



UNITED STATES
NUCLEAR REGULATORY COMMISSION

REGION IV

611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 29, 1996

MEMORANDUM TO: Michael F. Weber, Chief
Low-Level Waste and Decommissioning Projects Branch
Division of Waste Management/NMSS

FROM: Ross A. Scarano, Director *Ross A. Scarano*
Division of Nuclear Materials Safety

SUBJECT: ROCKWELL INTERNATIONAL SITE VISIT

As you are aware, Oak Ridge Associated Universities (ORAU) recently reviewed 59 terminated research and test reactor license docket files. ORAU concluded that 30 files did not contain sufficient decommissioning and disposition information. One of the 30 files was Docket 50-50, License R-19.

License R-19 was issued to Atomics International, a Division of North American Aviation, for the L-47 reactor. This reactor operated between 1957-1958 at a Atomics International facility located in Canoga Park, California. The facility is now controlled by Rockwell International.

In an attempt to gather more information about the reactor, a member of our staff, Mr. Robert Evans, visited Rockwell International on November 15-16, 1995. In summary, the where-abouts of the reactor were not identified although disposition information was located for some of the reactor fuel. Also, the former reactor room was visited and surveyed for radioactive contamination and none was identified.

Records obtained during the site visit consist mainly of documents related to the license application and early operational records. Little disposition or decommissioning information was identified for this reactor although some radiological and environmental records were found for the building that housed the reactor.

In addition, several individuals (including W. L. Fisher, former NRC Region IV Branch Chief) who worked with the reactor were interviewed and none could recall what happened to the reactor.

Atomics International and its predecessors operated many unique reactors for decades in and around Canoga Park. The facility had a well-defined waste disposal program. The reactor was most likely properly disposed of in the late 1950's through Atomic International's normal waste processing and disposal programs.

Attachment 1 provides additional information about the history of the reactor and the site visit. Affixed to Attachments 2 through 4 are copies of documentation that were found in Rockwell's files. Attachment 5 is a copy of the ORAU review of Docket File 50-50. We recommend that the information be added to the NRC's archive file for Docket No. 50-50.

Michael F. Weber

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No further action is planned by the Region for this license file unless NMSS recommends or requests that additional action be taken.

If you have any questions concerning this memorandum or its enclosures, please call Ms. Linda L. Howell of my staff at (817) 860-8213.

Attachments:

As stated

ATTACHMENT 1

License No.: R-19

Docket No.: 50-50

Licensee Name: Atomics International
A Division of North American Aviation, Inc.

License Active: August 5, 1957 - June 30, 1958

Business

Address: P.O. Box 309
Canoga Park, California

Location: Reactor Room
Vanowen Facility
21600 Vanowen Street
Canoga Park, California

Activity: Operation of the 5-Watt Model L-47 Research Reactor

Background Information

Atomics International was formed as a Division of North American Aviation, Inc., in 1955. During the late 1950's, Atomics International performed a number of atomic energy-related activities. Under contract to the Atomic Energy Commission (AEC) since 1948, North American Aviation/Atomics International developed several prototype reactors, including sodium and organic moderated reactors. Other projects in progress during the 1957-1958 time frame included research into the SNAP-II satellite power system and the Project Pluto ramjet engine. In addition, Atomics International fabricated and installed several research reactors.

(In 1966, North American Aviation merged with Rockwell-Standard to form North American Rockwell. The corporation's name was subsequently changed to Rockwell International. Rockwell still has one NRC-licensed site in Canoga Park, the Rockwell International Hot Laboratory under License SNM-21.)

During December 1956-January 1957, Atomics International apparently submitted three applications to the AEC to construct, manufacture, possess, and use a 5-watt nuclear research reactor. Atomics International wanted to construct a prototype reactor, the Model L-47, for demonstration, experimentation, and sales purposes. (A complete copy of the application package dated January 10, 1957, was obtained from Rockwell International's files; a partial copy of the December 7, 1956, application package was obtained; the application package dated January 24, 1957, that was referenced in the construction permit could not be located.)

Construction Permit No. CPRR-14 was issued on August 2, 1957 (the license for this reactor erroneously stated that the Permit was issued on July 2, 1957), to North American Aviation for construction of the 5-watt (thermal) utilization facility. The facility was a "homogeneous solution-type reactor utilizing highly enriched uranyl sulfate as fuel in distilled light water."

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The Model L-47 laboratory reactor was considered by some to be a "poor man's reactor;" the original name of the reactor was the "Penny Ante." This model was quickly replaced with the more popular, and more powerful model, the 10-watt Model L-77.

The L-47 reactor was installed in the Reactor Room of the Vanowen Building in Canoga Park. The operating license No. R-19 was issued on August 5, 1957. Records indicate that the L-47 reactor began operating on August 29, 1957, and operated for 73 watt-hours in 1957 (operations data was not located for 1958).

On May 26, 1958, the AEC was informed that the licensee had "dismantled its L-47 laboratory reactor and placed it in storage." In addition, the licensee requested that the AEC terminate the R-19 license. The reactor was placed into storage because the licensee thought that the reactor might be reused at a later date. Regardless, License R-19 was terminated by the AEC on June 30, 1958.

Records were identified that stated that the recommended amount of fuel to be purchased for the reactor was 2000 grams of fully enriched uranium-235 in the form of uranyl sulfate. The amount of fuel actually purchased was not clearly identified. Records also indicate that the remaining L-47 reactor fuel (201 grams) was transferred to the Armour Research Foundation in June 1958.

In mid-1958, North American Aviation replaced the L-47 reactor with an L-77 reactor (License No. R-40, issued May 17, 1958; Docket 50-94). This second reactor was located in the same Reactor Room of the Vanowen facility as the L-47 reactor. The L-77 reactor operated at the Vanowen facility until February 1960.

On March 29, 1960, Atomics International requested that license No. R-40 be revised to allow them to relocate the L-77 reactor from the Vanowen facility to their new Desoto facility, Laboratory Building 004, in Canoga Park. Construction Permit No. CPRR-54 was issued on June 27, 1960, which authorized the transfer to take place. The revised operating license was issued the next day. The L-77 reactor was permanently shut down in September 1974.

Rockwell International Site Visit

On November 15, 1995, the former Reactor Room (Room 914 on older facility maps, current maps identify the area as Room 554) of the Vanowen Building was toured. The NRC inspector was escorted by the Radiation Protection/Health Physics Services Manager for Rockwell International/Rocketdyne. The area was being used as office space for an adjacent warehouse at the time of the visit. A Ludlum Model 19 microR meter was used to scan the area for radioactive materials. No readings above background were identified in or around the former Reactor Room.

A records review was performed during the site visit. A limited amount of decommissioning records were identified for the Vanowen site. Unfortunately, records indicating the where-abouts of the L-47 reactor were not identified. In addition, the Radiation Protection/Health Physics Services Manager was not aware of any additional records related to the L-47 reactor.

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Several former employees of Atomics International were interviewed, including W. L. Fisher, former Branch Chief of the Nuclear Materials Licensing Branch in Region IV. None could recall the final disposition of the L-47 reactor.

Records were located that indicated that Atomics International had a well defined radioactive waste handling and disposal program, including a method of disposing of spent reactor fuel. Atomics International most likely disposed of the reactor and the spent fuel through their normal waste disposal channels in compliance with AEC regulations in effect at the time.

Summary

Additional information related to the L-47 reactor, Docket File 50-50, was obtained during the site visit. This information included limited amounts of construction, operation, environmental monitoring, and decommissioning records. Unfortunately, records associated with the disposal of the L-47 reactor were not located. Records were identified that provided disposition information for some of the reactor fuel.

The former Reactor Room was toured and was found to be free of radioactive materials which indicated that the area had been successfully remediated by either Atomics International or Rockwell International in the past.