P1 22

January 15, 199

Docket Nos. 50-373
and 50-374

Mr. Thomas J. Kovach
Nuclear Licensing Manager
Commonwealth Edison Company-Suite 300
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Dear Mr. Kovach:

SUBJECT: ISSUANCE OF AMENDMENTS (TAC NOS. M80392 AND M80393)

The Commission has issued the enclosed Amendment No. 89 to Facility Operating License No. NPF-11 and Amendment No. 74 to Facility Operating License No. NPF-18 for the LaSalle County Station, Units 1 and 2, respectively. The amendments are in response to your application dated April 24, 1991, as supplemented June 2, 1992, and December 1, 1992.

The amendments propose the addition of Allowed Outage Times (AOT) for the Scram Discharge Volume (SDV) vent and drain valves, the removal from the Control Rod Operability Technical Specifications of Unit 1 and Unit 2 SDV Surveillance Requirements (TS 4.1.3.1.4.b) for SDV Level Instrumentation, and the deletion of TS requirement 4.1.3.1.4 for the SDV vent and drain valve surveillance to be performed from a normal control rod configuration of less than or equal to 50% rod density.

A copy of the Safety Evaluation is also enclosed. The Notice of Issuance will be included in the Commission's biweekly Federal Register notice.

Sincerely,

Original signed by:

Robert J. Stransky, Project Manager
Project Directorate III-2
Division of Reactor Projects - III/IV/V
Office of Nuclear Reactor Regulation

Enclosures:
1. Amendment No. 89 to NPF-11
2. Amendment No. 74 to NPF-18
3. Safety Evaluation

cc w/enclosures:
See next page

OFC	LA:PDIII-2	PM:PDIII-2	SRXB	SCSB	OTSB	D:PDIII-2	OGC
NAME	CMOORE	RSTRANSKY:jar	RJONES	RBARRETT	CGRIMES	JDYER	J Hill
DATE	12/23/92	12/23/92	1/11/93	1/12/92	1/13/92	1/15/92	1/14/93

RL for
with comments
OP-1

load plant for line-item
with changes as noted on clipped pages

220028

9301250199 930115
PDR ADOCK 05000373
P PDR

Mr. Thomas J. Kovach
Commonwealth Edison Company

LaSalle County Station
Unit Nos. 1 and 2

cc:

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-373

LASALLE COUNTY STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 89
License No. NPF-11

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

   A. The application for amendment filed by the Commonwealth Edison Company (the licensee) dated April 24, 1991, as supplemented June 2, 1992, and December 1, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-11 is hereby amended to read as follows:

9301250213 930115
PDR ADOCK 05000373
P PDR

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 89 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective upon date of issuance to be implemented within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James E. Dyer

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 15, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 89

FACILITY OPERATING LICENSE NO. NPF-11

DOCKET NO. 50-373

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain a vertical line indicating the area of change.

REMOVE	INSERT
3/4 1-4	3/4 1-4
3/4 1-5	3/4 1-5
B3/4 1-2	B3/4 1-2
B3/4 1-3	B3/4 1-3
B3/4 1-4	B3/4 1-4
B3/4 1-5	B3/4 1-5
-	B3/4 1-6

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

2. If the inoperable control rod(s) is inserted:

   a) Within 1 hour disarm the associated directional control valves* either:

      1) Electrically, or

      2) Hydraulically by closing the drive water and exhaust water isolation valves.

   b) Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

3. The provisions of Specification 3.0.4 are not applicable.

c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.

d#. With one or more SDV vent or drain lines with one valve inoperable,

1. Isolate## the associated line within 7 days.

2. Otherwise, be in HOT SHUTDOWN within the next 12 hours.

e#. With one or more SDV vent or drain lines with both valves inoperable,

1. Isolate## the associated line within 8 hours.

2. Otherwise, be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE by:

a. At least once per 31 days verifying each valve to be open**, and

b. At least once per 92 days cycling each valve through at least one complete cycle of full travel.

4.1.3.1.2 When above the low power setpoint of the RWM, all withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch:

a. At least once per 7 days, and

b. At least once per 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

---

*May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

**These valves may be closed intermittently for testing under administrative control.

#Separate Action statement entry is allowed for each SDV vent and drain line.

##An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.

SURVEILLANCE REQUIREMENTS (Continued)

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements 4.1.3.2, 4.1.3.4, 4.1.3.5, 4.1.3.6 and 4.1.3.7.

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating the scram discharge volume drain and vent valves OPERABLE at least once per 18 months by verifying that the drain and vent valves:

a. Close within 30 seconds after receipt of a signal for control rods to scram, and

b. Open after the scram signal is reset.

3/4.1.3 CONTROL RODS

The specification of this section ensure that (1) the minimum SHUTDOWN MARGIN is maintained, (2) the control rod insertion times are consistent with those used in the accident analysis, and (3) the potential effects of the rod drop accident are limited. The ACTION statements permit variations from the basic requirements but at the same time impose more restrictive criteria for continued operation. A limitation on inoperable rods is set such that the resultant effect on total rod worth and scram shape will be kept to a minimum. The requirements for the various scram time measurements ensure that any indication of systematic problems with rod drives will be investigated on a timely basis.

Damage within the control rod drive mechanism could be a generic problem, therefore with a control rod immovable because of excessive friction or mechanical interference, operation of the reactor is limited to a time period which is reasonable to determine the cause of the inoperability and at the same time prevent operation with a large number of inoperable control rods.

Control rods that are inoperable for other reasons are permitted to be taken out of service provided that those in the nonfully-inserted position are consistent with the SHUTDOWN MARGIN requirements.

The number of control rods permitted to be inoperable could be more than the eight allowed by the specification, but the occurrence of eight inoperable rods could be indicative of a generic problem and the reactor must be shutdown for investigation and resolution of the problem.

The control rod system is designed to bring the reactor subcritical at a rate fast enough to prevent the MCPR from becoming less than the fuel cladding safety limit during the limiting power transient analyzed in Section 15.0 of the FSAR. This analysis shows that the negative reactivity rates resulting from the scram with the average response of all the drives as given in the specifications, provide the required protection and MCPR remains greater than the fuel cladding safety limit. The occurrence of scram times longer then those specified should be viewed as an indication of a systemic problem with the rod drives and therefore the surveillance interval is reduced in order to prevent operation of the reactor for long periods of time with a potentially serious problem.

The SDV vent and drain valves are normally open and discharge any accumulated water in the SDV to ensure that sufficient volume is available at all times to allow a complete scram. During a scram, the SDV vent and drain valves close to contain reactor water. The SDV consists of header piping that connects to each hydraulic control unit (HCU) and drains into an instrument volume. There are two headers and two instrument volumes, each receiving approximately one half of the control rod drive (CRD) discharges. The two instrument volumes are connected to a common drain line. The common drain line has two valves in series. Each header is connected to a common vent line. This common header has two valves in series. The header piping is sized to receive and contain all the water discharged by the CRDs during a scram.

3/4.1.3 CONTROL RODS (Continued)

The Design Basis Accident and transient analyses assume that all of the control rods are capable of scramming. The primary function of the SDV is to limit the amount of reactor coolant discharged during a scram. The acceptance criteria for the SDV vent and drain valves are that they operate automatically to:

a. Close during scram to limit the amount of reactor coolant discharged so that adequate core cooling is maintained and offsite doses remain within the limits of 10 CFR 100; and

b. Open on scram reset to maintain the SDV vent and drain path open such that sufficient volume is available to accept the reactor coolant discharged during a scram.

The OPERABILITY of all SDV vent and drain valves ensures that, during a scram, the SDV vent and drain valves will close to contain reactor water discharged into the SDV piping. Since the vent and drain lines are provided with two valves in series, the single failure of one valve in the open position will not impair the isolation function of the system. Additionally, the valves are required to be open to ensure that a path is available for the SDV piping to drain freely at other times.

Isolation of the SDV can also be accomplished by closure of the SDV valves under administrative control. Additionally, the discharge of reactor coolant to the SDV can be terminated by scram reset or closure of the HCU manual isolation valves. For a bounding leakage case, the offsite doses are well within the limits of 10 CFR 100 and adequate core cooling is maintained.

Note # contained in Specification 3.1.3.1 allows Action Statements d and e to be entered separately for each affected SDV vent and drain line, and Completion Times to be tracked on a per line basis. For instance, when a vent valve is declared inoperable, Action d is entered for the vent line and its Completion Time starts. If a drain valve is subsequently declared inoperable, Action d is entered again for the drain line and a separate Completion Time starts and is tracked for the drain line. The same is true for both valves inoperable in one line in accordance with Action e, provided the original Completion Time (if any) affecting that line is not exceeded. Also, one line can be in Action d, while the other line is in Action e, provided the applicable Completion Times are met for each line.

Control rods with inoperable accumulators are declared inoperable and Specification 3.1.3.1 then applies. This prevents a pattern of inoperable accumulators that would result in less reactivity insertion on a scram than has been analyzed even though control rods with inoperable accumulators may still be inserted with normal drive water pressure. Operability of the accumulator ensures that there is a means available to insert the control rods even under the most unfavorable depressurization of the reactors.

3/4.1.3 CONTROL RODS (Continued)

In addition, the automatic CRD charging water header low pressure scram (see Table 2.2.1-1) initiates well before any accumulator loses its full capability to insert the control rod. With this added automatic scram feature, the surveillance of each individual accumulator check valve is no longer necessary to demonstrate adequate stored energy is available for normal scram action.

Control rod coupling integrity is required to ensure compliance with the analysis of the rod drop accident in the FSAR. The overtravel position feature provides the only positive means of determining that a rod is properly coupled and therefore this check must be performed prior to achieving criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity. The subsequent check is performed as a backup to the initial demonstration.

In order to ensure that the control rod patterns can be followed and therefore that other parameters are within their limits, the control rod position indication system must be OPERABLE.

The control rod housing support restricts the outward movement of a control rod to less than 3.65 inches in the event of a housing failure. The amount of rod reactivity which could be added by this small amount of rod withdrawal is less than a normal withdrawal increment and will not contribute to any damage to the primary coolant system. The support is not required when there is no pressure to act as a driving force to rapidly eject a drive housing.

The required surveillance intervals are adequate to determine that the rods are OPERABLE and not so frequent as to cause excessive wear on the system components.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

Control rod withdrawal and insertion sequences are established to assure that the maximum insequence individual control rod or control rod segments which are withdrawn at any time during the fuel cycle could not be worth enough to result in a peak fuel enthalpy greater than 280 cal/gm in the event of a control rod drop accident. The specified sequences are characterized by homogeneous, scattered patterns of control rod withdrawal. When THERMAL POWER is greater than 10% of RATED THERMAL POWER, there is no possible rod worth which, if dropped at the design rate of the velocity limiter, could result in a peak enthalpy of 280 cal/gm. Thus requiring the RWM to be OPERABLE when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER provides adequate control.

The RWM provide automatic supervision to assure that out-of-sequence rods will not be withdrawn or inserted.

The analysis of the rod drop accident is presented in Section 15.4.9 of the FSAR and the techniques of the analysis are presented in a topical report, Reference 1, and two supplements, References 2 and 3.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS (Continued)

The RBM is designed to automatically prevent fuel damage in the event of erroneous rod withdrawal from locations of high power density during high power operation. Two channels are provided. Tripping one of the channels will block erroneous rod withdrawal soon enough to prevent fuel damage. This system backs up the written sequence used by the operator for withdrawal of control rods.

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system provides a backup capability for bringing the reactor from full power to a cold, Xenon-free shutdown, assuming that the withdrawn control rods remain fixed in the rated power pattern. To meet this objective it is necessary to inject a quantity of boron which produces a concentration of 660 ppm in the reactor core in approximately 50 to 125 minutes. A normal quantity of 4587 gallons net of solution having a 13.4% sodium pentaborate concentration is required to meet a shutdown requirement of 3%. There is an additional allowance of 25% in the reactor core to account for imperfect mixing. The time requirement was selected to override the reactivity insertion rate due to cooldown following the Xenon poison peak and the required pumping rate is 41.2 gpm. The minimum storage volume of the solution is established to allow for the portion below the pump suction that cannot be inserted and the filling of other piping systems connected to the reactor vessel.

The temperature requirement on the sodium pentaborate solution is necessary to maintain the solubility of the solution as it was initially mixed to the appropriate concentration. Checking the volume of fluid and the temperature once each 24 hours assures that the solution is available for injection.

With redundant pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the redundant components inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. Once the solution is established, boron concentration will not vary unless more boron or water is added, thus a check on the temperature and volume once each 24 hours assures that the solution is available for use.

Replacement of the explosive charges in the valves at regular intervals will assure that these valves will not fail because of deterioration of the charges.

1. C. J. Paone, R. C. Stirn and J. A. Woolley, "Rod Drop Accident Analysis for Large BWR's," G. E. Topical Report NEDO-10527, March 1972

2. C. J. Paone, R. C. Stirn and R. M. Young, Supplement 1 to NEDO-10527, July 1972

3. J. M. Haun, C. J. Paone and R. C. Stirn, Addendum 2, "Exposed Cores," Supplement 2 to NEDO-10527, January 1973

3/4.1.6 ECONOMIC GENERATION CONTROL SYSTEM

Operation with the economic generation control (EGC) system, automatic flow control, is limited to the range of 65% to 100% of rated core flow. In this flow range and with THERMAL POWER $\geq$ 20% of RATED THERMAL POWER, the reactor could safely tolerate a rate of change of load of 8 MWe/s (reference FSAR Section 6.2.4).

Limits within the EGC and the flow control system prevent rates of change greater than approximately 4 MWe/s. When EGC is in operation, this fact will be indicated on the main control room console.

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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-374

LASALLE COUNTY STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 74
License No. NPF-18

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

   A. The application for amendment filed by the Commonwealth Edison Company (the licensee) dated April 24, 1991, as supplemented June 2, 1992, and December 1, 1992, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's 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 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 set forth in 10 CFR Chapter I;

   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 enclosure to this license amendment and paragraph 2.C.(2) of the Facility Operating License No. NPF-18 is hereby amended to read as follows:

(2) Technical Specifications and Environmental Protection Plan

The Technical Specifications contained in Appendix A, as revised through Amendment No. 74 , and the Environmental Protection Plan contained in Appendix B, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

3. This amendment is effective upon date of issuance to be implemented within 45 days.

FOR THE NUCLEAR REGULATORY COMMISSION

James E. Dyer

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

Attachment:
Changes to the Technical
Specifications

Date of Issuance: January 15, 1993

ATTACHMENT TO LICENSE AMENDMENT NO. 74

FACILITY OPERATING LICENSE NO. NPF-18

DOCKET NO. 50-374

Replace the following pages of the Appendix "A" Technical Specifications with the enclosed pages. The revised pages are identified by amendment number and contain a vertical line indicating the area of change.

REMOVE	INSERT
3/4 1-4	3/4 1-4
3/4 1-5	3/4 1-5
B3/4 1-2	B3/4 1-2
B3/4 1-3	B3/4 1-3
B3/4 1-4	B3/4 1-4
B3/4 1-5	B3/4 1-5
-	B3/4 1-6

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

2. If the inoperable control rod(s) is inserted:

   a) Within 1 hour disarm the associated directional control valves* either:

      1) Electrically, or

      2) Hydraulically by closing the drive water and exhaust water isolation valves.

   b) Otherwise, be in at least HOT SHUTDOWN within the next 12 hours.

3. The provisions of Specification 3.0.4 are not applicable.

c. With more than 8 control rods inoperable, be in at least HOT SHUTDOWN within 12 hours.

d#. With one or more SDV vent or drain lines with one valve inoperable,

1. Isolate## the associated line within 7 days.

2. Otherwise, be in HOT SHUTDOWN within the next 12 hours.

e#. With one or more SDV vent or drain lines with both valves inoperable,

1. Isolate## the associated line within 8 hours.

2. Otherwise, be in HOT SHUTDOWN within the next 12 hours.

SURVEILLANCE REQUIREMENTS

4.1.3.1.1 The scram discharge volume drain and vent valves shall be demonstrated OPERABLE by:

a. At least once per 31 days verifying each valve to be open**, and

b. At least once per 92 days cycling each valve through at least one complete cycle of full travel.

4.1.3.1.2 When above the low power setpoint of the RWM, all withdrawn control rods not required to have their directional control valves disarmed electrically or hydraulically shall be demonstrated OPERABLE by moving each control rod at least one notch:

a. At least once per 7 days, and

b. At least once per 24 hours when any control rod is immovable as a result of excessive friction or mechanical interference.

---

*May be rearmed intermittently, under administrative control, to permit testing associated with restoring the control rod to OPERABLE status.

**These valves may be closed intermittently for testing under administrative control.

#Separate Action statement entry is allowed for each SDV vent and drain line.

##An isolated line may be unisolated under administrative control to allow draining and venting of the SDV.

SURVEILLANCE REQUIREMENTS (Continued)

4.1.3.1.3 All control rods shall be demonstrated OPERABLE by performance of Surveillance Requirements 4.1.3.2, 4.1.3.4, 4.1.3.5, 4.1.3.6 and 4.1.3.7.

4.1.3.1.4 The scram discharge volume shall be determined OPERABLE by demonstrating the scram discharge volume drain and vent valves OPERABLE at least once per 18 months by verifying that the drain and vent valves:

a. Close within 30 seconds after receipt of a signal for control rods to scram, and

b. Open after the scram signal is reset.

3/4.1.3 CONTROL RODS

The specification of this section ensure that (1) the minimum SHUTDOWN MARGIN is maintained, (2) the control rod insertion times are consistent with those used in the accident analysis, and (3) the potential effects of the rod drop accident are limited. The ACTION statements permit variations from the basic requirements but at the same time impose more restrictive criteria for continued operation. A limitation on inoperable rods is set such that the resultant effect on total rod worth and scram shape will be kept to a minimum. The requirements for the various scram time measurements ensure that any indication of systematic problems with rod drives will be investigated on a timely basis.

Damage within the control rod drive mechanism could be a generic problem, therefore with a control rod immovable because of excessive friction or mechanical interference, operation of the reactor is limited to a time period which is reasonable to determine the cause of the inoperability and at the same time prevent operation with a large number of inoperable control rods.

Control rods that are inoperable for other reasons are permitted to be taken out of service provided that those in the nonfully-inserted position are consistent with the SHUTDOWN MARGIN requirements.

The number of control rods permitted to be inoperable could be more than the eight allowed by the specification, but the occurrence of eight inoperable rods could be indicative of a generic problem and the reactor must be shutdown for investigation and resolution of the problem.

The control rod system is designed to bring the reactor subcritical at a rate fast enough to prevent the MCPR from becoming less than the fuel cladding safety limit during the limiting power transient analyzed in Section 15.0 of the FSAR. This analysis shows that the negative reactivity rates resulting from the scram with the average response of all the drives as given in the specifications, provide the required protection and MCPR remains greater than the fuel cladding safety limit. The occurrence of scram times longer then those specified should be viewed as an indication of a systemic problem with the rod drives and therefore the surveillance interval is reduced in order to prevent operation of the reactor for long periods of time with a potentially serious problem.

The SDV vent and drain valves are normally open and discharge any accumulated water in the SDV to ensure that sufficient volume is available at all times to allow a complete scram. During a scram, the SDV vent and drain valves close to contain reactor water. The SDV consists of header piping that connects to each hydraulic control unit (HCU) and drains into an instrument volume. There are two headers and two instrument volumes, each receiving approximately one half of the control rod drive (CRD) discharges. The two instrument volumes are connected to a common drain line. The common drain line has two valves in series. Each header is connected to a common vent line. This common header has two valves in series. The header piping is sized to receive and contain all the water discharged by the CRDs during a scram.

3/4.1.3 CONTROL RODS (Continued)

The Design Basis Accident and transient analyses assume that all of the control rods are capable of scramming. The primary function of the SDV is to limit the amount of reactor coolant discharged during a scram. The acceptance criteria for the SDV vent and drain valves are that they operate automatically to:

a. Close during scram to limit the amount of reactor coolant discharged so that adequate core cooling is maintained and offsite doses remain within the limits of 10 CFR 100; and

b. Open on scram reset to maintain the SDV vent and drain path open such that sufficient volume is available to accept the reactor coolant discharged during a scram.

The OPERABILITY of all SDV vent and drain valves ensures that, during a scram, the SDV vent and drain valves will close to contain reactor water discharged into the SDV piping. Since the vent and drain lines are provided with two valves in series, the single failure of one valve in the open position will not impair the isolation function of the system. Additionally, the valves are required to be open to ensure that a path is available for the SDV piping to drain freely at other times.

Isolation of the SDV can also be accomplished by closure of the SDV valves under administrative control. Additionally, the discharge of reactor coolant to the SDV can be terminated by scram reset or closure of the HCU manual isolation valves. For a bounding leakage case, the offsite doses are well within the limits of 10 CFR 100 and adequate core cooling is maintained.

Note # contained in Specification 3.1.3.1 allows Action Statements d and e to be entered separately for each affected SDV vent and drain line, and Completion Times to be tracked on a per line basis. For instance, when a vent valve is declared inoperable, Action d is entered for the vent line and its Completion Time starts. If a drain valve is subsequently declared inoperable, Action d is entered again for the drain line and a separate Completion Time starts and is tracked for the drain line. The same is true for both valves inoperable in one line in accordance with Action e, provided the original Completion Time (if any) affecting that line is not exceeded. Also, one line can be in Action d, while the other line is in Action e, provided the applicable Completion Times are met for each line.

Control rods with inoperable accumulators are declared inoperable and Specification 3.1.3.1 then applies. This prevents a pattern of inoperable accumulators that would result in less reactivity insertion on a scram than has been analyzed even though control rods with inoperable accumulators may still be inserted with normal drive water pressure. Operability of the accumulator ensures that there is a means available to insert the control rods even under the most unfavorable depressurization of the reactors.

3/4.1.3 CONTROL RODS (Continued)

In addition, the automatic CRD charging water header low pressure scram (see Table 2.2.1-1) initiates well before any accumulator loses its full capability to insert the control rod. With this added automatic scram feature, the surveillance of each individual accumulator check valve is no longer necessary to demonstrate adequate stored energy is available for normal scram action.

Control rod coupling integrity is required to ensure compliance with the analysis of the rod drop accident in the FSAR. The overtravel position feature provides the only positive means of determining that a rod is properly coupled and therefore this check must be performed prior to achieving criticality after completing CORE ALTERATIONS that could have affected the control rod drive coupling integrity. The subsequent check is performed as a backup to the initial demonstration.

In order to ensure that the control rod patterns can be followed and therefore that other parameters are within their limits, the control rod position indication system must be OPERABLE.

The control rod housing support restricts the outward movement of a control rod to less than 3.65 inches in the event of a housing failure. The amount of rod reactivity which could be added by this small amount of rod withdrawal is less than a normal withdrawal increment and will not contribute to any damage to the primary coolant system. The support is not required when there is no pressure to act as a driving force to rapidly eject a drive housing.

The required surveillance intervals are adequate to determine that the rods are OPERABLE and not so frequent as to cause excessive wear on the system components.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS

Control rod withdrawal and insertion sequences are established to assure that the maximum insequence individual control rod or control rod segments which are withdrawn at any time during the fuel cycle could not be worth enough to result in a peak fuel enthalpy greater than 280 cal/gm in the event of a control rod drop accident. The specified sequences are characterized by homogeneous, scattered patterns of control rod withdrawal. When THERMAL POWER is greater than 10% of RATED THERMAL POWER, there is no possible rod worth which, if dropped at the design rate of the velocity limiter, could result in a peak enthalpy of 280 cal/gm. Thus requiring the RWM to be OPERABLE when THERMAL POWER is less than or equal to 10% of RATED THERMAL POWER provides adequate control.

The RWM provide automatic supervision to assure that out-of-sequence rods will not be withdrawn or inserted.

The analysis of the rod drop accident is presented in Section 15.4.9 of the FSAR and the techniques of the analysis are presented in a topical report, Reference 1, and two supplements, References 2 and 3.

3/4.1.4 CONTROL ROD PROGRAM CONTROLS (Continued)

The RBM is designed to automatically prevent fuel damage in the event of erroneous rod withdrawal from locations of high power density during high power operation. Two channels are provided. Tripping one of the channels will block erroneous rod withdrawal soon enough to prevent fuel damage. This system backs up the written sequence used by the operator for withdrawal of control rods.

3/4.1.5 STANDBY LIQUID CONTROL SYSTEM

The standby liquid control system provides a backup capability for bringing the reactor from full power to a cold, Xenon-free shutdown, assuming that the withdrawn control rods remain fixed in the rated power pattern. To meet this objective it is necessary to inject a quantity of boron which produces a concentration of 660 ppm in the reactor core in approximately 50 to 125 minutes. A normal quantity of 4587 gallons net of solution having a 13.4% sodium pentaborate concentration is required to meet a shutdown requirement of 3%. There is an additional allowance of 25% in the reactor core to account for imperfect mixing. The time requirement was selected to override the reactivity insertion rate due to cooldown following the Xenon poison peak and the required pumping rate is 41.2 gpm. The minimum storage volume of the solution is established to allow for the portion below the pump suction that cannot be inserted and the filling of other piping systems connected to the reactor vessel.

The temperature requirement on the sodium pentaborate solution is necessary to maintain the solubility of the solution as it was initially mixed to the appropriate concentration. Checking the volume of fluid and the temperature once each 24 hours assures that the solution is available for injection.

With redundant pumps and explosive injection valves and with a highly reliable control rod scram system, operation of the reactor is permitted to continue for short periods of time with the system inoperable or for longer periods of time with one of the redundant components inoperable.

Surveillance requirements are established on a frequency that assures a high reliability of the system. Once the solution is established, boron concentration will not vary unless more boron or water is added, thus a check on the temperature and volume once each 24 hours assures that the solution is available for use.

Replacement of the explosive charges in the valves at regular intervals will assure that these valves will not fail because of deterioration of the charges.

1. C. J. Paone, R. C. Stirn and J. A. Woolley, "Rod Drop Accident Analysis for Large BWR's," G. E. Topical Report NEDO-10527, March 1972

2. C. J. Paone, R. C. Stirn and R. M. Young, Supplement 1 to NEDO-10527, July 1972

3. J. M. Haun, C. J. Paone and R. C. Stirn, Addendum 2, "Exposed Cores," Supplement 2 to NEDO-10527, January 1973

3/4.1.6 ECONOMIC GENERATION CONTROL SYSTEM

Operation with the economic generation control (EGC) system, automatic flow control, is limited to the range of 65% to 100% of rated core flow. In this flow range and with THERMAL POWER $\geq$ 20% of RATED THERMAL POWER, the reactor could safely tolerate a rate of change of load of 8 MWe/s (reference FSAR Section 6.2.4).

Limits within the EGC and the flow control system prevent rates of change greater than approximately 4 MWe/s. When EGC is in operation, this fact will be indicated on the main control room console.

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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO. 89 TO FACILITY OPERATING LICENSE NO. NPF-11 AND

AMENDMENT NO. 74 TO FACILITY OPERATING LICENSE NO. NPF-18

COMMONWEALTH EDISON COMPANY

LASALLE COUNTY STATION, UNITS 1 AND 2

DOCKET NOS. 50-373 AND 50-374

1.0 INTRODUCTION

By letters dated April 24, 1991, on June 2, 1992, and December 1, 1992, Commonwealth Edison Company (CECo) requested amendments to Facility Operating License Nos. NPF-11 and NPF-18 for the LaSalle County Station, Units 1 and 2. The requests involve three changes to the Technical Specifications: (1) add Action Statements 3.1.3.1.d and 3.1.3.1.e to Technical Specification (TS) 3.1.3.1 in the event that the scram discharge volume (SDV) vent and drain valves become inoperable; (2) delete current Surveillance Requirement 4.1.3.1.4.b for the SDV level detector instrumentation since it is currently addressed in TS 4.3.1.1 and TS 4.3.6 for the Reactor Protection System (RPS) and Control Rod Block instrumentation, respectively; and (3) delete the requirement for the SDV vent and drain valve surveillance to be performed from a normal control rod configuration of less than or equal to 50% rod density (Surveillance Requirement 4.1.3.1.4.a). The December 1, 1992, submittal supplemented the earlier requests and did not change the proposed no significant hazards consideration determinations.

2.0 DISCUSSION

The purpose of the SDV is to serve as a collection volume for water displaced by the control rod drive pistons during a scram. During normal operation, the SDV vent and drain valves remain open to allow operational leakage from the control rod drives to drain from the SDV to the reactor building equipment drain tank, ensuring that a sufficient air volume is available in the SDV at all times to allow a complete scram. The SDV vent lines are open to the reactor building atmosphere, and assure proper drainage of the SDV. The SDV consists of header piping that connects to the scram outlet valve of each hydraulic control unit and drains into an instrument volume. There are two headers and two instrument volumes, each receiving approximately one half of the control rod drive (CRD) discharges. The SDV vent and drain lines each have two redundant isolation valves in series. These valves automatically close upon the receipt of a scram signal to isolate the SDV and prevent the discharge of reactor coolant into the reactor building following a scram. The valves also close automatically upon a loss of air or electrical power.

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The two redundant automatic isolation valves located on each SDV vent and drain line provide assurance that the SDV will be isolated during a scram, thereby limiting the amount of reactor coolant discharged to the reactor building equipment drain tank, or to the reactor building atmosphere. Leakage from the SDV could potentially impact both offsite doses and the ability to maintain adequate core cooling following a scram. The staff has previously reviewed the consequences of a structural failure of the SDV following a scram in NUREG-0803, "Generic Safety Evaluation Report Regarding Integrity of BWR Scram System Piping." In this evaluation, the staff concluded that, for a bounding leakage case corresponding to a rupture of the SDV, the offsite doses would be well within the limits of 10 CFR Part 100, and that adequate core cooling would be maintained. The failure to isolate one or more SDV vent or drain lines is bounded by this evaluation.

In order to permit control rods to insert completely during a scram, an adequate free volume must exist in the SDV to accommodate the water displaced by CRD pistons as the control rods are inserted into the reactor. As a precautionary measure, the reactor will automatically scram if the water level in the SDV exceeds the high level setpoint. This assures that the reactor is shut down while an adequate volume remains in the SDV to fully insert the control rods. The SDV high level scram can be manually blocked only when the reactor mode switch is in the shutdown or refuel positions, permitting control room operators to reset a scram signal and reopen the SDV vent and drain valves to drain the SDV. Water level in the SDV is detected by both float-type level switches and differential pressure (dP) type level transmitters. Prior to reaching the level which would cause a scram, separate level switches would cause a high level alarm to sound in the control room, giving operators time to take action before the automatic scram.

During normal operation, the only source of leakage into the SDV is from leakage past the scram outlet valves. This leakage is typically maintained at very small values, because excessive leakage past the scram outlet valves would cause control rods to drift, and require that the affected control rods be fully inserted and isolated. In the event that the SDV drain lines were isolated, SDV level would increase such that ample time would be present for actions to be taken after receipt of a level alarm in the control room and before an automatic scram on high SDV level.

The licensee has proposed to incorporate operability requirements and allowed outage times for the SDV vent and drain valves, as well as associated compensatory actions for inoperable valves, into the plant Technical Specifications. The proposed TS operability requirements and allowed outage times are consistent with those included in Revision 0 of the BWR/6 Improved Standard Technical Specifications (STS). Additionally, the proposed changes to SDV vent and drain valve surveillance requirements are also consistent with the STS.

3.0 EVALUATION

The licensee has proposed to incorporate new TS Action Statements 3.1.3.1.d and 3.1.3.1.e, which would prescribe actions to be taken if one or more SDV vent or drain valves were to become inoperable. Action 3.1.3.1.d applies if one of the two redundant valves in a SDV vent or drain line becomes inoperable. In this case, the licensee would have 7 days to repair the inoperable valve or isolate the affected line. If the affected line is not isolated within the required time period, the licensee would then be required to proceed to hot shutdown within the next 12 hours. The staff concludes that this proposed Action Statement is acceptable because, in the event of a scram, the redundant valve on the line can still be expected to perform its function of isolating the SDV. Alternately, if the inoperable valve was initially closed, ample time and warning would be present for the draining of the SDV before an automatic scram due to SDV high level would occur. The licensee has further proposed to treat each vent and drain line separately by permitting entry into separate Action Statements for each vent and drain line. This is consistent with the STS, and the staff considers it to be acceptable as well.

Proposed Action Statement 3.1.3.1.e would permit the licensee to take up to 8 hours to repair two inoperable valves on the same vent or drain line, or to manually isolate the affected line. If this requirement is not met, the licensee would proceed to hot shutdown within the following 12 hours. The staff considers this proposed Action Statement to be acceptable because (1) the probability of a scram during the allowed outage time of the valves is acceptably low, and (2) in the event of a scram, the release of reactor coolant to the reactor building through the affected vent or drain line can be terminated by resetting the scram, which would close the scram outlet valves, or by manually closing the isolation valves located on each SDV vent and drain line. Also, as discussed above, in the event that a vent or drain line were isolated due to inoperable valves, ample time would exist to drain the SDV before an automatic scram due to high SDV level. The licensee has also proposed to permit entry into separate Action Statements for each vent and drain line, as described in the STS. The staff considers this to be acceptable.

Following the isolation of one or more SDV vent or drain lines, the licensee has proposed to permit the administrative unisolation of the affected lines to permit draining and venting of the SDV. This period allows any accumulated water in the line (from leakage past the CRDs) to be drained, to preclude a reactor scram on SDV high level. The staff has reviewed this change and finds it to be acceptable, since the valves are operated from the control room and can be closed quickly if a scram occurs with the valve open, and operating with the valves unisolated is expected to be infrequent.

Additionally, the licensee proposed deletion of Surveillance Requirement 4.1.3.1.4.b for the SDV level detector instrumentation for both Units 1 and 2 because the requirement to perform a channel functional test of SDV instrumentation at least once per 31 days is currently addressed in the Technical Specifications for the Reactor Protection System (RPS) instrumentation (TS

3/4.3.1) and Control Rod Block instrumentation (TS 3/4.3.6). These specifications provide appropriate action requirements and allowed outage times should one or more of the instruments become inoperable. The deletion of these TSs will not affect the current surveillance requirements as they are addressed in the above mentioned TSs. The staff concludes that deletion of Surveillance Requirement 4.1.3.1.4.b from both Unit 1 and Unit 2 TSs is acceptable because the testing of SDV vent and drain valve operability is adequately addressed in TS 4.3.1.1 and TS 4.3.6.

In their June 2, 1992, submittal, the licensee proposed changing Surveillance Requirement 4.1.3.1.4 to verify SDV vent and drain operability since this requirement causes an unnecessary plant transient every 18 months, and challenges plant safety systems. The licensee proposed amending TS Surveillance Requirement 4.1.3.1.4 to read as follows:

"The scram discharge volume shall be determined OPERABLE by demonstrating the scram discharge volume drain and vent valves OPERABLE at least once per 18 months by verifying that the drain and vent valves:

a. Close within 30 seconds after receipt of a signal for control rods to scram, and

b. Open after the scram signal is reset."

This proposed change would eliminate the need for Note* at the bottom of page 3/4 1-5, which gives exception from Specification 4.0.4, since there would be no requirement to change modes to perform the surveillance.

The current TS requires that the SDV vent and drain valves be verified operable when control rods are scram tested from a normal control rod configuration of less than or equal to 50% rod density. This rod configuration requires the reactor to be in Operational Condition 1 (power operation), or Operational Condition 2 (startup), when the surveillance is performed.

Performance of the 4.1.3.1.4.a surveillance during shutdown conditions will still ensure that these safety functions will be met, even though the test conditions of nearly ambient temperature and pressure, and reduced CRD discharge flow due to the rods being fully inserted prior to the scram signal do not match operating conditions. The maximum SDV pressure during shutdown conditions will be equal to the static pressure head of the RPV water, as opposed to rated pressure during the test at 50% rod density. However, backpressure due to a scram from rated pressure will not significantly affect the ability to meet the 30 second closure criterion because the SDV is vented initially. The peak pressure prior to SDV isolation is, therefore, negligible. The initial test condition of reactor coolant temperature will also not be significant to the outcome of the surveillance. The cooler reactor coolant temperature during shutdown conditions will have negligible effect (if any) on the valve stroke times measured in the surveillance. The quantity of CRD discharge flow will not affect the ability to meet the 30

second valve closure requirement, since the SDV will not become pressurized until some time after the valves have closed. Single control rod scram time

testing is sufficient to detect any obstructions in the piping leading to the SDV.

Backpressure equal to full reactor pressure could affect the ability of the SDV vent and drain valves to open. However, the ability for these valves to open against reactor pressure is demonstrated after each reactor scram during operation.

Since the initial conditions of pressure, temperature, and CRD discharge flow rate will have no appreciable effect on vent and drain valve performance, performance of the 4.1.3.1.4.a surveillance during shutdown conditions will not affect the validity of the surveillance results. Thus, this proposed Technical Specification change will still ensure the safety functions of the SDV vent and drain valves and, therefore, is not a reduction of safety. The staff has reviewed the amendments submitted by CECo for the LaSalle County Station, Units 1 and 2, proposing TS changes. Based on this review, the proposed changes are acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Illinois State official was notified of the proposed issuance of the amendments. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to the installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and change surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission published proposed findings on June 12, 1991, and July 6, 1992, that the amendments involve no significant hazards consideration (56 FR 27039 and 57 FR 30242), and there has been no public comment on such findings. Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

6.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

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