

LOCKHEED AIRCRAFT CORPORATION, DOCKET NO. 50-172  
AND GENERAL SERVICES ADMINISTRATION, DOCKET NO. 50-176  
PROPOSED AMENDMENT TO FACILITY LICENSE

License No. R-86  
Amendment No. 4

License No. R-86, as amended, is revised in its entirety to read as follows:

1. This license applies to the Radiation Effects Reactor (RER), a heterogeneous prescurized water-type nuclear reactor (Air Force Plant No. 67) hereinafter referred to as "the reactor" which is possessed by the General Services Administration (represented by the United States Army Corps of Engineers) and located on a 10,000 acre site in Dawson County, Georgia, and described in the Lockheed Aircraft Corporation application for license dated February 23, 1962, and amendments thereto dated April 20, 1962; May 25, 1962; July 25, 1962; September 25, 1962; October 24, 1962; November 20, 1962; February 8, 1963; February 18, 1963; February 26, 1963; April 10, 1963; May 9, 1963; June 17, 1963; June 28, 1963; August 8, 1963; August 9, 1963; and September 26, 1963, and described in the Department of the Air Force application for license dated March 15, 1962 and April 11, 1962, and described in the U. S. Army Corps of Engineers (representing the U. S. Air Force, and later representing the General Services Administration) application amendments dated June 25, 1963, August 13, 1963, and October 29, 1963 (hereinafter collectively referred to as "the application"). The reactor was constructed for the Department of the Air Force as a facility exempt from AEC licensing requirements under Section 91b of the Atomic Energy Act of 1954, as amended.

2. Pursuant to the Atomic Energy Act of 1954, as amended, (hereinafter referred to as "the Act") and having considered the record in this matter, the Atomic Energy Commission (hereinafter referred to as "the Commission") finds that:
  - A. The reactor as constructed will operate in conformity with the application and in conformity with the Act and the rules and regulations of the Commission;
  - B. There is reasonable assurance that the reactor can be operated at the designated location without endangering the health and safety of the public;
  - C. Lockheed Aircraft Corporation, with whom General Services Administration (represented by the United States Army Corps of Engineers) has consummated a lease agreement to use the facility, is technically and financially qualified to operate the reactor, to assume financial responsibility for payment of Commission charges for special nuclear material and to undertake and carry out the proposed activities in accordance with the Commission's regulations;
  - D. General Services Administration (represented by the U. S. Army Corps of Engineers) is financially qualified, and through its contractual relationship with Lockheed Aircraft Corporation, and through its representative, the U. S. Army Corps of Engineers, is technically qualified to possess title to the facility.

- E. Issuance of a license authorizing (1) General Services Administration (represented by the U. S. Army Corps of Engineers) to possess title to the facility and (2) Lockheed Aircraft Corporation to possess, use, and operate the facility and to receive, possess, and use the special nuclear material, in the manner proposed in the application, will not be inimical to the common defense and security or to the health and safety of the public;
- F. Lockheed Aircraft Corporation has submitted proof of financial protection which satisfies the requirements of Commission regulations currently in effect.
3. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses:
- A. Pursuant to Section 104c of the Act and Title 10, CFR, Chapter 1, Part 50, "Licensing of Production and Utilization Facilities," General Services Administration (represented by the U. S. Army Corps of Engineers) to possess title to the facility, and Lockheed Aircraft Corporation to possess, use, and operate the reactor as a utilization facility at the designated location in Dawson County, Georgia;
- B. Pursuant to the Act and Title 10, CFR, Chapter 1, Part 70, "Special Nuclear Material," Lockheed Aircraft Corporation to receive, possess, and use up to 18.8 kilograms of contained uranium in connection with operation of the reactor; and
- C. Pursuant to the Act and Title 10, CFR, Chapter 1, Part 30, "Licensing of Byproduct Material," General Services Administration (represented by the U. S. Army Corps of Engineers) to

possess title to, and Lockheed Aircraft Corporation to possess, but not to separate, such byproduct material as may be incidentally produced by operation of the reactor.

4. This license shall be deemed to contain and be subject to the conditions specified in Section 30.32 of Part 30, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70, Title 10, Chapter 1, CFR, and to be subject to all applicable provisions of the Act, and to the rules and regulations and orders of the Commission, now or hereafter in effect, and to the additional conditions specified below:

A. Lockheed Aircraft Corporation shall not operate the reactor at power levels in excess of 3,000 kilowatts (thermal) without prior written authorization from the Commission;

B. Technical Specifications

The Technical Specifications contained in Appendix "A" attached hereto are hereby incorporated in this license. Except as hereinafter provided, Lockheed Aircraft Corporation shall operate the facility in accordance with the Technical Specifications. Lockheed may make changes in the Technical Specifications only when authorized by the Commission in accordance with the provisions of Section 50.59 of the Commission's Regulations (Title 10, CFR, Chapter 1, Part 50, "Licensing of Production and Utilization Facilities");

- and the Commission for the protection of the public health.
- C. General Services Administration (represented by the U. S. Army Corps of Engineers) and Lockheed Aircraft Corporation shall not permit or authorize any organization other than Lockheed Aircraft Corporation to operate the facility.
- D. Notwithstanding any expiration, modification, cancellation or termination of the Lease Agreement between General Services Administration (represented by the U. S. Army Corps of Engineers) and Lockheed Aircraft Corporation dated April 4, 1962, and Change Order No. 1 thereto dated August 13, 1963 (hereinafter referred to as "the Agreement"), Lockheed Aircraft Corporation shall, so long as this license shall be in force with respect to Lockheed Aircraft Corporation, be responsible for assuring that the provisions of this license and Commission regulations for protection of health and safety from radiation hazards are observed with respect to the facility and materials covered by this license. Lockheed Aircraft Corporation shall also be responsible for maintaining the reactor and its components in a safe condition. In the event of any expiration, modification, cancellation or termination of the Agreement, Lockheed Aircraft Corporation or General Services Administration (represented by the U. S. Army Corps of Engineers) may apply to the Commission for an appropriate amendment of this license to terminate this

license insofar as it is granted to Lockheed Aircraft Corporation. Until such amendment is issued, General Services Administration (represented by the U. S. Army Corps of Engineers) shall in no way prevent Lockheed Aircraft Corporation from observing the requirements set forth in this condition.

E. Records

In addition to those otherwise required under this license and applicable regulations, Lockheed Aircraft Corporation shall keep the following records:

- (1) Reactor operating records, including power levels.
- (2) Records of all experimental irradiations.
- (3) Records showing radioactivity released or discharged into the air or water beyond the effective control of Lockheed Aircraft Corporation as measured at the point of such release or discharge.
- (4) Records of emergency reactor scrams, including reasons for emergency shutdowns.
- (5) Records of environmental surveys.
- (6) Records of meteorological conditions that prevail during reactor operations such that inversion conditions can be readily identified and the data taken can be used to calculate Argon-41 concentrations to demonstrate compliance with Title 10, Chapter 1, CFR, Part 20.

F. Lockheed Aircraft Corporation shall measure and record the following values after the reactor has commenced operation with each different core loading pattern for operation at 3,000 kilowatts (thermal):

- (1) Maximum excess reactivity of the facility, not including the worth of control rods or other control devices such as burnable poison strips or soluble poison, or any experiments;
- (2) Total control rod worth;
- (3) Minimum shutdown margin both at room and operating temperature;
- (4) Maximum worth of the single control rod of highest reactivity value.

G. Reports

In addition to reports otherwise required under this license and applicable regulations.

- (1) Lockheed Aircraft Corporation shall make an immediate report in writing to the Commission of any indication or occurrence of a possible unsafe condition relating to the operation of the reactor, including, without implied limitation:
  - (a) Any substantial variance in the predicted operating conditions or characteristics of the reactor disclosed by operation of the reactor.

- (b) Any accidental release of radioactivity, whether or not resulting in personal injury or exposure above permissible limits or property damage.
- (2) Lockheed Aircraft Corporation shall make a report in writing to the Commission within 60 days after April 4, 1964, which summarizes the following:
- (a) Descriptions of the irradiation experiments performed and any unusual events involved in handling or operation.
  - (b) Number of emergency reactor scrams and unscheduled shutdowns with a brief explanation of the cause of each.
  - (c) Principal maintenance performed and replacements made in the reactor and associated systems.
  - (d) Results of environmental surveys in connection with the measurement of on-site soil activation, activated soil transport, and the levels in the Etowah River.
  - (e) Significant changes made in operating procedures and in plant organization.
  - (f) Changes made in the facility and tests or experiments performed pursuant to 10 CFR 50.59(b) without prior Commission approval.
- H. A copy of any notice of intent to terminate or modify the Agreement submitted by either party to the other shall be furnished



simultaneously to the Commission. On or before February 4, 1964, the General Services Administration (represented by the U. S. Army Corps of Engineers) and Lockheed Aircraft Corporation shall notify the Commission as to whether the Agreement will expire on April 4, 1964.

5. Pursuant to Section 50.60 of the regulations in Title 10, Chapter 1, CFR, Part 50, the Commission has allocated to Lockheed Aircraft Corporation for use in connection with the facility 18.8 kilograms of uranium-235 contained in uranium enriched in the isotope uranium-235. Estimated schedules of special nuclear material transfers to Lockheed Aircraft Corporation and returns to the Commission are contained in Appendix "B" which is attached hereto. Shipments by the Commission to Lockheed Aircraft Corporation in accordance with column 2 in Appendix "B", will be conditioned upon Lockheed Aircraft Corporation return to the Commission of material substantially in accordance with column 3 of Appendix "B".
6. This amendment is effective as of the date of issuance and shall expire on April 4, 1964.

FOR THE ATOMIC ENERGY COMMISSION

Original Signed by  
R. Lewenstein

Director  
Division of Licensing and Regulation

Date of Issuance: DEC 12 1963

APPENDIX "B"

LOCKHEED AIRCRAFT CORPORATION

DOCKET NO. 50-172

RADIATION EFFECTS REACTOR (RER) DESIGNATED AS AIR FORCE PLANT NO. 67

FACILITY LICENSE

ESTIMATED SCHEDULE OF TRANSFERS OF SPECIAL NUCLEAR

MATERIAL FROM THE COMMISSION TO LOCKHEED

AIRCRAFT CORPORATION AND TO THE COMMISSION

FROM LOCKHEED AIRCRAFT CORPORATION

(1) Date of Transfer (Fiscal Year)	(2) Transfers from AEC to LAC Kgs. U-235	(3) Returns by LAC to AEC Recoverable Cold Scrap	(4) Net yearly Distri- bution Including Cumulative Losses Kgs. U-235	(5) Cumulative Distribution Including Cumulative Losses Kgs. U-235
1963	17.9	0	0	17.9
*1964	0	0	4.9	13.0
1965	6.8	1.6(a)	4.9	13.3
1966	6.8	1.6(a)	4.9	13.6
1967	6.8	1.6(a)	0	18.8
1968	0	0	4.9*	13.9**
	<u>38.3</u>	<u>4.8</u>	<u>19.6</u>	<u>13.9**</u>

\* Inventory to be returned

\*\* Fabrication and burnup losses

(a) Assumed to be returned by fabricator

A-9c