

## NUCLEAR REGULATORY COMMISSION

[Docket No. 50-237]

### Commonwealth Edison Company; Dresden Nuclear Power Station, Unit 2, Environmental Assessment and Finding of No Significant Impact

The U.S. Nuclear Regulatory Commission (NRC) is considering issuance of an amendment to Facility Operating License No. DPR-19, issued to Commonwealth Edison Company (ComEd, the licensee), for operation of the Dresden Nuclear Power Station, Unit 2, located in Grundy County, Illinois.

#### Environmental Assessment

##### *Identification of the Proposed Action*

Dresden, Unit 2, is currently licensed to operate 40 years commencing with the issuance of the construction permit on January 10, 1966. At present, the Facility Operating License for Dresden, Unit 2, expires on January 10, 2006. The licensee seeks an extension of the license term for Dresden, Unit 2, to allow it to operate until 40 years from the issuance of its Provisional Operating License. The Dresden, Unit 2, Provisional Operating License was issued on December 22, 1969. The proposed change would extend the license term for Dresden, Unit 2, to December 22, 2009. This action would extend the period of operation to the full 40 years, from the date of the Provisional Operating License, as provided by the Atomic Energy Act and the Code of Federal Regulations.

The proposed action is in accordance with the licensee's application for license amendment dated April 30, 1999.

##### *The Need for the Proposed Action*

The proposed action is needed to allow the licensee to continue to operate Dresden, Unit 2, for 40 years from the date of issuance of their Provisional Operating License. This extension would permit the unit to operate for the full 40-year design-basis lifetime, consistent with the Commission policy stated in Memorandum dated August 16, 1982, from William Dircks, Executive Director for Operations, to the Commissioners, and as evidenced by the issuance of more than 50 such extensions to other licensees.

##### *Environmental Impacts of the Proposed Action*

The NRC has completed its evaluation of the proposed action and concludes that extending the Dresden, Unit 2,

Facility Operating License No. DPR-19 for approximately forty-seven months would not create any new or unreviewed environmental impacts. This change does not involve any physical modifications to the facilities, and there are no new or unreviewed environmental impacts that were not considered as part of the *Final Environmental Statement related to operation of Dresden Nuclear Power Station, Units 2 and 3* (FES), dated November 1973, as supplemented by Environmental Assessment (EA) dated February 26, 1990, to extend the Unit 3 Facility Operating License to 40 years and EA dated June 7, 1990, to convert the Unit 2 Provisional Operating License to a 40-year full-term Facility Operating License. Evaluations for the FES, as supplemented by the EAs, considered a 40-year operating life. The considerations involved in the NRC staff's determination are discussed below.

##### *Radiological Impacts of the Hypothetical Design-Basis Accidents*

The offsite exposure from releases during postulated accidents was evaluated and found acceptable during the operating license stage and subsequent license amendments. This type of evaluation involves four issues: (1) Type and probability of postulated accidents, (2) the radioactivity releases calculated for each accident, (3) the assumed meteorological conditions, and (4) population size and distribution in the vicinity of the facility. The staff has concluded that neither the type and probability of postulated accidents nor the radioactivity releases calculated for each accident would change through the proposed extended operation. Also, the meteorological conditions are not expected to change during the proposed extended operation and, therefore, any further consideration is not warranted. Thus, the population size and distribution in the vicinity of the facility are the only time-dependent parameters that require consideration. Dresden Units 2 and 3 are located on the same site. The February 26, 1990, Unit 3 EA on extending the Unit 3 Facility Operating License to 40 years evaluated population changes to 2011. The staff used the same population assessment in the June 7, 1990, EA on converting the Unit 2 Provisional Operating License to a full-term Facility Operating License. Therefore, this licensing action, which extends the Unit 2 Facility Operating License to December 22, 2009, does not represent a change from what the staff previously evaluated and found acceptable. Further, there are no changes to the current exclusion area,

low population zone, and nearest population center distance, and the licensee will continue to meet the requirements of 10 CFR 100.11(a) for the proposed license term extension. Also, there is no expected change in land usage during the license terms that would affect offsite dose calculations. Therefore, cumulative exposure to the general public due to a design-basis accident would not be adversely affected. Accordingly, the staff concludes that the proposed action will not significantly change previous conclusions regarding the potential environmental effects of offsite releases from postulated accident conditions.

##### *Radiological Impacts of Annual Releases*

On an annual basis, the licensee submits an Occupational Radiation Exposure Report to the NRC. The data show that the collective occupational exposure at Dresden is in a declining trend. The 3-year annual average collective occupational exposure per reactor at Dresden, Units 2 and 3, has dropped from about 614 person-rem/year in 1989 to about 243 person-rem/year in 1999. Through continued implementation of "As Low As Reasonably Achievable (ALARA)" and other programs, and by continuing to apply new techniques as they are developed by the industry, the licensee expects to minimize occupational exposure for Dresden, Unit 2, during the period of the license extension. Based on its review of historical radiation exposure data at Dresden, the licensee's continued implementation of ALARA, and the licensee's continued compliance with the requirements of 10 CFR Part 20, the staff concludes that the projected occupational exposures through the proposed extended period will continue to remain significantly below the exposures experienced during the first half of the plant's operation.

In accordance with the plant Technical Specifications (TSs), the licensee has established several radiation monitoring programs including a program that follows 10 CFR Part 50, Appendix I guidelines to maintain radiation doses to members of the public "As Low As Reasonably Achievable (ALARA)." The Appendix I guidelines establish radioactive design/dose objectives for liquid and gaseous offsite releases including iodine particulate radionuclides. In addition, routine releases to the environment are governed by 10 CFR Part 20, which states that such releases should be ALARA. Each year, the licensee submits an "Annual Radioactive Effluent Release Report" that provides an annual

assessment of the radiation dose as a result of effluents released from the facility. These reports show that release of radioactive liquids and gases have historically been only a small percentage of the Appendix I guidelines. As a result of the continued implementation of the ALARA program, offsite exposures can be expected to remain lower than the Appendix I guidelines and FES estimates.

In accordance with plant TSS, the licensee has an established Radiological Environmental Monitoring Program by which the licensee monitors the effect of operation of its facilities on the environment. This is accomplished by continuously measuring radiation levels and airborne radioactivity levels and periodically measuring amounts of radioactivity in samples at various locations surrounding the plants. Continued environmental monitoring and surveillance under the program ensure early detection of any increase in exposures over the proposed license term extension.

Accordingly, the staff concludes that the radiological impact on the public due to the proposed license term extension would not increase over that previously evaluated in the FES and the occupational exposures will be consistent with the industry average and in accordance with 10 CFR Part 20.

The staff has reviewed the environmental impacts attributable to the transportation of spent fuel and waste from the Dresden site. With respect to the normal conditions of transport and possible accidents in transport, the staff concludes that the environmental impacts are bounded by those identified in Table S-4, "Environmental Impact of Transportation of Fuel and Waste to and from One Light-Water-Cooled Nuclear Power Reactor," of 10 CFR 51.52 for burnup levels up to 60,000 MWD/MTU and 5 weight percent U-235 enrichment (53 FR 6040 and 53 FR 30355). The staff concludes that the environmental impact related to the transportation of fuel and waste remains low and is not significantly increased by the change in the expiration date of the operating license.

Based on the conservative population estimate in the FES dated November 1973 and EAs dated February 26, 1990, and June 7, 1990, and low radiological exposure from plant releases during normal operation and postulated accidents, and the environmental monitoring program, the staff concludes that the radiological impact on the public due to the proposed action would be insignificant and the conclusions of the FES remain valid.

#### *Environmental Impact of the Uranium Fuel Cycle*

At present, Dresden, Unit 2, is licensed to store new fuel with enrichments up to 5.0 weight percent uranium-235 (U-235). In its EA dated February 29, 1988 (53 FR 6040), the staff concluded that the environmental impact of extended fuel irradiation up to 60,000 megawatt-days per metric ton uranium (MWD/MTU) and increased enrichment up to 5 weight percent are bounded by the impacts reported in Table S-4 of 10 CFR 51.52.

On March 3, 2000, the licensee submitted an application to extend fuel cycles from eighteen to twenty-four months. Based on twenty-four month cycle lengths, the total projected number of fuel cycles remaining at Unit 2 before the current Facility Operating License expiration date (January 10, 2006) is 3. The proposed extended operating license term will increase the number of Unit 2 fuel cycles to a total 5. The licensee has projected that Unit 2 will lose full core discharge capability in 2001, well before any operation under the proposed extended license term. The licensee states that it is pursuing various options including on-site dry cask storage to store additional fuel assemblies; such matters are beyond the scope of this license amendment.

Based on the above, the staff concludes that there are no significant changes in the environmental impact related to the uranium fuel cycle due to the proposed extended operation of Dresden, Unit 2.

#### *Non-radiological Impacts*

The major non-radiological impact of the plant on the environment is the operation of the plant's cooling water system and discharge to the Illinois River. The Illinois Environmental Protection Agency (IEPA), Division of Water Pollution Control, has reviewed and considered the environmental impacts of the Dresden, Unit 2, water discharge into the Illinois River in its issuance of the National Pollutant Discharge Elimination System (NPDES) permit and renewals. The NPDES permit is conditional upon the discharge's complying with provisions of the Illinois Environmental Protection Act and of the Clean Water Act (as amended or as supplemented by implementing guidelines and regulations). On August 28, 1995, the Board adopted and renewed NPDES permits to Dresden, Unit 2, until June 1, 2000. The Board found that discharges from Dresden, Unit 2, are consistent with its policy with respect to

maintaining high quality waters in Illinois. The licensee will continue to abide by the NPDES permits and, accordingly, expects the IEPA to renew and issue NPDES permits every 5 years. Also, the proposed action does not involve any historic sites. Therefore, the NRC concludes that there are no significant non-radiological environmental impacts associated with the proposed action.

Accordingly, the NRC concludes that there are no significant environmental impacts associated with the proposed action.

#### *Alternatives to the Proposed Action*

Since the Commission has concluded there is no significant environmental impact associated with the proposed action, any alternatives with equal or greater environmental impact need not be evaluated. As an alternative to the proposed action, the staff considered denial of the proposed action (i.e., the "no action" alternative). Denial of the proposed action would result in Dresden, Unit 2, shutting down prematurely upon expiration of the present operating license.

Chapters 9 and 10 of the Dresden FES present alternatives and a cost-benefit analysis for Dresden, Units 2 and 3. Operation of Dresden, Unit 2, in the present plant configuration for approximately 4 additional years would only require incremental yearly costs. The environmental costs for the extended period of operation would be less than the cost of replacement power or the installation of new electrical generating capacity. Continued operation of the facility would avert potential non-radiological environmental effects of greenhouse gases and other airborne effluents from non-nuclear plants that would be required to operate in order to replace the power from Dresden, Unit 2. Moreover, the overall cost per year of the facility would decrease under the proposed action because the initial capital outlay and the decommissioning fund outlay would be averaged over a greater number of years. In summary, the cost-benefit advantage of Dresden, Unit 2, compared to alternative electrical generating capacity improves with the extended plant lifetime.

#### *Alternative Use of Resources*

This action does not involve the use of any resources not previously considered in the FES for Dresden, Unit 2.

#### *Agencies and Persons Consulted*

In accordance with its stated policy, on May 9, 2000, the staff consulted with

the Illinois State official, Mr. Frank Niziolek, of the Illinois Department of Nuclear Safety, regarding the environmental impact of the proposed action. The State official had no comments.

#### *Finding of No Significant Impact*

On the basis of the environmental assessment, the NRC concludes that the proposed action will not have a significant effect on the quality of the human environment. Accordingly, the NRC has determined not to prepare an environmental impact statement for the proposed action.

For further details with respect to the proposed action, see the licensee's letter dated April 30, 1999, which is available for public inspection at the Commission's Public Document Room, The Gelman Building, 2120 L Street, NW., Washington, DC. Publicly available records will be accessible electronically from the ADAMS Public Library Component on the NRC Web site, <http://www.nrc.gov> (the Electronic Reading Room).

Dated at Rockville, Maryland, this 1st day of June 2000.

For the Nuclear Regulatory Commission.

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## NUCLEAR REGULATORY COMMISSION

[Docket 72-37]

### **Commonwealth Edison Company, Dresden Nuclear Power Station, Unit 1; Issuance of Environmental Assessment and Finding of No Significant Impact Regarding the Proposed Exemption From Certain Requirements of 10 CFR Part 72**

The U.S. Nuclear Regulatory Commission (NRC or Commission) is considering issuance of an exemption, pursuant to 10 CFR 72.7, from the provisions of 10 CFR 72.212(a)(2), 72.212(b)(2)(i), and 72.214 to Commonwealth Edison Company (ComEd). The requested exemption would allow ComEd to deviate from the requirements of Certificate of Compliance 1008 (the Certificate), Appendix B, Items 1.4.6.b and 1.4.6.c and place HI-STAR 100 Cask Systems, loaded with spent nuclear fuel, on a concrete storage pad with a concrete compressive strength of less than or equal to 4,200 psi at 28 days and

concrete reinforcement of 60 ksi yield strength ASTM material at the Dresden Nuclear Power Station (Dresden) Independent Spent Fuel Storage Installation (ISFSI).

#### **Environmental Assessment (EA)**

*Identification of Proposed Action:* By letter dated April 24, 2000, ComEd requested an exemption from the requirements of 10 CFR 72.212(a)(2), 72.212(b)(2)(i), and 72.214 to deviate from the requirements of Certificate of Compliance 1008, Appendix B, Items 1.4.6.b and 1.4.6.c. ComEd is a general licensee, authorized by NRC to use spent fuel storage casks approved under 10 CFR Part 72, Subpart K.

ComEd plans to use the HI-STAR 100 Cask System to store spent nuclear fuel, generated at Dresden Unit 1, at an ISFSI located in Morris, Illinois, on the Dresden Nuclear Power Station site. The Dresden ISFSI has been constructed for interim dry storage of spent nuclear fuel.

By exempting ComEd from 10 CFR 72.212(a)(2), 72.212(b)(2)(i), and 72.214, ComEd will be authorized to place loaded HI-STAR 100 Casks Systems on cask storage pads that include the following characteristics:

(1) Compressive Strength:  $\leq 4,200$  psi at 28 days.

(2) Reinforcement top and bottom (both directions): Reinforcement area and spacing determined by analysis Reinforcement shall be 60 ksi yield strength ASTM material.

The storage pad characteristics specified above would be in lieu of those specified in Certificate of Compliance 1008, Appendix B, Items 1.4.6.b and 1.4.6.c, respectively. The proposed action before the Commission is whether to grant this exemption under 10 CFR 72.7.

On November 24, 1999, as supplemented February 4, 18 and 28, and March 2, 16 and 31, 2000, the cask designer, Holtec International (Holtec), submitted to NRC an application to amend Certificate of Compliance 1008. The requested amendment includes revisions to the storage pad specifications in Items 1.4.6.b and 1.4.6.c in Appendix B to the Certificate. Item 1.4.6.b requires a concrete compressive strength of less than or equal to 4,200 psi; Holtec is requesting that this requirement be revised to specify a concrete compressive strength of less than or equal to 4,200 psi at 28 days. Item 1.4.6.c includes the requirement that the reinforcement yield strength be less than or equal to 60,000 psi; Holtec is requesting that this requirement be revised to specify that reinforcement shall be 60 ksi yield

strength ASTM material. The NRC staff has reviewed the application and determined that placement of HI-STAR 100 Cask Systems on storage pads with the revised characteristics would have minimal impact on the design basis and would not be inimical to public health and safety.

*Need for the Proposed Action:* There are a number of Dresden Unit 1 spent fuel assemblies in the Dresden Unit 2 spent fuel pool. To maintain full core offload capability in the Dresden Unit 2 spent fuel pool once new fuel arrives for the Fall 2001 refueling outage, ComEd needs to begin loading Dresden Unit 1 spent fuel into storage casks in June 2000. Unless the exemption is granted or the Certificate is amended, the storage pads at the Dresden ISFSI will not be in full conformance with the Certificate. Because the 10 CFR Part 72 rulemaking to amend the Certificate will not be completed prior to the date that ComEd plans to begin loading HI-STAR 100 Cask Systems, the NRC is granting this exemption based on the staff's technical review of information submitted by ComEd and Holtec.

*Environmental Impacts of the Proposed Action:* The potential environmental impact of using the HI-STAR 100 Cask System was initially presented in the Environmental Assessment (EA) for the Final Rule to add the HI-STAR 100 Cask System to the list of approved spent fuel storage casks in 10 CFR 72.214 (64 FR 171, 09/03/99). Furthermore, each general licensee must assess the environmental impacts of the specific ISFSI in accordance with the requirements of 10 CFR 72.212(b)(2). This section also requires the general licensee to perform written evaluations to demonstrate compliance with the environmental requirements of 10 CFR 72.104, "Criteria for radioactive materials in effluents and direct radiation from an ISFSI or MRS [Monitored Retrievable Storage Installation]."

The HI-STAR 100 Cask System is designed to mitigate the effects of design basis accidents that could occur during storage. Design basis accidents account for human-induced events and the most severe natural phenomena reported for the site and surrounding area. Postulated accidents analyzed for an ISFSI include tornado winds and tornado generated missiles, design basis earthquake, design basis flood, accidental cask drop, lightning effects, fire, explosions, and other incidents.

The HI-STAR 100 Cask System consists of a stainless steel multi-purpose canister and a steel overpack. The welded MPC provides confinement and criticality control for the storage