

Regulation Co.

LOCKHEED-GEORGIA COMPANY

A DIVISION OF LOCKHEED AIRCRAFT CORPORATION

MARIETTA, GEORGIA 30060

ADHERED

2 February 1971

RECEIVED

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U.S. DEPARTMENT OF ENERGY

WASHINGTON, D.C. 20545



United States Atomic Energy Commission
 Division of Reactor Licensing
 Washington, D. C. 20545

Subject: Radiation Effects Reactor, Docket 50-172

Gentlemen:

Lockheed-Georgia Company is in the process of preparing plans for decommissioning the Radiation Effects Reactor, and has encountered certain unique problems because of the uniqueness of the facility. One problem is the fact that a considerable amount of relatively low level activation has occurred in various items of equipment and structures. We have been unable to determine where a situation such as this is addressed in the Code of Federal Regulations, and hence we would like an opinion from the Commission on the proposed criteria listed in the following paragraphs.

Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, which was published by the Division of Materials Licensing on April 22, 1970, appears to be a reasonable standard for release of non-activated components from the reactor facility. Furthermore, we understand that Guidelines has already been used as a decontamination standard in several reactor decommissioning programs including Hallam and Piqua. Lockheed requests the Division of Reactor Licensing to confirm to Lockheed that the above Guidelines -- two copies of which are attached -- is acceptable as a decontamination standard during decommissioning of the RER.

With regard to activated equipment and structures, Lockheed proposes to release from control all items which meet the smearable contamination standard in the above Guidelines and which have residual radiation levels of less than 0.2 mrad/hr at 1 cm when measured in accordance with the above Guidelines. Lockheed would like confirmation of Commission's acceptance of these criteria for release of activated structures and equipment.

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If the Commission does not concur with one or both of the above suggested approvals by Lockheed, we wish to be so advised, and would appreciate guidance as to a solution which would be acceptable to the Commission.

Very truly yours,

LOCKHEED-GEORGIA COMPANY



M. A. Dewar, Scientist
Dept. 72-14, Zone 401

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The instructions in this guide in conjunction with Tables I and II specify the radioactivity and radiation exposure rate limits which should be used in accomplishing the decontamination and survey of surfaces of premises and equipment prior to abandonment or release for unrestricted use. The limits in Tables I and II do not apply to premises, equipment, or scrap containing induced radioactivity for which the radiological considerations pertinent to their use may be different. The release of such facilities or items from regulatory control will be considered on a case-by-case basis.

1. The licensee shall make a reasonable effort to eliminate residual contamination.
2. Radioactivity on equipment or surfaces shall not be covered by paint, plating, or other covering material unless contamination levels, as determined by a survey and documented, are below the limits specified in Tables I or II prior to applying the covering. A reasonable effort must be made to minimize the contamination prior to use of any covering.
3. The radioactivity on the interior surfaces of pipes, drain lines, or ductwork shall be determined by making measurements at all traps, and other appropriate access points, provided that contamination at these locations is likely to be representative of contamination on the interior of the pipes, drain lines, or ductwork. Surfaces of premises, equipment, or scrap which are likely to be contaminated but are of such size, construction, or location as to make the surface inaccessible for purposes of measurement shall be presumed to be contaminated in excess of the limits.
4. Upon request, the Commission may authorize a licensee to relinquish possession or control of premises, equipment, or scrap having surfaces contaminated with materials in excess of the limits specified. This may include, but would not be limited to, special circumstances such as razing of buildings, transfer of premises to another organization continuing work with radioactive materials, or conversion of facilities to a long-term storage or standby status. Such requests must:
 - a. Provide detailed, specific information describing the premises, equipment or scrap, radioactive contaminants, and the nature, extent, and degree of residual surface contamination.
 - b. Provide a detailed health and safety analysis which reflects that the residual amounts of materials on surface areas, together with other considerations such as prospective use of the premises, equipment or scrap, are unlikely to result in an unreasonable risk to the health and safety of the public.

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5. Prior to release of premises for unrestricted use, the licensee shall make a comprehensive radiation survey which establishes that contamination is within the limits specified in Tables I or II. A copy of the survey report shall be filed with the Director, Division of Materials Licensing, USAEC, Washington, D. C. 20545, and also the Director of the Regional Division of Compliance Office having jurisdiction. The report should be filed at least 30 days prior to the planned date of abandonment. The survey report shall:

- a. Identify the premises.
- b. Show that reasonable effort has been made to eliminate residual contamination.
- c. Describe the scope of the survey and general procedures followed.
- d. State the findings of the survey in units specified in the instruction.

Following review of the report, the AEC will consider visiting the facilities to confirm the survey.

SURFACE CONTAMINATION LEVELS (1)

ISOTOPE (2)	TABLE I		TABLE II	
	TOTAL (3)	REMOVABLE (3) (4)	TOTAL (3)	REMOVABLE (3) (4)
U-238, U-235, U-233, Th-232, and associated decay products	10,000 dpm α /100 cm ²	1,000 dpm α /100 cm ²	Average (6) 5,000 dpm α /100 cm ² Maximum 25,000 dpm α /100 cm ²	1,000 dpm α /100 cm ²
Other isotopes which decay by alpha emission or by spontaneous fission	1,000 dpm α /100 cm ²	100 dpm α /100 cm ²	Average (6) 500 dpm α /100 cm ² Maximum 2,500 dpm α /100 cm ²	100 dpm α
Beta-gamma emitters (isotopes with decay modes other than alpha emission or spontaneous fission)	0.4 mrad/hr at 1 cm (5)	1,000 dpm β /100 cm ²	Average (6) 0.2 mrad/hr at 1 cm (5) Maximum 1.0 mrad/hr at 1 cm (5)	1,000 dpm β - γ /100 cm ²

(1) Either Table I or Table II may be used. For example, if all beta-gamma readings were less than 0.4 mrad/hr at 1 cm Table I could be used; but if the maximum reading were 0.8 mrad/hr, material could be released under Table II providing the average was less than 0.2 mrad/hr.

(2) Where surface contamination by both alpha and beta-gamma emitting isotopes exists, the limits established for alpha and beta-gamma emitting isotopes shall apply independently.

(3) As used in this table, dpm (disintegrations per minute) means the rate of emission by radioactive material as determined by correcting the counts per minute observed by an appropriate detector and count rate meter for background, efficiency, and geometric factors associated with the instrumentation.

(4) The amount of removable radioactive material per 100 cm² of surface area shall be determined by wiping that area with dry filter or soft absorbent paper and with the application of moderate pressure, and assessing the amount of radioactive material on the wipe with an appropriate instrument of known efficiency. In determining removable contamination on objects of lesser surface area, the pertinent levels shall be reduced proportionally, and the entire surface shall be wiped.

(5) Measured through not more than 7 milligrams per square centimeter of total absorber.

(6) Measurements of total contaminant shall not be averaged over more than 10 square meters. For objects of lesser surface area, the average shall be derived for each such object.

LOCKHEED-GEORGIA COMPANY

A DIVISION OF LOCKHEED AIRCRAFT CORPORATION
MARIETTA, GEORGIA 30060

LOCKHEED



22 February 1971

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United States Atomic Energy Commission
Division of Reactor Licensing
Washington, D. C., 20545

Subject: Decommissioning RER, Docket No. 50-172 Regulatory File Cy.

Gentlemen:

We have been advised that representatives of the Atomic Energy Commission and of the State of Georgia conferred on February 11, 1971, on the subject of the decommissioning of the Radiation Effects Reactor (RER), and that the plan described below represents a method by which Lockheed may plan the RER decommissioning in a manner acceptable both to the Atomic Energy Commission and to the State of Georgia.

The Atomic Energy Commission's recommendations were discussed in two telephone conversations between Roger Woodruff of the Division of Reactor Licensing and M. A. Dewar of Lockheed on February 11 and 12, 1971. As Lockheed understands, a decommissioning plan is to be submitted that will include the following elements:

1. A statement that Lockheed has disposed of, or will dispose of, all the reactor fuel by authorized means prior to submitting a request for termination of Facility License R-86.
2. The means by which Lockheed will dispose of all control rod drive mechanisms.
3. The final status of each remaining component of the reactor at the time a request is submitted for termination of Facility License R-86.



A-33

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22 February 1971

4. A general discussion of plans for final disposition of reactor components and other radioactive material at the reactor facility.

Lockheed is proceeding with preparation of the decommissioning plan based on the above guidelines, and expects to submit its plan to the Atomic Energy Commission and the State of Georgia at an early date. Lockheed also recognizes that termination of Facility License R-86 must occur simultaneously with issuance of an appropriate State of Georgia by-product material license; hence Lockheed will keep the State of Georgia fully informed on the progress of the decommissioning activities, and will coordinate closely with the State of Georgia on plans for completion of facility clean-up under the decommissioning byproduct materials license.

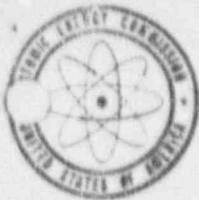
Very truly yours,

LOCKHEED-GEORGIA COMPANY



M. A. Dewar
D/72-14, Zone 401

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

~~EXEMPT~~ AUTHORITY FILE COPY

March 1, 1971

by to AC # 10
Amend # 10
DO NOT REMOVE *Change 8*

Docket No. 50-172

Lockheed Aircraft Corporation
ATTN: Mr. H. L. Poore
Vice President
Marietta, Georgia 30060

Possession only

Gentlemen:

By letters dated August 14, 1970 and January 29, 1971, you applied for an amendment to License No. R-86 for the Radiation Effects Reactor (RER) and a change to the Technical Specifications appended to the license. The proposed amendment, which we have designated as Amendment No. 10, would permit Lockheed to own but not operate RER; and the proposed change, which we have designated as Change No. 8, would reduce the surveillance and staffing requirements for the RER to levels appropriate for possession-only status.

We have evaluated the proposed status of the reactor and its components, and the adequacy of the proposed Technical Specifications that require facility surveillance and specify staffing requirements. During our review, we informed your staff that certain modifications to the Technical Specifications were necessary to meet our regulatory requirements. Your staff indicated that these modifications were acceptable.

We conclude that the amendment does not present significant hazards considered as not described or implicit in the safety analysis report and that there is reasonable assurance that the health and safety of the public will not be endangered. Accordingly, License No. R-86 and the Technical Specifications (Change No. 8) appended thereto are revised in their entirety to authorize you to possess, but not to operate, the Radiation Effects Reactor.

A copy of the amended license and a copy of the Federal Register Notice are enclosed.

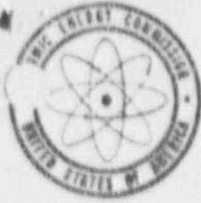
Sincerely,

Robert J. Schmal, for
Donald J. Skovholt
Assistant Director for Reactor Operations
Division of Reactor Licensing

Enclosures:

1. Amendment No. 10
including Change No. 8
2. Federal Register Notice

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

LOCKHEED AIRCRAFT CORPORATION

DOCKET NO. 50-172

AMENDED FACILITY LICENSE

Amendment No. 10
License No. R-86

1. The Atomic Energy Commission ("the Commission") has found that:
 - A. The application for amendment dated August 14, 1970, and supplement dated January 29, 1971, comply with the requirements of the Atomic Energy Act of 1954, as amended ("the Act"), and the Commission's regulations set forth in 10 CFR Chapter I;
 - B. There is reasonable assurance that the reactor facility can be possessed in the described condition at the location designated in the application without endangering the health and safety of the public;
 - C. Lockheed is technically and financially qualified to engage in the activities authorized by the amended license in accordance with the Commission's regulations;
 - D. Lockheed has furnished proof of financial protection which satisfies the requirements of 10 CFR Part 140; and
 - E. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public.
2. Accordingly, Facility License No. R-86 is amended in its entirety to read as follows:
 - A. This license applies to the Radiation Effects Reactor (RER), a heterogeneous pressurized water-type nuclear reactor (hereinafter "the reactor") possessed by Lockheed Aircraft Corporation located in Dawsonville, Georgia, and is described in Lockheed's application for license dated February 23, 1962, and amendments thereto including application dated August 14, 1970, and supplement dated January 29, 1971 (herein "the application").
3. Subject to the conditions and requirements incorporated herein, the Commission hereby licenses Lockheed Aircraft Corporation:
 - A. Pursuant to Section 104c of the Act and 10 CFR Chapter I, Part 50, "Licensing of Production and Utilization Facilities", to

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- possess, but not to operate, the reactor as a utilization facility;
- B. Pursuant to the Act and 10 CFR Chapter I, Part 70, "Special Nuclear Material", to possess and store up to 18.8 kilograms of contained uranium;
 - C. Pursuant to the Act and 10 CFR Chapter I, Part 30, "Licensing of Byproduct Material" to possess, but not to separate such byproduct material as may have been produced by operation of the reactor.
4. This license shall be deemed to contain and be subject to the conditions specified in Part 20, Section 30.34 of Part 30, Section 50.54 and 50.59 of Part 50, and Section 70.32 of Part 70, 10 CFR Chapter I and to all applicable provisions of the Act and to the rules, regulations and orders of the Commission now or hereafter in effect, and to the additional conditions specified below:
- A. Lockheed shall not reactivate the facility without prior approval of the Commission.
 - B. Lockheed shall not dispose of the facility or the property occupied by the facility without prior approval of the Commission.
 - C. Records

In addition to the records heretofore required under this license and by applicable AEC regulations, including Section 20.401 of 10 CFR Part 20, Lockheed shall keep the following:

 - 1. Records of inspection of the deactivated facility, including the results of surveys of radioactivity levels; and
 - 2. Records showing radioactivity released or discharged into the air or water beyond the effective control of Lockheed as measured at or prior to the point of such release or discharge.
 - D. Reports

In addition to those reports required by applicable AEC regulations, Lockheed shall submit the following:

1. A report of any indication or occurrence of a possible unsafe condition relating to the facility or to the public. For each occurrence, Lockheed shall promptly notify by telephone or telegraph the Director of the appropriate AEC Regional Compliance Office listed in Appendix D of 10 CFR Part 20, and shall submit within 10 days a report in writing to the Director, Division of Reactor Licensing, with a copy to the Regional Compliance Office.
2. An annual report to the Director, Division of Reactor Licensing, of the status of the deactivated facility including the results of the surveys of radioactivity levels and the status of the special nuclear and byproduct materials stored on the Lockheed Aircraft reactor facility site. The first report shall be filed six months after issuance of this amended facility license and once a year thereafter until such time as Lockheed files with the Commission's Division of Reactor Licensing its plan for dismantling of the facility, pursuant to Section 50.82 of 10 CFR Part 50, and receives Commission approval thereof.

E. Technical Specifications

The Technical Specifications contained in Appendix A to this license (hereinafter "the Technical Specifications") (designated as Change No. 8) are hereby incorporated in this license. No changes shall be made in the Technical Specifications except as otherwise permitted by this license, by the Act and by the Commission's rules and regulations, except that Lockheed may dispose of component parts or devices from the facility in accordance with the provisions of 10 CFR Part 20.

This facility license, as amended, is effective as of the date of issuance and shall expire at midnight, April 4, 1974.

FOR THE ATOMIC ENERGY COMMISSION

Robert J. Skovholt, Sr.
Donald J. Skovholt
Assistant Director
for Reactor Operations
Division of Reactor Licensing

Enclosure:

Appendix A (Change No. 8 to the
Technical Specifications)

UNITED STATES ATOMIC ENERGY COMMISSION

DOCKET NO. 50-172

LOCKHEED AIRCRAFT CORPORATION

NOTICE OF ISSUANCE OF AMENDED FACILITY LICENSE

The Atomic Energy Commission ("the Commission") has issued, effective as of the date of issuance, Amendment No. 10 to Facility License No. R-86 dated July 20, 1962. The facility license as previously issued authorized Lockheed to possess and operate a heterogeneous pressurized water-type nuclear reactor in Dawson County, Georgia. The amendment authorizes Lockheed to possess, but not to operate, the deactivated facility and incorporates revised Technical Specifications in the amended license.

The Radiation Effects Reactor has been shutdown and further operation is not planned. The fuel has been unloaded and is stored in the storage pool in authorized criticality-safe containers. Radiation monitoring of the facility will be maintained. The Lockheed Aircraft Corporation will submit to the Division of Reactor Licensing a plan for dismantling of the reactor.

The Commission has found that the application for the amendment complies with the requirements of the Atomic Energy Act of 1954, as amended ("the Act"), and the Commission's regulations published in 10 CFR Chapter I. The Commission has made the findings required by the Act and the Commission's regulations which are set forth in the amendment, and has concluded that the issuance of the amendment will not be inimical to the common defense and security or to the

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health and safety of the public. The Commission has also found that prior public notice of this amended license is not required since the amendment does not present significant hazards considerations different from those previously evaluated.

Within fifteen days from the date of publication of this notice in the FEDERAL REGISTER, the applicant may file a request for a hearing, and any person whose interest may be affected by the issuance of this amended license may file a petition for leave to intervene. Requests for a hearing and petitions to intervene shall be filed in accordance with the provisions of the Commission's "Rules of Practice", 10 CFR Part 2. If a request for a hearing or a petition for leave to intervene is filed within the time prescribed in this notice, the Commission will issue a notice of hearing or an appropriate order.

For further details with respect to this amended facility license, see (1) the application dated August 14, 1970, and supplement dated January 29, 1971, and (2) the amended facility license, all of which are available for public inspection in the Commission's Public Document Room, 1717 H Street, N. W., Washington, D. C.

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

FOR THE ATOMIC ENERGY COMMISSION

Robert J. Skovholt, Sr.
Donald J. Skovholt
Assistant Director
for Reactor Operations
Division of Reactor Licensing