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U.S. NUCLEAR REGULATORY COMMISSION

Docket Nos. 50-237
50-249
50-254
50-265

APR 30 1981

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Mr. J. S. Abel
Director of Nuclear Licensing
Commonwealth Edison Company
P. O. Box 767
Chicago, Illinois 60690

April 30, 1981

Dear Mr. Abel:

The Commission has issued the enclosed Amendment No. 59 to Provisional Operating License No. DPR-19 for Dresden Station Unit 2 and Amendment Nos. 52, 70, and 64 to Facility Operating License Nos. DPR-25, DPR-29, and DPR-30 for Dresden Station Unit 3 and Quad Cities Station Units 1 and 2, respectively. The amendments are in response to your letter of November 1, 1979.

The amendments will allow reactor power ascension to proceed along a modified power/flow line. This will facilitate adherence to procedures designed to reduce fuel pellet-clad interaction.

Copies of the Safety Evaluation and the Notice of Issuance are also enclosed.

Sincerely,

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Enclosures:
1. Amendment No. 59 to DPR-19
2. Amendment No. 52 to DPR-25
3. Amendment No. 70 to DPR-29
4. Amendment No. 64 to DPR-30
5. Safety Evaluation
6. Notice

cc: See next page

FR NOTICE + AMENDMENT

DL:ORB-5	DL:ORB-5	DL:ORB-5
HSmith	PO'Conner	DCrutchfield
4/28/81	4/28/81	4/28/81

8105150128

OFFICE	DL:ORB#2	DL:ORB#2	DL:ORB#2	DL:ORB#2	DL:OR	OELD
SURNAME	SNorris	TAlexion:ms	RBevan	TAIppolito	TMNovak	
DATE	4/28/81	4/28/81	4/28/81	4/28/81	4/28/81	4/29/81

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

April 30, 1981

Docket Nos. 50-237
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Mr. J. S. Abel
Director of Nuclear Licensing
Commonwealth Edison Company
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Dear Mr. Abel:

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1. Amendment No. 59 to DPR-19
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5. Safety Evaluation
6. Notice

cc: See next page

Mr. J. S. Abel

cc:

Mr. John W. Rowe
Isham, Lincoln & Beale
Counselors at Law
One First National Plaza, 42nd Floor
Chicago, Illinois 60603

Mr. B. B. Stephenson
Plant Superintendent
Dresden Nuclear Power Station
Rural Route #1
Morris, Illinois 60450

Morris Public Library
604 Liberty Street
Morris, Illinois 60451

Illinois Department of Nuclear Safety
1035 Outer Park Drive
5th Floor
Springfield, Illinois 62704

Mr. William Waters
Chairman, Board of Supervisors
of Grundy County
Grundy County Courthouse
Morris, Illinois 60450

Director, Criteria and Standards
Division
Office of Radiation Programs (ANR-460)
U. S. Environmental Protection Agency
Washington, D. C. 20460

U. S. Environmental Protection Agency
Federal Activities Branch
Region V Office
ATTN: EIS COORDINATOR
230 South Dearborn Street
Chicago, Illinois 60604

Susan N. Sekuler
Assistant Attorney General
Environmental Control Division
188 W. Randolph Street
Suite 2315
Chicago, Illinois 60601

U. S. Nuclear Regulatory Commission
Resident Inspector's Office
Dresden Station
RR #1
Morris, Illinois 60450

John F. Wolf, Esq.
3409 Shepherd Street
Chevy Chase, Maryland 20015

Dr. Linda W. Little
500 Hermitage Drive
Raleigh, North Carolina 27612

Dr. Forrest J. Remick
305 East Hamilton Avenue
State College, Pennsylvania 16801

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-237

DRESDEN STATION UNIT NO. 2

AMENDMENT TO PROVISIONAL OPERATING LICENSE

Amendment No. 59
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 November 1, 1979, 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 Provisional Operating License No. DPR-19 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendix A, as revised through Amendment No. 59 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

8105150130

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

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 30, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 59

PROVISIONAL OPERATING LICENSE NO. DPR-19

DOCKET NO. 50-237

Revise the Appendix "A" Technical Specifications as follows:

Remove	Replace
6	6
7	7
18B	18B
42	42

1.1 SAFETY LIMIT

2.1 LIMITING SAFETY SYSTEM SETTING

1. APRM Flux Scram Trip Setting (Run Mode)

When the reactor mode switch is in the run position, the APRM flux scram setting shall be:

$$S \leq \left[.58W_D + 62\right]$$

with a maximum set point of 120% for core flow equal to 98 x 10^6 lb/hr and greater,

where:

S = setting in per cent of rated power

W_D = per cent of drive flow required to produce a rated core flow of 98 Mlb/hr.

In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 62)\left[\frac{FRP}{MFLPD}\right]$$

Where:

FRP = fraction of rated thermal power (2527 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density for each bundle is the design linear heat generation rate for that bundle.

The ratio of FRP/MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

This adjustment may also be performed by increasing the APRM gain by the inverse ratio, MFLPD/FRP, which accomplishes the same degree of protection as reducing the trip setting by FRP/MFLPD.

2. APRM Flux Scram Trip Setting (Refuel or Startup and Hot Standby Mode)

When the reactor mode switch is in the refuel or startup/hot standby position, the APRM scram shall be set at less than or equal to 15% of rated neutron flux.

1.1 SAFETY LIMIT

B. Core Thermal Power Limit (Reactor Pressure ≤ 800 psig)

When the reactor pressure is ≤ 800 psig or core flow is less than 10% of rated, the core thermal power shall not exceed 25 percent of rated thermal power.

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.

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

2.1 LIMITING SAFETY SYSTEM SETTING

3. IRM Flux Scram Trip Setting

The IRM flux scram setting shall be set at less than or equal to 120/125 of full scale.

B. APRM Rod Block Setting

The APRM rod block setting shall be:

$$S \leq \left[.58W_D + 50\right]$$

The definitions used above for the APRM scram trip apply.

In the event of operation with a maximum fraction limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 50)\left[\frac{FRP}{MFLPD}\right]$$

The definitions used above for the APRM scram trip apply.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used. This adjustment may also be performed by increasing the APRM gain by the inverse ratio, MFLPD/FRP, which accomplishes the same degree of protection as reducing the trip setting by FRP/MFLPD.

Amendment No. 59

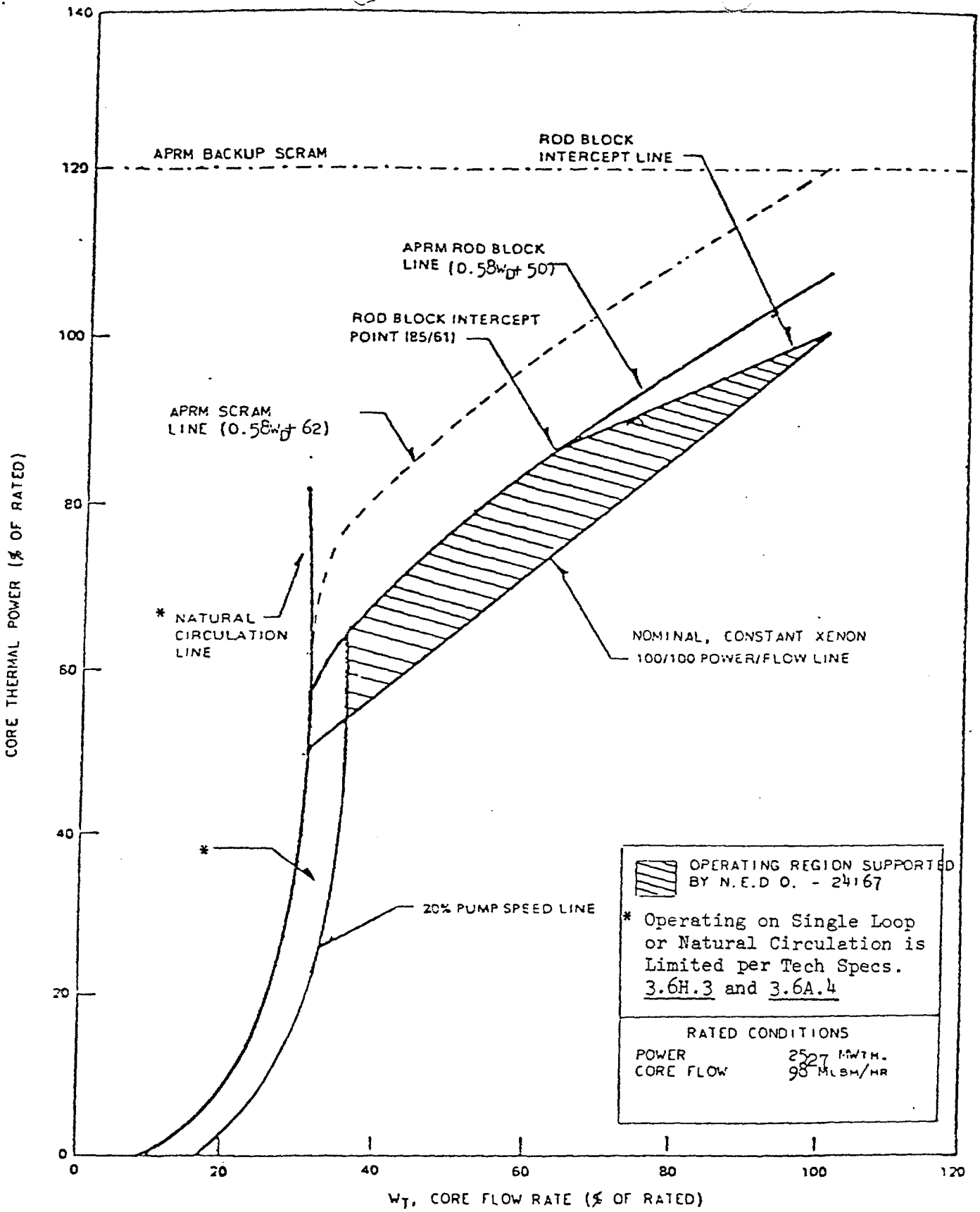

FIGURE 2.1-3
(SCHEMATIC)

APRM FLOW BIAS SCRAM RELATIONSHIP
TO NORMAL OPERATING CONDITIONS

INSTRUMENTATION THAT INITIATES ROD BLOCK

Table 3.2.3

Minimum No. of Operable Inst. Channels Per Trip System(1)	Instrument	Trip Level Setting
1	APRM upscale (flow bias) (7)	$\leq [0.58W_D + 50]^{FRP}_{MFPLD}$ (2)
* 1	APRM upscale (refuel and Startup/Hot Standby mode)	$\leq$12/125 full scale
2	APRM downscale (7)	$\geq$3/125 full scale
1	Rod block monitor upscale (flow bias) (7)	$\leq 0.65\ W_D + 42$ (2)
1	Rod block monitor downscale (7)	$\geq$5/125 full scale
3	IRM downscale (3)	$\geq$5/125 full scale
3	IRM upscale	$\leq$108/125 full scale
* 3	IRM detector not fully inserted in the core	
2(5)	SRM detector not in startup position	(4)
2(5)(6)	SRM upscale	$\leq 10^5$ counts/sec

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-249

DRESDEN STATION UNIT NO. 3

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 52
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 November 2, 1979, 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 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. 52, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 30, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 52

FACILITY OPERATING LICENSE NO. DPR-25

DOCKET NO. 50-249

Revise the Appendix "A" Technical Specifications as follows:

Remove	Replace
6	6
7	7
18B	18B
42	42

1.1 SAFETY LIMIT

2.1 LIMITING SAFETY SYSTEM SETTING

1. APRM Flux Scram Trip Setting (Run Mode)

When the reactor mode switch is in the run position, the APRM flux scram setting shall be:

$$S \leq \left[.58W_D + 62\right]$$

with a maximum set point of 120% for core flow equal to 98 x 10^6 lb/hr and greater,

where:

S = setting in per cent of rated power

W_D = per cent of drive flow required to produce a rated core flow of 98 Mlb/hr.

In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 62)\left[\frac{FRP}{MFLPD}\right]$$

Where:

FRP = fraction of rated thermal power (2527 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density for each bundle is the design linear heat generation rate for that bundle.

The ratio of FRP/MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

2. APRM Flux Scram Trip Setting (Refuel or Startup and Hot Standby Mode)

When the reactor mode switch is in the refuel or startup/hot standby position, the APRM scram shall be set at less than or equal to 15% of rated neutron flux.

1.1 SAFETY LIMIT

B. Core Thermal Power Limit (Reactor Pressure ≤ 800 psig)

When the reactor pressure is ≤ 800 psig or core flow is less than 10% of rated, the core thermal power shall not exceed 25 percent of rated thermal power.

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.

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

2.1 LIMITING SAFETY SYSTEM SETTING

3. IRM Flux Scram Trip Setting

The IRM flux scram setting shall be set at less than or equal to 120/125 of full scale.

B. APRM Rod Block Setting

The APRM rod block setting shall be:

$$S \leq \left[.58W_D + 50\right]$$

The definitions used above for the APRM scram trip apply.

In the event of operation with a maximum fraction limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 50)\left[\frac{FRP}{MFLPD}\right]$$

The definitions used above for the APRM scram trip apply.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

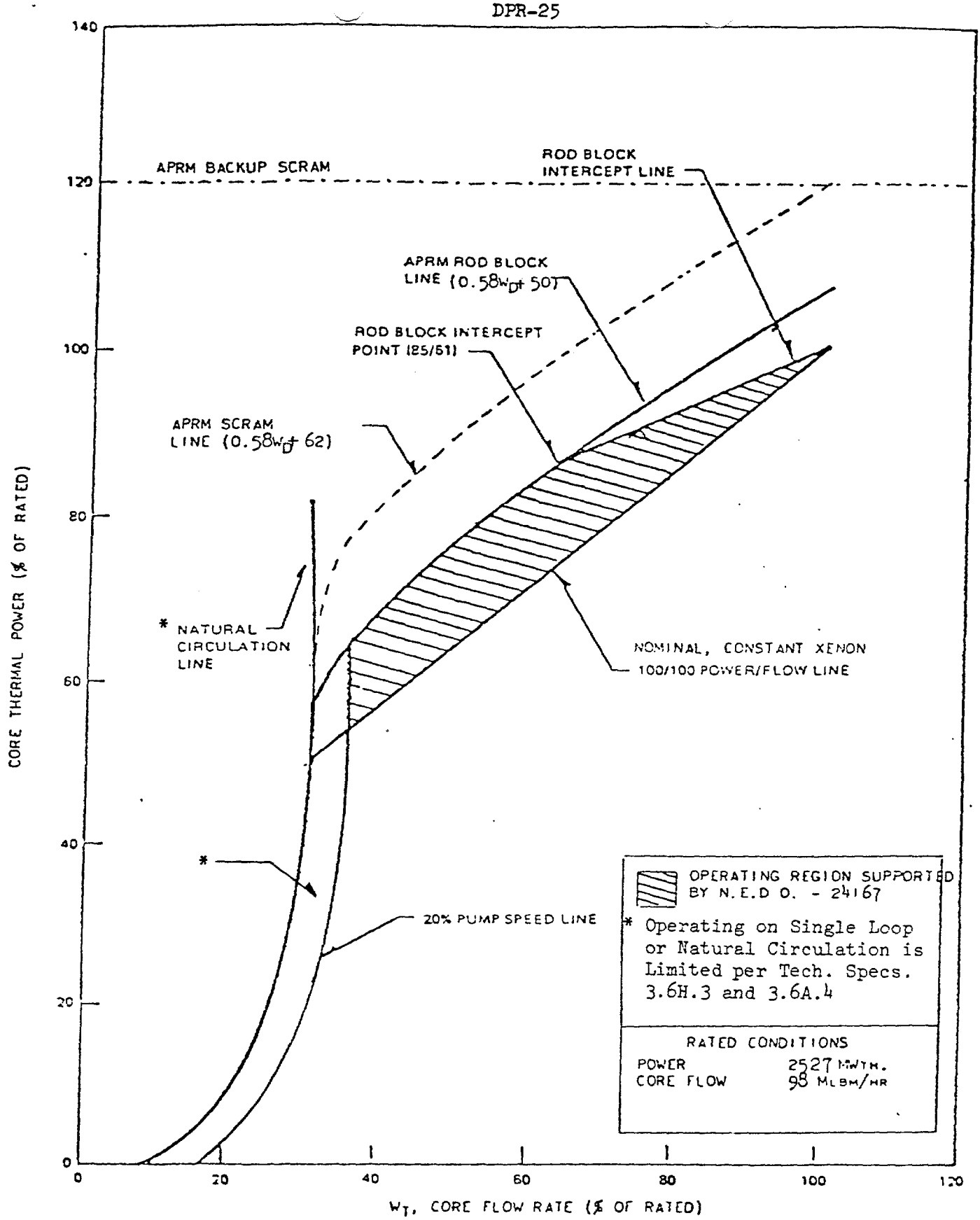

FIGURE 2.1-3
(SCHEMATIC)

APRM FLOW BIAS SCRAM RELATIONSHIP
TO NORMAL OPERATING CONDITIONS

INSTRUMENTATION THAT INITIATES ROD BLOCK

Table 3.2.3

Minimum No. of Operable Inst. Channels Per Trip System(1)	Instrument	Trip Level Setting
1	APRM upscale (flow bias)(7)	$\leq \left[0.58W_D + 50\right]^{FRP}_{MFPLD}$ (2)
* 1	APRM upscale (refuel and Startup/Hot Standby mode)	$\leq$12/125 full scale
2	APRM downscale (7)	$\geq$3/125 full scale
1	Rod block monitor upscale (flow bias)(7)	$\leq 0.65\ W_D + 42$ (2)
1	Rod block monitor downscale (7)	$\geq$5/125 full scale
3	IRM downscale (3)	$\geq$5/125 full scale
3	IRM upscale	$\leq$108/125 full scale
* 3	IRM detector not fully inserted in the core	
2(5)	SRM detector not in startup position	(4)
2(5)(6)	SRM upscale	$\leq 10^5$ counts/sec

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

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DOCKET NO. 50-254

QUAD CITIES UNIT NO. 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 70
License No. DPR-29

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

   A. The application for amendment by the Commonwealth Edison Company (the licensee) dated November 1, 1979, 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 License No. DPR-29 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 70 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 30, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 70

FACILITY OPERATING LICENSE NO. DPR-29

DOCKET NO. 50-254

Revise the Appendix "A" Technical Specifications as follows:

Remove	Replace
1.1/2.1-1	1.1/2.1-1
1.1/2.1-2	1.1/2.1-2
1.1/2.1-2a	1.1/2.1-2a
Figure 2.1-1	Figure 2.1-1
Figure 2.1-3	Figure 2.1-3
3.2/4.2-14	3.2/4.2-14

1.1/2.1 FUEL CLADDING INTEGRITY

SAFETY LIMIT

Applicability:

The safety limits established to preserve the fuel cladding integrity apply to those variables which monitor the fuel thermal behavior.

Objective:

The objective of the safety limits is to establish limits below which the integrity of the fuel cladding is preserved.

LIMITING SAFETY SYSTEM SETTING

Applicability:

The limiting safety system settings apply to trip settings of the instruments and devices which are provided to prevent the fuel cladding integrity safety limits from being exceeded.

Objective:

The objective of the limiting safety system settings is to define the level of the process variables at which automatic protective action is initiated to prevent the fuel cladding integrity safety limits from being exceeded.

SPECIFICATIONS

A. Reactor Pressure > 800 psig and Core Flow > 10% of Rated

The existence of a mimimum critical power ratio (MCPR) less than 1.07 shall constitute violation of the fuel cladding integrity safety limit.

B. Core Thermal Power Limit (Reactor Pressure ≤ 800 psig)

When the reactor pressure is ≤ 800 psig or core flow is less than 10% of rated, the core thermal power shall not exceed 25% of rated thermal power.

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.

A. Neutron Flux Trip Settings

The limiting safety system trip settings shall be as specified below:

1. APRM Flux Scram Trip Setting (Run Mode)

When the reactor mode switch is in the Run position, the APRM flux scram setting shall be as shown in Figure 2.1-1 and shall be:

$$S \leq (.58W_D + 62)$$

with a maximum setpoint of 120% for core flow equal to 98 x 10^6 lb/hr and greater,

where:

S = setting in percent of rated power

W_D = percent of drive flow required to produce a rated core flow of 98 million lb/hr. In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 62)\left[\frac{FRP}{MFLPD}\right]$$

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.

*Top of active fuel is defined to be 360 inches above vessel zero (See Bases 3.2).

Where:

FRP = fraction of rated thermal power (2511 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density for each bundle is the design linear heat generation rate for that bundle.

The ratio of FRP/MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0 in which case the actual operating value will be used.

This adjustment may also be performed by increasing the APRM gain by the inverse ratio, MFLPD/FRP, which accomplishes the same degree of protection as reducing the trip setting by FRP/MFLPD.

2. APRM Flux Scram Trip Setting (Refueling or Startup and Hot Standby Mode)

   When the reactor mode switch is in the Refuel or Startup Hot Standby position, the APRM scram shall be set at less than or equal to 15% of rated neutron flux.

3. IRM Flux Scram Trip Setting

   The IRM flux scram setting shall be set at less than or equal to 120/125 of full scale.

4. When the reactor mode switch is in the startup or run position, the reactor shall not be operated in the natural circulation flow mode.

B. APRM Rod Block Setting

The APRM rod block setting shall be as shown in Figure 2.1-1 and shall be:

$$S \leq (.58W_D + 50)$$

The definitions used above for the APRM scram trip apply. In the event of operation with a maximum fraction limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (.58W_D + 50) \frac{FRP}{MFLPD}$$

The definitions used above for the APRM scram trip apply.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

This may also be performed by increasing the APRM gain by the inverse ratio, MFLPD/FRP, which accomplishes the same degree of protection as reducing the trip setting by FRP/MFLPD.

C. Reactor low water level scram setting shall be 144 inches above the top of the active fuel* at normal operating conditions.

D. Reactor low water level ECCS initiation shall be 84 inches (+4 inches /-0 inch) above the top of the active fuel* at normal operating conditions.

E. Turbine stop valve scram shall be ≤ 10% valve closure from full open.

F. Turbine control valve fast closure scram shall initiate upon actuation of the fast closure solenoid valves which trip the turbine control valves.

G. Main steamline isolation valve closure scram shall be ≤ 10% valve closure from full open.

H. Main steamline low-pressure initiation of main steamline isolation valve closure shall be ≥ 850 psig.

*Top of active fuel is defined to be 360 inches above vessel zero (See Bases 3.2)

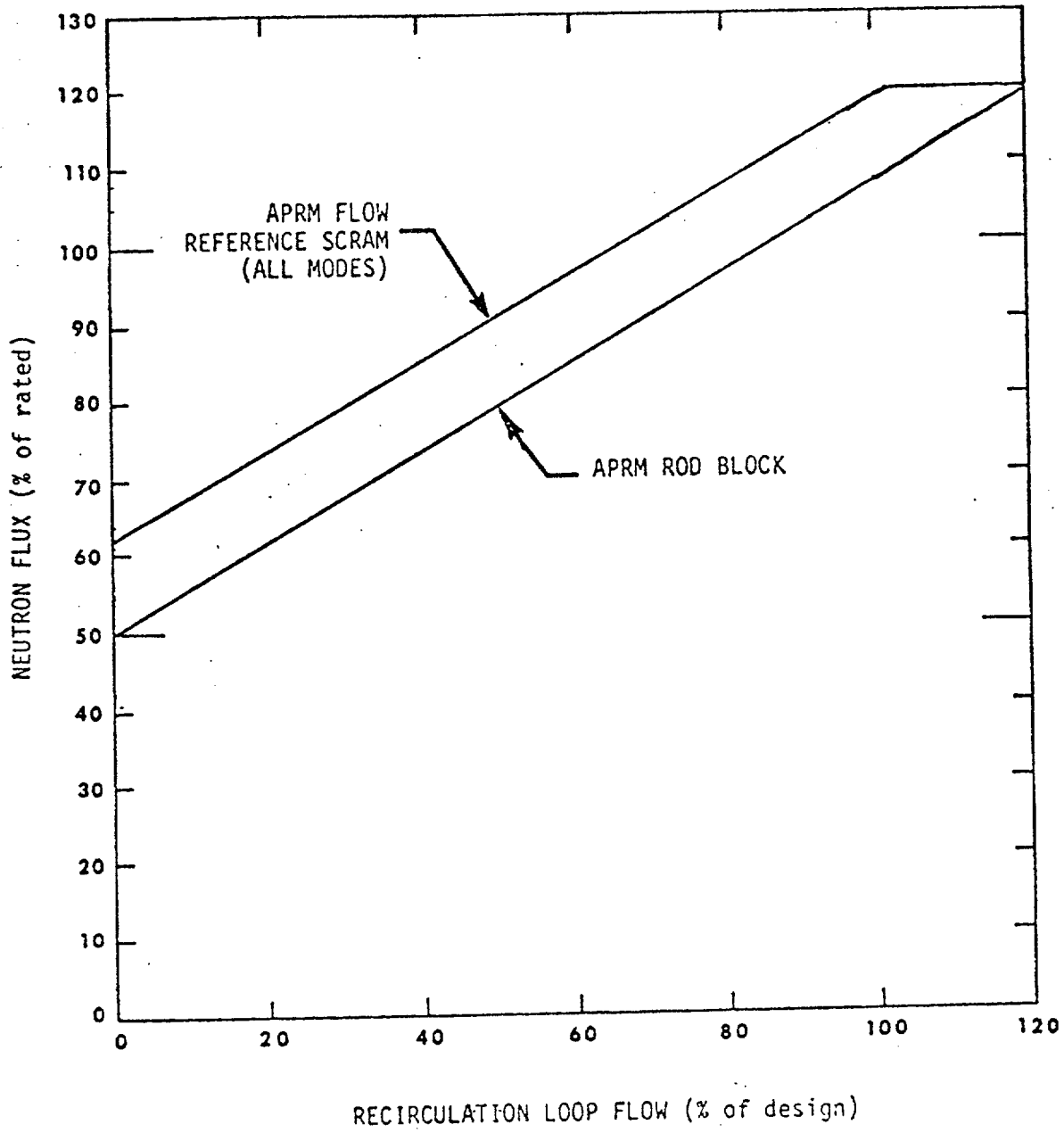

FIGURE 2.1-1

APRM FLOW REFERENCE SCRAM
AND APRM ROD BLOCK SETTINGS

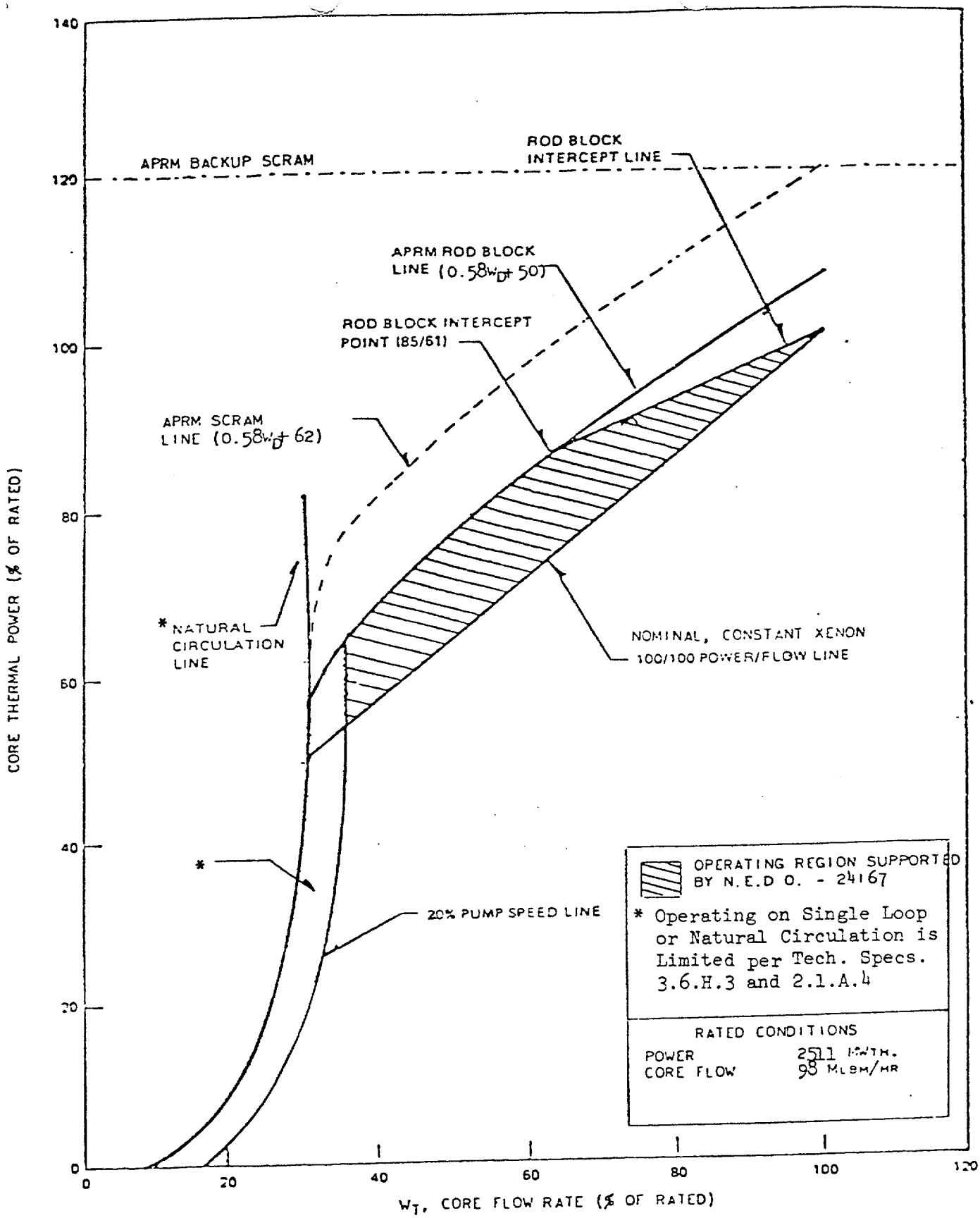

FIGURE 2.1-3
(SCHEMATIC)

APRM FLOW BIAS SCRAM RELATIONSHIP
TO NORMAL OPERATING CONDITIONS

TABLE 3.2.3

INSTRUMENTATION THAT INITIATES ROD BLOCK

Minimum Number of Operable or Tripped Instrument Channels per Trip System[1]	Instrument	Trip Level Setting
2	APRM upscale (flow bias)[7]	$\leq \left[0.58W_D + 50\right]\frac{FRP}{MFLPD}$ [2]
2	APRM upscale (Refuel and Startup/Hot Standby mode)	≤12/125 full scale
2	APRM downscale[7]	≥3/125 full scale
1	Rod block monitor upscale (flow bias)[7]	$\leq 0.65W_D + 42$ [2]
1	Rod block monitor downscale[7]	≥3/125 full scale
3	IRM downscale [3] [8]	≥3/125 full scale
3	IRM upscale[8]	≤108/125 full scale
2[5]	SRM detector not in Startup position[4]	≥2 feet below core center-line
3	IRM detector not in Startup position[8]	≥2 feet below core center-line
2[5] [6]	SRM upscale	$\leq 10^5$ counts/sec
2[5]	SRM downscale[9]	$\geq 10^2$ counts/sec
1	High water level in scram discharge volume	≤25 gallons

Notes

1. For the Startup/Hot Standby and Run positions of the reactor mode selector switch, there shall be two operable or tripped trip systems for each function except the SRM rod blocks. IRM upscale and IRM downscale need not be operable in the Run position, APRM downscale, APRM upscale (flow biased), and RBM downscale need not be operable in the Startup/Hot Standby mode. The RBM upscale need not be operable at less than 30% rated thermal power. One channel may be bypassed above 30% rated thermal power provided that a limiting control rod pattern does not exist. For systems with more than one channel per trip system, if the first column cannot be met for one of the two trip systems, this condition may exist for up to 7 days provided that during that time the operable system is functionally tested immediately and daily thereafter; if this condition lasts longer than 7 days the system shall be tripped. If the first column cannot be met for both trip systems, the systems shall be tripped.

2. W_D is the percent of drive flow required to produce a rated core flow of 98 million lb/hr. Trip level setting is in percent of rated power (2511 MWt).

3. IRM downscale may be bypassed when it is on its lowest range.

4. This function is bypassed when the count rate is ≥100 CPS.

5. One of the four SRM inputs may be bypassed.

6. This SRM function may be bypassed in the higher IRM ranges (ranges 8, 9, and 10) when the IRM upscale rod block is operable.

7. Not required to be operable while performing low power physics tests at atmospheric pressure during or after refueling at power levels not to exceed 5 MWt.

8. This IRM function occurs when the reactor mode switch is in the Refuel or Startup/Hot Standby position.

9. This trip is bypassed when the SRM is fully inserted.

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

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DOCKET NO. 50-265

QUAD CITIES UNIT NO. 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 64
License No. DPR-30

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

   A. The application for amendment by the Commonwealth Edison Company (the licensee) dated November 1, 1979, 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 License No. DPR-30 is hereby amended to read as follows:

   B. Technical Specifications

   The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 64 , are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

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

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing

Attachment:
Changes to the Technical
Specifications

Date of Issuance: April 30, 1981

ATTACHMENT TO LICENSE AMENDMENT NO. 64

FACILITY OPERATING LICENSE NO. DPR-30

DOCKET NO. 50-265

Revise the Appendix "A" Technical Specifications as follows:

Remove	Replace
1.1/2.1-1	1.1/2.1-1
1.1/2.1-2	1.1/2.1-2
1.1/2.1-3	1.1/2.1-3
Figure 2.1-1	Figure 2.1-1
Figure 2.1-3	Figure 2.1-3
3.2/4.2-14	3.2/4.2-14

1.1/2.1 FUEL CLADDING INTEGRITY

SAFETY LIMIT

Applicability:

The safety limits established to preserve the fuel cladding integrity apply to those variables which monitor the fuel thermal behavior.

Objective:

The objective of the safety limits is to establish limits below which the integrity of the fuel cladding is preserved.

LIMITING SAFETY SYSTEM SETTING

Applicability:

The limiting safety system settings apply to trip settings of the instruments and devices which are provided to prevent the fuel cladding integrity safety limits from being exceeded.

Objective:

The objective of the limiting safety system settings is to define the level of the process variables at which automatic protective action is initiated to prevent the fuel cladding integrity safety limits from being exceeded.

SPECIFICATIONS

A. Reactor Pressure > 800 psig and Core Flow > 10% of Rated

The existence of a minimum critical power ratio (MCPR) less than 1.06 for core loading patterns containing no retrofit 8x8 fuel (two water rods) or 1.07 for core loading patterns containing retrofit 8x8 fuel shall constitute violation of the fuel cladding integrity safety limit.

B. Core Thermal Power Limit (Reactor Pressure ≤ 800 psig)

When the reactor pressure is ≤ 800 psig or core flow is less than 10% of rated, the core thermal power shall not exceed 25% of rated thermal power.

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.

A. Neutron Flux Trip Settings

The limiting safety system trip settings shall be as specified below:

1. APRM Flux Scram Trip Setting (Run Mode)

When the reactor mode switch is in the Run position, the APRM flux scram setting shall be as shown in Figure 2.1-1 and shall be:

$$S \leq (0.58W_D + 62)$$

with a maximum setpoint of 120% for core flow equal to 98 x 10^6 lb/hr and greater.

where:

S = setting in percent of rated power

W_D = percent of drive flow required to produce a rated core flow of 98 million lb/hr. In the event of operation with a maximum fraction of limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (0.58W_D + 62)\left[\frac{FRP}{MFLPD}\right]$$

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.

*Top of active fuel is defined to be 360 inches above vessel zero (See Bases 3.2).

Where:

FRP = fraction of rated thermal power (2511 MWt)

MFLPD = maximum fraction of limiting power density where the limiting power density for each bundle is the design linear heat generation rate for that bundle.

The ratio of FRP/MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0 in which case the actual operating value will be used.

2. APRM Flux Scram Trip Setting (Refueling or Startup and Hot Standby Mode)

   When the reactor mode switch is in the Refuel or Startup Hot Standby position, the APRM scram shall be set at less than or equal to 15% of rated neutron flux.

3. IRM Flux Scram Trip Setting

   The IRM flux scram setting shall be set at less than or equal to 120/125 of full scale.

4. When the reactor mode switch is in the startup or run position, the reactor shall not be operated in the natural circulation flow mode.

B. APRM Rod Block Setting

The APRM rod block setting shall be as shown in Figure 2.1-1 and shall be:

$$S \leq (0.58W_D + 50)$$

The definitions used above for the APRM scram trip apply. In the event of operation with a maximum fraction limiting power density (MFLPD) greater than the fraction of rated power (FRP), the setting shall be modified as follows:

$$S \leq (0.58W_D + 50)\frac{FRP}{MFLPD}$$

The definitions used above for the APRM scram trip apply.

The ratio of FRP to MFLPD shall be set equal to 1.0 unless the actual operating value is less than 1.0, in which case the actual operating value will be used.

C. Reactor low water level scram setting shall be 144 inches above the top of the active fuel* at normal operating conditions.

D. Reactor low water level ECCS initiation shall be 84 inches (+4 inches /-0 inch) above the top of the active fuel* at normal operating conditions.

E. Turbine stop valve scram shall be ≤ 10% valve closure from full open.

F. Turbine control valve fast closure scram shall initiate upon actuation of the fast closure solenoid valves which trip the turbine control valves.

G. Main steamline isolation valve closure scram shall be ≤ 10% valve closure from full open.

H. Main steamline low-pressure initiation of main steamline isolation valve closure shall be ≥ 850 psig.

*Top of active fuel is defined to be 360 inches above vessel zero (See Bases 3.2)

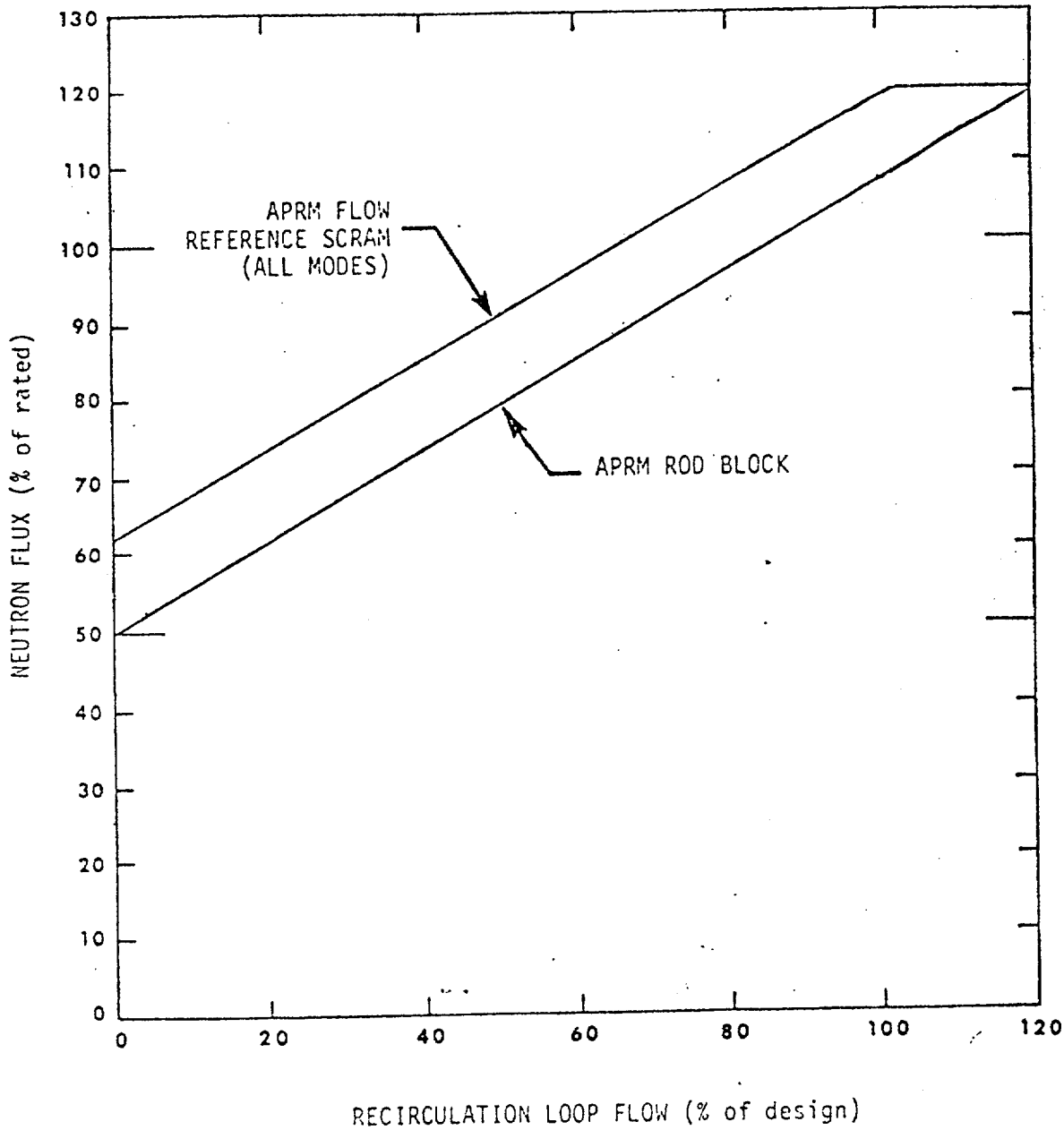

FIGURE 2.1-1

APRM FLOW REFERENCE SCRAM
AND APRM ROD BLOCK SETTINGS

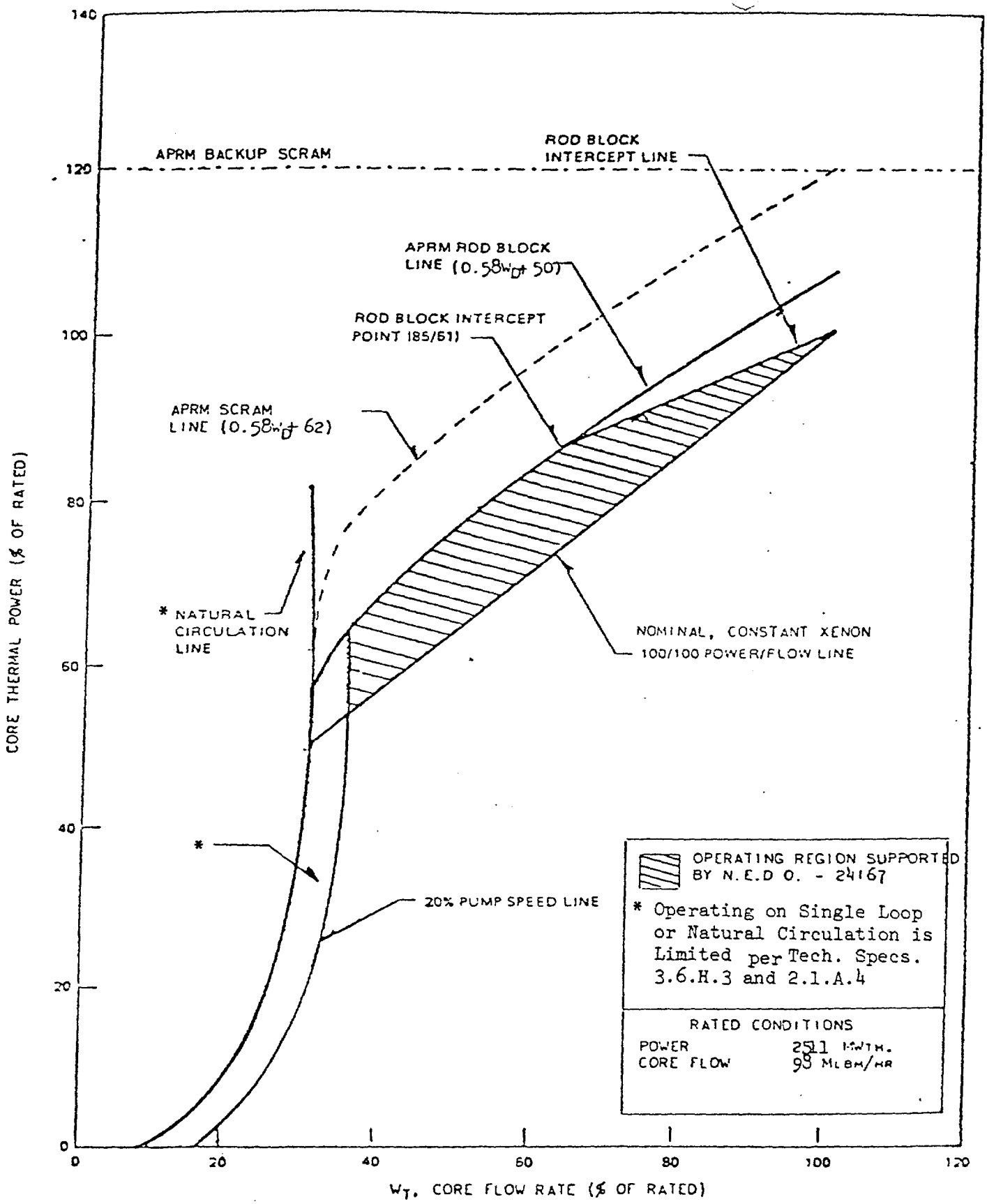

FIGURE 2.1-3
(SCHEMATIC)

APRM FLOW BIAS SCRAM RELATIONSHIP
TO NORMAL OPERATING CONDITIONS

TABLE 3.2.3

INSTRUMENTATION THAT INITIATES ROD BLOCK

Minimum Number of Operable or Tripped Instrument Channels per Trip System[1]	Instrument	Trip Level Setting
2	APRM upscale (flow bias)[7]	$\leq \left[0.58W_D + 50\right]\frac{FRP}{MFLPD}$ (2)
2	APRM upscale (Refuel and Startup/Hot Standby mode)	≤12/125 full scale
2	APRM downscale[7]	≥3/125 full scale
1	Rod block monitor upscale (flow bias)[7]	$\leq 0.65W_D + 42$ (2)
1	Rod block monitor downscale[7]	≥3/125 full scale
3	IRM downscale [3] [8]	≥3/125 full scale
3	IRM upscale[8]	≤108/125 full scale
2[5]	SRM detector not in Startup position[4]	≥2 feet below core centerline
3	IRM detector not in Startup position[8]	≥2 feet below core centerline
2[5] [6]	SRM upscale	$\leq 10^5$ counts/sec
2[5]	SRM downscale[9]	$\geq 10^2$ counts/sec
1	High water level in scram discharge volume	≤25 gallons

Notes

1. For the Startup/Hot Standby and Run positions of the reactor mode selector switch, there shall be two operable or tripped trip systems for each function except the SRM rod blocks. IRM upscale and IRM downscale need not be operable in the Run position, APRM downscale, APRM upscale (flow biased), and RBM downscale need not be operable in the Startup/Hot Standby mode. The RBM upscale need not be operable at less than 30% rated thermal power. One channel may be bypassed above 30% rated thermal power provided that a limiting control rod pattern does not exist. For systems with more than one channel per trip system, if the first column cannot be met for one of the two trip systems, this condition may exist for up to 7 days provided that during that time the operable system is functionally tested immediately and daily thereafter; if this condition lasts longer than 7 days the system shall be tripped. If the first column cannot be met for both trip systems, the systems shall be tripped.

2. W_D is the percent of drive flow required to produce a rated core flow of 98 million lb/hr. Trip level setting is in percent of rated power (2511 MWt).

3. IRM downscale may be bypassed when it is on its lowest range.

4. This function is bypassed when the count rate is ≥100 CPS.

5. One of the four SRM inputs may be bypassed.

6. This SRM function may be bypassed in the higher IRM ranges (ranges 8, 9, and 10) when the IRM upscale rod block is operable.

7. Not required to be operable while performing low power physics tests at atmospheric pressure during or after refueling at power levels not to exceed 5 MWt.

8. This IRM function occurs when the reactor mode switch is in the Refuel or Startup/Hot Standby position.

9. This trip is bypassed when the SRM is fully inserted.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

SUPPORTING AMENDMENT NO. 59 TO PROVISIONAL OPERATING LICENSE NO. DPR-19

AMENDMENT NO. 52 TO FACILITY OPERATING LICENSE NO. DPR-25,

AMENDMENT NO. 70 TO FACILITY OPERATING LICENSE NO. DPR-29,

AND

AMENDMENT NO. 64 TO FACILITY OPERATING LICENSE NO. DPR-30

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

DRESDEN STATION UNIT NOS. 2 AND 3

QUAD CITIES STATION UNIT NOS. 1 AND 2

DOCKET NOS. 50-237, 50-249, 50-254, 50-265

1.0 INTRODUCTION

By letter dated November 1, 1979 (Reference 1), Commonwealth Edison Company (CECo, the licensee) proposed amendments to Appendix A, Technical Specifications for Operating License Nos. DPR-19, DPR-25, DPR-29 and DPR-30 for Dresden Units 2 and 3 and Quad Cities Units 1 and 2, respectively. The change involves a modified power/flow line, which provides more operating flexibility during power ascension while adhering to procedures aimed at reducing fuel pellet-clad interaction.

2.0 DISCUSSION

The power/flow restrictions result from the analysis of abnormal operating transients with degraded scram reactivity characteristics that are dependent on fuel exposure. The power/flow restrictions assure acceptable pressure and thermal margins during postulated transients.

The proposed power/flow line will follow the proposed APRM rod block line up to an intercept point and then along a linear path to the 100% power/100% flow (100/100) point. The proposed APRM rod block line is represented by the following equation:

$$S \leq 0.58\ W_D + 50$$

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where: S = setting in percent of rated power

W_D = percent of drive flow required to produce a rated core flow of 98 Mlb/hr

The intercept point was chosen by the licensee at 85% power/61% flow (85/61). This value establishes the highest power level permitted when operating on the APRM rod block line. It is sufficiently high to provide the desired operational flexibility during power ascension, but low enough to ensure adequate margin to the permissible operational limits for plant operation. The licensee has provided safety analysis demonstrating that nowhere along the proposed power/flow line could more severe transients or accidents occur than those analyzed at the 100/100 point.

3.0 EVALUATION

CECo has performed the following safety analyses and evaluation of the conditions specified in the discussion:

(1) The most conservative value for the scram reactivity insertion function occurred at end of cycle. This value was consequently used in analyzing the most limiting abnormal operational transients; load rejection without bypass, turbine trip without bypass, loss of feedwater heating, and rod withdrawal error. Each transient was analyzed to show that the highest value of the change in critical power ratio was obtained at the 100/100 point and that the existing operating limits for minimum critical power ratio (MCPR) were applicable to the new power/flow line and are therefore acceptable.

(2) The compliance of the proposed technical specification amendment with the ASME pressure vessel code was verified by analyzing the flux scram caused by a closure of the main steam isolation valve (MSIV). It was shown that the pressure rise produced by the most limiting transient, occurring at the rated power/flow point, was 62 psi below the allowable pressure limit for the reactor vessel, and is therefore acceptable.

(3) A reanalysis of the rod withdrawal accident was performed. It was demonstrated that the lowest value of MCPR occurred at the 100/100 point. However, with the rod block monitor setpoint at 108% of full power, the rod withdrawal would be blocked before the permissible safety limit for CPR could be reached. The reanalysis of the rod withdrawal accident is therefore acceptable.

(4) A statistical analysis was performed to determine the partload safety MCPR requirement along the APRM rod block line. It was shown that small increases in the MCPR requirement due to lower load conditions are adequately compensated by the conservatism

in K_f factors used in the analysis and by the small changes in CPR occurring during abnormal transients and rod withdrawal errors at part load conditions. The MCPR requirements under the special stated conditions are therefore acceptable.

(5) A thermal hydraulic stability analysis was performed for the new limiting power/flow line. The decay ratios determined from the limiting reactor core stability conditions show the reactor to be well below the ultimate stability limit at the intersection of the natural circulation and extrapolated rod block lines. In addition, operation in the natural circulation mode at significant power levels is not a normal mode of operation, thus there is additional margin to the stability limit. The reactor core stability conditions are therefore acceptable.

On the basis of the foregoing considerations, the changes proposed by the licensee will allow reactor power ascension to proceed safely along the modified power/flow line, and are acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

We have determined that these amendments do not authorize a change in effluent types or total amounts nor an increase in power level and will not result in any significant environmental impact. Having made this determination, we have further concluded that these amendments involve an action which is insignificant from the standpoint of environmental impact, and pursuant to 10 CFR Section 51.5(d)(4) that an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with the issuance of these amendments.

5.0 CONCLUSION

We have concluded, based on the considerations discussed above, that: (1) because the amendments do not involve a significant increase in the probability or consequences of accidents previously considered and do not involve a significant decrease in a safety margin, the amendments do not involve a significant hazards consideration, (2) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, and (3) such activities will be conducted in compliance with the Commission's regulations and the issuance of these amendments will not be inimical to the common defense and security or to the health and safety of the public.

REFERENCES

(1) Commonwealth Edison Company letter to Director of Nuclear Reactor Regulation, "Dresden Station Units 2 and 3, Quad-Cities Station Units 1 and 2, Proposed Amendment to Facility Operating License Nos. DPR-19, 25, 29 and 30, Associated with Expanding the Power/Flow Operating Region, NRC Docket Nos. 50-237/249/254/265," dated November 1, 1979.

(2) NRC letter (D. L. Ziemann) to Northeast Nuclear Energy Company (W. G. Counsil), "Amendment No. 52 to Provisional Operating License No. DPR-21 for the Millstone Nuclear Power Station Unit No. 1," dated July 11, 1978.

UNITED STATES NUCLEAR REGULATORY COMMISSION

DOCKET NOS. 50-237, 50-249, 50-254 AND 50-265

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

NOTICE OF ISSUANCE OF AMENDMENTS TO OPERATING LICENSES

The U. S. Nuclear Regulatory Commission (the Commission) has issued Amendment No. 59 to Provisional Operating License No. DPR-19, and Amendment No. 52 to Facility Operating License No. DPR-25, issued to Commonwealth Edison Company, which revised the Technical Specifications for operation of the Dresden Nuclear Power Station, Unit Nos. 2 and 3, located in Grundy County, Illinois. The Commission has also issued Amendment No. 70 to Facility Operating License No. DPR-29, and Amendment No. 64 to Facility Operating License No. DPR-30, issued to Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company, which revised the Technical Specifications for operation of the Quad-Cities Nuclear Power Station, Unit Nos. 1 and 2, located in Rock Island County, Illinois. The amendments are effective as of the date of issuance.

The amendments authorize changes to the Technical Specifications which will allow reactor power ascension to proceed along a modified power/flow line.

The application for the amendments complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations. The Commission has made appropriate findings as required by the Act and the Commission's rules and regulations in 10 CFR Chapter I, which are set forth in the license amendments. Prior public notice of these amendments was not required since the amendments do not involve a significant hazards consideration.

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The Commission has determined that the issuance of these amendments will not result in any significant environmental impact and that pursuant to 10 CFR Section 51.5(d)(4) an environmental impact statement, or negative declaration and environmental impact appraisal need not be prepared in connection with issuance of these amendments.

For further details with respect to this action, see (1) the application for amendments dated November 1, 1979, (2) Amendment No. 59 to License No. DPR-19, Amendment No. 52 to License No. DPR-25, Amendment No. 70 to License No. DPR-29, and Amendment No. 64 to License No. DPR-30, and (3) the Commission's related Safety Evaluation. All of these items are available for public inspection at the Commission's Public Document Room, 1717 H Street, NW., Washington, D. C., and at the Morris Public Library, 604 Liberty Street, Morris, Illinois, for Dresden 2 and 3 and at the Moline Public Library, 504 - 17th Street, Moline, Illinois, for Quad Cities 1 and 2. A copy of items (2) and (3) may be obtained upon request addressed to the U. S. Nuclear Regulatory Commission, Washington, D. C. 20555, Attention: Director, Division of Licensing.

Dated at Bethesda, Maryland, this 30th day of April 1981.

FOR THE NUCLEAR REGULATORY COMMISSION

Thomas A. Ippolito, Chief
Operating Reactors Branch #2
Division of Licensing