



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-295

ZION NUCLEAR POWER STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.90  
License No. DPR-39

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Commonwealth Edison Company (the licensee) dated January 30, 1985 and supplemented July 8, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with 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 by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-39 is hereby amended to read as follows:


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(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No.90, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 27, 1985



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-304

ZION NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No.80  
License No. DPR-48


1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Commonwealth Edison Company (the licensee) dated January 30, 1985 and supplemented July 8, 1985, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with 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 by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. DPR-48 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 80, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

  
Steven A. Varga, Chief  
Operating Reactors Branch #1  
Division of Licensing

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: August 27, 1985

ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 90 FACILITY OPERATING LICENSE NO. DPR-39

AMENDMENT NO. 80 FACILITY OPERATING LICENSE NO. DPR-48

DOCKET NOS. 50-295 AND 50-304

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
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212	212
213	213
214	214
_____	214a
_____	214b
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LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT
<p data-bbox="138 332 883 365"><u>3.10 CONTAINMENT STRUCTURAL INTEGRITY (per unit)</u></p> <p data-bbox="138 389 287 422"><u>OBJECTIVE:</u></p> <p data-bbox="223 446 840 544">To insure that the containment structure meets its design requirements throughout plant life.</p> <p data-bbox="138 568 351 600"><u>SPECIFICATION:</u></p> <ol style="list-style-type: none"> <li data-bbox="223 625 798 657">1. Containment Leakage Rate Testing               <ol style="list-style-type: none"> <li data-bbox="297 657 840 722">A. Containment Leakage Rate shall be limited to:                   <ol style="list-style-type: none"> <li data-bbox="372 747 776 812">1. An overall integrated leakage rate of:                       <ol style="list-style-type: none"> <li data-bbox="446 836 840 1031">a. Less than or equal to <math>L_a</math>, 0.10 percent by weight of the containment air per 24 hours at <math>P_a</math> (47 psig), or</li> <li data-bbox="446 1047 840 1266">b. Less than or equal to <math>L_t</math>, where <math>L_t</math> is as computed in 10CFR 50 Appendix J, is the maximum allowable leakage rate at pressure <math>P_t</math> (25 psig)</li> </ol> </li> <li data-bbox="372 1291 840 1469">2. A combined leakage rate of less than or equal to 0.60 <math>L_a</math>, for all penetrations and valves subject to Type B and C tests, when pressurized to <math>P_a</math>.</li> </ol> </li> </ol> </li> </ol> <p data-bbox="138 1485 702 1526"><u>APPLICABILITY:</u> Modes 1, 2, 3, 4 and 7</p>	<p data-bbox="1064 332 1834 381"><u>4.10 CONTAINMENT STRUCTURAL INTEGRITY (per unit)</u></p> <p data-bbox="1064 397 1234 430"><u>OBJECTIVE:</u></p> <p data-bbox="1170 454 1787 527">To establish the testing requirements to assure containment structural integrity.</p> <ol style="list-style-type: none"> <li data-bbox="1170 544 1734 592">1. Containment Leakage Rate Testing               <ol style="list-style-type: none"> <li data-bbox="1244 609 1834 706">A. Surveillance and testing of the containment shall be performed as follows:                   <ol style="list-style-type: none"> <li data-bbox="1319 722 1776 860">1. The containment Type A leakage rate shall be determined in conformance with 10CFR 50 Appendix J.                       <ol style="list-style-type: none"> <li data-bbox="1393 876 1819 1096">a. The leakage rate test shall be performed at or above the design basis accident pressure <math>P_a</math> (47 psig), or at or above the reduced pressure <math>P_t</math> (25 psig).</li> </ol> </li> </ol> </li> </ol> </li> </ol> <p data-bbox="1287 1502 1659 1542">Amendment Nos. 90 and 80</p>

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>3.10.1.A (Continued)</p> <p><u>ACTION:</u></p> <p>With either (a) the measured overall integrated containment leakage rate exceeding <math>0.75 L_a</math> or <math>0.75 L_t</math>, as applicable, or (b) with the measured combined leakage rate for all penetrations and valves subject to Type B and C tests exceeding <math>0.60 L_a</math>, restore the overall integrated leakage rate to less than or equal to <math>0.75 L_a</math> or less than or equal to <math>0.75 L_t</math>, as applicable, and the combined leakage rate for all penetrations subject to Type B and C tests to less than or equal to <math>0.60 L_a</math> prior to entering MODE 4.</p>	<p>4.10.1.A. 1. c. The maximum allowable leakage rate <math>L_a</math> or <math>L_t</math>, as applicable, shall be computed in accordance with the appropriate paragraphs of 10CFR 50 Appendix J.</p> <p>2. Type B and C tests (except air lock tests) shall be performed at <math>P_a</math> or above in accordance with the provisions of the appropriate Section of 10CFR 50 Appendix J.</p> <p>3. Air locks shall be tested and demonstrated OPERABLE per Surveillance Requirement 4.10.2.</p> <p>4. The Type A, B, and C leakage rate tests shall be considered to be satisfactory if the acceptance criteria delineated in 10CFR 50 Appendix J are met.</p> <p>5. Leakage from containment isolation valves sealed by the Isolation Valve Seal Water system may be excluded from the combined Type B and C leakage rate.</p>



LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENT
3.10.1.A (Continued)	<p data-bbox="1102 334 1817 459">4.10.1.A. 6. The retest schedules for Type A, B, and C tests shall be in accordance with the appropriate Section of 10CFR 50 Appendix J.</p> <p data-bbox="1264 488 1827 602">7. Inspection and reporting of tests shall be in accordance with the appropriate Section of 10CFR 50 Appendix J.</p>

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## LIMITING CONDITIONS FOR OPERATION

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### 3.10.2 Containment Air Locks

- A. Each containment air lock shall be OPERABLE with:
1. Both doors closed except when the air lock is being used for normal entry and exit through the containment, then at least one air lock door shall be closed, and
  2. The air lock leakage rate, when combined with other Type B and C test results, shall be less than or equal to 0.60  $L_a$  at 47 psig ( $P_a$ ).

APPLICABILITY: Modes 1, 2, 3, 4 and 7

ACTION:

- a.) With one containment air lock door inoperable:
1. Maintain at least the OPERABLE air lock door closed and either restore the inoperable air lock door to OPERABLE status within 24 hours or lock the OPERABLE air lock door closed.
  2. Operation may continue until performance of the next required overall air lock leakage test provided that the OPERABLE air lock door is verified locked closed at least once per 31 days,
  3. Otherwise be in at least MODE 3 within the next 6 hours and MODE 5 within the following 30 hours.

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## SURVEILLANCE REQUIREMENT

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### 4.10.2 Containment Air Locks

- A. Each air lock shall be demonstrated OPERABLE:
1. Within 72 hours following each opening (except when the air lock is being used for multiple entries, then at least once per 72 hours):
    - a. Verify that the leakage rate from the air lock door seals is less than or equal to 1.0 SCFH at a test pressure ( $P_{tr}$ ) of greater than or equal to 2.5 psig; or verify that the leakage rate from the air lock door seals is less than or equal to 4.75 SCFH at a test pressure ( $P_t$ ) of greater than or equal to 10.0 psig.
    - b. If the air lock door seal test identifies a leakage rate greater than 1.0 SCFH at a test pressure ( $P_{tr}$ ) of greater than or equal to 2.5 psig or 4.75 SCFH at a test pressure ( $P_t$ ) of greater than or equal to 10.0 psig, then an overall air lock leakage test shall be performed at a pressure ( $P_a$ ) of 47 psig or greater. The acceptance criteria shall be as stated in 3.10.2.A.2.

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## LIMITING CONDITIONS FOR OPERATION

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### 3.10.2 (Continued)

4. The provisions of Technical Specification 3.0.4 are not applicable.
- b.) With the containment air lock inoperable, except as a result of an inoperable air lock door, maintain at least one air lock door closed; restore the inoperable air lock to OPERABLE status within 24 hours or be in at least MODE 3 within the next 6 hours and in MODE 5 within the following 30 hours.

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## SURVEILLANCE REQUIREMENT

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### 4.10.2.A (Continued)

2. By conducting overall air lock leakage tests at a pressure ( $P_a$ ) of 47 psig or greater and verifying the overall air lock leakage is within the limit:
  - a. At 6 month intervals
  - b. Prior to entering Mode 4; if in Mode 5 greater than or equal to 7 days and containment integrity has been broken (both doors open).
3. At least once per 6 months by verifying that only one door in each air lock can be opened at a time.

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>3.10.3. Containment Tendons</p> <p>A. Nine containment tendons shall be examined periodically.</p> <p>A full examination as specified under 4.10.3.A will be performed on one containment only. A visual inspection only shall be performed on the other containment.</p>	<p>4.10.3. Containment Tendons</p> <p>A. Nine containment tendons shall be examined periodically to detect excessive relaxation of the post tensioning force or to discover possible material deterioration. The inspection shall be carried out at five year intervals.</p> <p>A quantitative analytical report covering results of each inspection shall be submitted and shall especially address the following conditions, should they develop:</p> <ul style="list-style-type: none"> <li>(1) Broken wires.</li> <li>(2) Measured lift off forces lower than the final pre-stress force considered in the design.</li> <li>(3) Unusual changes in corrosion conditions or sheathing filler properties.</li> </ul> <p>The 9 tendons will be randomly selected from the following tendon types and inspected as described.</p> <p>To develop a history and for correlating the observed data, one tendon of each type may be kept unchanged after the initial selection.</p> <p>Tendons that showed deficiencies in previous surveillances may be substituted for the randomly chosen tendons.</p>

Amendment Nos. 90 and 80

# LIMITING CONDITION FOR OPERATION

3.10.3. (Continued)

# SURVEILLANCE REQUIREMENT

4.10.3 (Continued)

Tendon Type	Total	Measure Tendon Force only (**)	Measure Tendon Force & Remove 1 Wire Per Tendon (#)
Dome*	3	2	1
Horizontal	3	2	1
Vertical	3	2	1
	9		

- (\*\*) 1. Measure lift off force.  
 2. Increase load to max. allowable overstressing stress and record elongation.  
 3. Reduce load and seat anchorhead back on shims.  
 4. Make lift off reading.  
 5. Check for broken wires.

NOTE: The above may be carried out for each tendon end independently.

- (#) 1. Measure lift off force.  
 2. Remove shims and reduce load to zero.  
 3. Remove one wire per tendon.  
 4. Check for broken wires.  
 5. Retension the tendon by increasing the load to maximum allowable overstressing stress and record elongation at 5 approx. equal steps.  
 6. Reduce load and seat anchorhead back on shims at the same lift off stress as measured above in 1.  
 7. Make lift off reading.  
 8. Check for broken wires.

NOTE: The above has to be carried out from both ends of the dome and horizontal tendons simultaneously. Vertical tendons are always tested from the top end only.

\* One tendon must be chosen from each of the three groups of dome tendons.

Amendment Nos. 90 and 80

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>3.10.3.A. (Continued)</p> <p>B. Nine containment tendons shall be examined periodically. Since both units have identical containment structures, neither unit displays environmental or other apparent differences, both units are located at the same plant site, and both units were built under continuous construction, the containment structure of the other unit will be subjected to a partial examination as spelled out under 4.10.3.B.</p> <p>3.10.4. End Anchorage and Concrete</p> <p>The End Anchorage and adjacent concrete surfaces shall be inspected periodically.</p>	<p>4.10.3.A. (Continued)</p> <p>Tensile tests shall be performed on specimens from the center and each end of each wire removed. The wires removed shall be examined for significant corrosion or pitting. Should such activity be discovered tensile specimens shall be located to include affected areas.</p> <p>Where the inspection reveals pitting or corrosion sufficient to affect the load carrying ability of the tendon, other wires from other surveillance-tendons in the same location shall be removed and inspected.</p> <p>The sheathing filler shall be sampled and inspected for changes in physical appearance and chemical composition.</p> <p>B. A visual examination of the tendons selected as described under 4.10.3.A. will be performed to the extent practical, without dismantling load bearing components of the anchorage. The examination shall include inspection for broken wires; inspection of buttonheads for cracks, corrosion, or other deterioration; and inspection of bearing plates and shims for deformation and cracks. Grease in tendon end caps shall be examined. The anchorhead components shall be verified operable.</p> <p>4.10.4 End Anchorage and Concrete Surveillance</p> <p>A. The end anchorages and adjacent concrete surface shall be inspected periodically. The inspection shall be carried out at 5 year intervals.</p> <p>The inspections made shall include:</p> <p>(1) Visual inspection of the end anchorage concrete exterior surfaces.</p>

LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
3.10.4. (Continued)	<p data-bbox="1085 341 1415 373">4.10.4. (Continued)</p> <ul style="list-style-type: none"> <li data-bbox="1244 397 1883 584">(2) A determination of the temperatures of the liner plate area or containment interior surface in locations near the end anchorage concrete under surveillance based on available temperature gauges and accessibility.</li> <li data-bbox="1244 609 1904 698">(3) Measurement of concrete temperatures at specific end anchorage concrete surfaces being inspected.</li> <li data-bbox="1244 722 1872 787">(4) The mapping of the predominant visible concrete crack patterns.</li> <li data-bbox="1244 812 1883 901">(5) The measurement of the crack widths, by use of optical means or by thickness gages.</li> </ul>



LIMITING CONDITION FOR OPERATION	SURVEILLANCE REQUIREMENT
<p>3.10.5. Containment Pressure</p> <p>If the containment internal pressure exceeds 1.0 psig or the internal vacuum exceeds 1.5 psig, the condition shall be corrected immediately or the reactor shall be brought to the hot shutdown condition within 4 hours.</p>	<p>4.10.5. Containment Pressure</p> <p>The containment pressure shall be verified once a shift.</p>
<p>6. Containment Temperature</p> <p>If the containment ambient temperature exceeds 120°F or is less than 65°F the condition shall be corrected immediately or the reactor shall be brought to the hot shutdown condition within 4 hours.</p>	<p>6. Containment Temperature</p> <p>The containment temperature shall be verified once a shift.</p>
<p>7. The provisions of Specification 3.0.3 are not applicable to Specification 3.10.3, 3.10.4, 3.10.5 and 3.10.6.</p>	<p>7. Not Applicable</p>



Basis:

3.10 While a reactor is operating the internal environment of the containment will reach a maximum ambient temperature of 120°F and a maximum pressure of 1.0 psig. With these initial conditions the peak accident pressure reached will still be below a containment design pressure of 47 psig. (1)

The minimum operating pressure of -1.5 psig is based on the expected lower limit of containment pressure following cooldown from 120°F to the minimum design temperature of 65°F. (2)

(1) FSAR, Answer to Question 14.28

(2) FSAR, Answer to Question 9.9

Basis:

- 4.10 Prior to initial operation, a containment will be strength tested at 54 psig and then will be leak-tested. The acceptance criterion for this pre-operational leakage rate test has been established as 0.1% of the containment volume per 24 hours at 47 psig. (1) With this leakage rate and with minimum engineered safeguards systems operating, the public exposure would be well below the 10CFR100 values in the event of a design basis accident. (2)

The performance of a periodic integrated leak rate test (Type A) and local penetration tests (Type B and C) during containment life provides a current assessment of potential leakage from a containment during accident conditions. These periodic tests will be performed at pressures sufficiently high to provide an accurate measurement of the leakage rate; this pressure will be at least 50 percent of design accident pressure for the Type A tests and at least design accident pressure for the Type B and C tests.

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(1) FSAR Section 5.2  
(2) FSAR Section 14.3.5

The tendon surveillance is in general agreement with Regulatory Guide 1.35, Rev. 2. (3) This surveillance program may be carried out during reactor operation since the containment design provides that one tendon each in the Dome, Wall Horizontal and Wall Vertical can be detensioned without impairing the safety of the structure.

The end anchorage surveillance is intended to detect deterioration of the anchorage structure which would be easily visible.

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(3) FSAR, Answer to Question 5.56.