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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-237

DRESDEN NUCLEAR POWER STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 126
License No. DPR-19

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 26, 1993, 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-19 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 126 , 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 to be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James E. Dyer

James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: April 5, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 126

FACILITY OPERATING LICENSE NO. DPR-19

DOCKET NO. 50-237

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
1/2.1-4	1/2.1-4
3/4.2-8	3/4.2-8
3/4.2-10	3/4.2-10
B 3/4.2-29	B 3/4.2-29
B 3/4.2-31	B 3/4.2-31

1.1 <u>SAFETY LIMIT</u> (Cont'd.)

C. <u>Power Transient</u>

1. The neutron flux shall not exceed the scram setting established in Specification 2.1.A for longer than 1.5 seconds as indicated by the process computer.

2. When the process computer is out of service, this safety limit shall be assumed to be exceeded if the neutron flux exceeds the scram setting established by Specification 2.1.A and a control rod scram does not occur.

D. <u>Reactor Water Level (Shutdown Condition)</u>

Whenever the reactor is in the shutdown condition with irradiated fuel in the reactor vessel, the water level shall not be less than that corresponding to 12 inches above the top of the active fuel when it is seated in the core.

Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

2.1 <u>LIMITING SAFETY SYSTEM SETTING</u> (Cont'd.)

The adjustment may also be performed by increasing the APRM gain by FDLRC, which accomplishes the same degree of protection as reducing the trip setting by 1/FDLRC.

C. Reactor low water level scram setting shall be greater than or equal to 144" above the top of the active fuel at normal operating conditions.
Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

D. Reactor low water level ECCS initiation shall be greater than or equal to 84 inches above the top of the active fuel at normal operating conditions.
Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

TABLE 3.2.1

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION FUNCTIONS

MINIMUM # OF OPERABLE INST. CHANNELS PER TRIP SYSTEM (1)	INSTRUMENTS	TRIP LEVEL SETTING	ACTION (3)
2	Reactor Low Water Level	Greater than 144" above top of active fuel (9)	A
2	Reactor Low Low Water	Greater than or equal to 84" above top of active fuel (9)	A
2	High Drywell Pressure	Less than or equal to 2 psig (4),(5)	A
2 (2)	High Flow Main Steam Line	Less than or equal to 120% of rated steam flow	B
2 of 4 in each of 4 sets	High Temperature Main Steamline Tunnel	Less than or equal to 200°F.	B
2	High Radiation Main Steamline Tunnel	Less than or equal to 3 times full power background (7),(6)	B
2	Low Pressure Main Steamline	Greater than or equal to 850 psig	B
	High Flow Isolation		
1	Condenser Line Steamline Side	Less than or equal to 300% rated steam flow	C
1	Condensate Return Side	Less than or equal to 32" water diff on condensate return side	C
2	High Flow HPCI Steamline	Less than or equal to 300% rated steam flow	D
4	High Temperature HPCI Steamline Area	Less than or equal to 200°F.	D

Notes:
(See next Page)

TABLE 3.2.2

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

MINIMUM # OF OPERABLE INST. CHANNELS PER TRIP SYSTEM (1)	TRIP FUNCTION	TRIP LEVEL SETTING	Remarks
2	Reactor Low Low Water Level	Greater than or equal to 84" above top of active fuel (5)	1. In conjunction with low reactor pressure initiates core spray and LPCI. 2. In conjunction with high-drywell pressure, 120 sec. time delay, and low pressure core cooling interlock initiates auto blowdown. 3. Initiates HPCI and SBGTS. 4. Initiates starting of diesel generators.
2	High Drywell Pressure (2),(3)	Less than or equal to 2 PSIG	1. Initiates core spray LPCI, HPCI, and SBGTS. 2. In conjunction with low low water level 120 sec. time delay and low pressure core cooling interlock initiates auto blowdown. 3. Initiates starting of diesel generators.
1	Reactor Low Pressure	Greater than or equal to 300 PSIG & less than or equal to 350 PSIG	1. Permissive for opening core spray and LPCI admission valves. 2. In conjunction with low low reactor water level initiates core spray and LPCI.
1(4)	Containment Spray Interlock 2/3 Core Height	Greater than or equal to 2/3 core height	Prevents inadvertent operation of containment spray during accident conditions.
2(4)	Containment High Pressure	Greater than or equal to 0.5 PSIG & less than or equal to 1.5 PSIG	Prevents inadvertent operation of containment spray during accident conditions.
1	Timer Auto Blowdown	Less than or equal to 120 seconds	In conjunction with low low reactor water level, high dry-well pressure and low pressure core cooling interlock initiates auto blowdown.
2	Low Pressure Core Cooling Pump Discharge Pressure	Greater than or equal to 50 PSIG & less than or equal 100 PSIG	* Defers APR actuation pending confirmation of low pressure core cooling system operation.
2/Bus	4 KV Loss of Voltage Emergency Buses	Trip on 2930 volts plus or minus 5% decreasing voltage	1. Initiates starting of diesel generators. 2. Permissive for starting ECCS pumps. 3. Removes nonessential loads from buses. 4. Trips emergency bus normal feed breakers.
2	Sustained High Reactor Pressure	Less than or equal to 1070 PSIG for 15 seconds	Initiates isolation condenser
2/Bus	Degraded Voltage on 4 KV Emergency Buses	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	Initiates alarm and picks up time delay relay. Diesel generator picks up load if degraded voltage not corrected after time delay.

Notes: (See next Page)

3.2 LIMITING CONDITION FOR OPERATION BASES (Cont'd.)

top of active fuel. Retrofit 8 X 8 fuel has an active fuel length 1.24 inches longer than earlier fuel designs. However, present trip setpoints were used in the LOCA analyses. This trip initiates closure of Group 2 and 3 primary containment isolation valves but does not trip the recirculation pumps (reference SAR Section 7.7.2). For a trip setting of 504 inches above vessel zero (144 inches above top of active fuel) and a 60-second valve closure time, the valves will be closed before perforation of the cladding occurs even for the maximum break; the setting is therefore adequate.

The low low reactor level instrumentation is set to trip when reactor water level is 444 inches above vessel zero (with top of active fuel defined as 360 inches above vessel zero, - 59 inches is 84 inches above the top of active fuel). This trip initiates closure of Group I primary containment isolation valves (reference SAR Section 7.7.2.2) and also activates the ECC subsystems, starts the emergency diesel generator, and trips the recirculation pumps. This trip setting level was chosen to be low enough to prevent spurious operation but high enough to initiate ECCS operation and primary system isolation so that no melting of the fuel cladding will occur and so that post accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be exceeded. For the complete circumferential break of a 28-inch recirculation line and with the trip setting given above, ECCS initiation and primary isolation are initiated and in time to meet the above criteria. The instrumentation also covers the full spectrum of breaks and meets the above criteria.

The high-drywell pressure instrumentation is a backup to the water level instrumentation and, in addition to initiating ECCS, it causes isolation of Group 2 isolation valves. For the breaks discussed above, this instrumentation will initiate ECCS operation at about the same time as the low low water level instrumentation; thus the results given above are applicable here, also Group 2 isolation valves include the drywell vent, purge and sump isolation valves. High-drywell pressure activates only these valves because high drywell pressure could occur as the result of non-safety-related causes such as not purging the drywell air during startup. Total system isolation is not desirable for these conditions, and only the valves in Group 2 are required to close. The low low water level instrumentation initiates protection for the full spectrum of loss-of-coolant accidents and causes a trip of Group 1 primary system isolation valves.

3.2 LIMITING CONDITION FOR OPERATION BASES (Cont'd.)

and/or bypass valves to open. With the trip set at 850 psig, inventory loss is limited so that fuel is not uncovered and peak clad temperatures are much less than 1500 degrees F; thus, there are no fission products available for release other than those in the reactor water. (Ref. Section 11.2.3 SAR)

Two sensors on the isolation condenser supply and return lines are provided to detect the failure of isolation condenser line and actuate isolation action. The sensors on the supply and return sides are arranged in a 1 out of 2 logic and, to meet the single failure criteria, all sensors and instrumentation are required to be operable. The trip settings of ≤ 300% rated steam flow and 32 inches of water differential and valve closure time are such as to prevent uncovering the core or exceeding site limits. The sensors will actuate due to high flow in either direction.

The HPCI high flow and temperature instrumentation are provided to detect a break in the HPCI piping. Tripping of this instrumentation results in actuation of HPCI isolation valves, i.e., Group 4 valves. Tripping logic for this function is the same as that for the isolation condenser and thus all sensors are required to be operable to meet the single failure of design flow and valve closure time are such that core uncovery is prevented and fission product release is within limits.

The instrumentation which initiates ECCS action is arranged in a dual bus system. As for other vital instrumentation arranged in this fashion the Specification preserves the effectiveness of the system even during periods when maintenance or testing is being performed.

The control rod block functions are provided to prevent excessive control rod withdrawal so that MCPR does not go below the MCPR fuel cladding integrity safety limit. The trip logic for this function is 1 out of n, e.g., any trip on one of the six APRM's, 8 IRM's, or 4 SRM's will result in a rod block. The minimum instrument channel requirements assure sufficient instrumentation to assure the single failure criteria are met. The minimum instrument channel requirements for the RBM may be reduced by one for a short period of time to allow for maintenance, testing or calibration. This time period is only approximately 3% of the operating time in a month and does not significantly increase the risk of preventing and inadvertent control rod withdrawal. During Single Loop Operation, the flow biased RBM is reduced by 4 percent to compensate for reverse flow in the idle loop jet pumps.

The APRM rod block function is flow biased and prevents a significant reduction in MCPR, especially during operation at

UNITED STATES
NUCLEAR REGULATORY COMMISSION
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COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-249

DRESDEN NUCLEAR POWER STATION, UNIT 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 120
License No. DPR-25

1. The Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by the Commonwealth Edison Company (the licensee) dated March 26, 1993, 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 3.B. of Facility Operating License No. DPR-25 is hereby amended to read as follows:

B. Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 120 , 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 to be implemented within 45 days from the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

James E. Dyer

James E. Dyer, Director
Project Directorate III-2
Division of Reactor Projects - III/IV
Office of Nuclear Reactor Regulation

Attachment:
Changes to the Technical Specifications

Date of Issuance: April 5, 1994

ATTACHMENT TO LICENSE AMENDMENT NO. 120

FACILITY OPERATING LICENSE NO. DPR-25

DOCKET NO. 50-249

Revise the Appendix A Technical Specifications by removing the pages identified below and inserting the attached pages. The revised pages are identified by the captioned amendment number and contain marginal lines indicating the area of change.

REMOVE	INSERT
1/2.1-4	1/2.1-4
3/4.2-8	3/4.2-8
3/4.2-10	3/4.2-10
B 3/4.2-29	B 3/4.2-29
B 3/4.2-31	B 3/4.2-31

1.1 SAFETY LIMIT (Cont'd.)

C. Power Transient

1. The neutron flux shall not exceed the scram setting established in Specification 2.1.A for longer than 1.5 seconds as indicated by the process computer.

2. When the process computer is out of service, this safety limit shall be assumed to be exceeded if the neutron flux exceeds the scram setting established by Specification 2.1.A and a control rod scram does not occur.

D. Reactor Water Level (Shutdown Condition)

Whenever the reactor is in the shutdown condition with irradiated fuel in the reactor vessel, the water level shall not be less than that corresponding to 12 inches above the top of the active fuel when it is seated in the core.

Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

2.1 LIMITING SAFETY SYSTEM SETTING (Cont'd.)

The adjustment may also be performed by increasing the APRM gain by FDLRC, which accomplishes the same degree of protection as reducing the trip setting by 1/FDLRC.

C. Reactor low water level scram setting shall be greater than or equal to 144" above the top of the active fuel at normal operating conditions.
Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

D. Reactor low water level ECCS initiation shall be greater than or equal to 84 inches above the top of the active fuel at normal operating conditions.
Note: Top of active fuel is defined to be 360 inches above vessel zero (see Bases 3.2).

TABLE 3.2.1

INSTRUMENTATION THAT INITIATES PRIMARY CONTAINMENT ISOLATION FUNCTIONS

MINIMUM # OF OPERABLE INST. CHANNELS PER TRIP SYSTEM (1)	INSTRUMENTS	TRIP LEVEL SETTING	ACTION (3)
2	Reactor Low Water Level	Greater than 144" above top of active fuel (8)	A
2	Reactor Low Low Water	Greater than or equal to 84" above top of active fuel (8)	A
2	High Drywell Pressure	Less than or equal to 2 psig (4),(5)	A
2 (2)	High Flow Main Steam Line	Less than or equal to 120% of rated steam flow	B
2 of 4 in each of 4 sets	High Temperature Main Steamline Tunnel	Less than or equal to 200°F.	B
2	High Radiation Main Steamline Tunnel	Less than or equal to 3 times full power background (6)	B
2	Low Pressure Main Steamline	Greater than or equal to 850 psig	B
	High Flow Isolation		
1	Condenser Line Steamline Side	Less than or equal to 300% rated steam flow	C
1	Condensate Return Side	Less than or equal to 14.8" water diff on condensate return side	C
2	High Flow HPCI Steamline	Less than or equal to 300% rated steam flow	D
4	High Temperature HPCI Steamline Area	Less than or equal to 200°F.	D

Notes:
(See next Page)

TABLE 3.2.2

INSTRUMENTATION THAT INITIATES OR CONTROLS THE CORE AND CONTAINMENT COOLING SYSTEMS

MINIMUM # OF OPERABLE INST. CHANNELS PER TRIP SYSTEM (1)	TRIP FUNCTION	TRIP LEVEL SETTING	Remarks
2	Reactor Low Low Water Level	Greater than or equal to 84" above top of active fuel (5)	1. In conjunction with low reactor pressure initiates core spray and LPCI. 2. In conjunction with high-drywell pressure, 120 sec. time delay, and low pressure core cooling interlock initiates auto blowdown. 3. Initiates HPCI and SBGTS. 4. Initiates starting of diesel generators.
2	High Drywell Pressure (2),(3)	Less than or equal to 2 PSIG	1. Initiates core spray LPCI, HPCI, and SBGTS. 2. In conjunction with low low water level 120 sec. time delay and low pressure core cooling interlock initiates auto blowdown. 3. Initiates starting of diesel generators.
1	Reactor Low Pressure	Greater than or equal to 300 PSIG & less than or equal to 350 PSIG	1. Permissive for opening core spray and LPCI admission valves. 2. In conjunction with low low reactor water level initiates core spray and LPCI.
1(4)	Containment Spray Interlock 2/3 Core Height	Greater than or equal to 2/3 core height	Prevents inadvertent operation of containment spray during accident conditions.
2(4)	Containment High Pressure	Greater than or equal to 0.5 PSIG & less than or equal to 1.5 PSIG	Prevents inadvertent operation of containment spray during accident conditions.
1	Timer Auto Blowdown	Less than or equal to 120 seconds	In conjunction with low low reactor water level, high dry-well pressure and low pressure core cooling interlock initiates auto blowdown.
2	Low Pressure Core Cooling Pump Discharge Pressure	Greater than or equal to 50 PSIG & less than or equal 100 PSIG	* Defers APR actuation pending confirmation of low pressure core cooling system operation.
2/Bus	4 KV Loss of Voltage Emergency Buses	Trip on 2930 volts plus or minus 5% decreasing voltage	1. Initiates starting of diesel generators. 2. Permissive for starting ECCS pumps. 3. Removes nonessential loads from buses. 4. Trips emergency bus normal feed breakers.
2	Sustained High Reactor Pressure	Less than or equal to 1070 PSIG for 15 seconds	Initiates isolation condenser
2/Bus	Degraded Voltage on 4 KV Emergency Buses	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	Initiates alarm and picks up time delay relay. Diesel generator picks up load if degraded voltage not corrected after time delay.

Notes: (See next Page)

3.2 LIMITING CONDITION FOR OPERATION BASES (Cont'd.)

top of active fuel. Retrofit 8 X 8 fuel has an active fuel length 1.24 inches longer than earlier fuel designs. However, present trip setpoints were used in the LOCA analyses. This trip initiates closure of Group 2 and 3 primary containment isolation valves but does not trip the recirculation pumps (reference SAR Section 7.7.2). For a trip setting of 504 inches above vessel zero (144 inches above top of active fuel) and a 60-second valve closure time, the valves will be closed before perforation of the cladding occurs even for the maximum break; the setting is therefore adequate.

The low low reactor level instrumentation is set to trip when reactor water level is 444 inches above vessel zero (with top of active fuel defined as 360 inches above vessel zero, - 59 inches is 84 inches above the top of active fuel). This trip initiates closure of Group I primary containment isolation valves (reference SAR Section 7.7.2.2) and also activates the ECC subsystems, starts the emergency diesel generator, and trips the recirculation pumps. This trip setting level was chosen to be low enough to prevent spurious operation but high enough to initiate ECCS operation and primary system isolation so that no melting of the fuel cladding will occur and so that post accident cooling can be accomplished and the guidelines of 10 CFR 100 will not be exceeded. For the complete circumferential break of a 28-inch recirculation line and with the trip setting given above, ECCS initiation and primary isolation are initiated and in time to meet the above criteria. The instrumentation also covers the full spectrum of breaks and meets the above criteria.

The high-drywell pressure instrumentation is a backup to the water level instrumentation and, in addition to initiating ECCS, it causes isolation of Group 2 isolation valves. For the breaks discussed above, this instrumentation will initiate ECCS operation at about the same time as the low low water level instrumentation; thus the results given above are applicable here, also Group 2 isolation valves include the drywell vent, purge and sump isolation valves. High-drywell pressure activates only these valves because high drywell pressure could occur as the result of non-safety-related causes such as not purging the drywell air during startup. Total system isolation is not desirable for these conditions, and only the valves in Group 2 are required to close. The low low water level instrumentation initiates protection for the full spectrum of loss-of-coolant accidents and causes a trip of Group 1 primary system isolation valves.

3.2 LIMITING CONDITION FOR OPERATION BASES (Cont'd.)

and/or bypass valves to open. With the trip set at 850 psig, inventory loss is limited so that fuel is not uncovered and peak clad temperatures are much less than 1500 degrees F; thus, there are no fission products available for release other than those in the reactor water. (Ref. Section 11.2.3 SAR)

Two sensors on the isolation condenser supply line and two sensors on the return line are provided to detect the failure of isolation condenser line and actuate isolation action. The sensors on the supply and return sides are arranged such that any one of the four sensors can cause isolation and, to meet the single failure criteria, all sensors and instrumentation are required to be operable. The trip settings of ≤ 300% rated steam flow and 14.8 inches of water differential and valve closure time are such as to prevent uncovering the core or exceeding site limits. The sensors will actuate due to high flow in either direction.

The HPCI high flow and temperature instrumentation are provided to detect a break in the HPCI piping. Tripping of this instrumentation results in actuation of HPCI isolation valves, i.e., Group 4 valves. Tripping logic for this function is the same as that for the isolation condenser and thus all sensors are required to be operable to meet the single failure of design flow and valve closure time are such that core uncovery is prevented and fission product release is within limits.

The instrumentation which initiates ECCS action is arranged in a dual bus system. As for other vital instrumentation arranged in this fashion the Specification preserves the effectiveness of the system even during periods when maintenance or testing is being performed.

The control rod block functions are provided to prevent excessive control rod withdrawal so that MCPR does not go below the MCPR fuel cladding integrity safety limit. The trip logic for this function is 1 out of n, e.g., any trip on one of the six APRM's, 8 IRM's, or 4 SRM's will result in a rod block. The minimum instrument channel requirements assure sufficient instrumentation to assure the single failure criteria are met. The minimum instrument channel requirements for the RBM may be reduced by one for a short period of time to allow for maintenance, testing or calibration. This time period is only approximately 3% of the operating time in a month and does not significantly increase the risk of preventing and inadvertent control rod withdrawal. During Single Loop Operation, the flow biased RBM is reduced by 4 percent to compensate for reverse flow in the idle loop jet pumps.

The APRM rod block function is flow biased and prevents a significant reduction in MCPR, especially during operation at