

Dockets File



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

August 15, 1989

Docket Nos. 50-454 and 50-455

Mr. Thomas J. Kovach
Nuclear Licensing Manager
Commonwealth Edison Company
Post Office Box 767
Chicago, Illinois 60690

Dear Mr. Kovach:

The Commission has issued the enclosed Amendment No. 32 to Facility Operating License No. NPF-37 and Amendment No. 32 to Facility Operating License No. NPF-66 for the Byron Station, Unit Nos. 1 and 2, respectively. The amendments consist of changes to the Technical Specifications in response to your application transmitted by letter dated May 24, 1989, supplemented July 20, 1989 and August 1, 1989.

These amendments approve changes that modify Technical Specification 3.7.5 to utilize the seismic qualification of the deep well pumps by allowing these pumps to be used in several instances instead of the essential service water make-up pumps to satisfy the design bases of the ultimate heat sink.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Leonard N. Olshan".

Leonard N. Olshan, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:

1. Amendment No. 32 to NPF-37
2. Amendment No. 32 to NPF-66
3. Safety Evaluation

cc w/enclosures:
See next page

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Mr. Thomas J. Kovach
Commonwealth Edison Company

Byron Station
Units 1 and 2

cc:

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Westinghouse Electric Corporation
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Chairman, Ogle County Board
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EIS Review Coordinator
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Commonwealth Edison Company
Byron Station Manager
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August 15, 1989

Docket Nos. 50-454 and 50-455

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Nuclear Licensing Manager
Commonwealth Edison Company
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These amendments approve changes that modify Technical Specification 3.7.5 to utilize the seismic qualification of the deep well pumps by allowing these pumps to be used in several instances instead of the essential service water make-up pumps to satisfy the design bases of the ultimate heat sink.

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

Sincerely,

LS

Leonard N. Olshan, Project Manager
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Enclosures:

1. Amendment No. 32 to NPF-37
2. Amendment No. 32 to NPF-66
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cc w/enclosures:
See next page

*See previous concurrence

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7/19/89

P.S.
(A)D:PDIII-2
PShemanski
7/19/89

*OGC
7/25/89

for *JPW*
BC: SPLB
CMcCracken
8/7/89

Docket Nos. 50-454 and 50-455

Mr. Thomas J. Kovach
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Commonwealth Edison Company
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PShemanski
/ /89

OGC
7/25/89

BC:SPLB
CMcCracken
/ /89

*OK provided SER as
seismic qualification
deep well pumps to
be used instead prior to
issuance of
the amendment
TJH*



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-454

BYRON STATION, UNIT 1

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 32
License No. NPF-37

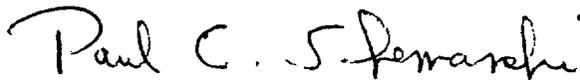
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated May 24, 1989, supplemented July 20, 1989, and August 1, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-37 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A as revised through Amendment No. 32 and the Environmental Protection Plan contained in Appendix B, both of which are attached hereto, are hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Paul C. Shemanski, Acting Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 15, 1989



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

COMMONWEALTH EDISON COMPANY

DOCKET NO. 50-455

BYRON STATION, UNIT 2

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 32
License No. NPF-66

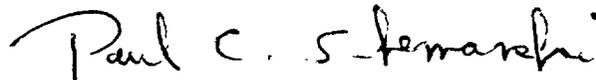
1. The Nuclear Regulatory Commission (the Commission) has found that:
 - A. The application for amendment by Commonwealth Edison Company (the licensee) dated May 24, 1989, supplemented July 20, 1989, and August 1, 1989, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter 1;
 - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
 - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
 - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
 - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.(2) of Facility Operating License No. NPF-66 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A (NUREG-1113), as revised through Amendment No. 32 and revised by Attachment 2 to NPF-60, and the Environmental Protection Plan contained in Appendix B, both of which were attached to License No. NPF-37, dated February 14, 1985, are hereby incorporated into this license. Attachment 2 contains a revision to Appendix A which is hereby incorporated into this license. The licensee shall operate the facility in accordance with the Technical Specifications and the Environmental Protection Plan.

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

FOR THE NUCLEAR REGULATORY COMMISSION



Paul C. Shemanski, Acting Director
Project Directorate III-2
Division of Reactor Projects - III,
IV, V and Special Projects

Attachment:
Changes to the Technical
Specifications

Date of Issuance: August 15, 1989

ATTACHMENT TO LICENSE AMENDMENT NOS. 32 AND 32
FACILITY OPERATING LICENSE NOS. NPF-37 AND NPF-66
DOCKET NOS. 50-454 AND 50-455

Revise Appendix A as follows:

<u>Remove Pages</u>	<u>Insert Pages</u>
3/4 7-13	3/4 7-13
3/4 7-14	3/4 7-14
	3/4 7-14a
3/4 7-15	3/4 7-15
B 3/4 7-4	B 3/4 7-4

PLANT SYSTEMS

3/4.7.5 ULTIMATE HEAT SINK

LIMITING CONDITIONS FOR OPERATION

3.7.5 Two independent ultimate heat sinks (UHS) cooling towers shall be OPERABLE with

- a. A minimum water level in each of the UHS cooling tower basins of 873.75 feet Mean Sea Level (MSL) (50%),
- b. With only Unit 1 operating, fans OA, OB, OE, and OF are required to be OPERABLE. With only Unit 2 operating, fans OC, OD, OG, and OH are required to be OPERABLE. With both Units 1 and 2 operating, 3 fans with power supplied from each unit are required to be OPERABLE (total of 6 fans),
- c. Two OPERABLE essential service water makeup pumps,
- d.* An essential service water pump discharge temperature of less than or equal to 80°F with less than 4 fans running in high speed; or less than or equal to 98°F with all fans running in high speed,
- e. Deleted
- f. The National Weather Service (NWS) does not forecast the Rock River level to exceed 702.0 feet MSL,
- g. Rock River water level greater than 670.6 feet MSL, and
- h. The National Weather Service (NWS) has not issued a tornado watch that includes the Byron Site Area.

APPLICABILITY: MODES 1, 2, 3, and 4

ACTION:

- a. With a water level of less than 873.75 feet MSL (50%) in either UHS cooling tower basin, restore the water level to 873.75 feet MSL in each UHS cooling tower basin within 6 hours or be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- b. With one of the fans contained in the applicable combination listed above inoperable, restore the listed fans to OPERABLE status within 72 hours or be in at least HOT STANDBY within the next 6 hours and COLD SHUTDOWN within the following 30 hours.

*No fans are required to be running during UHS cooling tower performance testing; however, the essential service water pump discharge temperature must be maintained at less than or equal to 98°F.

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

- c. With one essential service water makeup pump inoperable, within 72 hours either:
- 1) Restore the inoperable essential service water makeup pump to OPERABLE STATUS, or
 - 2) Verify that the same train deep well pump is OPERABLE with its UHS cooling tower basin level $\geq 82\%$. Continue to verify basin level is $\geq 82\%$ every two hours and restore the inoperable essential service water makeup pump to OPERABLE STATUS within *7 days. (*This can be extended to 14 days for Essential Service Water Makeup pump inspection and extended maintenance during the time when at least one unit is in Mode 5 or 6.)
- Otherwise be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30-hours.
- d. With the essential service water pump discharge water temperature not meeting the above requirement, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- e. Deleted
- f. With Rock River water level forecasted by NWS to exceed 702.0 feet MSL:
- 1) Within one hour verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels $\geq 82\%$ and at least once every 2 hours thereafter, verify both basin levels are $> 82\%$. The provisions of Specification 3.0.4 are not applicable.
 - 2) With one deep well pump inoperable restore both deep well pumps to OPERABLE status with both basin levels $\geq 82\%$ before the Rock River level exceeds 702 feet MSL or within 72 hours, whichever comes first and follow provisions of ACTION f.1).
 - 3) Otherwise be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- g. With Rock River water level at or below 670.6 feet MSL within one hour verify Rock River level and flow, and:
- 1) If Rock River level > 664.7 feet MSL and flow ≥ 700 cfs verify Rock River level > 664.7 feet MSL and flow ≥ 700 cfs every 12 hours thereafter. The provisions of Specification 3.0.4 are not applicable.
 - 2) If Rock River level ≤ 664.7 feet MSL or flow < 700 cfs, within one hour:

PLANT SYSTEMS

LIMITING CONDITION FOR OPERATION (Continued)

ACTION (Continued)

- a) Verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels $\geq 82\%$ and at least once every 2 hours thereafter, verify both basin levels are $\geq 82\%$. The provisions of Specification 3.0.4 are not applicable.
 - b) With one deep well pump inoperable, within 72 hours restore both deep well pumps to OPERABLE status with both basin levels $\geq 82\%$ and follow provisions of ACTION g.2)a).
 - c) Otherwise be in at least HOT STANDBY within the next 6 hours and at least HOT SHUTDOWN within the following 6 hours and at least COLD SHUTDOWN within the subsequent 24 hours.
- h) With a tornado watch issued by NWS that includes Byron site area:
- 1) Within one hour verify that both deep well pumps are OPERABLE with both UHS cooling tower basin levels $\geq 82\%$ and at least once every 2 hours thereafter, verify both basin levels $\geq 82\%$. The provisions of Specification 3.0.4 are not applicable.
 - 2) With one deep well pump inoperable, within 30 minutes take action to restore both deep well pumps to OPERABLE status with both basin levels $\geq 82\%$ and at least once every 2 hours thereafter, verify both basin levels $\geq 82\%$.
 - 3) Otherwise be in HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

4.7.5 The UHS shall be determined OPERABLE at least once per:

- a. 24 hours by verifying the water level in each UHS cooling tower basin to be greater than or equal to 873.75 feet MSL. (50%),
- b. 24 hours by verifying the essential service water pump discharge water temperature is within its limit,
- c. 24 hours by verifying that the Rock River water level is within its limits,
- d. 31 days by starting from the control room each UHS cooling tower fan that is required to be OPERABLE and not already in operation and operating each of those fans for at least 15 minutes,
- e. 31 days by
 - 1) Verifying that the fuel supply for each diesel powered essential service water makeup pump is at least 36% of the fuel supply tank volume,
 - 2) Starting the diesel from ambient conditions on a simulated low basin level test signal and operating the diesel powered pump for 30 minutes,
 - 3) Verifying that each valve (manual, power operated, or automatic) in the flow path is in its correct position,
 - 4) Starting each deep well pump and operating it for 15 minutes and verifying that each valve (manual, power-operated, or automatic) in the flow path is in its correct position,
- f. Deleted
- g. 92 days by verifying that a drain sample of diesel fuel from the fuel storage tank, obtained in accordance with ASTM D4057-1981, is within the acceptable limits specified in Table 1 of ASTM-D975-1977 when checked for viscosity, water, and sediment,
- h. 18 months by subjecting each diesel that powers an essential service water makeup pump to an inspection in accordance with procedures prepared in conjunction with its manufacturer's recommendations for the class of service and by cycling each testable valve in the flow path through at least one complete cycle of full travel, and
- i. 18 months by verifying each deep well pump will provide at least 550 gpm flow rate.

PLANT SYSTEMS

BASES

ULTIMATE HEAT SINK (Continued)

A redundant makeup system using deep wells as a water source is designed to withstand design basis tornado events, river flood events, and design basis seismic events combined with low Rock River flow or level. The second redundant system is the essential service water makeup system that uses the Rock River as a water source. It is designed to withstand all design basis natural phenomena events and combinations of events except for seismic events during low Rock River flow rates, design basis tornado events and river flood events.

Each essential service water makeup pump is powered by a diesel engine with a fuel supply adequate for approximately 3 days of operation. Achievement of the design basis 30-day operation is dependent upon successful implementation of plant procedures to replenish the fuel supply following design basis events.

With water in the cooling tower basin at an initial temperature less than or equal to 80°F, shutdown can be achieved, for meteorological conditions following a design basis tornado, without operation of the cooling tower fans and without the temperature of the water discharged from the essential service water pump exceeding 110°F, the maximum acceptable temperature for components and systems cooled by the essential cooling water system. Achievement of the design function of the UHS during more severe meteorological conditions, or following a design basis LOCA, requires operation of two cooling tower fans to maintain the discharge temperature less than or equal to 110°F. Plant procedures ensure that the fans are started and controlled by operator action to maintain a discharge temperature of less than 110°F. With all 4 Unit 1 designated cooling tower fans running, either redundant ultimate heat sink train is capable of removing the design bases LOCA heat load without exceeding a pump discharge temperature of 98°F.

3/4.7.6 CONTROL ROOM VENTILATION SYSTEM

The OPERABILITY of the Control Room Ventilation System ensures that: (1) the ambient air temperature does not exceed the allowable temperature for continuous duty rating for the equipment and instrumentation cooled by this system, and (2) the control room will remain habitable for operations personnel during and following all credible accident conditions. Operation of the system with the heaters operating for at least 10 continuous hours in a 31-day period is sufficient to reduce the buildup of moisture on the adsorbers and HEPA filters. The OPERABILITY of this system in conjunction with control room



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION
SUPPORTING AMENDMENT NO. 32 TO FACILITY OPERATING LICENSES NOS.

NPF-37 AND NPF-66

COMMONWEALTH EDISON COMPANY

BYRON STATION, UNITS 1 AND 2

DOCKET NOS. 50-454 AND 5-455

1.0 INTRODUCTION

By letter dated May 24, 1989, Commonwealth Edison Company (the licensee) proposed changes to Technical Specification 3/4.7.5 for Byron Station, Units 1 and 2. The proposed changes allow the seismically-qualified deep well pumps to be used at certain times instead of the essential service water make-up pumps to satisfy the design bases of the ultimate heat sink (UHS). Our detailed Safety Evaluation accepting the seismic qualification of the deep well pumps was issued on August 7, 1989.

2.0 BACKGROUND

The Rock River is one of the two make-up sources for Byron Station's UHS. One source is the essential service water make-up pumps which take suction from the Rock River. This system is designed to withstand all design basis natural phenomena events and combination of events except for seismic events during low Rock River flow rates, design basis tornado events and river flood events.

The other UHS makeup source is the deep well pumps. These pumps are designed to withstand the tornado and river flood events. For these instances, the deep well pumps were accepted in the original Byron Safety Evaluation Report (SER), page 9-14, as being adequate to supply the required cooling tower make-up water assuming a single failure, and they can be powered from the emergency (Class 1E) power sources.

However, the deep well pumps were not seismically qualified and were not assumed to provide UHS make-up if a seismic event occurred during low Rock River flow rates. In a seismic event, the Oregon Dam is assumed to totally disappear. This is a conservative assumption since the most probable failure modes for this earth and rock structure would probably result in some settlement or spreading of the structure. Total loss of the dam combined with low Rock River flow rates could result in loss of suction to the ESW make-up pumps; thus, TS 3.7.5 required shutdown of both units when Rock River flow was below 700 cubic feet per second (cfs).

By letter dated November 30, 1988, the licensee has demonstrated that the deep wells and deep well pumps are seismically qualified, and we agree. Thus, the deep wells can provide make-up water for seismic events during low Rock River flow rates when it is assumed that ESW make-up pumps will not be able to provide this water. The May 24, 1989 amendment request was, in part, based on the seismic qualification of the deep wells.

3.0 EVALUATION

The original Limiting Condition for Operation 3.7.5 was misleading in several instances;

1. TS 3.7.5 stated "two independent ultimate heat sinks (UHS) cooling towers shall be OPERABLE, each with ..." LCO c. specified one ESW make-up pump power train, implying a total of four ESW make-up pumps at the station. Similarly, LCO f. specified two deeps wells, implying four deep wells at the station. There are only two ESW make-up pumps and two deep wells at the station.
2. LCO f. listed three conditions: Rock River water level above 702 feet, below 670.6 feet, and a tornado watch. These are unacceptable conditions for which action is required. However, the wording in the TS could have been misinterpreted to imply that these are the acceptable conditions.
3. LCO's e. and f(2) were redundant.

The proposed changes in the May 24, 1989 letter corrected these problems, and we find them acceptable.

The licensee proposed to change ACTION c. which would have allowed the deep well pumps to be used as a substitute for the ESW make-up pumps in all instances. However, the deep well pumps do not meet all of the requirements of Appendix B to 10 CFR Part 50. The deep well pumps have already been approved for limited instances (tornado and river flows events), and we are now approving them for seismic events during low Rock River flows. We do not, however, agree that they can be considered equivalent to the ESW make-up pumps in all instances since they do not meet all the Appendix B requirements. By letter dated July 20, 1989, the licensee proposed revised wording for ACTION c. The revised wording extends the allowable outage time for an ESW makeup pump 7 days if the deep well pump is operable, and 14 days for extended maintenance activities if the deep well pump is operable and one of the units is in Mode 5 or 6. The licensee based these extended times on estimates of the times needed to perform various maintenance activities. We find that, for these limited times, the deep wells can be used as a replacement for the ESW makeup pumps. We, therefore, conclude that the revised ACTION c. proposed in the July 20, 1989 letter is acceptable.

ACTIONS e. (1) and (3) required that both units be shut down in the event of low Rock River level or flow. As previously mentioned, this shutdown requirement is no longer necessary now that the deep wells have been seismically qualified. The requirement to notify the NRC of contingencies to

ensure adequate cooling water is also unnecessary since this cooling water can now be supplied by the deep wells. ACTION e.(3) has been located in ACTION g. Thus, we find the deletion of ACTION e. acceptable.

ACTION f. has been split into three ACTIONS: f, g, and h. They are the actions that need to be taken in the event that the ESW make-up pumps cannot supply water and the deep wells will be used instead. The actions require that the UHS cooling tower basin levels be at least 82%. The 82% is based on a conservative, worst-case analysis which shows that there is sufficient time to manually initiate deep well make-up to the UHS. We find this acceptable.

The three actions f, g, and h also state that the provisions of TS 3.0.4 are not applicable. TS 3.0.4 prohibits changing operational modes unless the particular LCO is satisfied without relying on the ACTION statements. Since we find that the deep wells will provide sufficient level of protection in these limited instances to permit mode changes, we conclude that the inapplicability of TS 3.0.4 is acceptable.

The proposed ACTION h. stated that, with a tornado watch and one deep well pump inoperable, both deep well pumps had to be restored to OPERABLE status within 72 hours. (This requirement also existed in the original TS ACTION f). During a July 31, 1989 teleconference, we told the licensee that this action should be revised. Since a tornado watch would probably not last for 72 hours, the ACTION statement is effectively of no use. In response to our concern, the licensee submitted a revised ACTION h. by letter dated August 1, 1989. Also included in this letter is the Byron Operating Abnormal procedure that contains the specific actions that would be taken if a tornado were to make the ESW make-up pumps inoperable coincident with the deep well pumps failure to start. We find the revised ACTION h. acceptable.

The licensee proposed to eliminate surveillance f., which had required that the deep well pumps be run immediately prior to declaring them operable. This practice is not consistent with any of the other requirements in the TS. Furthermore, the monthly surveillance will be revised to require the recording of pump amps. Trending these readings should allow early detection of pump degradation. Thus, we conclude that the deletion of Surveillance f. is acceptable.

Lastly, the licensee has proposed changes to Bases Section 3/4.7.5 to reflect some of the changes made to TS 3/4.7.5. We have changed the licensee's proposal to limit the use of the deep wells to the three aforementioned instances. With this change, the bases are now acceptable.

4.0 ENVIRONMENTAL CONSIDERATION

These amendments involve a change in the installation or use of the facilities components located within the restricted areas as defined in 10 CFR Part 20. The staff has determined that these 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 has previously issued a proposed finding that these amendments involve no significant hazards consideration and there has been no public comment on such finding. Accordingly, these 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 these amendments.

5.0 CONCLUSION

We have 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, and (2) 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.

6.0 Principal Contributor: Leonard N. Olshan

Dated: August 15, 1989