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ATOMIC ENERGY COMMISSION

ISSUANCE OF CONSTRUCTION PERMIT TO WESTINGHOUSE ELECTRIC CORPORATION FOR A TEST REACTOR

Report to the General Manager by the
Director of Civilian Application

THE PROBLEM

1. To consider the allocation of special nuclear material and the issuance of a construction permit to the Westinghouse Electric Corporation authorizing construction of a materials testing type reactor.

SUMMARY

2. On March 12, 1956, the Westinghouse Electric Corporation filed Application No. F-22 for a license and construction permit for a materials testing type reactor to be utilized in research and development activities of the types specified in Section 31 of the Atomic Energy Act of 1954. The license is sought for the period ending December 31, 1960. The earliest date for completion of the reactor is specified to be July 1, 1957, and the latest date December 31, 1957.

3. Notice of the application was published in the Federal Register on June 27, 1956, 22 FR 4687. No petition for intervention has been filed.

4. The site proposed for the reactor is 29 miles southeast of Pittsburgh in Sewickley and Hempfield Townships, Westmoreland County, Pennsylvania. The reactor will be housed in a gas-tight, steel-shell building.

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5. The facility proposed for construction is a light water cooled and moderated heterogeneous reactor designed to operate at a thermal power level of 20,000 kilowatts on enriched uranium fuel. The reactor is to be used for developing power reactor fuel elements, radiation damage testing of electrical materials and components, and limited production of radioisotopes.

6. The total net amount of special nuclear material required for the license period, in terms of contained U-235, is 76 kilograms. When steady state operation is reached in 1959, approximately 42 kilograms of contained U-235 will be delivered each year to the licensee and approximately 33 kilograms of U-235 will be returned in spent fuel elements and fabrication scrap. The stated fuel requirements are reasonable for a reactor of this type and size. The Division of Nuclear Materials Management advises that this amount of material can be made available from the unallocated balance of the 20,000 kilograms of U-235 as ETP made available by the President for the Civilian Application Program.

7. Westinghouse has submitted a Hazards Summary Report which has been reviewed by the technical staff of the Division of Civilian Application. On the basis of this review, it is concluded that the proposed reactor can be operated at the proposed location without undue risk to the health and safety of the public. This conclusion is in part based upon:

a. The magnitude of the prompt neutron lifetime and the strong negative temperature coefficient of the WTR.

b. The neutron flux of the WTR which is believed to be low enough to preclude or minimize the unstabilizing effect due to xenon in high flux reactors.

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c. The construction of the WTR in a containment vessel capable of preventing the uncontrolled release of fission products in the event of a nuclear incident of the Borax type to the extent that no metal-water reaction takes place.

d. The favorable operating experience with the MTR which is a reactor of the same general type.

8. The Division of Finance has reviewed the financial data submitted by Westinghouse and has advised that Westinghouse is financially qualified to construct and operate the reactor in accordance with the AEC's regulations, to assume financial responsibility for the payment of AEC charges for special nuclear material, and to undertake and carry out the proposed use of the material for a reasonable period of time.

9. Based on review of data submitted in the application, it is concluded that Westinghouse is technically qualified to design and construct the reactor.

10. It is concluded that a construction permit should be issued and 76 kilograms of contained U-235 should be allocated to Westinghouse for use in the proposed reactor.

11. Prior to the issuance of the construction permit, it is contemplated that a notice of said proposed action will be issued and published in the Federal Register. The notice will provide that unless a request for a hearing is filed on or before a fixed date 15 days after publication, the construction permit as set forth in the notice will be issued. If no request for hearing is filed, the license will be issued on the termination of the period fixed in the notice. If a request for hearing is filed, the Commission will be notified immediately.

12. This procedure is in accordance with Section 2.102(b) of the AEC's Rules of Practice. It is proposed to be followed

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in this instance, and in the issuance of construction permits in the future, in order to preclude the filing of requests for hearing after the issuance of the permit as has been possible in the case of permits issued pursuant to the alternative Section 2.102(a).

STAFF JUDGMENTS

13. The Divisions of Reactor Development and Nuclear Materials Management and the Office of the General Counsel concur in the recommendation of this paper.

RECOMMENDATION

14. The General Manager recommends that the Atomic Energy Commission:

a. Approve the allocation of Special Nuclear Material (presently calculated to be 76 kilograms of contained U-235) to the Westinghouse Electric Corporation for use in the operation of the Westinghouse Testing Reactor for the term of the license.

b. Authorize the issuance of a Notice of Intent to Issue Construction Permit substantially in the form shown in Appendix "A".

c. Authorize the issuance of the construction permit set forth in the Notice of Intent to Issue Construction Permit, Appendix "A", if within 15 days after the publishing of said notice in the Federal Register there has been no request for a hearing.

d. Note that the JCAE will be informed of this action by letter such as Appendix "B".

e. Note that a copy of the Notice of Intent to Issue Construction Permit will be served on the applicant and all other persons on a service list of those entitled to or specifically requesting service of documents in these proceedings, appropriate state officials, and persons asking to be informed of the outcome of the matter.

f. Note that the Notice of Intent to Issue Construction Permit will be published in the Federal Register.

g. Note that a public announcement substantially in the form shown in Appendix "C" will be issued.

h. Note that if no application for hearing is filed on or before the date provided in the Notice of Intent to Issue Construction Permit, the Construction Permit will

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be issued the applicant; the JCAE and all other persons on the service list will be promptly notified; public announcement will be made of the issuance of the construction permit; and appropriate notice will be published in the Federal Register.

1. Note that if a timely request for hearing is filed, the Commission will be promptly notified.

J. Note that this paper is unclassified.

LIST OF ENCLOSURES

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APPENDIX "A"

NOTICE TO BE PUBLISHED IN THE FEDERAL REGISTER

ATOMIC ENERGY COMMISSION

(DOCKET NO. F-22)

NOTICE OF INTENT TO ISSUE CONSTRUCTION PERMIT

TO WESTINGHOUSE ELECTRIC CORPORATION

Please take notice that the Atomic Energy Commission proposes to issue the construction permit set forth below unless on or before _____, 1956, a request for a formal hearing is filed with the Commission in the manner prescribed by Section 2.102(b) of the Commission's Rules of Practice (10 CFR, Part 2).

No. CPRR-_____

CONSTRUCTION PERMIT

The Westinghouse Electric Corporation, Pittsburgh, Pennsylvania, (hereinafter "Westinghouse") on March 12, 1956, filed its application for a Class 104 license defined in Section 50.21 of Part 50, "Licensing of Production and Utilization Facilities", Title 10, Chapter 1, C.F.R., to construct and operate a nuclear reactor (hereinafter "the reactor"). On August 7 and 22, 1956, and September 17, 1956, Westinghouse filed revisions to its license application. The original application together with said revisions is hereinafter referred to as "the application."

The Atomic Energy Commission (hereinafter the "Commission") has found that:

- A. The reactor will be a utilization facility as defined in the Commission's regulations contained in Title 10,

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Chapter 1, C.F.R., Part 50, "Licensing of Production and Utilization Facilities."

- B. Westinghouse proposes to utilize the reactor in the conduct of research and development activities of the types specified in Section 31 of the Atomic Energy Act of 1954.
- C. Westinghouse is financially qualified to construct and operate the reactor in accordance with the regulations contained in Title 10, Chapter 1, C.F.R.; to assume financial responsibility for the payment of Commission charges for special nuclear material and to undertake and carry out the proposed use of such material for a reasonable period of time.
- D. Westinghouse is technically qualified to design and construct the reactor.
- E. Westinghouse has submitted sufficient information to provide reasonable assurance that the reactor can be constructed and operated at the proposed location without undue risk to the health and safety of the public; and that additional information required to complete its application will be supplied.

Pursuant to the Atomic Energy Act of 1954 (hereinafter "the Act") and Title 10, C.F.R., Chapter 1, Part 50, "Licensing of Production and Utilization Facilities", the Commission hereby issues a construction permit to Westinghouse to construct the reactor as a utilization facility. This permit shall be deemed to contain and be subject to the conditions specified in Sections 50.54 and 50.55 of said regulations; is subject to all applicable provisions of the Act and rules, regulations and orders of the Commission now or hereafter in effect; and is subject to any additional conditions specified or incorporated below.

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- A. The earliest date for the completion of the reactor is July 1, 1957. The latest date for completion of the reactor is December 31, 1957. The term "completion date" as used herein means the date on which construction of the reactor is completed except for the introduction of the fuel material.
- B. The site proposed for the location of the reactor is the location in Westmoreland County, Pennsylvania, specified in the application.
- C. The facility authorized for construction is a light water cooled and moderated testing reactor designed to operate at a thermal power level of 20,000 kilowatts, as described in the application.
- D. This permit is subject to submittal by Westinghouse to the Commission (by proposed amendment of the application) of additional information required to complete its Hazards Summary Report and a finding by the Commission that the final design provides reasonable assurance that the health and safety of the public will not be endangered by operation of the reactor in accordance with the specified procedures.
- E. Upon completion (as defined in Paragraph "A" above) of the construction of the facility in accordance with the terms and conditions of this permit, upon the filing of any additional information needed to bring the original application up to date, and upon finding that the facility authorized has been constructed in conformity with the application as amended and in conformity with the provisions of the Act and of the rules and regulations of the Commission, and in the absence of any good cause being shown to the Commission

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why the granting of a license would not be in accordance with the provisions of the Act, the Commission will issue a Class 104 license to Westinghouse pursuant to Section 104 c. of the Act, which license shall expire December 31, 1962.

Pursuant to Section 50.60 of the regulations in Title 10, Chapter 1, C.F.R., Part 50, the Commission has allocated to Westinghouse for use in the operation of the reactor, 76 kilograms of uranium 235 contained in uranium at the isotopic ratio specified in Westinghouse's application. Estimated schedules of special nuclear material transfers to Westinghouse and returns to the Commission are contained in Appendix "A" which is attached hereto. Deliveries by the Commission to Westinghouse in accordance with schedule 1 of Appendix "A" will be conditioned upon Westinghouse's return to the Commission of special nuclear material substantially in accordance with schedule 2 of Appendix "A".

FOR THE ATOMIC ENERGY COMMISSION

H. L. Price
Director
Division of Civilian Application

Attachment:

Appendix "A"

Date of Issuance:

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APPENDIX "A" TO
WESTINGHOUSE ELECTRIC CORPORATION
CONSTRUCTION PERMIT

SCHEDULE 1

Estimated Schedule of Transfers of Special Nuclear Material from
the Commission to Westinghouse:

<u>Date of Transfer</u>	<u>Kilograms of Contained U-235</u>
1956	14.04
1957	21.06
1958	42.12
1959	42.12
1960	42.12
1961	42.12
1962	<u>21.06</u>
Total Transfers	224.64

SCHEDULE 2

Estimated Schedule of Transfers of Special Nuclear Material from
Westinghouse to the Commission:

<u>Date of Transfer</u>	<u>Kilograms of Contained Recoverable Scrap</u>	<u>U-235 Spent Fuel</u>	<u>Total</u>
1957	4.10	--	4.10
1958	6.14	17.98	24.12
1959	6.14	26.97	33.11
1960	6.14	26.97	33.11
1961	6.14	26.97	33.11
1962	4.10	26.97	31.07
	Inventory to be returned		<u>18.74</u>
	Total Transfers		177.36

(Total fabrication and burn-out losses calculated to be 47.28 kilograms)

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APPENDIX "B"

DRAFT LETTER TO JCAE

1. This is to inform the Joint Committee that the Commission is forwarding to the Federal Register for publication the enclosed notice of intent to issue a construction permit for a utilization facility to Westinghouse Electric Corporation, pursuant to Section 104(c) of the Atomic Energy Act of 1954. The facility is to be constructed 29 miles southeast of Pittsburgh in Westmoreland County, Pennsylvania.

2. The procedure for publication of the notice of intent to issue the construction permit is in accordance with Section 2.102(b) of the Commission's Rules of Practice (10 CFR Part 2). The notice provides that the construction permit as set forth therein will be issued by the Commission unless a request for formal hearing is filed on or before the date specified in the notice.

3. The Joint Committee will be notified when further action is taken on this matter.

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APPENDIX "C"

DRAFT PRESS RELEASE

AEC GIVES NOTICE OF INTENT TO ISSUE PERMIT TO WESTINGHOUSE FOR CONSTRUCTION OF A REACTOR

1. The Atomic Energy Commission has given notice of intent to issue a construction permit to the Westinghouse Electric Corporation authorizing construction of a testing reactor in Westmoreland County, Pennsylvania. The reactor site is about 29 miles southeast of Pittsburgh in Sewickley Township.

2. A notice published in the Federal Register announces that the Commission proposes to issue the construction permit unless on or before _____, 1956, a request for a hearing is filed with the Commission in the manner prescribed by the Commission's Rules of Practice.

3. The reactor will be cooled and moderated by ordinary water under pressure, and will use uranium enriched in the isotope U-235 as fuel. A high density concrete shield 7-1/2 feet thick will surround the reactor core. To be known as the Westinghouse Testing Reactor, the facility will generate heat equivalent to 20,000 kilowatts. It will be used for developing and testing power reactor fuel elements, for radiation damage testing of materials and components, and for limited production of radioisotopes. Westinghouse plans to make the facility available to others on a commercial basis.

4. Based on time estimates by Westinghouse, the construction permit lists July 1, 1957, as the earliest completion date for the reactor, and December 31, 1957, as the latest date.

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5. Subject to submission by the company of a final Hazards Summary Report giving reasonable assurance that the health and safety of the public will not be endangered by operation of the reactor, the permit will be converted to a license to operate the reactor through December 31, 1962.

6. Simultaneously with issuance of the construction permit, the Commission has allocated 76 kilograms of uranium 235 for use as reactor fuel over the period of the license. This is a net figure - transfers of U-235 from the Commission to Westinghouse, less returns to the Commission of U-235 in spent fuel elements and fabrication scrap.