



JSPLTR 97-0076

April 14, 1997

U. S. Nuclear Regulatory Commission  
Attn.: Document Control Desk  
Washington, D. C. 20555-0001

SUBJECT: Dresden Nuclear Power Station Units 2 and 3  
Application for Emergency Amendment to  
Facility Operating Licenses DPR-19 and DPR-25, Appendix A,  
Technical Specifications  
**Amendment to Resolve Issues Related to Discrepancy in Secondary  
Containment Volume**  
Docket Nos. 50-237 and 50-249

Pursuant to 10CFR50.91(a)(5), ComEd requests an emergency license amendment to Facility Operating Licenses DPR-19 and DPR-25 to resolve an unreviewed safety question and associated Technical Specification change resulting from ComEd's efforts to reconcile a discrepancy discovered in the free volume of the secondary containment. As a result of a review by ComEd Quality Verification, it was determined that the value for secondary containment free volume stated in the FSAR and in Section 5.2.C of the Technical Specifications is significantly higher than the actual free volume.

ComEd believes approval of this amendment on an emergency basis is warranted because the current situation satisfies the Commission's definition of emergency: Failure to act in a timely way would prevent the resumption of operation [10CFR50.91(a)(5)]. ComEd requests emergency review based on the potential to delay a resumption of power operation of Dresden Unit 2. Unit 2 shutdown to Mode 4 on April 11, 1997 to resolve deficiencies with 4Kv breakers. The evaluation and correction of the breaker deficiencies is expected to allow Unit 2 to return to service by April 21, 1997. Therefore, ComEd believes that review and approval of the proposed amendment qualifies for emergency review by the Staff.

To resolve this issue, ComEd has completed a Safety Evaluation in accordance with 10CFR50.59. The Safety Evaluation addressed issues potentially affected by the secondary containment free volume discrepancy. ComEd has concluded that the only significant impact of the discrepancy is an increase in the postulated Control Room operator dose as the result of a limiting design basis accident. This increase in postulated dose to the operators during a design basis accident comprises an unreviewed safety question.

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To mitigate this condition, ComEd proposes to amend Facility Operating Licenses DPR-19 and DPR-25, Appendix A, Technical Specification 3/4.7.P to establish a reduced limit for the allowed methyl iodide penetration for Standby Gas Treatment (SBGT) system charcoal from less than 10% to less than 2.5%. This will support crediting a value of 95% for SBGT charcoal efficiency. With a higher SBGT charcoal efficiency, the postulated Control Room operator dose will decrease to less than 23 Rem to the thyroid, well below the existing licensing basis and the limits established by 10 CFR 50, Appendix A, General Design Criteria (GDC) 19. Consistent with the current Technical Specifications, charcoal filter sampling will continue to be conducted in accordance with Regulatory Guide 1.52 and laboratory testing criteria will be in accordance with ASTM-D-3803-89.

In addition, ComEd proposes to amend Facility Operating Licenses DPR-19 and DPR-25, Appendix A, Technical Specification 5.2.C to reflect the actual calculated volume of secondary containment.

Therefore, in accordance with 10CFR50.90, ComEd requests review and approval of this proposed license amendment concerning: (1) the reduced value for secondary containment free volume and (2) the reduced limit on the allowed methyl iodide penetration for SBGT system charcoal which will mitigate the effects of the reduced free volume. The following outlines ComEd's proposed license amendment request.

Attachment A to this letter provides the description and safety analysis of the proposed changes.

Attachment B provides revised Technical Specification pages.

Attachment C provides the evaluation of Significant Hazards Considerations and Environmental Assessment Applicability review.

ComEd requests NRC approval of this request by April 21, 1997, with the amendment to be effective no later than 30 days following approval. Approval of this amendment will allow Dresden Station Unit 2 to return to power operation following the current forced outage. Both Dresden Units 2 and 3 cannot return to power operation until receipt of this amendment, consistent with the guidance provided in Generic Letter 91-18.

The Technical Specification amendment provided herein has been reviewed by onsite and offsite review in accordance with Company procedures and policies.

USNRC  
April 14, 1997

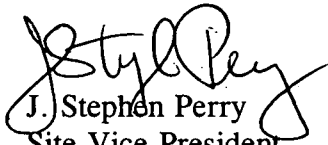
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To the best of my knowledge and belief, the statements contained above are true and correct. In some respect these statements are not based on my personal knowledge, but obtained information furnished by other Commonwealth Edison employees, contractor employees, and consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

ComEd is notifying the State of Illinois of this application for amendment by transmitting a copy of this letter and its attachments to the designated state official.

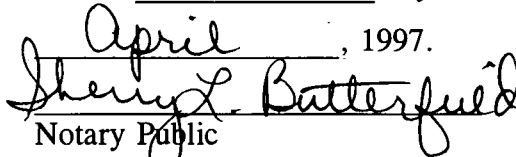
Please direct any questions you may have concerning this request to Frank Spangenberg at 815-942-2920, x 3800.

Sincerely,

  
J. Stephen Perry  
Site Vice President  
Dresden Station

Subscribed and Sworn to before me

on this 14 day of

April, 1997.  
  
Notary Public



Attachments:

- A. Description and Safety Analysis of the Proposed Changes
- B. Marked-Up Technical Specification Pages
- C. Evaluation of Significant Hazards Considerations and Environmental Assessment Applicability Review

cc: A. Bill Beach, Regional Administrator - RIII  
Senior Resident Inspector - Dresden  
J. F. Stang, Project Manager - NRR  
Office of Nuclear Facility Safety - IDNS

**ATTACHMENT A**  
**Description and Safety Analysis of the Proposed Change**

**Background Regarding the Need for a License Amendment**

The original design bases for Dresden assumed a secondary containment free volume of 5,760,000 ft<sup>3</sup>. However, Dresden Station has determined that the actual calculated free volume of the secondary containment is 4,500,000 ft<sup>3</sup>. Upon identification of this issue, an operability screening and operability determination was made using the guidance provided in Generic Letter 91-18. The effects of the reduction in volume were identified and analyzed with the following results:

**A. Control Room Dose Analysis**

The secondary containment free volume is an input parameter to the control room dose calculation, and provides radionuclide holdup, decay and mixing prior to release by the Standby Gas Treatment System and the Unit 2/3 chimney. The gasses released by the SBGTS via the chimney are then modeled as being drawn into the Control Room through the normal air intake for up to 40 minutes after the accident and thereafter through the control room emergency filtration unit. The effect of the reduced secondary containment free volume on the control room dose calculation is an increase in the postulated control room operator dose. This reduction in margin of safety constitutes an unreviewed safety question which requires review by the commission.

**B. Offsite Dose Analysis**

The offsite dose calculation is not affected because the volume of the reactor building and associated holdup time are not credited in these calculations. There is no change to the currently analyzed dose to the public from any accident due to this volume change.

**C. Instrument Line Break Outside Primary Containment**

As described in section 15.6.2.4 of the UFSAR, the radiological consequences of this accident are based on an assumed release rate consistent with coolant activity and are not related to reactor building volume. There is no adverse impact from the identified condition on this analysis.

**D. High Energy Line Break**

The high energy line break (HELB) calculations have been reviewed for the impact of this condition. These calculations impact both building pressurization analyses and temperatures/pressures used in the environmental qualification of equipment. The results of these analyses are unchanged by the error made in the overall reactor building volume calculations. The HELB calculation uses only partial reactor building volumes of the areas in the specific vent paths of the break. These volumes were independently and correctly calculated in preparing the HELB calculations and did not utilize the overall secondary

## ATTACHMENT A

### Description and Safety Analysis of the Proposed Change

containment volume. Therefore there is no impact on the operability of any environmentally qualified components, or on the evaluation of the structure to respond to HELBs.

#### E. Reactor Building Ventilation

The reduction in secondary containment volume does not affect the design basis of the normal non-safety related reactor building ventilation system. Neither the supply and exhaust air flow rates, nor the design heat loads are impacted by this change. Area temperatures and designed differential pressures, to reduce the spread of contamination, are not impacted by the correction of the overall volume parameter. However, various sections of the UFSAR contain statements that the design of the reactor building is based on one complete air change per day. A reduction of the overall free air volume with the volumetric flow air change rates specified in the UFSAR, results in an increased air change rate on a per unit volume basis. The increased air change rate has no impact on system operation, since section 9.4.5 of the UFSAR states that the normal HVAC design is based on a minimum of one air change per day.

#### F. Standby Gas Treatment System Performance

This condition does not result in any physical or operational changes to the Standby Gas Treatment System (SBGTS) equipment. Specifically, SBGT will continue to operate as designed and within current capabilities, but with a revised minimum methyl iodine removal efficiency of 97.5%, raised from the current Technical Specification value of 90%.

#### G. Post Accident Radiation Levels

Appendix 12A of the UFSAR describes the way plant area radiation levels following a postulated accident were calculated. Section 12A.2.3.3 develops the dose rates for a non-line break scenario. In this evaluation, the source term was distributed over a conservatively small, total air volume for the reactor building of  $9.08 \times 10^{10}$  cubic centimeters or approximately 3,200,000 ft<sup>3</sup>. This is conservatively less than the previously utilized building volume of 5,760,000 ft<sup>3</sup>. and the revised building volume of 4,500,000 ft<sup>3</sup>. The relatively small, conservative reactor building volume used in these calculations resulted in an increased radionuclide concentration and conservatively determined dose rates. Since the small volume utilized in the calculations remains well below the actual volume of the reactor building, the identification of the reduced secondary containment volume does not affect the estimated post-accident radiation levels described in Appendix 12A of the UFSAR.

#### H. Fuel Handling Accident

The fuel handling accident described in UFSAR section 17.7.3.4.3.3 and the fission product inventory given in UFSAR Tables 15.7-3, 15.7-4, and 15.7-5 are historical in nature and do not yet reflect the current Fuel Handling accident analysis. The current Fuel Handling

## ATTACHMENT A

### Description and Safety Analysis of the Proposed Change

analysis does not utilize the secondary containment volume for mixing or release decay in determining postulated accident doses. In the current analysis, the radio-iodides are assumed to be released immediately through Reactor Building Ventilation and subsequently through SBTG after a Secondary Containment isolation occurs.

#### I. Secondary Containment Isolation System

Section 6.2.3.2.4 of the UFSAR contains a historically conservative assumption that the SBTG will not be activated until 10 minutes after the accident. For that period of time, there is an unfiltered ground level release resulting in the very low specified doses described in this section. The change to the reactor building volume would result in a slight increase to these doses. However, since the SBTG system is automatically initiated and, since the activity at the start of the accident is insignificant, this conservative assumption is no longer contained in the current applicable accident dose analysis.

#### J. Technical Support Center Dose Analysis

The secondary containment free air volume is an input parameter to the Technical Support Center dose calculation, and functions to provide radionuclide holdup and mixing prior to release by the SBTG and the chimney. The reduction in the volume results in an increase to the TSC postulated dose. An open Operability Evaluation in accordance with Generic Letter 91-18 has concluded that the system is Operable but degraded. This amendment request does not resolve this issue, which continues to be tracked by the unresolved Operability Evaluation.

Based on the above, it has been determined that the only significant impact on the station as the result of the reduced secondary containment volume was a change to an input parameter of the Control Room and TSC dose calculation in the non-conservative direction. The reduction in secondary containment free volume does not affect any other identified system functions or interactions in a non-conservative manner.

In performing the operability evaluation of this condition, and by utilizing a newer dose methodology, the GDC dose limit of 30 Rem to the thyroid was determined to continue to be met in the Control Room and the TSC. Based on this, the Control Room and TSC HVAC systems were declared operable, but degraded, in accordance with the guidance provided in Generic Letter 91-18. However, to permit the restart of Units 2 and 3 following the current forced and refueling outages resolution of the control room operator dose issue is required.

Since it is not feasible to physically increase the secondary containment free volume to resolve the nonconforming condition, a 10CFR50.59 safety evaluation has been performed. This evaluation determined that an unreviewed safety question exists and a change to the facility Technical Specifications was required to resolve the issues identified.

**ATTACHMENT A**  
**Description and Safety Analysis of the Proposed Change**

**Description of the Current Technical Specifications and the Proposed Change**

Pursuant to 10 CFR 50.90, ComEd proposes to amend Appendix A, Technical Specifications Surveillance Requirements (SRs) 4.7.P.2.b and 4.7.P.3, and Section 5.2.C. The purpose of this amendment request is to revise the TS to increase the required SBTG charcoal efficiency, resulting in acceptable dose to the Control Room operators during an accident, considering the revised value for secondary containment free volume. The amendment also corrects the secondary containment free volume described in Section 5 of the Technical Specification.

The current SRs read as follows:

**SR 4.7.P.2.b**

Verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of ASTM-D-3803-89, for a methyl iodide penetration of <10%, when tested at 30°C and 70% relative humidity; and...

**SR 4.7.P.3**

After every 720 hours of charcoal adsorber operation by verifying within 31 days after removal that a laboratory analysis of a representative carbon sample obtained in accordance with Regulatory Position C.6.b of Regulatory Guide 1.52, Revision 2, March 1978, meets the laboratory testing criteria of ASTM-D-3803-89, for a methyl iodide penetration of <10%, when tested at 30°C and 70% relative humidity.

ComEd proposes to revise the <10% methyl iodide penetration allowed to <2.5% penetration allowed. This will support crediting a 95% filtration efficiency for SBTG.

In addition, ComEd proposes to amend Technical Specification 5.2.C to reflect the actual calculated volume of secondary containment. The current Technical Specifications read as follows:

**5.2.C**

The secondary containment consists of the Reactor Building and a portion of the main steam tunnel and has a minimum free volume of 5,760,000 cubic feet.

ComEd proposes to revise the free volume to 4,500,000 cubic feet.

**ATTACHMENT A**  
**Description and Safety Analysis of the Proposed Change**

**Bases of the Current Technical Specification Requirement**

The Bases for the current Technical Specification limits on methyl iodide penetration of the SBTG system charcoal filters is to limit the postulated dose to control room operators as the result of a design basis accident. The existing limit of < 10% penetration when tested in accordance with the requirements of the Technical Specifications has been utilized as a basis for crediting the SBTG system with the removal of 90% of iodines postulated to be released during a design basis accident.

The Bases for the free volume of the secondary containment was an erroneous calculation which did not adequately account for facility components installed within the reactor building.

**Description of the Need and Bases for Amending the Technical Specifications**

The smaller free volume in the secondary containment results in a reduced holdup and decay time, and less mixing of postulated releases within the secondary containment following an accident. This results in a higher concentration of activity being released through the SBTG system, which leads to a higher calculated dose to the Control Room operators. Using the calculation methodology of record as described in the FSAR, it was determined that increasing the credited SBTG charcoal efficiency to 95% resulted in a Control Room dose of less than 23 Rem to the thyroid. This is within the currently reviewed and accepted postulated post accident control room operator dose limits, and consistent with the limits described in 10 CFR 50, Appendix A, General Design Criteria 19.

The increase in credit for charcoal efficiency to 95% requires that the test acceptance limit for methyl iodide penetration be reduced. Current Technical Specification section 4.7.P requires the laboratory analysis of the charcoal sample to meet the testing criteria of ASTM-D-3803-89 for methyl iodide penetration of less than 10%, when tested at 30 degrees C and 70% relative humidity. The limit on methyl iodide penetration is proposed to be changed to less than 2.5%, which will permit crediting the system with 95% efficiency for the removal of iodides. No changes to the Technical Specification testing methodology are proposed.

The latest SBTG charcoal test results for each installed train charcoal filter demonstrate methyl iodide penetration of less than 2.5% (greater than 97.5% removal efficiency.) The charcoal in train A tested at a removal efficiency of 99.504%, and train B tested at a removal efficiency of 99.880%, well within the limits to be established by this proposed change.

The proposed changes for Technical Specification Section 5.0 are necessary to reflect the actual calculated free volume of secondary containment.



**ATTACHMENT B**  
**Marked-Up and Re-typed Technical Specification Pages**

**Dresden Station**  
**Operating License Nos. DPR-19 and DPR-25**

<u>Remove</u>	<u>Insert</u>
3/4.7-24	3/4.7-24
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