Regulatory File Cy.

Commonwealth Edison Company

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February 9, 1972

Dr. Peter A. Morris, Director
Division of Reactor Licensing
U.S. Atomic Energy Commission
Washington, D.C. 20545

Subject: Proposed Change No. 9 to Appendix A, DPR-25, AEC Dkt 50-249

Dear Dr. Morris:

Pursuant to Section 50.59 of 10 CFR 50 and paragraph 3.B of Facility License DPR-25, Commonwealth Edison Company hereby submits Proposed Change No. 9 to Appendix A of DPR-25, (Dresden Unit 3). The purpose of this change is to modify the technical specifications concerning draining of the reactor torus, maintenance of more than one control rod drive, sample collection and analysis of environmental samples, and corrections to Specification 4.7.D. The page changes to the technical specifications are attached.

Changes are being made to Specification 4.7.D to correct numbering errors which have been found.

We have evaluated our Environmental Monitoring Program with respect to collection frequency, location of collections and samples being collected. Based on our evaluation of the program to date, we have revised our Environmental Monitoring Program. We believe the proposed program is more comprehensive than the past program.

At the present time, Specification 3.5 does not allow Emergency Core Cooling Systems to be inoperable during control rod drive maintenance. This hampers operations such as draining of the torus for paint inspection. We believe that the proposed technical specification in Item 3.5.F.4 allows the torus to be drained during control rod drive maintenance in a safe manner and does not jeopardize the ability to cool the core. The conditions listed in Item 3.5.F.4 provide the following safeguards. If only one control rod drive is removed at one time the largest potential loss of coolant is limited to the two inch diameter opening in a control rod drive nozzle.

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By requiring the fuel pool gate be open the combined water inventory in the fuel pool, reactor cavity, and dryer/separator pool between the low level alarm and the reactor vessel flange is 700,000 gallons. With this inventory a two inch diameter leak would require 16 hours to drain the pools to the reactor flange assuming no make-up. Any water draining from the reactor vessel would collect in the suppression chamber. Therefore, there is adequate time and cooling water available to re-establish core cooling. By maintaining a 230,000 gallon reserve in the condensate storage tanks an additional 140,000 gallons of water inventory is available for core cooling. This is in addition to the 90,000 gallon reserve for HPCI or the isolation condenser. The total of this 140,000 gallons and the 700,000 gallons in the pools provides 840,000 gallons (112,000 ft^3) for the low pressure core cooling systems.

Early in core life, it is not always possible to demonstrate a one stuck rod margin when an additional drive is taken out for maintenance. To allow maintenance to be done on control rod drives in a safe manner, changes to Specification 3.10 are being proposed. These changes provide alternate requirements for the capability of repair or maintenance of up to two control rods or control rod drives simultaneously. For those situations where the excess reactivity is not sufficient to meet the present technical specification requirements, the proposed change incorporates another barrier to accidental control rod withdrawal by electrically disarming a minimum of eight control rod drive directional control valves for control rods surrounding each control rod to be out of service for maintenance. This method for preventing motion of control drives has already been incorporated in Technical Specification 3.3.A.2.b. This barrier is in addition to the refueling interlock which is already required by 3.10.D.1. Electrically disarming the directional control valves does not inhibit scram capability on a control rod drive.

The requested modification requires that if maintenance is to be performed on up to two control rods or drives simultaneously, they must be separated by at least two fuel cells in any direction. This provides assurance that criticality will not occur due to withdrawing of these two rods. Neutron monitoring is provided by the SRM's and IRM's. As described in the Bases to Specification 3.10 (paragraph B), the SRM's must be operable. Additionally, when the reactor mode switch is in the refuel position, the IRM's must be on their lowest scale to satisfy the rod withdrawal inhibit interlock. These two systems provide information in the control room and protection for the plant. There appears to be no mechanistic way in which withdrawal of a control rod that is electrically disarmed can occur. If, however, it is assumed that the control rod and drive assembly drifts out, the following information is immediately available in the control room:

1 - Rod drift light
2 - SRM upscale annunciator
3 - SRM rod block
4 - IRM upscale alarm

If no action is taken in the control room because of the above indications, when two IRM channels have reached 120/125 of their lowest scale, the control rods are scrammed and the core is made subcritical. Therefore, if no manual action has been taken prior to reaching the upscale trip on the IRM, an automatic scram will occur.

Proposed Change No. 9 has been reviewed and approved by Commonwealth Edison's Nuclear Review Board.

In addition to three signed originals, 19 copies of this proposed change are also submitted.

Very truly yours,

Wayne L. Stiede

Wayne L. Stiede
Nuclear Licensing Administrator

SUBSCRIBED and SWORN to
before me this 9th day
of February, 1972.

Patricia A. Nelson
Notary Public

3.3 LIMITING CONDITION FOR OPERATION	4.3 SURVEILLANCE REQUIREMENT
B. Control Rods	B. Control Rods

3.3 LIMITING CONDITION FOR OPERATION

B. Control Rods

1. Each control rod shall be coupled to its drive or completely inserted and the control rod directional or control valves disarmed electrically.

2. This requirement does not apply in the refuel condition when the reactor is vented.
*

3. The control rod drive housing support system shall be in place during reactor power operation and when the reactor coolant system is pressurized above atmospheric pressure with fuel in the reactor vessel, unless all control rods are fully inserted and Specification 3.3.A.1 is met.

4.3 SURVEILLANCE REQUIREMENT

B. Control Rods

1. The coupling integrity shall be verified for each withdrawn control rod as follows:

   a. when the rod is withdrawn the first time subsequent to each refueling outage or after maintenance, observe discernible response of the nuclear instrumentation; however, for initial rods when response is not discernible, subsequent exercising of these rods after the reactor is critical shall be performed to verify instrumentation response; and

   b. when the rod is fully withdrawn the first time subsequent to each refueling outage or after maintenance, observe that the drive does not go to the overtravel position.

2. The control rod drive housing support system shall be inspected after reassembly and the results of the inspection recorded.

3.5 LIMITING CONDITION FOR OPERATION

be complied with or an orderly shutdown shall be initiated and the reactor pressure shall be reduced to 90 psig within 24 hours.

F. Minimum Core and Containment Cooling System Availability

1. During any period when the unit or shared diesel generator is inoperable, continued reactor operation is permissible only during the succeeding seven days provided that all of the low pressure core cooling and containment cooling subsystems shall be operable. If this requirement cannot be met, either the requirements of 3.5.G shall be complied with or an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown Condition with 24 hours.

2. Any combination of inoperable components in the core and containment cooling systems shall not defeat the capability of the remaining operable components to fulfill the core and containment cooling functions.

3. When irradiated fuel is in the reactor vessel and reactor is in the cold shutdown condition, all low pressure core and containment cooling subsystems may be inoperable provided no work is being done which has the potential for draining the reactor vessel.

*4. When irradiated fuel is in the reactor vessel and the reactor is in the refuel condition, the torus may be drained completely

4.5 SURVEILLANCE REQUIREMENT

F. Surveillance of Core and Containment Cooling System

1. When it is determined that either the unit or shared diesel generator is inoperable, all low pressure core cooling and containment cooling subsystems shall be demonstrated to be operable immediately and daily thereafter. In addition, the operable diesel generator shall be demonstrated to be operable immediately and daily thereafter.

2. Actions necessary to assure that the plant can be safely shut down and maintained in this condition in case of failure of the Dresden Dam shall be demonstrated to be adequate every third refueling outage. If this Specification has been complied with for Dresden Unit 3, it shall not be required for Dresden Unit 2.

and control rod drive maintenance performed. If no more than one control rod drive housing is open at one time, the spent fuel pool gates are open, the fuel pool water level is maintained above the low level alarm point, and the minimum total condensate storage reserve is maintained at 230,000 gallons.

G. Extended Maintenance

When it is determined that maintenance to restore components or systems to an operable condition will last longer than the periods specified, a report detailing the circumstances and the estimated date for returning the components or systems to an operable condition shall be submitted to the AEC prior to the end of the out-of-service period.

H. Maintenance of Filled Discharge Pipe

Whenever core spray, LPCI, or HPCI ECCS are required to be operable, the discharge piping from the pump discharge of these systems to the last check valve shall be filled.

H. Maintenance of Filled Discharge Pipe

The following surveillance requirements shall be adhered to to assure that the discharge piping of the core spray, LPCI, and HPCI are filled:

3.5 LIMITING CONDITION FOR OPERATION	4.5 SURVEILLANCE REQUIREMENT
	1. Every month prior to the testing of the LPCI and core spray systems, the discharge piping of these systems shall be vented from the high point and water flow observed. 2. Following any period where the LPCI or core spray subsystems have not been required to be operable, the discharge piping of the inoperable system shall be vented from the high point prior to the return of the system to service. 3. Whenever the HPCI system is lined up to take suction from the torus, the discharge piping of the HPCI shall be vented from the high point of the system and water flow observed on a monthly basis. 4. The pressure switches which monitor the discharge lines to assure that they are full shall be functionally tested every month and calibrated every three months.

Dresden Units 2 and 3 share certain process systems such as the makeup demineralizers and the radwaste system and also some safety systems such as the standby gas treatment system, batteries,and diesel generators. All of these systems have been sized to perform their intended function considering the simultaneous operation of both units.

For the safety related shared features of each plant,the Technical Specifications for that unit contain the operability and surveillance requirements for the shared feature; thus, the level of operability for one unit is maintained independently of the status of the other. For example, the shared diesel (2/3 diesel) would be mentioned in the specifications for both Units 2 and 3 and even if Unit 3 were in the Cold Shutdown Condition and needed no diesel power, readiness of the 2/3 diesel would be required for continuing Unit 2 operation.

*F. Specification 3.5.F.4 provides that should this occur, no work will be performed which could preclude adequate emergency cooling capability being available. Work is prohibited unless it is in accordance with specified procedures which assure that worst possible loss of coolant resulting from the work will not result in uncovering the reactor core. Thus, this specification assures adequate core cooling. Specification 3.9 must be consulted to determine other requirements for the diesel generator.

G. Extended Maintenance - Nearly all maintenance can be completed within a few days. Infrequently, however, major maintenance might be required. Replacement of principal system components could necessitate outages of more than the time allowed for a system or component to be out of service.

H. Maintenance of Filled Discharge Pipe - If the discharge piping of the core spray, LPCI, and HPCI are not filled, a water hammer can develop in this piping when the pump and/or pumps are started.

3.7 LIMITING CONDITION FOR OPERATION	4.7 SURVEILLANCE REQUIREMENT

d. At least twice per week the main steamline power-operated isolation valves shall be exercised by partial closure and subsequent reopening.

2. In the event any isolation valve specified in Table 3.7.1 becomes inoperable, reactor power operation may continue provided at least one valve in each line having an inoperable valve is in the mode corresponding to the isolated condition.

3. If Specification 3.7.D.1 and 3.7.D.2 cannot be met, an orderly shutdown shall be initiated and the reactor shall be in the Cold Shutdown condition within 24 hours.

4. The temperature of the main steamline air pilot valves shall be less than 150°F except as specified in 3.7.D.5 below.

5. From and after the date that the temperature of any main steamline air pilot valve is found to be greater than 150°F, reactor operation is permissible only during the succeeding seven days unless the temperature of such valve is sooner reduced to less than 150°F, provided the main steamline isolation valves are operable.

6. When it is determined that it will take longer than seven days to reduce the temperature of any main steamline air pilot valve to less than 150°F, a report detailing the circumstances and the estimated date for returning the air pilot valve temperature to a value less than 150°F shall be submitted to the AEC prior to the end of the seven day period.

2. Whenever an isolation valve listed in Table 3.7.1 is inoperable, the position of at least one other valve in each line having an inoperable valve shall be recorded daily.

3. The temperature of the main steamline air pilot valves shall be recorded daily.

4. When it is determined that the temperature of any main steamline air pilot valve is greater than 150°F, the main steamline isolation valves shall be demonstrated to be operable immediately and daily thereafter. The demonstration of operability shall be according to Specification 4.7.D.1.d.

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites		Collection Frequency	Collection Dates
1. a. Airborne Particulate (AP)	Beta Gamma Scans (Special)	Elwood Joliet Wilmington Lorenzo Morris Lisbon Coal City Bennett Farm Hansel Channabon Breen McCabe Minooka Goose Lake On -Site Stations #1, #2, #3	J-15 J-48 464 J-54 016 024 J-68 BE HA CH BR 0672 J-27 J-21	Weekly	---
b. Airborne Screen (in addition to airborne particulate)	I-131	Same Locations as in 1. a.		Bi-Weekly	---
2. Gamma Background (Ion Chambers)	Gamma	Same Locations as Air Particulate Stations		Weekly	---

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites	Collection Frequency	Collection Dates
3. Gamma Background (TLD)	Gamma	Same Locations as Air Particulate Stations	Quarterly	---
4. Fallout - Airborne Solids and Liquids (WF)	Beta, Tritium Gamma Scans (Special)	Brandon Lock and Dam, Dresden On-Site Station #2 Milk Stations (2)	Monthly	---
5. Fallout - Soil (SO)	Beta Gamma Scans(1) 89Sr, 90Sr	Brandon Lock and Dam, Dresden On-Site Station #2	Quarterly	---
6. a. Fallout - Cattle Feed (CF)	Beta 89Sr, 90Sr Gamma Scan (2)	Milk Stations	Monthly	Nov.-Mar.
b. Fallout - Grass (GF)	Beta 89Sr, 90Sr 137Cs Gamma Scan (3) 131-I	Milk Stations 131-I at closest milk station to Dresden only	Monthly	Apr.-Oct.
c. Fallout - Vegetation	Beta Gamma Scan 89Sr, 90Sr	Same Location as Air Particulate Stations (89Sr, 90Sr, at On-Site Stations Only)	Annual	Fall season

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites	Collection Frequency	Collection Dates
d. Fallout - Foodstuffs (FF)	Beta 89Sr, 90Sr, Cs137 Gamma Scan (4)	Truck Farms	3 times/year	Summer and early fall
7. Surface Water (SW)	Beta Gamma Scans (Special)	Dresden Inlet and Discharge Canals and E.J.& E. R.R. Bridge Sta.	Weekly Composite	---
	89Sr, 90Sr Tritium		Quarterly Composite	
	Beta, Tritium, Gamma Scans (Special)	Corp. of Eng. Pump. Sta.	Quarterly	---
	Beta Gamma Scans (Special)	Illinois River at Morris (State of Ill. Sample)	Semi-Monthly Composite	Supplied by State
8. Bottom Sediments (SI)	Beta Gamma Scans(1) 89Sr, 90Sr	Dresden Inlet Canal Dresden Discharge Canals, Illinois River - at Morris and E.J. & E. Bridge Station	Quarterly	Feb.-May-Aug.-Nov.

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites	Collection Frequency	Collection Dates
9. Slime (SL)	Beta Gamma Scans(5)	Dresden Inlet Canal Dresden Discharge Canals Illinois River - at Morris and E.J. & E. Bridge Station	Quarterly	Feb.-May- Aug.-Nov.
10. Well Water (WW)	Beta Gamma Scans (Special)	Dresden Lock and Dam (DL)	Monthly	---
		Hansel (HA)	Quarterly	Jan.-Apr.- Jul.-Oct.
		Olson (OL)		Feb.-May- Aug.-Nov.
		Bennett (BE)		Jan.-Apr.- Jul.-Oct.
		Breen (BR)		Feb.-May- Aug.-Nov.
		Thorsen (TH)		Jan.-Apr.- Jul.-Oct.
		Anderson (AN)		Feb.-May- Aug.-Nov.

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites	Collection Frequency	Collection Dates
	Beta, Tritium, Gamma Scans (Special)	Dresden Well #1 (W1)	Quarterly	Jan.-Apr.-Jul.-Oct.
		Dresden Well #2 (W2)		Feb.-May-Aug.-Nov.
	Beta Gamma Scans (Special)	Drinking Fountain - Unit #1 (DF-1)		
11. Milk (M)	a.131-I b.89Sr, 90Sr, 137Cs Elemental Calcium	Davidson (DA) and Dhuse (DH)	a.Weekly b.Monthly Composite	---
12. a. Fish b. Sediment c. Water	Beta, 89Sr, 90Sr Gamma Scan	Dresden Lock and Dam Pool (Routine) Brandon Lock and Dam Pool and County Line Bridge (Special)	Semi-Annual	---
d. Aquatic Plants	Beta, 89Sr, 90Sr, Gamma Scan	Dresden Inlet and Discharge Canal (General Area)	Semi-Annual	---

TABLE 4.8.1

SAMPLE COLLECTION AND ANALYSIS
DRESDEN NUCLEAR POWER STATION - ENVIRONMENTAL MONITORING PROGRAM

Sample Media	Type of Analysis	Collection Sites	Collection Frequency	Collection Dates
13. Special Analyses	^{91}Sr, Air Particulate $^{89-90}Sr$ Air Particulate ^{131}I Rainfall $^{89-90}Sr$ Rainfall			

Notes: (1) Fall samples only
(2) January or February samples only
(3) June or July or August samples only
(4) Third collection of samples only
(5) August samples only

TABLE II

SAMPLE CODING SYSTEM
DRESDEN NUCLEAR POWER STATION - ENVIRONS PROGRAM

Sample Types

AP	Air Particulate
SW	Surface Water
WW	Well Water
WF	Fallout Water
SI	Silt
SL	Slime
M	Milk
GF	Grass
VF	Vegetation
CF	Cattle Feed
FF	Foodstuffs
SO	Soil
FP	Fish Program

Sample Location

J15	Elwood
J48	Joliet, Brandon Road
464	Wilmington
J54	Lorenzo
016	Morris
024	Lisbon
J68	Coal City
BE	Bennett Farm

Sample Location

CH	Channahon
BR	Breen
HA	Hansel
0672	McCabe
J27	Minooka
J21	Goose Lake
A	On-Site Monitor Station #1
B	On-Site Monitor Station #2
C	On-Site Monitor Station #3
M	Morris (On Illinois River)
K	Kankakee River (At Inlet Canal)
D	DesPlaines River (At Discharge Canal)
RR	E. J. & E. Railroad Bridge (Ill. River)
MS	Morris (Illinois River - State)
DL	Dresden Locks
W1	Dresden Well #1
W2	Dresden Well #2
DF	In-Plant Drinking Fountain - Unit #1
TH	Thorsen Farm
AN	Anderson Farm
OL	Olson
DA	Davidson Farm
DH	Dhuse Farm

1. The SRM shall be inserted to the normal operating level. (Use of special moveable, dunking type detectors during initial fuel loading and major core alterations in place of normal detectors are permissible as long as the detector is connected into the normal SRM circuit.)

2. The SRM shall have a minimum of 3 cps with all rods fully inserted in the core.

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool water level shall be maintained at a level of 33 feet.

D. Control Rod and Control Rod Drive Maintenance

* A maximum of two non-adjacent control rods separated by more than two control cells in any direction, may be withdrawn from the core for the purpose of performing control rod and/or control rod drive maintenance provided the following conditions are satisfied:

1. The reactor mode switch shall be locked in the "re-fuel" position. The re-fueling interlock which prevents more than one control rod from being withdrawn may be bypassed for one of the control rods on which maintenance is being performed. All other re-fueling interlocks shall be operable.

C. Fuel Storage Pool Water Level

Whenever irradiated fuel is stored in the fuel storage pool, the pool level shall be recorded daily.

D. Control Rod Drive and Control Rod Drive Maintenance

1. This surveillance requirement is the same as given in 4.10.A.

3.10 LIMITING CONDITION FOR OPERATION

* 2. Specification 3.3.A.1 shall be met or, the control rod directional control valves for a minimum of eight control rods surrounding each drive out of service for maintenance will be disarmed electrically and sufficient margin to criticality demonstrated.

3. SRM's shall be operable (a) in each core quadrant containing a control rod on which maintenance is being performed, and (b) in a quadrant adjacent to one of the quadrants specified in 3.10.D.3.a above. Requirements for an SRM to be considered operable are given in 3.10.B.

E. Extended Core Maintenance

More than two control rods may be withdrawn from the reactor core provided the following conditions are satisfied:

4.10 SURVEILLANCE REQUIREMENT

*2. Sufficient control rods shall be withdrawn prior to performing this maintenance to demonstrate with a margin of 0.25 percent Δk that the core can be made subcritical at any time during the maintenance with the strongest operable control rod fully withdrawn and all other operable rods fully inserted. Alternately, if a minimum of eight control rods surrounding each control rod out of service for maintenance are to be fully inserted and have their directional control valves electrically disarmed, the 0.25 percent Δk margin will be met with the strongest control rod remaining in service during the maintenance period fully withdrawn.

3. This surveillance requirement is the same as that given in 4.10.B.

E. Extended Core Maintenance

3.10 LIMITING CONDITION FOR OPERATION	4.10 SURVEILLANCE REQUIREMENT
1. The reactor mode switch shall be locked in the "re-fuel" position. The re-fueling interlock which prevents more than one control rod from being with-drawn may be bypassed on a withdrawn control rod after the fuel assemblies in the cell containing (controlled by) that control rod have been removed from the reactor core. All other re-fueling interlocks shall be operable.	1. This surveillance requirement is the same as that given in 4.10.A.
2. SRM's shall be operable in the core quadrant where fuel or control rods are being moved and in an adjacent quadrant. The requirements for an SRM to be considered operable are given in 3.10.B.	2. This surveillance requirement is the same as that given in 4.10.B.

* The maintenance is performed with the mode switch in the "re-fuel" position to provide the re-fueling interlocks normally available during re-fueling operations as explained in Part A of these Bases. In order to withdraw a second control rod after withdrawal of the first rod, it is necessary to by-pass the re-fueling interlock on the first control rod which prevents more than one control rod from being with-drawn at the same time. The require-ment that an adequate shutdown margin be demonstrated with the control rods remaining in service insures that in-advertent criticality cannot occur during this maintenance. The Shutdown margin is verified by demonstrating that the core is shut down even if the strongest control rod remaining in service is fully withdrawn. Disarming the directional control valves does not inhibit control rod scram capability.

The requirement for SRM operability during the maintenance is covered in Part B of these Bases.

E. The intent of this specification is to permit the unloading of a significant portion of the reactor core for such purposes as in-service inspection requirements, examination of the core support plate, etc. This specification provides assurance that inadvertent criti-cality does not occur during such operation.

This operation is performed with the mode switch in the "re-fuel" position to provide the re-fueling interlocks normally available during re-fueling as explained in Part A of these Bases. In order to withdraw more than one control rod, it is necessary to bypass the re-fueling interlock on each withdrawn control rod which prevents more than one control rod from being withdrawn at a time. The requirement that the fuel assemblies in the cell controlled by the control rod be removed from the reactor core before the interlock can be bypassed insures that with-drawal of another control rod does not result in inadvertent criticality. Each control rod essentially provides reactivity control for the fuel assemblies in the cell associated with that control rod. Thus, removal of an entire cell (fuel assemblies plus control rod) results in a lower reactivity potential of the core.

The requirement for SRM operability during these operations is covered in Part B of these Bases.