

U. S. ATOMIC ENERGY COMMISSION
REGION II
DIVISION OF COMPLIANCE

Report of Inspection

CO Report No. 50-172/71-1

Licensee: Lockheed Aircraft Corporation (RER)
License No. R-86
Category E

Date of Inspection: May 19, 1971

Date of Previous Inspection: September 9, 1970

Inspected By: R. C. Lewis 6/30/71
R. C. Lewis, Reactor Inspector (Operations) Date
(In Charge)

for J. T. Sutherland 6/30/71
J. T. Sutherland, Senior Radiation Specialist Date

Reviewed By: W. C. Seidle 7/1/71
W. C. Seidle, Senior Reactor Inspector Date

Proprietary Information: None

SCOPE

An announced inspection was conducted at the shutdown 3 Mwt pressurized water, unshielded research reactor located at the Lockheed-Georgia nuclear laboratory near Dawsonville, Georgia.

The purpose of the inspection was to review the status of the shutdown reactor, fuel storage, adherence to sampling and monitoring requirements, and maintenance of security.

SUMMARYSafety Items - None

Noncompliance Items - An item of noncompliance was detected during the inspection. Contrary to paragraph C.2 of the Technical Specifications, the filter sample from the continuous particulate air sampler was not collected and analyzed weekly for gross alpha activity. Form AEC-592 was issued on May 21, 1971. (See Section R.)

Unusual Occurrences - None

Status of Previously Reported Problems - There were four items of noncompliance noted in the previous inspection report and a Form AEC-592 was issued. A satisfactory response to the Form AEC-592 was received from the Lockheed-Georgia Company on October 14, 1970.

Other Significant Items -

1. Lockheed has received approval for shipping the irradiated fuel and control elements to Savannah River, with shipment tentatively scheduled to commence May 17 and to be completed in June 1971. The 38 nonirradiated fuel elements were shipped to Savannah River on May 6, 1971. (See Section G.)
2. The AEC Division of Technical Information (DTI) has tentatively agreed to purchase the two Lockheed tour reactors.^{1/} Lockheed will forward a letter to DRL requesting exemption to licensing requirements, due to pending sale of the two reactors to the AEC. (See Management Interview.)
3. An audit of the security program, including a tour by Compliance of a selected remote section of the exclusion fence disclosed no deficiencies. (See Section B.)
4. Procedures have not been developed for loading the irradiated fuel and control elements into the spent core cask or cask handling. (See Management Interview and Section G.)

Management Interview - A formal management interview was not conducted at the termination of the inspection as the entire inspection and discussion was conducted in the presence of all parties concerned. However, a recap following the day's activities was conducted by the inspectors with Dodd, Ham, and Westbrook. The following items were discussed:

1. The item of noncompliance: Ham concurs with the inspector's findings that Lockheed is in noncompliance with the shutdown Technical Specifications

^{1/} O'Reilly memorandum dated May 4, 1971, subject: Lockheed Tour Reactors.

and stated that the noncompliance occurred as an oversight of the weekly requirement. Ham also stated that weekly collection of the sampler filter and analysis would be reinitiated.

The inspector informed Dodd that a Form AEC-592 would be issued for the noncompliance item.

2. The status of the four reactors: Dodd stated that DTI has agreed upon a purchase price for both reactors. Also, Lockheed expects a letter of intent this week and plans to consummate the sale in about two weeks. Dodd stated that the fuel is stored at Oak Ridge and Brookhaven. Also, Lockheed will forward a letter to DRL during the week of May 24 requesting exemption to 10 CFR 70 licensing requirement due to the pending transfer of the two reactors to the AEC.
3. The pending shipment of the irradiated fuel elements and the lack of handling procedures: Ham stated that procedures would be developed and that the Procedure Review Committee would review and approve the procedures prior to the handling and shipping of the irradiated elements.

DETAILS

A. Persons Contacted

- B. D. Dodd - Decommissioning Coordinator
- F. L. Amend - Reactor Supervisor
- M. M. Ham - Chief Health Physicist
- J. L. Jenkins - Health Physicist
- H. P. Turner - Security Lieutenant
- D. Westbrook - Administrative Supervisor

B. Administration and Organization

1. Organization and Personnel

The personnel remaining at the facility consists of the former reactor supervisor (Amend), a health physicist technician (Jenkins), and an administrative supervisor (Westbrook), and the security force. Also, the chief health physicist (Ham) spends approximately 40% of his working time at the facility with the site staff augmented by other personnel from Lockheed (Marietta), as required.

2. Procedure Review Committee

A review of the Procedure Review Committee's functions and activities indicates that these requirements listed in paragraph 1.1b of the

Technical Specifications are being fulfilled, i.e., minutes reflect a monthly meeting, quorum present, and pertinent procedures and activities are being reviewed.

3. Security

Dodd stated, and the logbooks reflect, that there has been no reduction in the security force and that security is maintained 24 hours per day, seven days per week. The security logs reflect, and it was confirmed in discussions with Taylor, that a complete tour of the exclusion security fence is being conducted on a weekly basis. The Compliance inspectors selected a remote section of the security fence for inspection, and a jeep tour of that section revealed that the fence was being maintained in a satisfactory manner.

The Plant Security Operating Instruction Manual, providing instructions for the security force, was reviewed by the Safety Committee on March 5, 1971, and implemented on March 11, 1971. The manual provides for the control of visitors, vehicles, employees, materials, clock patrol surveillance, fires, radiation alarms, intrusion alarms, RER pool level alarm, fire alarm tape, low water alarms, tower lights, weapons, and the submittal of activity reports.

E. Primary System

A review of the records disclosed that sampling of the reactor pool water is being performed in accordance with paragraph C.1 of the Technical Specifications. The gross beta-gamma activity ranged from 1.29×10^{-8} to 1.87×10^{-7} uCi/cc. The conductivity ranged from 640 k to 700 k and the pH varied from 6.2 to 6.6.

G. Core and Internals

The 56 fuel elements and 8 control elements have remained stored in the RER storage pool since July 29, 1970. (See CO Report No. 50-172/70-2.) The end baskets from the irradiated fuel elements were removed by underwater sawing in accordance with an approved procedure, No. FS-107, in preparation for transporting the irradiated fuel assemblies from the site.

The irradiated fuel elements and control elements will be transported by Tri-State out of Joplin, Missouri, using a Batelle cask (No. BMI-1) which has been approved by DOI; the elements will be transported to Du Pont at Savannah River. At the time of the inspection, a procedure

had not been developed for handling these irradiated fuel elements, but according to Dodd, a procedure would be developed and the Procedure Review Committee would review, comment, and approve the procedure prior to implementation. Subsequent to the inspection, Region 11 was informed that 24 fuel elements were shipped on May 24, 1971, another 24 shipped on June 1, 1971, and the remaining elements are to be shipped on June 7, 1971.

Thirty-eight nonirradiated fuel elements and five nonirradiated control rods were shipped to Oak Ridge, Tennessee, on May 6, 1971, by the Home Transportation Company in extended drums (one element per drum) and were shipped under protective signature. Ham stated that Keller of Oak Ridge provided shipping instructions. According to Dodd and Ham, no nonirradiated fuel elements or control rods remain onsite.

The reactor core grid, control rod scram damper, holddown tank and shield tanks have been removed from the reactor vessel and stored. The grid, scram damper, and holddown tank are stored in the RER storage pool and the shield tanks are stored on the RER building floor. The components were removed in accordance with approved procedures, Nos. FS-105 and FS-106.

P. Radiation Protection

Personnel Monitoring

A review of the TLD badge readings for 1970 shows that the highest exposures were received by personnel involved in work in the hot cell area. The level of exposure to McCallister was 3.450 rem, Harper was 3.645 rem, and Mathieson was 3.815 rem. Ham stated that these exposures were reported to the AEC in accordance with 10 CFR 20.407 and 20.408. The highest exposure to personnel since January 1, 1971, was to a Chem-Nuclear employe (F. Beirle) and he received 0.490 rem during the handling of cobalt drum waste. The reactor supervisor (Amend), assigned permanently to the Lockheed site, had an exposure of 0.125 rem during the period of January 1, 1971, through March 31, 1971.

R. Environment

8 1. Air Sampling

Paragraph C.2 of the Technical Specifications requires that filter samples from the particulate air sampler located at the entrance to the RER demineralizer building shall be collected and analyzed weekly for gross alpha activity. Contrary to paragraph C.2, the

filter samples from the air sampler have been collected on a biweekly schedule since February 1, 1971. A Form AEC-592 was issued on May 22, 1971 and a satisfactory response was received on June 2, 1971.

A review of the air sample records shows the analyzed data to have an activity range of 0.59×10^{-12} to 3.89×10^{-12} uCi/cc.

2. River Water Sampling

Sampling of the Etowah River water is being performed on a schedule of at least twice monthly in accordance with paragraph C.2 of the Technical Specifications. The results indicate that the water sampled at the east perimeter fence, 3600 feet from the RER facility, has an activity range of 1.24×10^{-8} to 3.39×10^{-8} uCi/cc. The water samples taken from the west perimeter fence, 3600 feet from the RER facility, has an activity range of 1.24×10^{-8} to 4.02×10^{-8} uCi/cc.

3. Vegetation Samples

Vegetation samples are being collected on a quarterly schedule in accordance with paragraph C.2 of the Technical Specifications. A review of the records indicates that the vegetables are being collected from four locations onsite and that the gross beta-gamma activity ranged from 2.84×10^{-4} to 3.73×10^{-4} uCi/g. Ham stated that there had been no change in the vegetation sampling program from that which was performed during operation of the reactor.

4. Soil Samples

Sampling of the soil from around the RER facility is being accomplished at 32 locations, identified as rings A, B, C, and D, and does meet the requirements of paragraph C.2 of the Technical Specifications. The data gleaned from the soil samples is as follows:

Ring A - 25 feet from RER, 7.02×10^{-5} to
 2.31×10^{-4} uCi/g

Ring B - 125 feet from RER, 5.46×10^{-5} to
 8.06×10^{-5} uCi/g

Ring C - 250 feet from RER, 4.42×10^{-5} to
 9.92×10^{-5} uCi/g

Ring D - 500 feet from RER, 3.64×10^{-5} to
 6.24×10^{-5} uCi/g

Ham stated that there had been no change in the soil sampling program from that performed while the reactor was operating.

U. Miscellaneous

Tentative Plans for the Site

Dodd stated that the City of Atlanta has an option to purchase the 11,000-acre site as a location for a second Atlanta airport.

Lockheed submitted a decommissioning plan to DRL on April 12, 1971, requesting that the RER be considered decommissioned upon transfer of the reactor fuel and control rod drives to a licensed receiver and shipped from the site. Presently, the last shipment of fuel and control rods is scheduled for June 7, 1971. Subsequently, Region II was informed that DRL approved the decommissioning plan on May 27, 1971. A final reactor inspection by Compliance will be performed to verify that decommissioning has been completed prior to the State of Georgia assuming responsibility for monitoring the decontamination of the facility.

Ham stated that the 130 grams of scrap U-235 under AEC License No. SNM-260 will be disposed of by licensed burial. Also, Lockheed has about 76,375 curies of cobalt and 36,314 curies of cesium on hand under a State of Georgia license. Radiation International, Incorporated, Parsippany, New Jersey (purchaser of Ramco), has applied for a license amendment to receive and possess both the cesium and cobalt inventory. Chem-Nuclear Services, Incorporated, Columbia, South Carolina, under contract to Lockheed, has transported 270 drums of cobalt waste containing 1,153.11 millicuries to their Barnsville, South Carolina, burial facility.