



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION III  
799 ROOSEVELT ROAD  
GLEN ELLYN, ILLINOIS 60137

DOCD/DOEB  
(REIOS)

NOV 4 1992

Docket No. 50-237; 50-249  
License No. DPR-19; DPR-25

Commonwealth Edison Company  
ATTN: Mr. Cordell Reed  
Senior Vice President  
Opus West III  
1400 Opus Place  
Downers Grove, IL 60515

Dear Mr. Reed:

We have reviewed your letter dated November 2, 1992, documenting your request for a temporary Waiver of Compliance regarding Dresden Nuclear Station, Units 2 and 3, Technical Specification 3.2.B Table 3.2.2, Note 1. A copy of your letter is enclosed.

Technical specification 3.2.B Table 3.2.2, Note 1, requires initiation of an immediate plant shutdown upon a total loss of function to the degraded voltage (second level undervoltage) protective features. To facilitate replacement and testing of the degraded voltage relays, the degraded voltage protective features need to be removed from service for a period of approximately one hour per bus, with a maximum of two occurrences per bus. Therefore, in order to avoid an unnecessary plant transient, you have requested a Waiver of Compliance from the requirements of technical specification 3.2.B for a maximum of 72 hours in order to permit replacement of the undervoltage relays with qualified components while maintaining the plant in a steady state condition.

I understand that, during the period of time that this Waiver of Compliance is in effect, Dresden Nuclear Power Station will take the following compensatory actions to ensure the plant is maintained in a safe and stable condition:

- The 2B and 3A core spray pumps have been placed in pull-to-lock to reduce the probability that the relays will be subjected to a high radiation field.
- Access to and around the switchyard area will be severely limited during the period that the Waiver of Compliance is in effect to reduce the probability of disturbances to the grid.
- The load dispatcher will be informed of the situation to ensure overall grid stability.

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- The emergency diesel generators, low pressure coolant injection system, and the high pressure coolant injection system will be administratively verified to be operable prior to removal of the degraded voltage protective features from service.
- All plant personnel involved in the temporary alteration or testing will be well versed with the approach to be used in order to reduce the probability of an inadvertent trip of the relay function.
- Operating personnel will be on standby and in communication with plant personnel performing the temporary alterations and associated testing to ensure that the plant could be brought to a safe configuration in the event of a degraded voltage condition, without risk of injury to plant personnel or damage to plant equipment.

I agree that your request for a Waiver of Compliance meets the eligibility criteria of 10 CFR 51.22(c)(9) and that, pursuant to 10 CFR 51.22(b), no environmental impact statement need be prepared.

Region III granted the requested relief at 7:25 p.m. (CST) on October 30, 1992 with the concurrence of the Deputy Regional Administrator. The Waiver commenced at 12:00 p.m. on October 31, 1992, and was completed within the allotted 72 hours. This approval is contingent upon the above compensatory measures being implemented.

Sincerely,



A. Bert Davis  
Regional Administrator

Enclosure: As stated

See Attached Distribution

cc w/enclosure:

D. Galle, Vice President,  
BWR Operations  
T. Kovach, Nuclear Licensing  
Manager  
C. Schroeder, Station Manager  
R. Radtke, Regulatory Assurance  
Supervisor  
DCD/DBC (RIDS)  
OC/LFDCB  
Resident Inspectors, Dresden  
LaSalle, Quad Cities, Clinton  
R. Hubbard  
J. McCaffrey, Chief, Public  
Utilities Division  
R. Newmann, Office of Public  
Counsel, State of Illinois Center  
B. L. Siegel, Licensing Project Manager, NRR  
State Liaison Officer  
C. J. Paperiello, RIII  
T. O. Martin, RIII  
R. J. Barrett, NRR  
E. J. Leeds, NRR  
M. L. Jordan, RIII  
C. D. Pederson, RIII  
S. Stasek, SRI, Fermi  
T. E. Murley, NRR  
J. W. Roe, NRR  
J. Lieberman, OE  
OEDO  
Technical Assistant, DRP,  
Project Directorate I/II, NRR



Commonwealth Edison  
1400 Opus Place  
Downers Grove, Illinois 60515

November 2, 1992

Mr. A. Bert Davis  
Regional Administrator  
U.S. Nuclear Regulatory Commission  
Region III  
799 Roosevelt Road  
Glen Ellyn, IL 60137

Subject: Dresden Nuclear Power Station Units 2 and 3  
Request for Regional Temporary Waiver of Compliance to  
Facility Operating Licenses DPR-19 and DPR-25  
NRC Docket Nos. 50-237 and 50-249

Reference: Teleconference between Commonwealth Edison and NRC Staff,  
dated October 30, 1992.

Dear Mr. Davis:

This letter confirms the conclusions reached during the referenced teleconference between Commonwealth Edison (CECo) and the NRC Staff on October 30, 1992, during which CECo requested a Regional Temporary Waiver of Compliance to the Actions required upon a total loss of function to the Degraded Voltage (Second Level Undervoltage) protective features (Technical Specification Section 3.2.B, Table 3.2.2, Note 1). Commonwealth Edison sincerely appreciates the timely efforts of the NRC staff (both at Region III and NRR) in the review of the proposed Temporary Waiver of Compliance.

CECo requested that the requirement necessitating an immediate and orderly shutdown to cold conditions be waived intermittently (for up to a maximum period of one hour per bus, not to exceed two occurrences per bus) for the duration of the waiver period. The applicable Degraded Voltage (Second Level Undervoltage) relays affect the following 4160 volt buses at Dresden Station: 23-1, 24-1, 33-1, and 34-1. The requested waiver period, effective for both Dresden Unit 2 and Unit 3, will commence at 12:00 PM (CST), October 31, 1992 and end no later than 12:00 PM (CST) on November 3, 1992. NRC Region III verbal approval was received at 7:25 PM (CST) on October 30, 1992. The basis for this request is attached, and includes the following:

- A discussion of the requirements for which a waiver is requested.
- A discussion of the circumstances surrounding the situation, including the need for prompt action and a description of why the situation could not have been avoided.
- A discussion of compensatory actions.
- An evaluation of the safety significance and potential consequences of the proposed change.
- A discussion which justifies the duration of the request.
- The basis for concluding that the request does not involve a significant hazards consideration.
- The basis for concluding that the request does not involve irreversible environmental consequences.

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The request for a Regional Temporary Waiver of Compliance has been reviewed and approved by Commonwealth Edison Senior Management, as well as by the Dresden Station On-Site Review Committee in accordance with Commonwealth Edison procedures.

If at any time Commonwealth Edison anticipates that the temporary alteration, and or testing compromises the capability of the trip function in any way, Dresden Station will immediately enter the appropriate action statement and initiate an orderly shutdown of the affected unit.

As of November 1, 1992, CECO successfully completed all work as described in the Temporary Waiver of Compliance.

Please direct any questions regarding this submittal to this office.

Sincerely,

*for*   
Peter L. Piet  
Nuclear Licensing Administrator

Attachment

cc: NRR Document Control Desk  
W. Forney - RIII  
R. Barrett - NRR  
B. Siegel, Project Manager - NRR  
W. Rogers, Senior Resident Inspector - Dresden  
Office of Nuclear Facility Safety - IDNS

## **1. DISCUSSION OF THE REQUIREMENTS FOR WHICH A WAIVER IS REQUIRED.**

The Dresden Unit 2 and 3 Technical Specifications (DPR-19 and DPR-25, respectively), Appendix A, Section 3.2.B, Table 3.2.2, "Instrumentation That Initiates or Controls the Core and Containment Cooling Systems" specify the protective requirements for Degraded Voltage (Second Level Under voltage). The Trip Function for Degraded Voltage on the 4 kV Emergency Buses Trip level setting is specified as "Greater than or equal to 3708 volts (equals 3784 volts less 2% tolerance) after less than or equal to 5 minutes (plus 5% tolerance) with a 7 second (plus or minus 20%) inherent time delay." For the purposes of this waiver of compliance, the Trip function needs to be bypassed intermittently [for less than one hour not to exceed two occurrences per bus] for a short duration in order to modify the relay configuration that controls the initiation of degraded voltage protection. The action statement for this trip function requires immediate shutdown with total loss of function. Total loss of function will be realized for a maximum time period of one hour per ESF Division with the proposed temporary alterations. Due to the requested time period requested for this waiver, CECO believes this to be a Regional Waiver of Compliance which will begin at 12:00 noon (CST) 10/31/92 for a duration of 72 hours as the time duration is less than 7 days.

## **2. CIRCUMSTANCES SURROUNDING THE SITUATION**

Recently, Commonwealth Edison received notice of a Part 21 (10 CFR 21) concern regarding the ABB Type 27N relays. This type of relay is used to provide protection in the event that a Degraded Voltage condition occurs at Dresden on the 4160 volt buses 23-1, 24-1, 33-1, 34-1. The ABB 27N undervoltage relays detect a degraded condition on busses 23-1, 24-1, 33-1, and 34-1 and will transfer the source of power from these busses to the emergency diesel generator. Additionally, it will not allow the restart of the low pressure ECCS pumps until voltage has been restored and the relay has been reset.

The purpose of the Part 21 notification was to alert licensees to the fact that the ABB Type 27N relays have been shown to be susceptible to setpoint drift if subjected to elevated radiation doses. Such radiation levels are expected to occur during a postulated LOCA with significant fuel failure. The setpoint could potentially drift high and the undervoltage trips would occur instantaneously. Consequently, this setpoint drift will result in a loss of offsite power to the 4 kV safety buses that would prevent subsequent restart of the LPCI and Core Spray pumps. CECO immediately initiated a Part 21 evaluation upon receipt of the notification and determined that the operability of the relays were in question. CECO subsequently initiated an Operability Evaluation to determine the operability of the relays and determined that the installed relay configuration was susceptible to high radiation in the event of a LOCA, with severe fuel damage and subsequent injection of the 2B and 3A Core Spray pumps. The 27N undervoltage relays are irradiated by the core spray line 1404-12 in a post LOCA scenario. To eliminate the effects of radiation, as a compensatory measure, Core Spray pumps 2B and 3A were taken out-of service (pulled to lock). As a result an ENS notification was made on October 27, 1992.

Currently, both Unit 2 and Unit 3 are in a seven day LCO (Technical Specifications 3.5.A.2). Core Spray is the source of the elevated dose rates associated with the relays during the postulated accident.

To remedy the situation, the ABB 27N relay configuration needs to be modified to remove the portion of the relay susceptible to the radiation drift problem. The harmonic filters, designed to filter excess noise from the signal, is the portion of the relay to which the susceptibility to high radiation fields exists.

During the time that the first relay is removed, a trip of that relay contact will be installed (ie., jumper). Following the modification and calibration of the first relay, the relay will be reinstalled, the jumper removed, and then the relay will be tripped by removing the voltage to the relay momentarily and this will test the relay contacts. Up to this point the degraded voltage protection is operable. At that time the agastat relay must be replaced to maintain the seven second delay function. Once the agastat relay has been replaced the existing relays no longer provide a 7 second delay but rather a 14 second delay since only one of the relays has been modified.

Just before the agastat relay is replaced, the second level relay trip will be bypassed to expedite the subsequent testing of the agastat relay. This makes inoperable the second level degraded voltage protection. At this time a jumper will be installed to simulate a trip of the second level relays and verify that the relay contacts are functional. Next the trip and reset functions of the second relay are installed (ie., jumpers). The reset function is maintained by utilizing a spare contact on the first relay. At this time the second level undervoltage protection is restored. Then the second relay is modified, calibrated, and installed. During the testing of this second modified degraded voltage relay, the affected diesel generator would be momentarily (less than 1 minute) incapable of supplying power to its loads because the restoration of voltage after an actual degraded voltage condition would not be recognized by the logic. Finally the jumpers are removed and this relay is tripped similar to the first relay.

### **3. DISCUSSION OF COMPENSATORY ACTIONS**

As previously stated, the 2B and 3A Core Spray pumps have been pulled to lock and are administratively out-of service, thus reducing the probability that the ABB 27N relays would be subjected to a postulated radiation field. In the time period that the waiver is in effect and the relay modifications and testing are being performed, access to and around the switchyard area will be severely restricted, thus reducing the probability that disturbances to the grid will occur.

For the duration of the waiver, operating personnel will be on standby and in communication with plant personnel performing the temporary alterations and associated testing, to ensure, in the event of a degraded voltage condition, that the plant can be brought to a safe configuration without risk of injury to plant personnel or risk to plant equipment.

A heightened level of awareness briefing shall be given to all involved personnel ensuring a complete communication line is initiated and continued throughout the plant evolution.

An administrative verification of operability of the appropriate emergency diesel generators, LPCI and HPCI, shall be performed prior to the initiation of the waiver. This demonstration of operability shall be limited to an administrative verification of logs or other information to determine if the appropriate systems are in the proper alignment.

The load dispatcher shall be informed of the situation, stressing the need for maintaining grid stability in the vicinity surrounding the Dresden Station switchyard. This measure ensures that the probability of entering a degraded voltage condition is further reduced.

Prior to the performance of the temporary alteration and/or testing, all plant personnel involved in the physical changes shall be well versed in this maneuver; thus reducing the chances of an inadvertent trip of the relay function.

#### **4. EVALUATION OF THE SAFETY SIGNIFICANCE AND POTENTIAL CONSEQUENCES**

The current plant configuration with only one core spray pump is within the safety analysis of the plant for the allowed-outage-time specified by the Technical Specification Actions. Due to the limited time for which the degraded voltage condition is bypassed within the duration of the waiver request, the probability of a design basis event (LOCA) in conjunction with a degraded voltage condition occurring is minimal.

With the above mentioned compensatory measures in place, all safety functions at the plant can be accomplished to mitigate a design basis accident. For the duration of the waiver, the risk to the plant is minimal due to the limited time (less than one hour per Division not to exceed two occurrences) that the degraded voltage protection is bypassed and because the other Division is still available. If at any time CECo anticipates that the temporary alteration, and or testing compromises the capability of the trip function in any way, we will immediately enter the action statement and initiate an orderly shutdown of the affected unit.

#### **5. DISCUSSION WHICH JUSTIFIES THE DURATION OF THE REQUEST**

The duration of the requested temporary waiver for Dresden Unit 2 and 3 is for 72 hours starting at 12:00 PM (CST), October 31, 1992 and ending no later than 12:00 PM (CST) on November 3, 1992.

This duration is necessary in order to provide a sufficient time period to allow the safe completion of the temporary alteration and any associated qualification testing associated with the ABB 27N relays. The duration of the waiver (72 hours) is of a time frame that limits the risk of the plant due to the short duration that the automatic protective feature may be bypassed.

The risk associated with the occurrence of a DBA during the duration of the waiver is considered minimal. The degraded voltage protection for each ESF Bus will be disabled for one hour per bus for the duration of the waiver. The station has taken compensatory actions which will reduce the activities external and internal to the plant which could increase the occurrence of a degraded voltage condition. All emergency core cooling systems are operable with the exception of one core spray pump per unit. Four LPCI pumps and HPCI will be available to facilitate safe shutdown and decay heat removal following the loss of coolant accident.

**6. BASIS FOR CONCLUDING THAT THE REQUEST DOES NOT INVOLVE A SIGNIFICANT HAZARDS CONSIDERATION**

Commonwealth Edison has evaluated the proposed temporary waiver of compliance and determined that it does not represent a significant hazards consideration. Based on the criteria which defines a significant hazards consideration established in 10 CFR 50.92(c), operation of Dresden Units 2 and 3 in accordance with the request for Temporary Waiver of Compliance will not:

**Involve a significant increase in the probability or consequences of an accident previously evaluated:**

The elimination of the protective relays does not increase the probability of a degraded voltage condition, or any other type of accident scenario. The failure or loss of the relays are not assumed to initiate any accident, especially a degraded voltage condition. For the duration of the waiver, the risk to the plant is minimal due to the limited time (less than one hour per Division not to exceed two occurrences) that the actual degraded voltage protection is not in service and because the other Division is still available. With the compensatory measures in place, operating personnel will be available and ready to retain the manual initiation of all mitigative techniques.

**Create the possibility of a new or different kind of accident from any previously evaluated:**

The failure or loss of a protective degraded voltage (second level) relay is not assumed as any accident initiator. Therefore, the proposed configuration of the plant for the limited duration of the waiver does not create the possibility of a new or different kind of accident form any previously evaluated.

**Does not involve a significant reduction in the margin of safety:**

The probability of a degraded voltage situation coincident with a LOCA for the duration of the waiver request is minimal. Normal plant operation is unchanged for the duration of the waiver. For the duration of the waiver, the risk to the plant is minimal due to the limited time (less than one hour per Division not to exceed two occurrences) that the actual degraded voltage protection is not in service and because the other Division is still available. The compensatory measures instituted by the site reduce the probability that a degraded voltage condition would be expected within the Dresden Station switchyard.

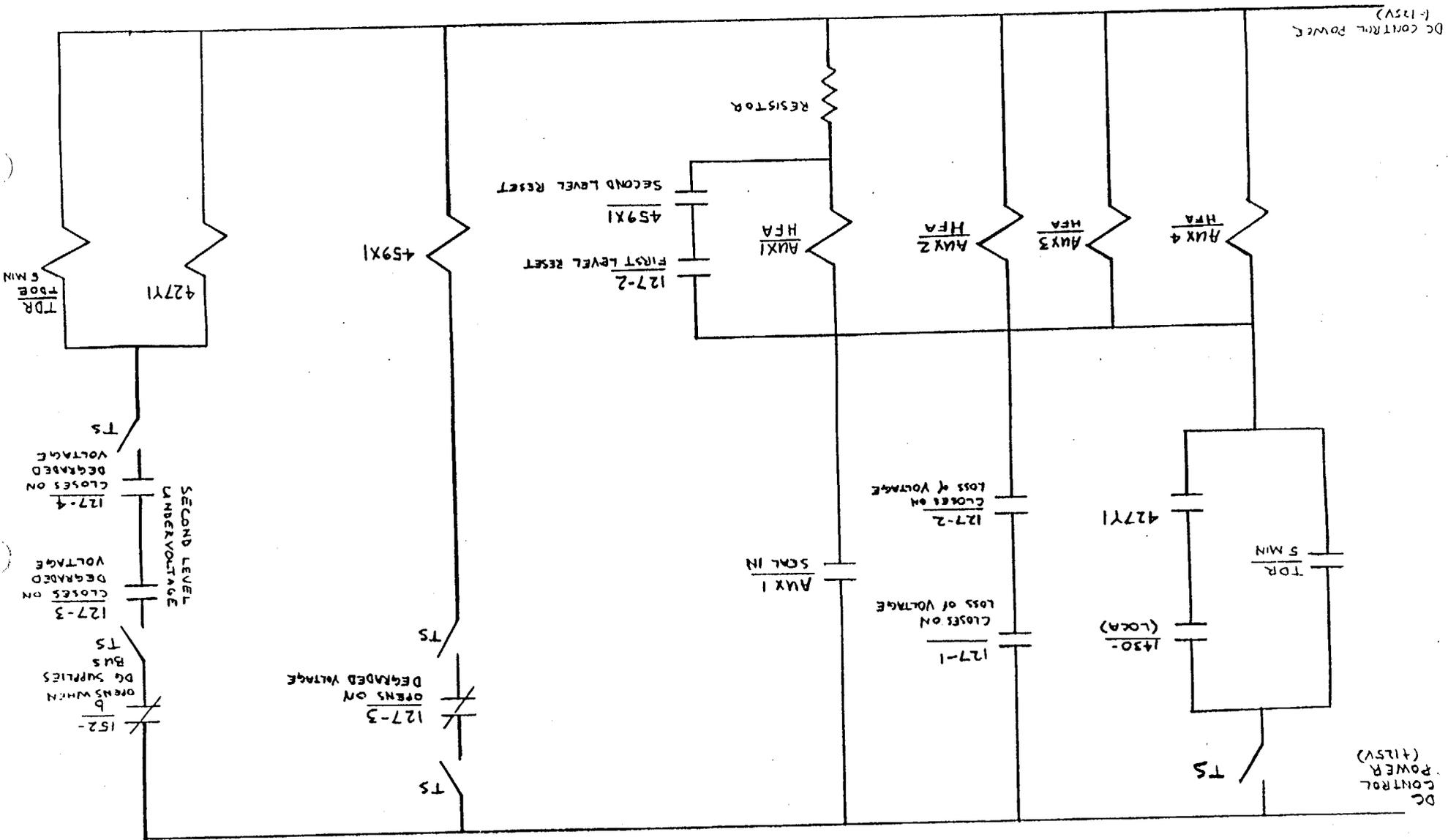
Therefore, for the duration of the waiver request, the margin of safety is not significantly reduced.

**7. BASIS FOR CONCLUDING THAT THE REQUEST DOES NOT INVOLVE IRREVERSIBLE ENVIRONMENTAL CONSEQUENCES**

The request does not involve a change in the use of the facility as defined in 10 CFR 20. There are no increases in the probability of an event that would increase the dose consequences to the public. There is no significant increase in the probability of a scenario that would challenge systems necessary to mitigate the dose consequences to the public. Commonwealth Edison has determined that this Temporary Waiver of Compliance does not involve a significant increase in the amount, or a significant change in the types, of any effluents that may be released off-site and that there is not a significant increase in individual or cumulative occupational radiation exposure.

This Temporary Waiver of Compliance meets the eligibility criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with granting of the Temporary Waiver of Compliance.

DRESDEN UNDERVOLTAGE  
SIMPLIFIED SCHEMATIC



M.S. TUCKER 11/1/72