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December 13, 1965

Applicant

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Chairman, Atomic Safety
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U.S. Atomic Energy Commission
Washington, D.C.

Dr. Hugh Paxton
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Dr. David Hall
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Dr. Eugene Greuling
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Gentlemen:

Enclosed is a copy of each of the following:

1. Proposed Findings of Fact and Conclusions of Law Submitted by Applicant
2. Memorandum Re Form of Initial Decision
3. Motion for Expedited Effectiveness
4. Corrections to transcript of proceedings.

The original and twenty copies of each of the foregoing documents and a Certificate of Service have been sent to the Secretary of the Atomic Energy Commission in Washington.

Very truly yours,

Arthur C. Gehr
Arthur C. Gehr

ACG: jlp
enc.

cc: T. B. Conner, Jr.
W. B. McCool

3238.1

UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

IN THE MATTER OF THE APPLICATION OF)
COMMONWEALTH EDISON COMPANY RE DRESDEN UNIT 2)

Docket No. 50-237

PROPOSED FINDINGS OF FACT AND CONCLUSIONS
OF LAW SUBMITTED BY APPLICANT

This proceeding involves the application dated April 15, 1965 and amendments thereto dated May 17, July 9, August 17, August 19, September 16, October 4 and October 21, 1965, (collectively the "application") of Commonwealth Edison Company (Commonwealth) for a construction permit for Dresden Unit 2, a boiling water reactor designed to operate at 2255 megawatts thermal, to be located at the Dresden Nuclear Power Station, Grundy County, Illinois, adjacent to Dresden Unit 1, an existing boiling water reactor owned and operated by Commonwealth in accordance with AEC facility license DPR-2 as amended. Unit 2 will be constructed for Commonwealth by the General Electric Company. The application contains a description of the site and the proposed facility, the financial qualifications of the applicant, and the technical qualifications of the applicant, including those of its principal contractor, to design and construct the facility.

The application has been reviewed by the regulatory staff (Staff) of the Atomic Energy Commission (Commission) which concluded that the facility can be constructed and operated at the proposed site without endangering the health and safety of the public. (Tr. 246) The application was also reviewed by the Advisory Committee on Reactor Safeguards (ACRS) which concluded that the pro-

posed reactor can be built and operated at the proposed site without undue risk to the health and safety of the public. (Tr. 248)

In accordance with the requirements of the Atomic Energy Act of 1954, as amended, and pursuant to a notice of hearing issued by the Commission on October 25, 1965 and published in the Federal Register 30 F.R. 13660, a hearing was held before the undersigned Atomic Safety and Licensing Board on December 7-8, 1965, in Morris, Illinois, to consider whether a provisional construction permit should be issued. Prior to such hearing, and on the motion of the applicant, a pre-hearing conference was held in Morris, Illinois, on November 9, 1965.

No persons sought to intervene in the proceeding. (Tr. 7) However, at the hearing on December 7, 1965, a number of local and state agencies made limited appearances pursuant to 10 CFR 2.715 and offered statements urging that a construction permit for Unit 2 be issued to the applicant. The agencies so appearing included the City of Morris (Tr. 34-35), the Board of Supervisors of Grundy County (Tr. 36-37), the Illinois Commerce Commission (Tr. 32-34), the Department of Public Health for the State of Illinois (Tr. 37-42) and the Illinois Commission on Atomic Energy (Tr. 42-46). In addition, a representative of the International Brotherhood of Electrical Workers made a limited appearance on behalf of the Brotherhood and gave a statement in support of the applicant's request for a construction permit. (Tr. 29-32) One individual made a limited appearance and offered a statement "expressing some opposition and a question on engineering responsibility". (Tr. 49) None of the persons making limited appearances requested or indicated any desire to participate further in the proceeding.

The applicant presented oral and documentary evidence responsive to the issues set forth in the notice of hearing, including a description of the site and environs, a summary technical description of the facility, the principal architectural and engineering criteria governing design, a description of new features incorporated in the design of the facility representing advances in reactor technology which have not been demonstrated in the operation of any existing large-scale power reactor, and a safety evaluation of the operation of the facility under normal and abnormal conditions. (App. Ex. 2) The applicant's analysis of the off-site effects or exposures to the public indicates that off-site doses under postulated accident conditions resulting in 100% core melting would be substantially below values set forth in the Commission's Site Criteria, 10 CFR 100. (App. Ex. 2, pp. 55,61)

Applicant's evidence also included a summarization of significant design and operating problems encountered with Unit 1 and the means by which such problems have been resolved both for Unit 1 and Unit 2. (App. Ex. 1) In addition, an evaluation was submitted showing that Units 1 and 2, while utilizing certain specified common facilities, are independent to the extent that an accident at one would not initiate an accident at the other. (App. Ex. 2, pp. 48-50)

The Staff introduced in evidence its evaluation of the site and the proposed design of the facility in relation to the general criteria customarily utilized by it in the evaluation of all power reactors. (Tr. 199-234, 299) The Staff's evaluation is supported by the report of the ACRS respecting Unit 2 (Tr. 247-49) and site and environmental evaluations made by the U. S. Weather Bureau (Tr. 250-53), the U. S. Geological Survey (Tr. 254-59), the U. S. Fish and Wildlife Service (Tr. 260-69) and the U. S. Coast and Geodetic Survey (Tr. 270-73) and the report of aseismic design consultants employed by

the Staff (Tr. 274-83). In general, the Staff's evaluation confirms the applicant's analysis that Unit 2 is designed so that fission product releases under either normal full-power operating or abnormal postulated accident conditions will not result in exposures to the public in excess of acceptable levels set forth in 10 CFR 100. (Tr. 235-36) The Staff also introduced evidence upon which it concluded that the applicant was both technically and financially qualified to design and construct the proposed facility and recommended that a construction permit be issued therefor. (Tr. 243-44, 368) Accordingly, there is no disputed issue of fact between the parties herein.

Almost all features of Unit 2 have been demonstrated successfully in the operation of Dresden Unit 1 or one or more of the several other boiling water reactors now in operation, e.g. the basic fuel design, zircaloy cladding, hydraulically operated control rods, in-core neutron monitoring instrumentation, pressure suppression containment, radioactive waste control. (App. Ex. 1, App. Ex. 2, p. 10) Accordingly, it appears that there are no safety questions respecting design features which have been so demonstrated.

There are, however, a number of new features which have been incorporated in the design of Unit 2 which have not been demonstrated by reactor operation; several of these are to be incorporated in reactors now under construction pursuant to construction permits issued by the Commission in other proceedings. (App. Ex. 2, pp. 36-47) Thus, the principal safety matters involved in this proceeding appear to be those related to the new features, including those which have been the subject of prior Commission review.

Each of the new features, designedly or otherwise, has some safety significance. Some, however, would appear to affect economic considerations more directly than safety. Thus, the applicant is assuming the economic risk that

its prognostications respecting the effectiveness of the new features. For example, on the basis of an extensive development program and careful analyses, the applicant predicts that the use of jet pumps in Unit 2 will not adversely affect reactor stability. (App. Ex. 2, pp. 41-42) The Staff and ACRS both concur in this prediction. (Tr. 195-96, 242-43) Nevertheless, irrespective of such concurrence, if reactor instability were to develop, then Commonwealth would be faced with the alternative of curtailing or even ceasing power operations until the unstable condition is eliminated by corrective action.

(Tr. 165-66, 173-74, 323, 340-41) Therefore, it would appear that when it is stated that the applicant must complete some testing program to demonstrate the absence of instability, what is meant is that the applicant is duly warned that safety considerations may cause a curtailment of power operation until stability has been demonstrated. Therefore, in proceeding with construction on the basis of its confidence that such a demonstration can be made in the future, the applicant does so at its own risk of economic loss.

Of the several new features in Unit 2, the use of jet pumps, the increase in size and in-core instrumentation all appear to present this kind of a self-policing safety question. The record is clear that applicant is aware of risks he proposes to undertake and is willing so to do. (Tr. 165-66, 332, 340-41) In fact, the record respecting operations with Unit 1 clearly demonstrates that the applicant has been confronted by this kind of economic risk and has governed its operations accordingly. (Tr. 166) In any case, the Commission is empowered by imposition of appropriate provisions in the operating license to limit power operation until the effects of the increase in core size and of the use of jet pumps and the effectiveness of the in-core instrumentation is established.

The other new features, i.e. control rod worth minimizer, control rod velocity limiter, control rod thimble support, steam flow restrictors, core and containment cooling systems, and containment inerting, are redundant devices designed to limit the course or mitigate the consequences of accidents. Each of these, therefore, is significant from a safety standpoint, because it enhances the protection of the public by contributing to the control of fission product releases under accident conditions. All of the new features have been thoroughly analyzed and evaluated by General Electric. (App. Ex. 2, pp. 36-47) The technical information respecting each of these new features has been carefully reviewed and documented by the Staff and ACRS. With respect to three of them, i.e. the rod worth minimizer, the rod velocity limiter and the rod thimble support, the Staff has taken the position that continuation of the research and development program is required to aid in the determination and evaluation of the final design.* (Tr. 242-43) For all practical purposes the only questions respecting any of the new features which remain outstanding are those which are appropriate in the evaluation of the final design and which will be considered at the operating license stage. (Tr. 359) Both the applicant and the Staff have testified that there is reasonable assurance that such questions of evaluating the final design can and will be satisfactorily resolved. (Tr. 196, 198, 242-43, 333, 344, 347-49; App. Ex. 2, pp. 36, 69) Further evidence supporting this conclusion is found in the fact that each of the above new features is incorporated in the design of two reactor projects which are now under construction and will be in operation for about one year prior to the startup of Dresden Unit 2. (App. Ex. 2, pp. 36-37)

* The Staff has also taken the same position with respect to the jet pumps and in-core instrumentation.

On the basis of the foregoing and all of the documentary and oral evidence produced by the parties in the proceeding, including the report of the Advisory Committee on Reactor Safeguards, the Board finds as follows:

1. In accordance with the provisions of 10 CFR § 50.35(a)
 - (1) The applicant has described the proposed design of the facility, including, but not limited to, the principal architectural and engineering criteria for the design, and has identified the major features or components on which further technical information is required;
 - (2) The omitted technical information will be supplied;
 - (3) The applicant has proposed, and there will be conducted, a research and development program reasonably designed to resolve any safety questions with respect to those features or components which require research and development; and
 - (4) On the basis of the foregoing, there is reasonable assurance that (i) such safety questions will be satisfactorily resolved at or before the latest date stated in the application for completion of construction of the proposed facility and (ii) taking into consideration the site criteria contained in Part 100, the proposed facility can be constructed and operated at the proposed location without undue risk to the health and safety of the public;
2. The applicant is technically qualified to design and construct the proposed facility;
3. The applicant is financially qualified to design and construct the proposed facility;
4. The issuance of a permit for the construction of the facility will not be inimical to the common defense and security of to the health and safety of the public.

Pursuant to the Act and the Commission's regulations, IT IS ORDERED THAT, subject to review by the Commission upon its own motion or upon petition for review in accordance with the "Rules of Practice," 10 CFR 2, Commonwealth is authorized to construct the facility in accordance with the application and with the evidence and representations entered in the record at the hearing; and the Director of the Division of Reactor Licensing is directed to issue a provisional construction permit pursuant to § 104(b) of the Act substantially in the form of Attachment A hereto. IT IS FURTHER ORDERED THAT, in accordance with § 2.764, this Initial Decision shall become effective on (ten days after issuance) and, in the absence of any further order from the Commission, shall constitute the final decision of the Commission on (forty-five days after issuance), subject to the filing of a petition for review and to any order by the Commission upon such petition or upon its own motion.

ATOMIC SAFETY AND LICENSING BOARD

Eugene Greuling

Hugh Paxton

J. D. Bond, Chairman

Dated at Germantown, Maryland
this day of December, 1965.

3230.9

ATTACHMENT A

(In the form of Procedural Exhibit 1-A.)

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

IN THE MATTER OF THE APPLICATION OF
COMMONWEALTH EDISON COMPANY RE DRESDEN UNIT 2

} Docket No. 50-237

APPLICANT'S MEMORANDUM RE FORM OF INITIAL DECISION

A question has arisen respecting the form and content of the initial decision to be entered by an Atomic Safety and Licensing Board in an uncontested hearing where there are no disputed issues of fact or law between the parties. Our research of the law has led us to conclude that there are no hard and fast rules which govern the Board's discretion in this regard. Where, as in this proceeding, the applicant has waived its rights to require a ruling on any of its proposed findings and a statement of reasons for the rejection of any such proposed finding, this should permit the Board to enter a decision much more abbreviated than if no such waiver had been made.

UNITED STATES OF AMERICA
ATOMIC ENERGY COMMISSION

IN THE MATTER OF THE APPLICATION OF
COMMONWEALTH EDISON COMPANY RE DRESDEN UNIT 2

} Docket No. 50-237

MOTION FOR EXPEDITED EFFECTIVENESS

Applicant, Commonwealth Edison Company, by its attorneys respectfully moves that the Initial Decision and Order to be entered in this proceeding shall become effective ten (10) days after the date of issuance thereof in accordance with Section 2.764 of the Commission's Rules of Practice, 10 CFR 2. In support of this motion applicant represents that no question of fact, law, or discretion has been presented in this proceeding, the record clearly warrants such action and denial of the motion will result in substantial economic injury.

Respectfully Submitted,

Isham, Lincoln & Beale

By Arthur C. Gehr
Attorneys for Commonwealth
Edison Company

STATE OF ILLINOIS }
COUNTY OF C O O K } SS

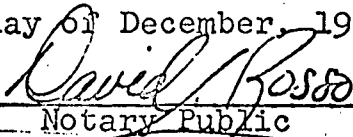
Arthur C. Gehr, being first duly sworn deposes and says that he is the attorney for the applicant herein and is authorized

to make this affidavit on behalf of the applicant; that he has read the foregoing Motion and has knowledge of the contents thereof; and that the statements set out therein are true to the best of his knowledge, information and belief.



Arthur C. Gehr

Subscribed and sworn to
before me this 13th
day of December, 1965.



Notary Public

December 13, 1965

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