

**SAFEGUARDS INFORMATION**



10 CFR 73.4

June 18, 2012

ZS-2012-0285

U.S. Nuclear Regulatory Commission  
ATTN: John Hickman, Senior Project manager  
Washington, DC 20555-0001

Zion Nuclear Power Station, Units 1 and 2  
Facility Operating License Nos. DPR-39 and DPR-48  
NRC Docket Nos. 50-295, 50-304 and 72-1037

**Subject:** License Amendment and Exemption Request for Independent Spent Fuel Storage  
Installation Physical Security Plan

Pursuant to 10 CFR 50.90, ZionSolutions, LLC (ZionSolutions) hereby requests a proposed license amendment consisting of 1) a revision to the Zion Nuclear Power Station (ZNPS) Physical Security Plan including a Transfer Plan, 2) a new stand alone ZNPS Independent Spent Fuel Storage Installation (ISFSI) Physical Security Plan, and 3) a revision to License Condition 2.C(6).

The proposed amendment reflects the intent of ZionSolutions to transfer all spent nuclear fuel from wet storage in the spent fuel pool to dry casks located at an on-site ISFSI. Greater than Class C (GTCC) low level radioactive waste will also be transferred to the ISFSI from the Containment Buildings. The evaluation of the proposed amendment, including a technical and regulatory evaluation of the proposed amendment, is provided in Enclosure 1. The Operating License retyped pages are included as an attachment to Enclosure 1. Enclosure 1 determined that the new ISFSI Physical Security Plan further supplements the existing security plan commitments to assure that public health and safety and the common defense and security continue to be adequately protected in the current threat environment. Enclosure 1 also provides a no significant hazards consideration determination for the proposed license amendment.

The existing exemptions (Refs. 1 and 2) to 10 CFR Part 73 will also be applicable to the ISFSI Physical Security Plan except for those items discussed in Enclosure 2 that will no longer be needed once all spent fuel and GTCC waste has been transferred to the ISFSI. The existing exemptions, as modified for the ISFSI, are required for ISFSI operation. An exemption request has been provided with Enclosure 2 to apply the existing exemptions to ISFSI security operations.

**Safeguards Information  
Withhold Under 10 CFR 2.390**

**The letter and Enclosure 1 are decontrolled upon removal from this document.**

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**Safeguards Information**  
**Withhold Under 10 CFR 2.390**

Pursuant to 10 CFR 73.5, "Specific Exemptions," ZionSolutions is requesting NRC approval of exemptions from certain requirements of 10 CFR 73.55, "Requirements for Physical Protection of Licensed Activities in Nuclear Power Reactors Against Radiological Sabotage."

The revised ZNPS Physical Security Plan is provided in Enclosure 3 and the Transfer Plan is provided in Enclosure 4. The new ZNPS ISFSI Physical Security Plan is provided in Enclosure 5. The ZNPS ISFSI Physical Security Plan will also meet the additional security measures for physical protection and access authorization requirements for ISFSIs within 15 months of spent fuel loading as provided to ZionSolutions in NRC Order EA-11-268 issued on December 20, 2011 (Ref. 3). The commitments to the additional security measures and access authorization requirements are included in the plan and a response to the order was provided on January 9, 2012 (Ref. 4).

In accordance with 10 CFR 50.91, ZionSolutions is notifying the State of Illinois of this license amendment request by transmitting a copy of this letter and enclosures to the designated State Official.

Approval of the proposed amendment and exemption is requested by December 2012 in order to support the decommissioning and spent fuel transfer schedule for the ZNPS. Once approved, the amendment and exemption will be implemented prior to the start of spent fuel transfer operations.

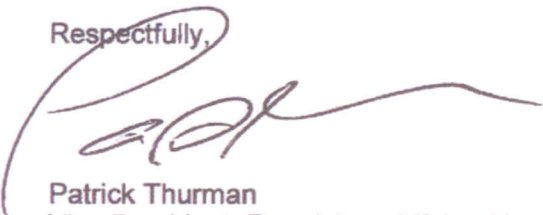
Enclosures 2, 3, 4, and 5 to this cover letter contain Safeguards Information of a type specified in 10 CFR 73.22(a)(1) and 10 CFR 73.22(a)(4) and should be withheld from public disclosure. In accordance with 10 CFR 2.390, a copy of this cover letter and Enclosure 1, when detached from Enclosures 2 through 5, do not contain Safeguards Information.

If you have any questions regarding this submittal, please contact me at (224) 789-4041.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on June 18, 2012

Respectfully,



Patrick Thurman  
Vice President, Regulatory Affairs, Licensing & Document Control

References:

- 1) Dino C. Scaletti, U.S. Nuclear Regulatory Commission, Letter to Oliver D. Kingsley, President, Commonwealth Edison Company, "Zion Nuclear Power Station, Units 1 and 2 – Exemption From Certain Requirements of 10 CFR 73", dated October 18, 1999

**Safeguards Information**  
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**Safeguards Information**  
**Withhold Under 10 CFR 2.390**

- 2) John B. Hickman, U.S. Nuclear Regulatory Commission, Letter to John A. Christian, ZionSolutions, LLC, "Zion Nuclear Power Station, Units 1 and 2 – Issuance of Exemption From Security Requirements of 10 CFR Part 50 and 10 CFR Part 73", dated November 10, 2011
- 3) Daniel H. Dorman, U.S. Nuclear Regulatory Commission, Letter to John A. Christian, ZionSolutions, LLC, "Issuance of Order for Implementation of Additional Security Measures and Fingerprinting for Unescorted Access for Zion Nuclear Power Station Independent Spent Fuel Storage Installation", Order EA-11-268, dated December 20, 2011
- 4) Patrick S. Thurman, ZionSolutions, LLC, Letter to Director, Division of Spent Fuel Storage and Transportation, U.S. Nuclear Regulatory Commission, "Response to NRC Order EA-11-268, Implementation of Additional Security Measures and Fingerprinting for Unescorted Access for Zion Nuclear Power Station Independent Spent Fuel Storage Installation", dated January 9, 2012

Enclosures:

- (1) Evaluation of Proposed Amendment
- (2) Existing Exemption Applicability to the ISFSI and Exemption Request
- (3) ZNPS Physical Security Plan, Revision X
- (4) Transfer Plan
- (5) ZNPS ISFSI Physical Security Plan

cc: Regional Administrator, Region III, U.S. NRC  
L. Raynard Wharton, U.S. NRC Senior Project Manager  
NRC Resident Inspector, Region III, U.S. NRC  
Service List (w/o Enclosures 2 through 5)

**Safeguards Information**  
**Withhold Under 10 CFR 2.390**

The letter and Enclosure 1 are decontrolled upon removal from this document.

Zion Nuclear Power Station, Unit 1 and 2 License Transfer Service List

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## **Evaluation of Proposed Amendment**



Evaluation of Proposed Change  
Proposed Revision to License Condition 2.C(6) of Operating License Nos. DPR-39 and DPR-48

**SUMMARY DESCRIPTION**

Pursuant to 10 CFR 50.90, ZionSolutions LLC (ZionSolutions) hereby proposes to amend Operating License Nos. DPR-39 and DPR-48. Although the proposed amendment to the Zion Nuclear Power Station (ZNPS) Physical Security Plan and addition of a ZNPS Independent Spent Fuel Storage Installation (ISFSI) Physical Security Plan may be viewed as a reduction in the level of physical security provided to protect the spent nuclear fuel and Greater than Class C (GTCC) waste, this proposal demonstrates that adequate protection is provided. In support of this request, ZionSolutions hereby submits, in accordance with 10 CFR Section 50.91, the corresponding evaluation to support the change to Operating License Condition 2.C(6). Approval of the proposed amendment is requested by December 2012 in order to support the decommissioning and spent fuel transfer schedule for the ZNPS. Once approved, the amendment will be implemented prior to the start of spent fuel transfer operations.

**DETAILED DESCRIPTION**

On September 1, 2010, the NRC issued License Amendment 185 for the Zion Nuclear Power Station, Unit 1 and License Amendment 172 for the Zion Nuclear Power Station, Unit 2 (Ref. 1). These amendments implemented the May 4, 2009 NRC Order approving the License Transfer of the Zion Nuclear Power Station (ZNPS) from Exelon Generation Company, LLC (Exelon) to ZionSolutions, LLC (ZionSolutions) (Ref. 2). As a result of these license transfers, the ZNPS Physical Security Plan has been revised to reflect the change in ZNPS ownership and operation including the Zion Solutions organization and security management positions.

As part of the decommissioning agreement with Exelon, ZionSolutions will build an Independent Spent Fuel Storage Installation (ISFSI) on site and transfer the spent fuel and Greater-Than-Class C (GTCC) radioactive waste to the ISFSI storage pad. The ISFSI will be in the owner controlled area of the reactor site under the provisions of a general license pursuant to 10 CFR Part 72, Subpart K, "General License for Storage of Spent Fuel at Power Reactor Sites." Subpart K grants a general license to holders of 10 CFR Part 50 licenses to construct and operate an ISFSI.

Under the provisions of 10 CFR Part 72, Subpart K, ZionSolutions is required to meet the physical protection requirements of 10 CFR 72.212(b)(9), which in turn references the requirements of 10 CFR 73.55 (with some exceptions) for an ISFSI general license. The proposed amendment, along with the existing exemptions and the alternative measures previously approved by the NRC (Refs. 6 and 7), would allow the ZNPS ISFSI Physical Security Plan to meet the physical protection requirements of 10 CFR 73.55. Security provisions for the ZNPS Fuel Building will continue to meet the physical protection requirements of 10 CFR 73.55, with the exception of the exemptions previously approved by the NRC, until all spent nuclear fuel has been transferred to the onsite ISFSI.

The amendment also provides the plan to transfer spent fuel located in the Fuel Building to the ISFSI protected area located within the owner-controlled area of the ZNPS reactor site. The plan is provided in Appendix C to ZNPS Physical Security Plan. The plan will meet the physical



protection provisions and requirements of 10 CFR 73.55, with alternative measures identified where specific requirements of 10 CFR 73.55 are no longer applicable.

The ISFSI Physical Security Plan and the Transfer Plan will also meet the additional security measures for the transfer and storage of spent fuel at an ISFSI as discussed in NRC Order EA-11-268 issued on December 20, 2011 (Ref. 3). The ZionSolutions response to the order was submitted on January 9, 2012 (Ref. 8). It is understood that these interim compensatory measures for decommissioning reactors and ISFSIs will further supplement the existing security plan commitments to assure that public health and safety and the common defense and security continue to be adequately protected in the current threat environment.

In order to accomplish this task, a stand-alone ISFSI Physical Security Plan has been drafted to safeguard the spent fuel. The new plan is provided in Enclosure 5 and will meet the requirements of 10 CFR 73.55, with the exception of most of the exemptions previously approved by the NRC. The existing ZNPS Physical Security Plan will reference the ISFSI plan until such time as the ZNPS Physical Security Plan is no longer needed. Once all the spent fuel and GTCC waste has been transferred to the ISFSI, ZionSolutions will request NRC approval to discontinue the ZNPS Physical Security Plan. ZionSolutions will continue to meet the provisions delineated in the May 23, 2002 Order EA-02-077 (Ref. 4) and in the August 18, 2004 Order EA-03-099 (Ref. 5) related to additional security measures for decommissioning reactors, until such time as the NRC removes the orders from the ZNPS licenses.

ZionSolutions proposes to amend the facility operating licenses for DPR-39 and DPR-48 to revise License Condition 2.C(6) to reference the ISFSI Physical Security Plan contained within this submittal. The proposed change does not decrease the effectiveness of the existing Physical Security Plan in accordance with 10 CFR 50.54(p). The new ISFSI Physical Security Plan is required to be approved by the NRC in accordance with 10 CFR 73.55.

#### 2.C(6) Physical Protection

The licensee shall fully implement and maintain in effect all provisions of the Commission approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provisions of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Zion Nuclear Power Station Security Plan," with revisions submitted through September 22, 1993; "Zion Power Station Training and Qualification Plan," with revisions submitted through March 2, 1993; "Zion Nuclear Power Station Safeguards Contingency Plan," with revisions submitted through December 2, 1992; and the "Zion Nuclear Power Station Independent Spent Fuel Storage Installation Physical Security Plan." Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein. (revised 1-15-81; Am. 61; revised 10-11-88; Am. 113; revised date Am. xxx)

#### **SIGNIFICANT HAZARDS CONSIDERATION**

The proposed amendment provides the basis for establishing security functions necessary to implement appropriate security/safeguards measures for the ZNPS Independent Spent Fuel Storage Installation (ISFSI). As such, the changes will not:

1. Involve a significant increase in the probability or consequences of an accident previously evaluated. The proposed amendment, which incorporates ISFSI security functions, does not reduce the ability of the Security organization to prevent radiological sabotage and, therefore, does not increase the probability or consequences of a radiological release previously evaluated. The proposed ISFSI Security Plan will not affect any important to safety systems or components, their mode of operation or operating strategies. The proposed ISFSI Security Plan changes have no effect on accident initiators or mitigation. Therefore, the proposed amendment will not involve a significant increase in the probability or consequences of an accident previously evaluated.
2. Create the possibility of a new or different accident from any previously evaluated. The proposed amendment incorporating ISFSI security functions does not affect the operation of systems important to safety. The ISFSI Security Plan amendment does not affect any of the parameters or conditions that could contribute to the initiation of any accident. No new accident scenarios are created as a result of the ISFSI Security Plan. In addition, the design functions of equipment important to safety are not altered as a result of the proposed ISFSI Security Plan. Therefore, the proposed ISFSI Security Plan will not create the possibility of a new or different accident from any previously evaluated.
3. Involve a significant reduction in the margin of safety. Implementation of the proposed amendment incorporating ISFSI security functions will not reduce a margin of safety as detailed in the Technical Specifications as there are no Technical Specification requirements associated with the physical security system. Specifically, the proposed ISFSI Security Plan does not represent a change in initial conditions, system response time, or in any other parameter affecting the course of an accident analysis supporting the Bases of any Technical Specification. The proposed amendment does not reduce the effectiveness of any security/safeguards measures currently in place at the ZNPS. Therefore, the proposed ISFSI Security Plan will not involve a significant reduction in the margin of safety.

Based on the considerations noted above, it is concluded that the proposed changes will not endanger the public health and safety.

#### **ENVIRONMENTAL IMPACT DETERMINATION**

This amendment request meets the criteria specified in 10 CFR 51.22 (c)(9) for categorical exclusion or otherwise not requiring environmental review. Specific criteria contained in this section of the regulations are discussed below:

1. The amendment involves no significant hazards consideration. As demonstrated above, the requested amendment does not involve any significant hazards considerations.
2. There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite. The ISFSI Security Plan amendment does not reduce the ability of the security organization to respond to radiological sabotage and, therefore, does not increase the amount or type of any effluents that may be released. In addition, these changes do not create any new effluent pathways.



3. There is no significant increase in individual or cumulative occupational radiation exposure. The proposed security/safeguards measures included in the ISFSI Physical Security Plan amendment incorporate occupational radiation exposure ALARA principles. As a result, the Security Plan Amendment does not significantly increase individual or cumulative occupational radiation exposure.

Based on the foregoing, it is concluded that the proposed amendment meets the criteria for categorical exclusion set forth in 10 CFR 51.22 (c)(9) and, therefore, no environmental impact statement or environmental assessment need be prepared in connection with the issuance of this amendment.

#### **SCHEDULE OF CHANGE**

The proposed changes will be implemented prior to the start of spent fuel transfer to the ISFSI.

The amendment is requested to be issued by December 2012, so that appropriate measures may be taken to support "dry runs" for fuel transfers and to train security personnel prior to commencing fuel transfer and ISFSI operations.

#### **REFERENCES**

1. John B. Hickman (U.S. Nuclear Regulatory Commission) Letter to John A. Christian, President, ZionSolutions, LLC, "Issuance of Conforming Amendments Relating to the Transfer of Licenses for Zion Nuclear Power Station, Units 1 and 2," dated September 1, 2010
2. Letter from John B. Hickman (NRC) to Patrick T. Daly (ZionSolutions LLC), "Order Approving Transfer of Licenses and Conforming Amendments Relating to Zion Nuclear Power Station, Units 1 and 2", dated May 4, 2009
3. Daniel H. Dorman, U.S. Nuclear Regulatory Commission, Letter to John A. Christian, ZionSolutions, LLC, "Issuance of Order for Implementation of Additional Security Measures and Fingerprinting for Unescorted Access for Zion Nuclear Power Station Independent Spent Fuel Storage Installation", Order EA-11-268, dated December 20, 2011
4. Samuel J. Collins (U.S. Nuclear Regulatory Commission) Letter to John L. Skolds, "Issuance of Order for Implementation of Interim Safeguards and Security Compensatory Measures for Zion Nuclear Power Station Units 1 and 2," dated May 23, 2002 (EA-02-077)
5. Margaret V. Federline (U.S. Nuclear Regulatory Commission) Letter to John L. Skolds, "Issuance of Order for Implementation of Access Authorization, Fitness for Duty and Behavior Observation for Zion Nuclear Power Station Units 1 and 2," dated August 18, 2004 (EA-03-099)
6. Dino C. Scaletti, U.S. Nuclear Regulatory Commission, Letter to Oliver D. Kingsley, President, Commonwealth Edison Company, " Zion Nuclear Power Station, Units 1 and 2 – Exemption From Certain Requirements of 10 CFR 73", dated October 18, 1999
7. John B. Hickman, U.S. Nuclear Regulatory Commission, Letter to John A. Christian, ZionSolutions, LLC, "Zion Nuclear Power Station, Units 1 and 2 – Issuance of Exemption

From Security Requirements of 10 CFR Part 50 and 10 CFR Part 73", dated November 10, 2011

8. Patrick S. Thurman, ZionSolutions, LLC, Letter to Director, Division of Spent Fuel Storage and Transportation, U.S. Nuclear Regulatory Commission, "Response to NRC Order EA-11-268, Implementation of Additional Security Measures and Fingerprinting for Unescorted Access for Zion Nuclear Power Station Independent Spent Fuel Storage Installation", dated January 9, 2012



**Retyped Pages of Operating License Nos. DPR-39 and DPR-48**

Zion Nuclear Power Station, Unit 1

- C. This amended license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50 and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below.

(1) Deleted.

(2). Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 184, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Deleted.

(4) Deleted.

(5) Deleted.

(6) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provision of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Zion Nuclear Power Station Security Plan," with revisions submitted through September 22, 1993; "Zion Nuclear Power Station Training and Qualification Plan," with revision submitted through March 2, 1993; "Zion Nuclear Power Station Safeguards Contingency Plan," with revisions submitted through December 4, 1992; and the "Zion Nuclear Power Station Independent Spent Fuel Storage Installation Physical Security Plan." Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein. (revised 1-15-81; Am. 61; revised 10-11-88; Am. 113; revised date; Am. xxx)

(7) Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel pool as described in the application dated January 15, 1992, as supplemented October 2 and 16, 1992.

(a) Deleted.

(b) Deleted.

(c) (deleted 1-15-81; Am. 61)

(d) (deleted 1-15-81, Am. 61)

(e) Deleted.



Zion Nuclear Power Station, Unit 2

- C. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

(1) Deleted.

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 171, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

(3) Deleted 3-11-83; Am. 72.

(4) Deleted.

(5) Deleted.

(6) The licensee shall fully implement and maintain in effect all provisions of the Commission-approved physical security, guard training and qualification, and safeguards contingency plans including amendments made pursuant to provision of the Miscellaneous Amendments and Search Requirements revisions to 10 CFR 73.55 (51 FR 27817 and 27822) and to the authority of 10 CFR 50.90 and 10 CFR 50.54(p). The plans, which contain Safeguards Information protected under 10 CFR 73.21, are entitled: "Zion Nuclear Power Station Security Plan," with revisions submitted through September 22, 1993; "Zion Nuclear Power Station Training and Qualification Plan," with revision submitted through March 2, 1993; "Zion Nuclear Power Station Safeguards Contingency Plan," with revisions submitted through December 4, 1992; and the "Zion Nuclear Power Station Independent Spent Fuel Storage Installation Physical Security Plan." Changes made in accordance with 10 CFR 73.55 shall be implemented in accordance with the schedule set forth therein. (revised 10-11-88, Am. 102; revised date: Am. xxx)

(7) Spent Fuel Pool Modification

The licensee is authorized to modify the spent fuel pool as described in the application dated January 15, 1992, as supplemented October 2 and 16, 1992.