



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 28, 2018

John Sauger
Executive Vice President
EnergySolutions
2701 Deborah Ave.
Zion, IL 60099

SUBJECT: ZION NUCLEAR POWER STATION, UNITS 1 AND 2 - ISSUANCE OF
AMENDMENTS 191 AND 178 FOR THE LICENSES TO APPROVE THE
LICENSE TERMINATION PLAN

Dear Mr. Sauger:

The U.S. Nuclear Regulatory Commission (NRC) is issuing the enclosed Amendment Nos. 191 and 178 to Facility License Nos. DPR-39 and DPR-48 for the ZionSolutions, Zion Nuclear Power Station (ZNPS), Units 1 and 2. This amendment is in response to your application dated December 19, 2014 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML15005A336), as supplemented by letters dated February 26, 2015 (ML15061A281), March 8, 2016 (ML17129A311), July 20, 2016 (ML16211A200), July 20, 2017 (ML17215A095), February 7, 2018 (ML18052A529 and ML18052A851), April 10, 2018 (ML18103A016) and August 28, 2018 (ML18242A082). This amendment revises the Zion Nuclear Power Station licenses to approve the License Termination Plan. The NRC is also authorizing implementation of the License Termination Plan.

The amendment revises the ZNPS, Units 1 and 2 licenses to add License Condition 2.C.(17). This new license condition incorporates the NRC approved "License Termination Plan" (LTP), and associated addendum, into the ZNPS license and specifies limits on the changes the licensee is allowed to make to the approved LTP without prior NRC review and approval.

A copy of our related Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's next biweekly *Federal Register* notice.

J. Sauger

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In accordance with 10 CFR 2.390 of the NRC's "Agency Rules of Practice and Procedure," a copy of this letter will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records component of NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>.

Should you have any questions regarding this action please contact me at 301-415-3017 or John. Hickman@nrc.gov.

Sincerely,

/RA/

John B. Hickman, Project Manager
Reactor Decommissioning Branch
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Docket Nos. 50-295, 50-304

Enclosures:

1. Amendments
2. Safety Evaluation

cc: w/enclosures:
Zion Service List

SUBJECT: ZION NUCLEAR POWER STATION, UNITS 1 AND 2 - ISSUANCE OF AMENDMENTS 191 and 178 FOR THE LICENSES TO APPROVE THE LICENSE TERMINATION PLAN **DATE September 28, 2018**

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ADAMS Accession No.: ML18163A313

* via E-Mail

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OFFICIAL RECORD COPY

Zion Nuclear Power Station, Units 1 and 2 Service List

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ZIONSOLUTIONS, LLC

DOCKET NO. 50-295

ZION NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 191
License No. DPR-39

1. The Nuclear Regulatory Commission (the Commission or NRC) has found that:
 - A. The application for amendment by *ZionSolutions*, LLC (the licensee), dated December 19, 2014, as supplemented February 26, 2015, March 8, 2016, July 20, 2016, July 20, 2017, February 7, 2018, April 10, 2018, and August 28, 2018, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will be maintained in conformity with the application, as amended, the provisions of the Act, and the applicable rules and regulations of the Commission;
 - C. There is reasonable assurance: 1) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and 2) that such activities will be conducted in compliance with applicable portions of the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended as follows:

License Condition 2. C. (17) is added to read as follows:

(17) License Termination Plan (LTP)

ZionSolutions shall implement and maintain in effect all provisions of the approved License Termination Plan as approved in License Amendment No. 191 subject to and as amended by the following stipulations:

ZionSolutions may make changes to the LTP without prior approval provided the proposed changes do not meet any of the following criteria:

- (A) Require Commission approval pursuant to 10 CFR 50.59.
- (B) Result in significant environmental impacts not previously reviewed.
- (C) Detract or negate the reasonable assurance that adequate funds will be available for decommissioning.
- (D) Decrease a survey unit area classification (i.e., impacted to not impacted; Class 1 to Class 2; Class 2 to Class 3; or Class 1 to Class 3) without providing the NRC a minimum 14 day notification prior to implementing the change in classification.
- (E) Increase the derived concentration guideline levels (DCGL) and related minimum detectable concentrations (for both scan and fixed measurement methods).
- (F) Increase the radioactivity level, relative to the applicable DCGL, at which an investigation occurs.
- (G) Change the statistical test applied other than the Sign test.
- (H) Increase the approved Type I decision error above the level stated in the LTP.
- (I) Change the approach used to demonstrate compliance with the dose criteria (e.g., change from demonstrating compliance using derived concentration levels to demonstrating compliance using a dose assessment that is based on final concentration data).
- (J) Change parameter values or pathway dose conversion used to calculate the dose such that the resultant dose is lower than in the approved LTP and if a dose assessment is being used to demonstrate compliance with the dose criteria.
- (K) Reuse concrete from demolished structures, other than from the list of areas specified in Section 2.1.1 of TSD 17-010, "Final Report - Unconditional Release Surveys at the Zion Station Restoration Project, Revision 1", as backfill.
- (L) Assign a dose for reuse concrete other than the dose values provided along with the LTP (as shown in Table 6-53 (Revision 2) of the LTP) and documented in Section 8 and Table 33 of TSD 14-010, "RESRAD Dose Modeling for Basement Fill Model and Soil DCGL and Calculation of Basement Fill Model Dose Factors and DCGLs, Revision 6."
- (M) Use area-specific surrogate ratios that are less than the maximum surrogate ratios (H-3/Cs-137, Ni-63/Co-60, Sr-90/Cs-137) presented in Table 5-15 (Revision 2) of the LTP.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John R. Tappert, Director
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Date of Issuance: September 28, 2018

ATTACHMENT TO LICENSE AMENDMENT NOS. 191

FACILITY OPERATING LICENSE NOS. DPR-39

DOCKET NOS. 50-295

Replace the following pages of the License with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

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INSERT

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- (e) The appropriate section of the decommissioning trust agreement shall state that the trustee, investment advisor, or anyone else directing the investments made in the trust shall adhere to a “prudent investor” standard, as specified in 18 CFR 35.32(a)(3) of the Federal Energy Regulatory Commission’s regulations.
- (15) ZS shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of the Zion, Unit 1, license and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.
- (16) Deleted.
- (17) License Termination Plan (LTP)

ZionSolutions shall implement and maintain in effect all provisions of the approved License Termination Plan as approved in License Amendment No. 191 subject to and as amended by the following stipulations:

ZionSolutions may make changes to the LTP without prior approval provided the proposed changes do not meet any of the following criteria:

- (A) Require Commission approval pursuant to 10 CFR 50.59.
- (B) Result in significant environmental impacts not previously reviewed.
- (C) Detract or negate the reasonable assurance that adequate funds will be available for decommissioning.
- (D) Decrease a survey unit area classification (i.e., impacted to not impacted; Class 1 to Class 2; Class 2 to Class 3; or Class 1 to Class 3) without providing the NRC a minimum 14 day notification prior to implementing the change in classification.
- (E) Increase the derived concentration guideline levels (DCGL) and related minimum detectable concentrations (for both scan and fixed measurement methods).
- (F) Increase the radioactivity level, relative to the applicable DCGL, at which an investigation occurs.
- (G) Change the statistical test applied other than the Sign test.
- (H) Increase the approved Type I decision error above the level stated in the LTP.

- (I) Change the approach used to demonstrate compliance with the dose criteria (e.g., change from demonstrating compliance using derived concentration levels to demonstrating compliance using a dose assessment that is based on final concentration data).
 - (J) Change parameter values or pathway dose conversion used to calculate the dose such that the resultant dose is lower than in the approved LTP and if a dose assessment is being used to demonstrate compliance with the dose criteria.
 - (K) Reuse concrete from demolished structures, other than from the list of areas specified in Section 2.1.1 of TSD 17-010, "Final Report - Unconditional Release Surveys at the Zion Station Restoration Project, Revision 1", as backfill.
 - (L) Assign a dose for reuse concrete other than the dose values provided along with the LTP (as shown in Table 6-53 (Revision 2) of the LTP) and documented in Section 8 and Table 33 of TSD 14-010, "RESRAD Dose Modeling for Basement Fill Model and Soil DCGL and Calculation of Basement Fill Model Dose Factors and DCGLs, Revision 6."
 - (M) Use area-specific surrogate ratios that are less than the maximum surrogate ratios (H-3/Cs-137, Ni-63/Co-60, Sr-90/Cs-137) presented in Table 5-15 (Revision 2) of the LTP.
3. This amended license is issued without prejudice to subsequent licensing action which may be taken by the Commission.
 4. This license is effective as of the date of issuance and shall expire at midnight on April 6, 2013.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by Roger S. Boyd

A. Giambusso, Deputy Director
For Reactor Projects
Directorate of Licensing

Date of Issuance: October 19, 1973

ZIONSOLUTIONS, LLC

DOCKET NO. 50-304

ZION NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 178
License No. DPR-48

1. The Nuclear Regulatory Commission (the Commission or NRC) has found that:
 - A. The application for amendment by *ZionSolutions*, LLC (the licensee), dated December 19, 2014, as supplemented February 26, 2015, March 8, 2016, July 20, 2016, July 20, 2017, February 7, 2018, April 10, 2018, and August 28, 2018, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. The facility will be maintained in conformity with the application, as amended, the provisions of the Act, and the applicable rules and regulations of the Commission;
 - C. There is reasonable assurance: 1) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public; and 2) that such activities will be conducted in compliance with applicable portions of the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended as follows:

License Conditions 2. C. (17) is added to read as follows:

(17) License Termination Plan (LTP)

ZionSolutions shall implement and maintain in effect all provisions of the approved License Termination Plan as approved in License Amendment No. 178 subject to and as amended by the following stipulations:

ZionSolutions may make changes to the LTP without prior approval provided the proposed changes do not meet any of the following criteria:

- (A) Require Commission approval pursuant to 10 CFR 50.59.
- (B) Result in significant environmental impacts not previously reviewed.
- (C) Detract or negate the reasonable assurance that adequate funds will be available for decommissioning.
- (D) Decrease a survey unit area classification (i.e., impacted to not impacted; Class 1 to Class 2; Class 2 to Class 3; or Class 1 to Class 3) without providing the NRC a minimum 14 day notification prior to implementing the change in classification.
- (E) Increase the derived concentration guideline levels (DCGL) and related minimum detectable concentrations (for both scan and fixed measurement methods).
- (F) Increase the radioactivity level, relative to the applicable DCGL, at which an investigation occurs.
- (G) Change the statistical test applied other than the Sign test.
- (H) Increase the approved Type I decision error above the level stated in the LTP.
- (I) Change the approach used to demonstrate compliance with the dose criteria (e.g., change from demonstrating compliance using derived concentration levels to demonstrating compliance using a dose assessment that is based on final concentration data).
- (J) Change parameter values or pathway dose conversion used to calculate the dose such that the resultant dose is lower than in the approved LTP and if a dose assessment is being used to demonstrate compliance with the dose criteria.
- (K) Reuse concrete from demolished structures, other than from the list of areas specified in Section 2.1.1 of TSD 17-010, "Final Report - Unconditional Release Surveys at the Zion Station Restoration Project, Revision 1", as backfill.
- (L) Assign a dose for reuse concrete other than the dose values provided along with the LTP (as shown in Table 6-53 (Revision 2) of the LTP) and documented in Section 8 and Table 33 of TSD 14-010, "RESRAD Dose Modeling for Basement Fill Model and Soil DCGL and Calculation of Basement Fill Model Dose Factors and DCGLs, Revision 6."
- (M) Use area-specific surrogate ratios that are less than the maximum surrogate ratios (H-3/Cs-137, Ni-63/Co-60, Sr-90/Cs-137) presented in Table 5-15 (Revision 2) of the LTP.

3. This license amendment is effective as of the date of issuance and shall be implemented within 60 days.

FOR THE NUCLEAR REGULATORY COMMISSION

/RA/

John R. Tappert, Director
Division of Decommissioning, Uranium Recovery
and Waste Programs
Office of Nuclear Material Safety
and Safeguards

Date of Issuance: September 28, 2018

ATTACHMENT TO LICENSE AMENDMENT NOS. 178

FACILITY OPERATING LICENSE NOS. DPR-48

DOCKET NOS. 50-304

Replace the following pages of the License with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

REMOVE

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- (c) The decommissioning trust agreement for Zion, Unit 2, must provide that no disbursements or payments from the trust shall be made by the trustee unless the trustee has first given the Director of the Office of Nuclear Reactor Regulation 30 days prior written notice of payment. The decommissioning trust agreement shall further contain a provision that no disbursements or payments from the trust shall be made if the trustee receives prior written notice of objection from the NRC.
 - (d) The decommissioning trust agreement must provide that the agreement cannot be amended in any material respect without 30 days prior written notification to the Director of the Office of Nuclear Reactor Regulation.
 - (e) The appropriate section of the decommissioning trust agreement shall state that the trustee, investment advisor, or anyone else directing the investments made in the trust shall adhere to a “prudent investor” standard, as specified in 18 CFR 35.32(a)(3) of the Federal Energy Regulatory Commission’s regulations.
- (15) ZS shall take all necessary steps to ensure that the decommissioning trust is maintained in accordance with the application for approval of the transfer of the Zion, Unit 1, license and the requirements of the Order approving the transfer, and consistent with the safety evaluation supporting the Order.

(16) Deleted.

(17) License Termination Plan (LTP)

ZionSolutions shall implement and maintain in effect all provisions of the approved License Termination Plan as approved in License Amendment No. xxx subject to and as amended by the following stipulations:

ZionSolutions may make changes to the LTP without prior approval provided the proposed changes do not meet any of the following criteria:

- (A) Require Commission approval pursuant to 10 CFR 50.59.
- (B) Result in significant environmental impacts not previously reviewed.
- (C) Detract or negate the reasonable assurance that adequate funds will be available for decommissioning.

- (D) Decrease a survey unit area classification (i.e., impacted to not impacted; Class 1 to Class 2; Class 2 to Class 3; or Class 1 to Class 3) without providing the NRC a minimum 14 day notification prior to implementing the change in classification.
- (E) Increase the derived concentration guideline levels (DCGL) and related minimum detectable concentrations (for both scan and fixed measurement methods).
- (F) Increase the radioactivity level, relative to the applicable DCGL, at which an investigation occurs.
- (G) Change the statistical test applied other than the Sign test.
- (H) Increase the approved Type I decision error above the level stated in the LTP.
- (I) Change the approach used to demonstrate compliance with the dose criteria (e.g., change from demonstrating compliance using derived concentration levels to demonstrating compliance using a dose assessment that is based on final concentration data).
- (J) Change parameter values or pathway dose conversion used to calculate the dose such that the resultant dose is lower than in the approved LTP and if a dose assessment is being used to demonstrate compliance with the dose criteria.
- (K) Reuse concrete from demolished structures, other than from the list of areas specified in Section 2.1.1 of TSD 17-010, "Final Report - Unconditional Release Surveys at the Zion Station Restoration Project, Revision 1", as backfill.
- (L) Assign a dose for reuse concrete other than the dose values provided along with the LTP (as shown in Table 6-53 (Revision 2) of the LTP) and documented in Section 8 and Table 33 of TSD 14-010, "RESRAD Dose Modeling for Basement Fill Model and Soil DCGL and Calculation of Basement Fill Model Dose Factors and DCGLs, Revision 6."
- (M) Use area-specific surrogate ratios that are less than the maximum surrogate ratios (H-3/Cs-137, Ni-63/Co-60, Sr-90/Cs-137) presented in Table 5-15 (Revision 2) of the LTP.

3. This amended license is issued without prejudice to subsequent licensing action which may be taken by the Commission.
4. This license is effective as of the date of issuance and shall expire at midnight on November 14, 2013.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by Roger S. Boyd

A. Giambusso, Deputy Director
for Reactor Projects
Directorate of Licensing

Date of Issuance: November 14, 1973