



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

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Rules and Directives
REPLY TO THE ATTENTION OF:
USNRC

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Chief, Rules Review and Directives Branch
U.S. Nuclear Regulatory Commission
Mail Stop T6-D59
Washington, D.C. 20555-0001

Re: **Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 17: Dresden Nuclear Power Station, Units 2 and 3, Draft Report, NUREG-1437, EIS No. 030549**

Dear Sir or Madam:

In accordance with Section 309 of the Clean Air Act and the National Environmental Policy Act (NEPA), the U.S. Environmental Protection Agency (EPA) has reviewed the Generic Environmental Impact Statement for License Renewal of Nuclear Plant, Supplement 17: Dresden Nuclear Power Station, Units 2 and 3 (Dresden Units 2 and 3), which is a draft report. The Nuclear Regulatory Commission (NRC) developed the Generic Environmental Impact Statement (GEIS) to streamline the license renewal process on the premise that environmental impacts of most nuclear power plant license renewals are similar, in most cases. NRC develops facility-specific supplemental environmental impact statements (SEIS) for individual plants as the facilities apply for license renewal. EPA provided comments on the GEIS during its development process—for the draft version in 1992, and for the final version in 1996.

The Dresden Nuclear Plant is located on the banks of the Illinois River (at the confluence of the Des Plaines and Kankakee Rivers) in Grundy County, Illinois. The plant has three units. Dresden Units 2 and 3 are operating nuclear reactors and the subject of the proposed Federal action. The other unit (Dresden Unit 1) was shut down in 1978 and decontaminated in 1984. Dresden Units 2 and 3 each produces an output of 2957 megawatts thermal, and each unit has a design rating for a net electrical power output of 912 megawatts. Each unit is refueled on a 24-month cycle; this is done by refueling an alternate unit each year. The cooling system can operate in one of two modes. In the indirect open-cycle mode, once-through cooling water from the Kankakee River is used to remove heat from the main (turbine) condensers. The heated effluent is circulated through a cooling canal and pond and discharged to the Illinois River. In the closed-cycle mode, heated effluent is circulated through mechanical draft cooling towers, then recycled through the condensers with limited make-up water drawn from the Kankakee River.

E-RFDS = ADM-03

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Call = D. Wheeler (DXW)

Template = ADM-013

The proposed Federal action is renewal of the operating licenses for Dresden Units 2 and 3. The Exelon Generation Company, LLC has submitted a permit application to the NRC to extend the operating license for Dresden Units 2 and 3 for an additional 20 years. Currently, the operating licenses for Dresden Units 2 and 3 expire on December 22, 2009 and January 12, 2011, respectively.

Based on our review of the Dresden draft SEIS, we have given the project an EC-2 rating. The "EC" means that we have environmental concerns with the proposed action, and the "2" means that additional information needs to be provided in the final SEIS. Our concerns relate to:

1. Information provided on radiological impacts,
2. Cooling water system impacts on aquatic organisms,
3. Thermal impacts,
4. Adequacy and clarity of the information provided,
5. Risk estimates, and
6. On-site waste storage.

We have enclosed our comments and the U.S. EPA rating system summary.

If you have any questions or wish to discuss any aspect of the comments, please contact Newton Ellens of my staff at (312) 353-5562.

Sincerely,

Newton G. Ellens for K.W.

Kenneth A. Westlake, Chief
Environmental Planning and Evaluation Branch
Office of Strategic Environmental Analysis

Enclosures

**U.S. EPA Comments on
Generic Environmental Impact Statement for License Renewal of Nuclear Plant,
Supplement 17: Dresden Nuclear Power Station, Units 2 and 3, Draft Report,
NUREG-1437**

1. We are concerned about the level of information provided in the draft supplemental environmental impact statement (SEIS) on radiological impacts. According to the SEIS, Exelon Generation Company, LLC (Exelon), the applicant for the operating licenses, has conducted a radiological environmental monitoring program (REMP) around the Dresden Nuclear Power Plant since 1974. Through this program, Exelon has monitored and documented radiological impacts to workers, the public, and the environment. The draft SEIS states:

The REMP includes monitoring of the waterborne environment (ground/well, drinking water, surface water, sediments and dredging spoils), ingestion pathways (milk, fish and vegetation), direct radiation (gamma dose at thermoluminescent dosimeter [TLD] locations), and atmospheric environment (airborne radioiodine, particulates, gross beta, and gamma)...

- The SEIS cites two annual reports which summarize information from the REMP, but it does not contain this summary information itself. Summary information about radiation from the Dresden plant and associated exposure pathways in the environment is relevant in determining radiological impacts from the continued operation of Dresden Units 2 and 3. We are unable to make such a determination from the SEIS as it is written. Therefore, we suggest that the final SEIS include current annual summary information about radiological impacts from the REMP.
2. We are concerned about the amount of organisms pinned against or drawn into Dresden's cooling water systems. Under a final rule signed by U.S. EPA on February 16, 2004, certain power plants with cooling water systems are required to (1) reduce the number of organisms pinned against water intake screens by 80 to 95 percent, and (2) reduce the number of organisms which are sucked into the cooling water system by 60 to 90 percent. Since the draft SEIS was written before the final rule was signed, the draft SEIS couldn't address how the Dresden plant will comply with this new regulation. However, the final SEIS should indicate the applicability of the final rule to the Dresden plant, and the modifications planned by the applicant to comply with the rule.
3. We are concerned about effluents from the Dresden plant which exceeded National Pollutant Discharge Elimination System (NPDES) permit limits on temperature. According to the draft SEIS, Exelon received one provisional variance from permit limits in 2001 and two provisional variances in 1999. The draft SEIS states that the two 1999 provisional variances were the result of an extended heat wave and drought. Exelon conducted biological studies to determine the impact of the provisional variances on fish and other aquatic life. The draft

SEIS states that there were no adverse impacts on these organisms; the only effect was a change in fish distribution during the higher temperature periods. Based on this information, the draft SEIS characterizes the thermal impacts caused by the provisional variances as SMALL. However, we think that the draft SEIS does not adequately discuss the potential for future exceedances of NPDES temperature limits, and the impacts of these exceedances. Also, the draft SEIS does not evaluate the possible cumulative impact of future temperature exceedances combined with future droughts and/or heat waves. The final SEIS should discuss these issues.

4. Section 2.2.4, *Air Quality*, page 2-24, second paragraph .The last sentence has a temperature listed as "B11°C" instead of -11°C. This needs to be corrected to reduce the possibility of confusion.
5. Section 2.2.7, *Radiological Impacts*, page 2-31, last paragraph. The references to the environmental standards need to be complete citations, including title of the rule or regulation, along with the basic standard for comparison. This will reduce the time needed to look up these citations and verify values that are cited in the text.
6. Section 3.0 *Environmental Impacts of Refurbishment*, page 3-2, Table 3-1. Under the section on Human Health, specific information supporting any assertions that this area "needs no further evaluation" needs to be presented or more completely cited and described.
7. Section 4.3, *Radiological Impacts of Normal Operations*, page 4-25, paragraph 5. The specific values for exposure need to be provided in addition to the complete citation of the location of this information. This will help to provide the information more clearly than a citation only, that then must be referred to allow verification of the standard being cited.
8. Section 4.8.3, *Cumulative Radiological Impacts*, page 4-48, Paragraph 1. Information or procedures used to generate values to support the assertions in this section need to be provided in a clearer manner to reduce the possibility of misunderstandings and to make explicit the reasoning on procedures to reach these conclusions.
9. Section 5.2.2, *Estimate of Risk*: Page 5-5 states "The baseline core damage frequency (CDF) for Dresden is approximately 1.9×10^{-6} per year, based on internally-initiated events. Exelon did not include the contribution to CDF from external events in these estimates even though the risk from external events is significantly higher for Dresden than risk from internal events."

We recommend evaluating and presenting risk estimates from both internal and external events. In addition, given the draft SEIS statements referenced above, effects of external events should be included in the risk decision considerations, as necessary, to get an accurate portrayal of the risk of the licensing renewal. If the final SEIS does not incorporate external

events into risk calculations or risk decisions, it should provide a rationale for using internally-initiated events only.

10. Section 6.1, *The Uranium Fuel Cycle*, page 6-2. Under the bullet point for Off-site radiological impacts (individual effects from other than disposal of spent fuel and high level waste), no consideration appears to be given to the potential long-term storage of the spent fuel and high-level waste materials on-site until such time as a permanent facility is finally licensed and begins to accept these materials for disposal. A reference to other sections or documents where this evaluation may have been included should be provided here; otherwise, the issue needs to be considered and evaluated.
11. Section 6.1, *The Uranium Fuel Cycle*, page 6-8. Under the bullet point for On-Site Spent Fuel. A more thorough evaluation for the volume of spent fuel expected to be generated during the additional licensed time needs to be provided along with more specific information as to site-specific circumstances that may impair or improve the risk values for potential exposures to this spent fuel.
12. Section 7.1, *Decommissioning*, page 7-2, Under bullet point Radiation Doses. As the GEIS is based on a forty-year licensing period, an extension of another twenty years would have an impact that needs to be quantified and reported. This information should be included specifically in the final SEIS as part of the risk that would be associated with the license extension.
13. Section 8.1, *No-Action Alternative*, page 8-4, under the bullet point Human Health. The actual value representing the cited percent value should be specifically provided in addition to the citation. This will help to reduce unnecessary additional research, except for value verifications, and potential misunderstandings or confusion as to the actual value(s) being specified.
14. Section 8.2.1.1, *Closed-Cycle Cooling System*, page 8-21, under the bullet Uranium and thorium. A better comparison or quantification of the relative concentrations of the uranium and thorium to the background levels need to be provided. As is, this presentation can lead to misunderstanding and confusion.
15. Section 8.2.1.1, *Closed-Cycle Cooling System*, page 8-22, Under bullet point Human Health. Any dose estimate that would have the potential to fall in the range of 10^{-6} to 10^{-4} or greater needs to be specifically evaluated for potential regulatory requirements or risk impacts to the public health. This should be estimated conservatively using the data that is currently available or that can be logically extrapolated from currently available information.
16. Section 8.2.3.1, *Closed -Cycle Cooling System*, page 8-48, Under bullet point Waste. Waste impacts need to be specified rather than merely referenced to provide a clearer

understanding of the risk determination made in this section of the document.

17. Section 8.2.3.1, *Closed -Cycle Cooling System*, page 8-48, Under bullet point Human Health. Human-health impacts need to be specified rather than merely referenced to provide a clearer understanding of the risk determination in this section of the document.
18. Appendix D, *Organizations Contacted*, page D-1,D-2. The United States Environmental Protection Agency was not contacted as one on the cognizant environmental agencies. Please provide the rationale for this procedure.

SUMMARY OF RATING DEFINITIONS AND FOLLOW UP ACTION*

Environmental Impact of the Action

LO-Lack of Objections

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

EC-Environmental Concerns

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impacts. EPA would like to work with the lead agency to reduce these impacts.

EO-Environmental Objections

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

EU-Environmentally Unsatisfactory

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potential unsatisfactory impacts are not corrected at the final EIS site, this proposal will be recommended for referral to the CEQ.

Adequacy of the Impact Statement

Category 1-Adequate

The EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collecting is necessary, but the reviewer may suggest the addition of clarifying language or information.

Category 2-Insufficient Information

The draft EIS does not contain sufficient information for the EPA to fully assess the environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

Category 3-Inadequate

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

*From EPA Manual 1640 Policy and Procedures for the Review of the Federal Actions Impacting the Environment