

use of different fuel rod cladding material. Therefore, the licensee requested an exemption that would allow the use of Optimized ZIRLO™ fuel rod cladding at PINGP. The NRC staff will prepare a separate safety evaluation, fully addressing NSPM's application for a related license amendment.

### 3.0 Discussion

Pursuant to 10 CFR 50.12, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR part 50 when (1) the exemptions are authorized by law, will not present an undue risk to public health or safety, and are consistent with the common defense and security; and (2) when special circumstances are present. Under 10 CFR 50.12(a)(2), special circumstances include, among other things, when application of the specific regulation in the particular circumstance would not serve, or is not necessary to achieve, the underlying purpose of the rule.

#### *Authorized by Law*

This exemption would allow the use of Optimized ZIRLO™ fuel rod cladding material at PINGP. As stated above, 10 CFR 50.12 allows the NRC to grant exemptions from the requirements of 10 CFR part 50. The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's regulations. Therefore, the exemption is authorized by law.

#### *No Undue Risk to Public Health and Safety*

The underlying purpose of 10 CFR 50.46 is to establish acceptance criteria for ECCS performance. Westinghouse topical reports WCAP-12610-P-A and CENPD-404-P-A, Addendum 1-A, "Optimized ZIRLO™," dated July 2006, contain the justification to use Optimized ZIRLO™ fuel rod cladding material in addition to Zircaloy-4 and ZIRLO™ (these topical reports are non-publicly available because they contain proprietary information). The NRC staff approved the use of these topical reports, subject to the conditions stated in the staff's safety evaluations for each. In these topical reports, Westinghouse evaluated the structural and material properties of Optimized ZIRLO™ and determined that the use of Optimized ZIRLO™ as cladding would have either no significant impact or would produce a reduction in corrosion or oxidation and a corresponding reduction in hydrogen pickup. Westinghouse also

evaluated the impact of Optimized ZIRLO™ fuel cladding on the loss-of-coolant accident (LOCA) and non-LOCA accident analyses. The evaluations determined that the LOCA analyses for fuel with Optimized ZIRLO™ cladding complied with 10 CFR 50.46, and that there was a negligible difference in the non-LOCA analyses between fuel clad with standard ZIRLO™ and fuel clad with Optimized ZIRLO™.

The underlying purpose of 10 CFR Part 50, Appendix K, Section I.A.5, "Metal-Water Reaction Rate," is to ensure that cladding oxidation and hydrogen generation are appropriately limited during a LOCA and conservatively accounted for in the ECCS evaluation model. Appendix K of 10 CFR part 50 requires that the Baker-Just equation be used in the ECCS evaluation model to determine the rate of energy release, cladding oxidation, and hydrogen generation. Westinghouse has shown in WCAP-12610-P-A that the Baker-Just model is conservative in all post-LOCA scenarios with respect to the use of the Optimized ZIRLO™ advanced alloy as a fuel cladding material.

The NRC-approved topical reports have demonstrated that predicted chemical, thermal, and mechanical characteristics of the Optimized ZIRLO™ alloy cladding are bounding for those approved for ZIRLO™ under anticipated operational occurrences and postulated accidents. Reload cores are required to be operated in accordance with the operating limits specified in the technical specifications and the core operating limits report.

Based on the above, no new accident precursors are created by using Optimized ZIRLO™; thus, the probability of postulated accidents is not increased. Also, based on the above, the consequences of postulated accidents are not increased. Therefore, there is no undue risk to public health and safety due to using Optimized ZIRLO™.

#### *Consistent With Common Defense and Security*

The proposed exemption would allow the use of Optimized ZIRLO™ fuel rod cladding material at PINGP. This change to the plant configuration has no relation to security issues. Therefore, the common defense and security is not impacted by this exemption.

#### *Special Circumstances*

Special circumstances, in accordance with 10 CFR 50.12(a)(2)(ii), are present whenever application of the regulation in the particular circumstances is not necessary to achieve the underlying

purpose of the rule. The underlying purpose of 10 CFR 50.46 and Appendix K to 10 CFR part 50 is to establish acceptance criteria for ECCS performance. The wording of the regulations in 10 CFR 50.46 and Appendix K is not directly applicable to Optimized ZIRLO™, even though the evaluations above show that the intent of the regulation is met. Therefore, since the underlying purposes of 10 CFR 50.46 and Appendix K are achieved through the use of Optimized ZIRLO™ fuel rod cladding material, the special circumstances required by 10 CFR 50.12(a)(2)(ii) for the granting of an exemption from 10 CFR 50.46 and Appendix K exist.

### 4.0 Conclusion

Accordingly, the Commission has determined that, pursuant to 10 CFR 50.12, the exemption is authorized by law, will not present an undue risk to the public health and safety, and is consistent with the common defense and security. Also, special circumstances are present. Therefore, the Commission hereby grants NSPM an exemption from the requirements of 10 CFR 50.46 and Appendix K to 10 CFR part 50, to allow the use of Optimized ZIRLO™ fuel rod cladding material, for the Prairie Island Nuclear Generating Plant, Units 1 and 2.

Pursuant to 10 CFR 51.32, the Commission has determined that the granting of this exemption will not have a significant effect on the quality of the human environment as published in the **Federal Register** on October 14, 2010 (75 FR 63213).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 22nd day of November, 2010.

For the Nuclear Regulatory Commission.

**Joseph G. Giitter,**

*Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.*

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## **NUCLEAR REGULATORY COMMISSION**

**[Docket Nos. 50-348 and 50-364; NRC-2009-0375]**

**Southern Nuclear Operating Company, Inc. Joseph M. Farley Nuclear Plant, Units 1 and 2; Exemption**

### **1.0 Background**

Southern Nuclear Operating Company, Inc. (SNC, the licensee), is the holder of Renewed Facility

Operating License Nos. NPF-2 and NPF-8, which authorizes operation of the Joseph M. Farley Nuclear Plant, Units 1 and 2 (FNP). The licenses provide, among other things, that the facility is subject to all rules, regulations, and orders of the U.S. Nuclear Regulatory Commission (NRC, the Commission) now or hereafter in effect.

The facility consists of two pressurized-water reactors located in Houston County, Alabama.

## 2.0 Request/Action

Title 10 of the Code of Federal Regulations (10 CFR), part 73, "Physical protection of plants and materials," Section 73.55, "Requirements for physical protection of licensed activities in nuclear power reactors against radiological sabotage," published March 27, 2009, effective May 26, 2009, with a full implementation date of March 31, 2010, requires licensees to protect, with high assurance, against radiological sabotage by designing and implementing comprehensive site security programs. The amendments to 10 CFR 73.55 published on March 27, 2009, establish and update generically applicable security requirements similar to those previously imposed by Commission orders issued after the terrorist attacks of September 11, 2001, and implemented by licensees. In addition, the amendments to 10 CFR 73.55 includes additional requirements to further enhance site security based upon insights gained from implementation of the post September 11, 2001, security orders. It is from three of these new requirements that, by its letters dated September 10 and October 5, 2010, SNC now seeks an exemption from the March 31, 2010, implementation date. All other physical security requirements established by this recent rulemaking have already been implemented by the licensee by March 31, 2010.

Previously, by letters dated June 9, and July 31, 2009, SNC submitted a request for an exemption from the compliance date identified in 10 CFR 73.55 for the three requirements of 10 CFR 73.55 that are discussed above. The NRC staff reviewed the request and by letter dated August 27, 2009, granted an exemption to the March 31, 2010, compliance date for the specific requirements identified within the SNC exemption request until December 15, 2010, to afford additional time for the necessary security system upgrades.

Subsequently, by letters dated September 10 and October 5, 2010, the licensee submitted an additional request for an exemption to the compliance date

identified in 10 CFR 73.55, in accordance with 10 CFR 73.5, "Specific exemptions." The new compliance date requested for the specific requirements identified within this exemption request is July 15, 2011.

The licensee's letters dated September 10, 2010 (NL-10-1676) and October 5, 2010 (NL-10-1908) contain security-related information and, accordingly, are not available to the public. A redacted version of the licensee's September 10, 2010, letter (NL-10-1795) is available at ADAMS Accession No. ML102560042. The licensee has requested a further exemption from the March 31, 2010, compliance date stating that a number of issues, including unforeseen growth in the amount of design work required, design product loss due to computer hardware failures, and weather-related construction delays, will present a significant challenge to timely completion of the project related to a specific requirement in 10 CFR part 73. Specifically, the request is to extend the compliance date for three specific requirements from the current March 31, 2010, deadline to July 15, 2011. Being granted this exemption for these items will allow the licensee to complete the modifications designed to update equipment and incorporate state-of-the-art technology to meet the noted regulatory requirement.

## 3.0 Discussion of Part 73 Schedule Exemptions From the March 31, 2010, Full Implementation Date

Pursuant to 10 CFR 73.55(a)(1), "By March 31, 2010, each nuclear power reactor licensee, licensed under 10 CFR part 50, shall implement the requirements of this section through its Commission-approved Physical Security Plan, Training and Qualification Plan, Safeguards Contingency Plan, and Cyber Security Plan referred to collectively hereafter as 'security plans.'" Pursuant to 10 CFR 73.5, the Commission may, upon application by any interested person or upon its own initiative, grant exemptions from the requirements of 10 CFR Part 73 when the exemptions are authorized by law, and will not endanger life or property or the common defense and security, and are otherwise in the public interest.

An NRC approval of this exemption would; as noted above, allow an extension from March 31, 2010, to July 15, 2011, for the implementation date for three specific requirements of the new rule. The NRC staff has determined that granting of the licensee's proposed exemption will not result in a violation of the Atomic Energy Act of 1954, as amended, or the Commission's

regulations. Therefore, the exemption is authorized by law.

In the draft final rule provided to the Commission (SECY-08-0099, dated July 9, 2008), the NRC staff proposed that the requirements of the new regulation be met within 180 days. The Commission directed a change from 180 days to approximately 1 year for licensees to fully implement the new requirements. This change was incorporated into the final rule. From this, it is clear that the Commission wanted to provide a reasonable timeframe for licensees to achieve full compliance.

As noted in the final rule, the Commission also anticipated that licensees would have to conduct site specific analyses to determine what changes were necessary to implement the rule's requirements, and that changes could be accomplished through a variety of licensing mechanisms, including exemptions. Since issuance of the final rule, the Commission has rejected a generic industry request to extend the rule's compliance date for all operating nuclear power plants, but noted that the Commission's regulations provide mechanisms for individual licensees, with good cause, to apply for relief from the compliance date (Reference: June 4, 2009, letter from R. W. Borchardt, NRC, to M. S. Fertel, Nuclear Energy Institute). The licensee's request for an exemption is therefore consistent with the approach set forth by the Commission as discussed in the June 4, 2009, letter.

### *FNP Schedule Exemption Request*

The licensee provided detailed information in its letters dated September 10 and October 5, 2010, requesting an exemption. It describes a comprehensive plan to install equipment related to the requirements in the new Part 73 rule and provides a timeline for achieving full compliance with the new regulation. The submittals contain security-related information regarding the site security plan, details of the specific requirements of the regulation for which the site cannot be in compliance by the March 31, 2010, deadline and why, the required changes to the site's security configuration, and a timeline with critical path activities that will bring the licensee into full compliance by July 15, 2011. The timeline provides dates indicating (1) When various phases of the project begin and end (*i.e.*, design, field construction), (2) outages scheduled for each unit, and (3) when critical equipment will be ordered, installed, tested and become operational.

Notwithstanding the schedular exemption for these limited

requirements, the licensee is required to be in compliance with all other applicable physical security requirements as described in 10 CFR 73.55 and reflected in its current NRC approved physical security program. By July 15, 2011, SNC will be in full compliance with all the regulatory requirements of 10 CFR 73.55 for the FNP, as issued on March 27, 2009.

#### 4.0 Conclusion for Part 73 Schedule Exemption Request

The NRC staff has reviewed the licensee's submittals and concludes that the licensee has provided adequate justification for its request for an extension of the compliance date to July 15, 2011, with regard to three specific requirements of 10 CFR 73.55.

Accordingly, the Commission has determined that pursuant to 10 CFR 73.5, "Specific exemptions," an exemption from the March 31, 2010, compliance date is authorized by law and will not endanger life or property or the common defense and security, and is otherwise in the public interest. Therefore, the Commission hereby grants the requested exemption.

The NRC staff has determined that the long-term benefits that will be realized when the FNP equipment installation is complete justifies extending the full compliance date with regard to the specific requirements of 10 CFR 73.55. The security measures, that SNC needs additional time to implement, are new requirements imposed by the March 27, 2009, amendments to 10 CFR 73.55, and is in addition to those required by the security orders issued in response to the events of September 11, 2001. Therefore, it is concluded that the licensee's actions are in the best interest of protecting the public health and safety through the security changes that will result from granting this exemption.

As per the licensee's request and the NRC's regulatory authority to grant an exemption from the March 31, 2010, implementation deadline for the requirement specified in the SNC letters dated September 10 and October 5, 2010, the licensee is required to be in full compliance by July 15, 2011. In achieving compliance, the licensee is reminded that it is responsible for determining the appropriate licensing mechanism (*i.e.*, 10 CFR 50.54(p) or 10 CFR 50.90) for incorporation of all necessary changes to its security plans.

Pursuant to 10 CFR 51.32, "Finding of no significant impact," the Commission has previously determined that the granting of this exemption will not have a significant effect on the quality of the human environment (75 FR 73135, dated November 29, 2010).

This exemption is effective upon issuance.

Dated at Rockville, Maryland, this 1st day of December 2010.

For the Nuclear Regulatory Commission.

**Joseph G. Gütter,**

*Director, Division of Operating Reactor Licensing, Office of Nuclear Reactor Regulation.*

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## NUCLEAR REGULATORY COMMISSION

[Docket No. 50-341; NRC-2010-0357]

### Detroit Edison Company Fermi, Unit 2; Exemption

#### 1.0 Background

Detroit Edison Company (DECo) is the licensee and holder of Facility Operating License No. NFP-43 issued for Fermi, Unit 2 (Fermi-2), located in Monroe County, Michigan. The licensee anticipates using rail to ship radioactive waste. From the licensee's experience with radioactive shipments from the decommissioning of Fermi-1, a permanently shutdown nuclear reactor facility located onsite, rail shipments typically take more than 20 days from the site to receipt acknowledgement from the disposal site. Each shipment with receipt notifications greater than 20 days requires a special investigation and report to the U.S. Nuclear Regulatory Commission (NRC or the Commission) which the licensee believes to be burdensome and unnecessary to meet the intent of the regulation.

#### 2.0 Request/Action

In a letter to the Commission dated February 5, 2010 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML100430349), DECo requested an exemption from the requirements in 10 CFR part 20, appendix G, section III.E, to investigate and file a report to the NRC if shipments of low-level radioactive waste are not acknowledged by the intended recipient within 20 days after transfer to the shipper. This exemption would extend the time period that can elapse during shipments of low-level radioactive waste before DECo is required to investigate and file a report to the NRC from 20 days to 35 days. The exemption would be applicable to rail and truck/rail mixed-mode shipments. The exemption request is based on an analysis of the historical data of low-level radioactive waste shipment times from the Fermi-1

site to the disposal site. This historical data is further described below and in the Environmental Assessment and Finding of No Significant Impact (75 FR 20867) that was published for the exemption which was granted in May 2010 for Enrico Fermi Atomic Power Plant Unit 1.

#### 3.0 Discussion

The proposed action would grant an exemption to extend the 20-day investigation and reporting requirements for shipments of low-level radioactive waste to 35 days.

Historical data derived from experience at Fermi-1 indicates that rail transportation time to waste disposal facilities almost always exceeds the 20-day reporting requirement. A review of the Fermi-1 data indicates that transportation time for shipments by rail or truck/rail took over 20 days on average. In addition, administrative processes at the disposal facilities and mail delivery times could add several additional days.

Pursuant to 10 CFR 20.2301, the Commission may, upon application by a licensee or upon its own initiative, grant an exemption from the requirements of regulations in 10 CFR part 20 if it determines the exemption is authorized by law and would not result in undue hazard to life or property. There are no provisions in the Atomic Energy Act (or in any other Federal statute) that impose a requirement to investigate and report on low-level radioactive waste shipments that have not been acknowledged by the recipient within 20 days of transfer.

Therefore, the Commission concludes that there is no statutory prohibition on the issuance of the requested exemption and the Commission is authorized to grant the exemption by law.

The Commission acknowledges that, based on the shipment times to date from the Fermi-1 site to the disposal facility, the need to investigate and report on shipments that take longer than 20 days could result in an excessive administrative burden on the licensee. The Commission finds that the underlying purpose of the Appendix G timing provision at issue is to investigate a late shipment that may be lost, misdirected, or diverted. Furthermore, by extending the elapsed time for receipt acknowledgment to 35 days before requiring investigations and reporting, a reasonable upper limit on shipment duration (based on historical analysis) is still maintained if a breakdown of normal tracking systems were to occur. Consequently, the Commission finds that there is no hazard to life or property by extending