements are made and cannot be transferred to new owners. If the improvements are transferred to the owners of the CPS,

redress of the improvements will be part of the CPS owners' D&D plans and, ultimately, the CPS owners' redress plan.

2.5 Financial Responsibility

In accordance with 2003 guidance, it is the financial responsibility of the Applicant to provide the funding to redress the EGC ESP Facility in the event that preconstruction activities are performed and reactor plans are abandoned, or if the site permit expires before it is referenced in an application for a construction permit or a COL.
In addition, as stated previously, if the land and any improvements cannot be sold to a commercial venture or re-industrialized, and if it is not practical or warranted to transfer or sell the improvements to the owners of the adjacent CPS or a local municipality, then the improvements will be redressed. If the improvements can be transferred, then the financial burden of redress resides with the new owners.

2.6 References

10 CFR 50. Code of Federal Regulations. "Domestic Licensing of Production and Utilization Facilities."

10 CFR 52. Code of Federal Regulations. "Early Site Permits; Standard Design Certifications; and Combined Licenses for Nuclear Power Plants."

29 CFR 1910. Code of Federal Regulations. "General Industry Standards."

29 CFR 1926. Code of Federal Regulations. "Safety and Health Regulations for Construction."

40 CFR 110. Code of Federal Regulations. "Discharge of Oil."

40 CFR 117. Code of Federal Regulations. "Determination of Reportable Quantities of Hazardous Substances."

40 CFR 302. Code of Federal Regulations. "Designation, Reportable Quantities, and Notification."

35 Illinois Administrative Code (IAC) Subtitle C. Chapter I. Pollution Control Board. 1987.

33 United States Code 1251. Federal Clean Water Act. 1998.

University of Illinois at Urbana-Champaign (University of Illinois). *DeWitt County Comprehensive Plan*. 1992.

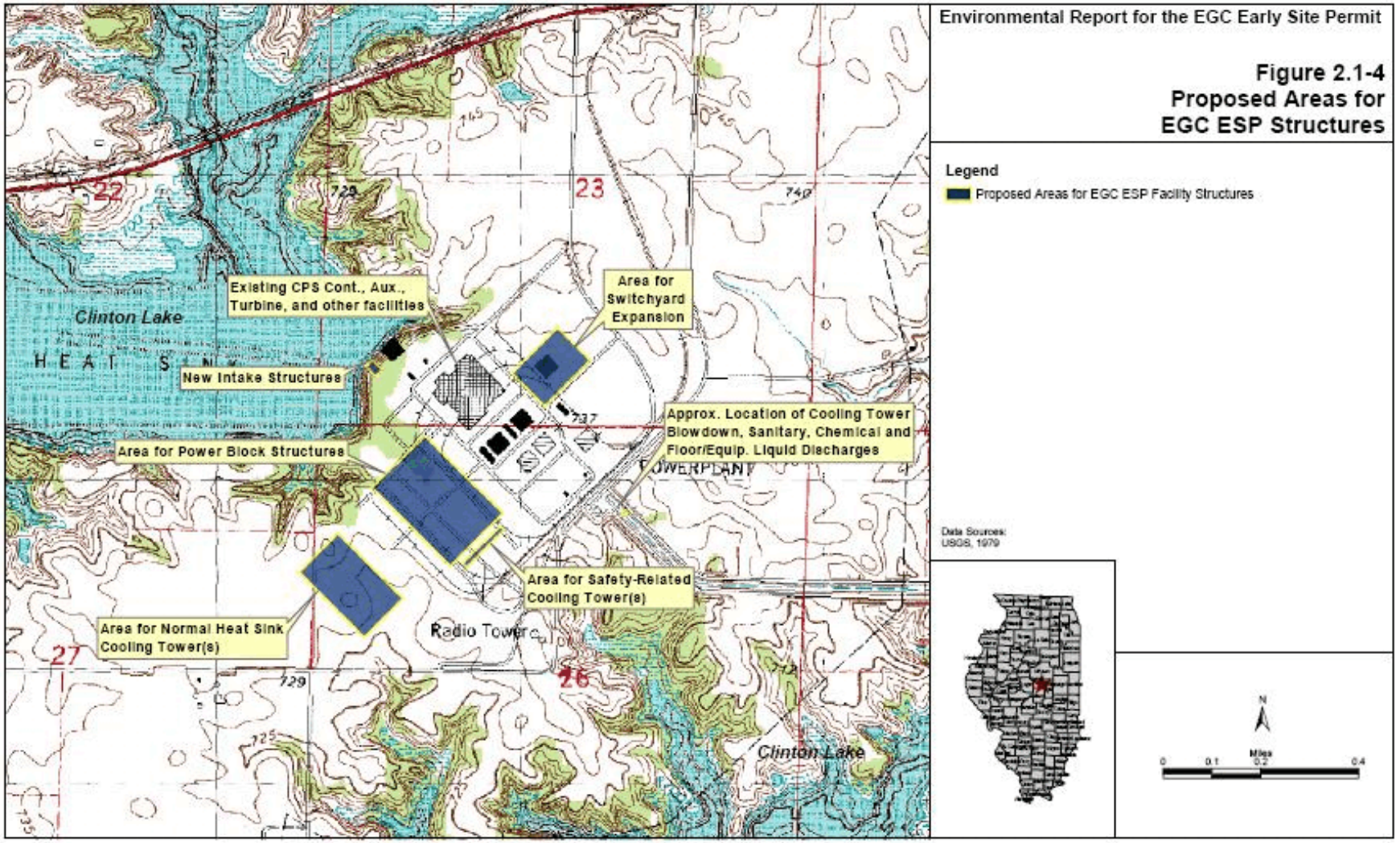
TABLE 2.3-1
Structural Control Measures

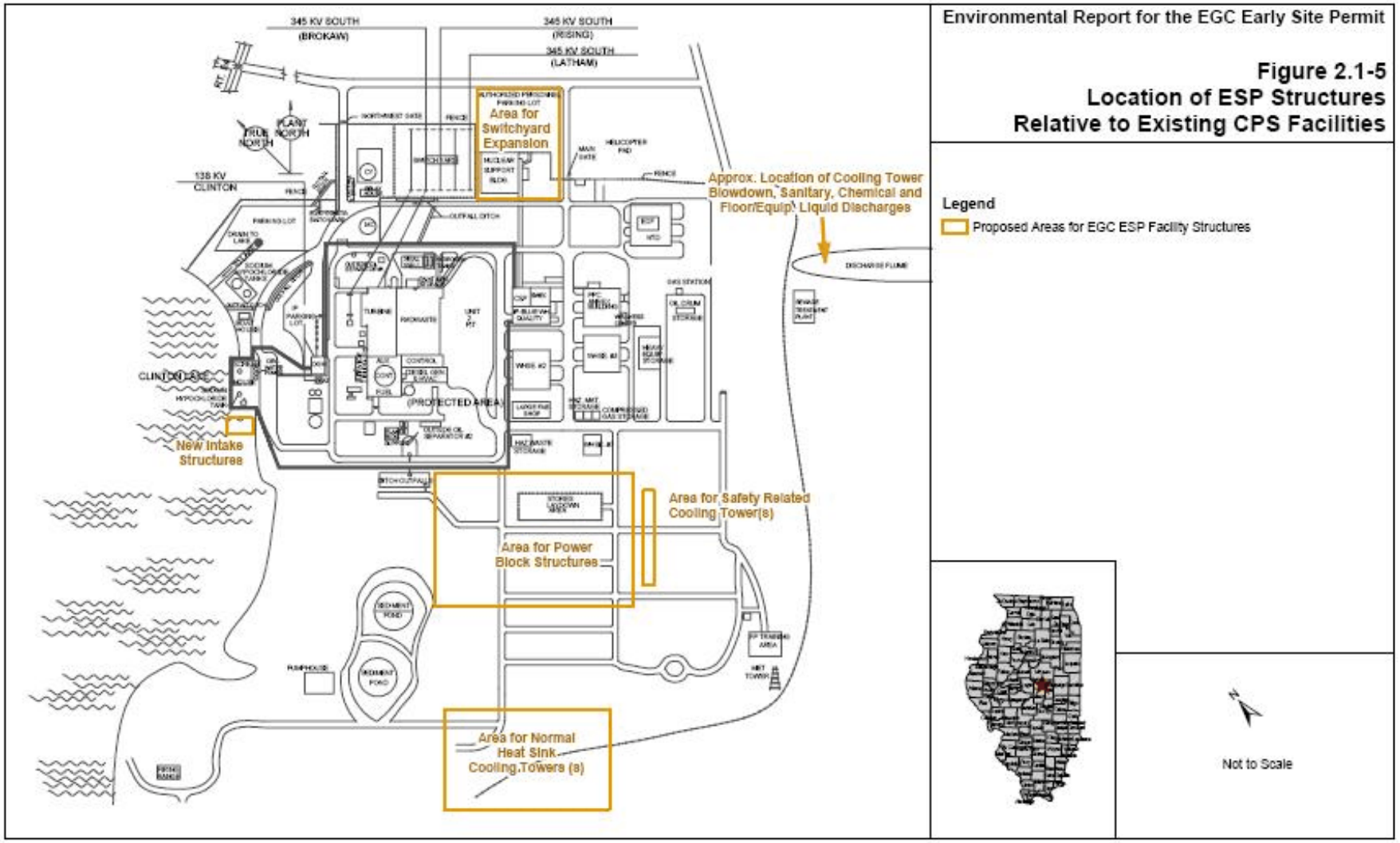
Control Measure	Location	Description of Control Measure
Silt Fencing	Along the perimeter of excavation sites. Drainage areas will be less than 0.25 ac per 100 ft of fence length.	To protect streams or wetland areas, to prevent erosion, and to keep sediment on site. Silt fencing consists of posts with filter fabric stretched across the posts. The lower end of the fence is vertically trenched and covered with back fill. This prevents water from passing by the fence without being filtered. The fabric allows for the water to pass off site while retaining the sediment on site.
Check Dams	If applicable where the grade change is more than 2%.	A check dam is a small, temporary dam constructed across a drainage ditch or channel. Its purpose is to slow down the speed of the concentrated flows. The reduced runoff speed will result in less erosion and gullying in the channel and allow the sediment to settle out. The check dams can be built with materials such as straw bales, rock, timber, or other materials that will retain water.
Straw Bales	Installed around areas requiring protection, such as wetlands, and around stockpiles to form a temporary containment.	Straw bales work much like silt fencing and may be used instead of a silt fence. They can be used to form a barrier or redirect water. They impede stormwater flow. Unlike a silt fence, straw bales do not allow water to flow through freely; thus, they are used where detention, not just filtration, is necessary.
Limit Entrance/Exit	Designated site entrances/exits. The exact location will be determined prior to the initiation of redress activities.	The purpose is to reduce tracking of soil off the site. These entrance/exits are usually constructed of fabric and large stone. The fabric is laid down on the soil; the rock is then applied on top of the fabric. The rough surface will shake and pull the soil off the tires.
Inlet Protection	Located around inlet areas to the stormwater sewer system.	Filtering material is placed around an inlet to a receiving stream to trap sediment. It can be composed of gravel, stone with a wire mesh filter, block and gravel, or straw bales.

Control Measure	Location	Description of Control Measure
Sediment Basins	As a best management practice, sediment basins should be used for drainage locations that serve 10 or more disturbed acres at one time. For drainage locations serving less than 10 ac, smaller sediment basins or sediment traps can be used.	Sediment basins are either temporary or permanent settling ponds with a controlled stormwater release structure. Their function is to collect and store sediment-laden stormwater from redress activities long enough to allow the sediment to settle out. At a minimum, silt fences, vegetative buffer strips, or equivalent sediment controls may be required.

TABLE 2.3-2
Stabilization Control Measures

Control Measure	Location	Description of Control Measure
Temporary Seeding	Disturbed areas where redress activities have temporarily ceased.	Growing of a short-term vegetative cover on disturbed areas that may be in danger of erosion. Timeframe: Seeding is to be implemented as soon as practical.
Mulching	On slopes steeper than 3:1 or on areas that have been seeded.	Temporary soil stabilization or erosion control practices where materials, such as grass wood chips, hay, etc. are placed on the soil surface. Timeframe: Must be implemented as soon as practical after activity has ceased
Preservation of Natural Vegetation	Wherever practical.	Wherever practical, existing vegetation will be retained. It minimizes erosion potential and protects water quality. The preservation of natural vegetation between the silt fence and stream will provide additional water quality improvement prior to the stormwater entering state waters.
Permanent Seeding	On appropriate disturbed areas once redress activities are complete.	Provides stabilization of the soil and reduces erosion. Timeframe: As soon as practical and if deemed appropriate.
Surfaced with Aggregate	On appropriate disturbed areas once redress activities are complete.	Provides stabilization of the soil and reduces erosion. Timeframe: As soon as practical and if deemed appropriate.


Environmental Report for the EGC Early Site Permit
Figure 2.1-4
Proposed Areas for
EGC ESP Structures
Legend
Proposed Areas for EGC ESP Facility Structures
Existing CPS Cont., Aux., Turbine, and other facilities
Area for Switchyard Expansion
New Intake Structures
Approx. Location of Cooling Tower Blowdown, Sanitary, Chemical and Floor/Equip. Liquid Discharges
Area for Power Block Structures
Area for Safety-Related Cooling Tower(s)
Area for Normal Heat Sink Cooling Tower(s)
Clinton Lake
HEAT SINK
Radio Tower
POWERPLANT
22
23
26
27
Data Sources:
USGS, 1979
N
Miles
0
0.1
0.2
0.4


345 KV SOUTH
(BROKAW)
345 KV SOUTH
(RISING)
345 KV SOUTH
(LATHAM)
Area for
Switchyard
Expansion
TRUE NORTH
PLANT NORTH
138 KV
CLINTON
Approx. Location of Cooling Tower
Blowdown, Sanitary, Chemical and
Floor/Equip. Liquid Discharges
DISCHARGE FLUME
(PROTECTED AREA)
New Intake
Structures
Area for Safety Related
Cooling Tower(s)
Area for Power
Block Structures
Area for Normal
Heat Sink
Cooling Towers (s)
Environmental Report for the EGC Early Site Permit
Figure 2.1-5
Location of ESP Structures
Relative to Existing CPS Facilities
Legend
Proposed Areas for EGC ESP Facility Structures
Not to Scale

Appendix F: Environmental Protection Plan (Nonradiological)

1.0 Objectives of the Environmental Protection Plan

The purpose of the Environmental Protection Plan (EPP) is to provide for protection of non-radiological environmental resources during any site preparation or preliminary construction activities authorized by 10 C.F.R. § 52.25. The principal objective of the EPP is to keep NRC informed of the environmental effects of any site preparation or preliminary construction activities and of actions taken to control those effects.

Environmental concerns identified in the FEIS that relate to water quality matters will be regulated by way of the Permit Holder's National Pollutant Discharge Elimination System (NPDES) permit.

2.0 Environmental Protection Issues

In the FEIS dated July 2006, the staff considered the environmental impacts associated with the construction of reactors with characteristics that fall within the plant parameter envelope identified in Appendix D of this permit at the EGC ESP site. The environmental impacts associated with the site preparation or preliminary construction activities authorized by 10 C.F.R. § 52.25 and in accordance with this permit will be less than or equal to the impacts assessed in the FEIS.

3.0 Consistency Requirements

3.1 Site Preparation and Preliminary Construction Activities

The permit holder shall take the necessary mitigating actions identified in Revision 4 of the Environmental Report of the application and Chapter 4.0 of the FEIS (and summarized in Section 4.10 of the FEIS) to avoid any unnecessary adverse environmental impacts from the site preparation and preliminary construction activities described in the site redress plan.

The permit holder shall maintain records of all site preparation and preliminary construction activities; these records shall include an assessment of whether the environmental impact of such activities is consistent with that evaluated in the EIS.

3.2 Reporting Related to the NPDES Permit and State Certification

The permit holder shall provide the NRC with a copy of the NPDES permit or Section 401 certification (which constitutes the certification required under FWPCA § 401), issued by the Illinois Environmental Protection Agency (IEPA) under 35 Illinois Administrative Code Part 395, within 30 days of approval. The permit holder shall report any changes to the NPDES permit or state certification to the NRC within 30 days of the date the change is approved.

4.0 Environmental Conditions

4.1 Unusual or Important Environmental Events

The permit holder shall evaluate and report to the NRC Operations Center within 24 hours (followed by a written report in accordance with Subsection 5.4) any occurrence of an unusual or important event that indicates or could result in significant environmental impact causally related to the site preparation or preliminary construction activities authorized (pursuant to 10 C.F.R. § 52.25) under this permit. The following are examples of unusual or important environmental events: excessive bird impaction events, onsite plant or animal disease outbreaks, mortality or unusual occurrence of any species protected by the Endangered Species Act of 1973, fish kills, unusual increase in nuisance organisms or conditions, and unanticipated or emergency discharge of waste water or chemical substances.

Routine monitoring programs are not required to implement this condition.

5.0 Administrative Procedures

5.1 Review and Audit

The permit holder shall provide for review and audit of compliance with the EPP. The audits shall be conducted independently; they may not be conducted by the individual or groups responsible for performing the specific activity. A description of the organizational structure utilized to achieve the independent review and audit function and results of the audit activities shall be maintained and made available for inspection.

5.2 Records Retention

The permit holder shall make and retain records associated with this EPP in a manner convenient for review and inspection and shall make them available to the NRC on request.

The permit holder shall retain records of site preparation and preliminary construction activities determined to potentially affect the continued protection of the environment until the date of termination of the permit. If this ESP is referenced in an application for a construction permit (CP) or combined license (COL) and the CP or COL is issued, then the permit holder or licensee should retain these records until the date of termination of that permit or license. The permit holder or licensee shall retain all other records relating to this EPP for five years or, where applicable, in accordance with the requirements of other agencies.

5.3 Changes in the Environmental Protection Plan

Requests for changes in the EPP shall include an assessment of the environmental impact of the proposed change and a supporting justification. Implementation of such changes in the EPP shall not commence prior to NRC approval of the proposed changes in the form of a permit amendment incorporating the appropriate revision to the EPP.

5.4 Reporting Requirements

The permit holder shall submit a written report to the NRC within 30 days of occurrence of any event described in Section 4.1 of this plan. The report should (a) describe, analyze, and evaluate the event, including the extent and magnitude of the impact, and site preparation and preliminary construction activities underway at the time of the event, (b) describe the likely cause of the event, (c) indicate the action taken to correct the reported event, (d) indicate the corrective action taken to preclude repetition of the event and to prevent similar occurrences involving similar site preparation and preliminary construction activities, and (e) indicate the agencies notified and their preliminary responses. For events reportable under this subsection that also require reports to other Federal, State or local agencies, the permit holder shall report in accordance with those reporting requirements in lieu of the requirements of this subsection. The permit holder shall provide the NRC with a copy of such report at the same time it submits it to the other agency.