

OCT 1 1971

Docket No. 50-254

Commonwealth Edison Company
ATTN: Mr. Byron Lee, Jr.
Assistant to the President
P.O. Box 767
Chicago, Illinois 60690

Gentlemen:

The Atomic Energy Commission has issued the enclosed Facility Operating License No. DPR-29 to Commonwealth Edison Company acting for itself and as agent for Iowa-Illinois Gas and Electric Company authorizing operation of the Quad-Cities Station Unit 1 at power levels not to exceed 25 megawatts (thermal) in accordance with the Technical Specifications appended thereto. Commonwealth Edison is authorized to operate the facility at power levels not in excess of 25 megawatts (thermal) to perform fuel loading and low-power testing as described in Commonwealth Edison's July 26 and September 7, 1971 letters, provided that the primary system temperature and pressure do not exceed 225°F and 1000 psig, respectively. A related notice which has been forwarded to the Office of the Federal Register for filing and publication is also enclosed.

Two signed copies of Amendment No. 3 to Indemnity Agreement No. B-47, which covers the activities authorized under this license, are enclosed for your review and acceptance. Please sign and return one copy of the amendment to this office.

I am also enclosing a copy of the document issued by the regulatory staff relating to the Discussion and Findings concerning matters regarding low power operation of the facility.

Sincerely,

Original Signed by
Peter A. Morris
Peter A. Morris, Director
Division of Reactor Licensing

Enclosures:

1. License No. DPR-29, w/T.S.
2. Fed. Reg. Notice
3. Amend. 3 to I.A. No. B-47
4. Discussion and Findings

PDR 24 Oct 1971
[Signature]

OFFICE ▶						
SURNAME ▶		(See 2nd page for concurrences)				
DATE ▶						

OCT 1 1971

cc: Arthur C. Gehr, Esquire
Isham, Lincoln & Beale

Mr. Charles Whitmore, President
Iowa-Illinois Gas and Electric Company

bcc: H. J. McAlduff, ORO
*E. E. Hall, GMR
*E. B. Tremmel, IP
R. Leith, OC
*J. A. Harris, PI
J. R. Buchanan, ORNL
T. W. Laughlin, DTIE
A. A. Wells, ASLB
S. Robinson, SECY
*J. Saltzman, SLR
*J. Verme, SMM
*D. Nussbaumer, DML

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J. Stolz
*BR. Chiefs BWR & PWR
*S. Kari

*w/o Tech. Specs.

Cleared by telephone by PAM

CRESS	OFFICE ▶	DRL BWR-2	BRL: BWR-2	DRL: BWR	OGC	DRL: DIR
MC#224146		SMKari: cn	RLTedesco	RSBoyd	Shapar	PAMorris
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10/1/71	DATE ▶	10/1/71	10/ /71	10/ /71	10/ /71	10/ /71

ATOMIC ENERGY COMMISSION

DOCKET NO. 50-254

COMMONWEALTH EDISON COMPANY

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

NOTICE OF ISSUANCE OF FACILITY OPERATING LICENSE

Notice is hereby given that no request for a hearing by the applicant or petition for leave to intervene by any interested person having been filed following publication of the Notice of AEC Consideration of Issuance of Facility Operating Licenses in the FEDERAL REGISTER on March 16, 1971, 36 F.R. 5008, the Atomic Energy Commission (the Commission) has issued Facility Operating License No. DPR-29 to Commonwealth Edison Company (Commonwealth Edison) and Iowa-Illinois Gas and Electric Company (Iowa-Illinois) authorizing Commonwealth Edison and Iowa-Illinois to own, as their interests appear in the application, and Commonwealth Edison, acting for itself and as agent for Iowa-Illinois to possess, use, and operate the Quad-Cities Nuclear Power Station ~~Unit 1~~, a single cycle, boiling water reactor on Commonwealth Edison's site in Rock Island County, Illinois. The reactor is designed for operation at steady state power levels up to 2511 megawatts (thermal), but operation, in accordance with the provisions of Facility Operating License No. DPR-29 and its Technical Specifications, is restricted to power levels not to exceed 25 megawatts (thermal), primary system temperatures not to exceed 225°F, and primary system pressures not to exceed 1000 psig to permit fuel loading and low-power startup testing.

The Commission has inspected the facility and has determined that it has been constructed in accordance with the application, as amended, and the provisions of Provisional Construction Permit No. CPPR-23. The licensee has submitted proof of financial protection in satisfaction of the requirements of 10 CFR Part 140.

The Director of Regulation has made the findings set forth in the license, and has concluded that the application for construction permit and facility license, as amended, complies with the requirements of the Atomic Energy Act of 1954, as amended, and the Commission's regulations in 10 CFR Chapter 1, that the issuance of the license to permit fuel loading and low-power testing will not have a significant adverse impact on the quality of the environment, and will not be inimical to the common defense and security or to the health and safety of the public.

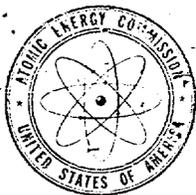
For further information concerning this license, see copies of (1) Facility Operating License No. DPR-29, and appended Technical Specifications, (2) the Division of Reactor Licensing's Safety Evaluation for the Quad-Cities Station Units 1 and 2, dated August 25, 1971, (3) the report of the Advisory Committee on Reactor Safeguards on the Quad-Cities Station Units 1 and 2, dated March 9, 1971, and (4) the Discussion and Findings pursuant to Appendix D to 10 CFR Part 50 Supporting the Issuance of an Operating License Authorizing the Loading of Fuel and Operation Not in Excess of 25 Mwt. Copies of these documents may be obtained upon request addressed to the Atomic Energy Commission, Washington, D. C. 20545, Attention: Director, Division of Reactor Licensing.

Dated at Bethesda, Maryland this 1st day of October 1971.

FOR THE ATOMIC ENERGY COMMISSION

A handwritten signature in cursive script, appearing to read "Peter A. Morris".

Peter A. Morris, Director
Division of Reactor Licensing



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

COMMONWEALTH EDISON COMPANY

AND

IOWA-ILLINOIS GAS AND ELECTRIC COMPANY

FACILITY OPERATING LICENSE

License No. DPR-29

The Atomic Energy Commission (the Commission) having found that:

- a. Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company (the applicants) have submitted to the Commission all technical information required by Provisional Construction Permit No. CPPR-23, the Atomic Energy Act of 1954, as amended (the Act), and the rules and regulations of the Commission to complete the application for a construction permit and facility license, dated May 31, 1966, and amended by Amendment Nos. 7 through 28, dated August 30, 1968, March 31, 1969, April 3, 1970, June 16, 1970, September 4, 1970, November 6, 1970, November 16, 1970, February 8, 1971, March 1, 1971, March 2, 1971, March 31, 1971, May 11, 1971, May 20, 1971, June 1, 1971, June 14, 1971, July 19, 1971 and July 26, 1971. Certain supplementary information was provided by the applicants' letters dated July 16, 1971, July 22, 1971, July 26, 1971, and September 7, 1971, and the applicants' telegrams, dated September 14, 1971, and September 15, 1971;
- b. Construction of the Quad-Cities Nuclear Power Station, Unit 1, (the facility) has been substantially completed in conformity with Provisional Construction Permit No. CPPR-23, the application, as amended, the provisions of the Act and the rules and regulations of the Commission.
- c. The facility will operate in conformity with the application, as amended, the provisions of the Act, and the rules and regulations of the Commission;
- d. There is reasonable assurance (i) that the facility can be operated at power levels not in excess of 25 megawatts (thermal) in accordance with this license without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the rules and regulations of the Commission;
- e. The applicants are technically and financially qualified to engage in the activities authorized by this operating license, in accordance with the rules and regulations of the Commission;

- f. The applicable provisions of 10 CFR Part 140 have been satisfied;
- g. The issuance of this license will not be inimical to the common defense and security or to the health and safety of the public;
- h. The issuance of this license will not have a significant adverse impact on the quality of the environment.

Facility Operating License No. DPR-29 is hereby issued to Commonwealth Edison Company (Commonwealth Edison) and Iowa-Illinois Gas and Electric Company (Iowa-Illinois), as follows:

1. This license applies to the Quad-Cities Nuclear Power Station Unit 1, a single cycle, boiling, light water reactor, and electric generating equipment (the facility). The facility is located at the Quad-Cities Nuclear Power Station in Rock Island County, Illinois, and is described in the application for construction permit and facility license, as amended.
2. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Commonwealth Edison and Iowa-Illinois, pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to own the facility, as their interests appear in the application, and hereby licenses Commonwealth Edison, acting for itself and as agent for Iowa-Illinois:
 - A. Pursuant to Section 104b of the Act and 10 CFR Part 50, "Licensing of Production and Utilization Facilities," to possess, use, and operate the facility as a utilization facility at the designated location at the Quad-Cities Nuclear Power Station;
 - B. Pursuant to the Act and 10 CFR Part 70, "Special Nuclear Material," to receive, possess and use at any one time up to 3,000 kilograms of uranium 235 contained in reactor fuel assemblies and in-core neutron monitoring detectors in connection with operation of the facility;
 - C. Pursuant to the Act and 10 CFR Part 30, "Rules of General Applicability to Licensing of Byproduct Material," to receive, possess, and use in connection with operation of the facility any byproduct material with Atomic Numbers between 3 and 83, inclusive, as external contamination on fuel bundles, in any form not to exceed 500 millicuries per fuel bundle; three sealed sources of five curies each of cesium 137; three sealed sources of five microcuries each of cesium 137; ten sealed sources of strontium 90, each source not to exceed 0.3 millicurie; 1 millicurie each of cobalt 60 and cesium 137 in any form; six curies of americium 241, as a

sealed source; seven sealed sources of 1530 curies each of antimony 124; 25 sealed sources of strontium 90, with no source to exceed 1.2 microcuries; and two sealed sources of 350 microcuries each of cobalt 60; and

D. Pursuant to the Act and 10 CFR Parts 30 and 70, to possess, but not to separate, such byproduct and special nuclear materials as may be produced by operation of the facility.

3. This license shall be deemed to contain and is subject to the conditions specified in the following Commission regulations: 10 CFR Part 20, Section 30.34 of 10 CFR Part 30, Section 40.41 of 10 CFR Part 40, Sections 50.54 and 50.59 of 10 CFR Part 50, and Section 70.32 of 10 CFR Part 70; and is subject to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect; and is subject to the additional conditions specified below:

A. Maximum Power Level

Commonwealth Edison is authorized to operate the facility at power levels not in excess of 25 megawatts (thermal) to perform fuel loading and low-power testing as described in Commonwealth Edison's July 26, and September 7, 1971 letters, provided that the primary system temperature and pressure do not exceed 225°F and 1000 psig, respectively.

B. Technical Specifications

The Technical Specifications contained in Appendix A attached hereto are hereby incorporated in this license. Commonwealth Edison shall operate the facility at power levels not in excess of 25 megawatts (thermal) in accordance with the Technical Specifications, provided however, that the primary system temperature and pressure do not exceed 225°F and 1000 psig, respectively, and may make changes therein only when authorized by the Commission in accordance with the provisions of Section 50.59 of 10 CFR Part 50.

C. Reports

Commonwealth Edison shall keep facility operating records in accordance with the requirements of the Technical Specifications.

D. Records

Commonwealth Edison shall keep facility operating records in accordance with the requirements of the Technical Specifications.

4. Commonwealth Edison shall observe such standards and requirements for the protection of the environment as are validly imposed pursuant to authority established under Federal and State law and as are determined by the Commission to be applicable to the facility covered by this operating license. This condition does not apply to radiological effects, since such effects are dealt with in other provisions of this operating license.
5. This license is issued without prejudice to subsequent licensing action which may be taken by the Commission with regard to the environmental aspects of the facility.
6. This license is effective as of the date of issuance, and shall expire at midnight April 1, 1972, unless earlier superseded by subsequent licensing action.

FOR THE ATOMIC ENERGY COMMISSION

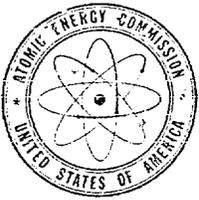
Peter A. Morris

Peter A. Morris, Director
Division of Reactor Licensing

Enclosure:

Appendix A - Technical Specifications

Date of Issuance: **OCT 1 1971**



UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

AMENDMENT TO INDEMNITY AGREEMENT NO. B-47

AMENDMENT NO. 3

Effective **OCT 1 1971** Indemnity Agreement No. B-47 dated October 30, 1970, between Commonwealth Edison Company and Iowa-Illinois Gas and Electric Company, and the Atomic Energy Commission as amended is hereby further amended as follows:

Item 2a of the Attachment to the indemnity agreement is deleted in its entirety and the following substituted therefore.

Item 2 - Amount of financial protection

- a. \$1,000,000 (From 12:01 a.m., October 30, 1970, to
12:00 midnight **SEP 30 1971**, inclusive)
\$82,000,000 (From 12:01 a.m., **OCT 1 1971**)

Item 3 of the Attachment of the indemnity agreement is deleted in its entirety and the following substituted therefore.

Item 3 - License number or numbers

- SNM-1213 (From 12:01 a.m., October 30, 1970, to
12:00 midnight **SEP 30 1971**, inclusive)
DPR-29 (From 12:01 a.m., **OCT 1 1971**)
SNM-1243 (From 12:01 a.m., March 22, 1971)

Item 5 of the Attachment to the indemnity agreement is amended by adding the following:

Nuclear Energy Liability Policy (Facility Form) number MF-54
issued by Mutual Atomic Energy Liability Underwriters.

FOR THE UNITED STATES ATOMIC ENERGY COMMISSION



Lyall Johnson, Director
Division of State and Licensee Relations

Accepted _____, 1971

By _____
COMMONWEALTH EDISON COMPANY

Accepted _____, 1971

By _____
IOWA-ILLINOIS GAS AND ELECTRIC CO.

DISCUSSION AND FINDINGS BY THE
DIVISION OF REACTOR LICENSING
U. S. ATOMIC ENERGY COMMISSION
PURSUANT TO APPENDIX D OF 10 CFR PART 50
SUPPORTING THE ISSUANCE OF AN OPERATING LICENSE TO
COMMONWEALTH EDISON COMPANY
AND IOWA-ILLINOIS GAS AND ELECTRIC COMPANY
AUTHORIZING THE
LOADING OF FUEL AND OPERATION
NOT IN EXCESS OF 25 MWT
QUAD-CITIES STATION, UNIT 1
DOCKET NO. 50-254

October 1, 1971

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Introduction

Appendix D of 10 CFR Part 50 (Section D.3) of the Atomic Energy Commission (Commission) regulations, which implements The National Environmental Policy Act of 1969 (NEPA), provides a procedure for issuance of an operating license authorizing the loading of fuel in the reactor core and limited operation of the facility. This procedure may be applied to applications for an operating license for a nuclear facility for which the Commission published a notice of opportunity for hearing prior to October 31, 1971 and no hearing was requested. The license may be issued by the Commission pending the completion of an ongoing NEPA environmental review of the activities to be licensed, upon a showing that such licensing action will not have a significant adverse impact on the quality of the environment, or after considering and balancing the factors described in Section D.2 of Appendix D of 10 CFR 50, and upon the Commission's making appropriate findings on the matters specified in 10 CFR Part 50.57(a).

On March 16, 1971, a notice of proposed issuance of operating licenses to the Commonwealth Edison Company and the Iowa-Illinois Gas and Electric Company (applicants) was published which licenses would authorize operation of Units 1 and 2 of the Quad-Cities Station (station) at 2511 megawatts thermal (Mwt) each (36 F.R. 13699). The notice offered an opportunity for a hearing. No hearing was requested.

On July 12, 1971, the Final Detailed Statement on Environmental Considerations for the Quad-Cities Nuclear Power Station Units 1 and 2, prepared by the AEC Division of Radiological and Environmental Protection was published. The detailed statement considered the environmental aspects associated with full power operation of the station. It was prepared in accord with the requirements of Appendix D of 10 CFR Part 50, published on December 4, 1970.

On August 25, 1971, the AEC regulatory staff (staff) completed its review of the application for licenses and issued its Safety Evaluation in which it concluded that there was reasonable assurance that Units 1 and 2 of the Station could each be operated at full power of 2511 Mwt without endangering the health and safety of the public. The NEPA environmental review of the operation of Units 1 and 2 has not yet been completed in accordance with the requirements of Appendix D of 10 CFR Part 50 as revised September 9, 1971.

The applicants, on July 16, 1971, requested that the Commission issue an operating license for Unit 1 authorizing the loading of fuel in the reactor core and other activities which require the operation of Unit 1 not in excess of one percent (25 Mwt) of full power.

Licensing Action

In accordance with the provision of Section D.3. of Appendix D of 10 CFR Part 50, a low power license as requested by the applicants may be issued showing that such licensing action will not have a significant adverse impact on the quality of the environment, and upon making appropriate findings on the matters specified in 10 CFR Part 50.57(a).

Under the low power license to be issued for Unit 1, the following activities would be authorized:

1. Loading of fuel in the reactor core of Unit 1.
2. Critical testing associated with fuel loading.
3. Shutdown margin checks associated with fuel loading.
4. Control rod drive tests.
5. Operational and scram tests.
6. Installation of the reactor head.
7. Operator training.
8. Cold functional tests consisting of operation of all systems in a cold condition
9. Operational hydrostatic tests of the primary system.
10. Operation of Unit 1 for the performance of the above activities to 25 MWt.

All of these activities are to be conducted within the parameters set forth in the applicants' Technical Specifications, Appendix A of operating license No. DPR 29 without exceeding a power level of approximately 1% of the full power rating of 2511 MWt. Further details concerning the tests listed above can be found in Vol. II, Section 13.8 of the Final Safety Analysis Report (FSAR).

The license for the limited operation of Unit 1 will be without prejudice to subsequent licensing action which may be taken by the Commission with regard to the environmental effects of the facility.

Findings Pursuant to 10 CFR Part 50.57(a)

Pursuant to the provisions of 10 CFR Part 50.57(a) of the Commission's regulations, it is found that:

- 1) Construction of Unit 1 has been substantially completed in conformity with the construction permit and the application as amended, the provisions of the Atomic Energy Act of 1954 as amended, and the rules and regulations of the Commission; and
- 2) Unit 1 will operate in conformity with the application as amended, the provisions of the Act, and the rules and regulations of the Commission; and
- 3) There is reasonable assurance (i) that the activities authorized by the operating license can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the regulations in this chapter; and
- 4) The applicants are technically and financially qualified to engage in the activities authorized by the operating license in accordance with the regulations in this chapter; and
- 5) The applicable provisions of Part 140 of this chapter have been satisfied; and
- 6) The issuance of the license will not be inimical to the common defense and security or to the health and safety of the public.

The bases for these findings are set forth in the Staff's Safety Evaluation dated August 25, 1971. Although the Safety Evaluation was based on full power operation of 2511 MWt, we have found that the considerations applicable to full power are also applicable for operation at 25 MWt.

Finding Pursuant to Section D.3 of 10 CFR Part 50

Pursuant to the provisions of Section D.3 of Appendix D of 10 CFR Part 50, it is found that the licensing action will not have a significant adverse impact on the quality of the environment.

The bases for this finding are set forth in the following discussion.

Summary of Environmental Considerations

The following documents contain information to form the bases for the evaluation of environmental factors pertinent to the requested tests and operation:

Safety Evaluation (August 25, 1971)

Final Detailed Statement of Environmental Considerations
(July 12, 1971)

Technical Specifications (Appendix A to the Proposed Operating
License DPR-29)

Letters Mr. Byron Lee to Dr. Peter Morris dated July 16, 22, 26,
and September 7, 1971

Telegrams from Mr. Byron Lee to Dr. Peter Morris dated Sept. 13,
and 15, 1971

Telegram Mr. Wayne Stiede to Mr. M. Grotenhuis dated Sept. 10, 1971

Final Safety Analysis Report (FSAR)

While a wide range of environmental factors was included in the review the following factors warrant discussion.

Chemical Effects

The condenser cooling water system will be in full operation during the testing program authorized by the license and will serve to dilute chemical wastes prior to discharge into the river. There will be two main sources of chemical wastes as a result of these tests: regeneration of the demineralizer and cleaning the condenser tubes. The demineralizer is used to purify the well water that will be used within the reactor, internal piping and other plant systems. Except as described below, regeneration of the demineralizer units will result in the release of a total concentration of two parts per million (ppm) of sulfuric acid, magnesium sulfate, and calcium sulfate in the plant discharge (condenser water) for one hour, once every two or three days. Regeneration will be more frequent during the preliminary filling and flushing of the internal systems. For short periods of time, with plant water use at ten times the normal rate and only two circulating condenser water pumps operating, the concentration of these chemicals could be as high as six ppm.

Furthermore, since the condenser cooling system will be in use, it will be necessary to inject sodium hypochlorite into the condenser water to maintain clean condenser tubes. It will be injected three times each day and will result in a concentration of residual chlorine of approximately 0.2 to 0.7 ppm in the condenser water at the condenser exit. This concentration will be substantially reduced in the condenser discharge canal due to agitation and aeration of the water prior to reaching the river. The condenser coolant water will on the average be diluted by a factor of about 20 in the river. The maximum concentration of residual chlorine in the vicinity of the outfall after dilution is not likely to exceed about .03 ppm. The discharges of the chemicals will be limited to a total time period of about 30 minutes each day. The concentrations in the river a short distance from the outfall would be undetectable.

Table I compares the above chemical releases to Public Health Service Standards for sulfate and to World Health Organization standards for magnesium and calcium (Public Health Service Standards are silent on the latter two elements). The concentrations of residual chlorine may be compared to the Illinois water quality standards of 1 ppm chlorine in sewage effluent. The Table also lists for comparison the median and maximum values of certain chemicals found in the drinking water of one hundred large cities in the United States.

Table I

Chemical Content of Water (Parts Per Million)

	Quad Cities Condenser discharge (1)	Recommended limits of concentration in Drinking Water	Drinking Water in 100 largest cities (4)	
			Median	Maximum
SO ₄	≤ 2	250 ⁽²⁾	26	572
Mg	≤ 2	50 ⁽³⁾	6	120
Ca	≤ 2	75 ⁽³⁾	26	145

- (1) These concentrations of the listed chemicals are discharged for short fractions of the day and are further diluted by the River.
- (2) Public Health Service PHS-956, U. S. Department of Health, Education and Welfare, also proposed Illinois standards).
- (3) World Health Organization data from the Water Encyclopedia (4).
- (4) The Water Encyclopedia, Water Information Center, Water Research Building, Manhasset Isle, Port Washington, N. Y. 1970.

The addition of these quantities of chemicals is not considered to be sufficient to cause a significant adverse impact on the quality of the environment.

Mechanical Effects

The intake structure on the condenser cooling system is provided with trash racks and a mechanical device which removes material that collects on the racks.

Aquatic biota are protected from passing through the pump by a three-foot deep floating boom, trash racks and rotating screens that cover the intake area. Smaller organisms that pass through this screening system will pass through the condensers and be discharged to the river. Minor damage to these organisms may be caused by passage through the pumps and condenser.

We have calculated that the water flow across the intake structure will be a maximum of one foot per second.

The possible loss of the aquatic biota is not considered to be of such magnitude as to cause a significant adverse impact on the quality of the environment.

Thermal Effects

No steam will be routed to the turbine generator during the activities to be permitted under the license. Since this is the case, even though the applicants operate the condenser cooling water system, there will be no temperature increase in the river water flowing through the system. Under the provisions of the license Unit 1 will operate at 25 MWt for short periods of time to attain the specified reactor coolant temperature of 225°F during operational tests of the primary system. It should be noted that even if the 25 MWt level were held for long period of time and if steam was routed to the turbine/generator we estimate only a slight increase (0.3°F) in the temperature of the cooling water flowing through the condenser heat exchanger would occur. This increase in temperature is not considered to be sufficient to cause a significant adverse impact on the quality of the receiving water environment.

Radiological Safety Considerations

The operations of Unit 1 under the low power license requested would be very limited as compared with full power operation. Fuel loading and the conduct of these tests will take about 4-6 weeks and any nuclear power

generated (to be limited by license condition to 25 Mw) will be dissipated in the primary system. Because the power level and the scope of the testing program is so limited and because the temperature of the primary coolant will not exceed 212°F (except for the short duration of the hydrostatic tests when it will be increased to 225°F to compensate for heat losses from the primary system) there will be no significant fission product inventory accumulated, and thus no appreciable after-heat to contend with in evaluating postulated accident considerations.

The generation of radioactive waste is expected to be negligible. However, the plant radwaste system will be operational to process and control any releases in the event that small quantities of radwaste are generated. Furthermore, the station environmental monitoring program will be in operation during this testing period on a continuous basis to detect any significant activity.

The radiological impact on the environment due to normal operation of Units 1 and 2 at full power was assessed and published in the Commission's Final Detailed Statement on Environmental Considerations issued on July 12, 1971 (36 F.R. 13699 dated July 23, 1971). Information contained in this statement and the staff Safety Evaluation was used to make the following evaluation as to the radiological effects due to operation of Unit 1 under the license to be issued.

The limited nature of the operation authorized under the license is such that the amount of radioactivity that will be released to the environment and resultant exposures to the public will be extremely small. A substantial overestimate of the range of exposures that might be incurred can be calculated based on an assumption that Unit 1 would operate at 25 Mw for a full year. The annual dose rate to an individual from drinking water and eating fish from the Mississippi River would be less than 0.0003 millirem per year. Exposures from gaseous effluents to individuals offsite, taking into account time spent indoors, would be at a rate of less than 0.02 millirem per year. The total man-rem dose to the population of 600,000 persons living within the radius of 50 miles of the plant would be at a rate of less than 1 man-rem per year. This dose may be compared to about 60,000 man-rem per year to the same group due to the average natural background dose of 100 mrem per year to individuals in the population.

The consequences of postulated accidents during activities conducted under this license were also investigated. Since there will not be a significant fission product source to consider, and thus no fission product heating of the primary coolant, the consequences of the usual design basis accidents considered for a plant of this type, i.e., loss of coolant, control rod

drop, and steamline break, will be negligible. Since there will be no appreciable radioactive waste generated, the consequences of spills or inadvertent releases will also be negligible. Other postulated accident situations that might be considered in evaluating plant operations are not meaningful for the limited fuel loading and plant testing activity proposed.

Any possible environmental impact from the proposed operation would be further limited owing to the requirement that the reactor building confinement integrity be maintained during fuel loading. Furthermore, the Technical Specifications require that the primary containment integrity shall be maintained at all times when the reactor is critical or when the reactor water temperature is above 212°F and fuel is in the reactor vessel except while performing low power physics tests at atmospheric pressure at power levels not to exceed 5 MWt.

The possible release of radioactive material to the environment under the requested lower power tests will not cause a significant adverse impact on the quality of the environment.

* * * * *

The discussion and findings herein apply only with respect to operation of Unit 1 at up to 1% of full power and are without prejudice to the outcome of our environmental review as to operation at any higher power level.