Memo
TO: R.S. Cleveland
From J.P. Stohr

RS 7/5/68

Subject: Inspector's Evaluation
Aluminum Company of America
Alcoa Research Laboratories
Freeport Road.
New Kensington, Penn. 15068
Lic. # 37-07653-02

An announced reinspection of the above licensee's facility was made on 4/29/68. The formerly active research program has come to a halt, and its future is uncertain, as no new projects are in the offing.

No items of noncompliance were found, and the RSO, Mr Geiger, appears to be doing an excellent job.

The reinspection date may therefore be extended to Oct, 1969, and a Telephone call should be made to the licensee to determine the extent of his program before scheduling the inspection.

Information in this record was deleted in accordance with the Freedom of Information Act, exemptions 6 b 4
FOIA 2053 KS

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Licensee: Aluminum Company of America
Alcoa Research Laboratories
Freeport Road.
New Kensington, Penn. 15068

License #: 37-07653-02

Date of Inspection: 4/29/68 (announced Reinspection)

Persons accompanying ~~Inspect~~ Inspector: None
(Pennsylvania Dept of Health notified)

Persons Contacted

R. C. Geiger, Physical Chemist RSO
Dr. P.T. Stroup, Assistant Director, Research Laboratories

Reviewed 7/5/68
PES

Details

① Background Information

This facility was last inspected January 14, 1965, and a clear 591 was issued.

② Current status

No items of noncompliance were found on this inspection, and a clear 591 was issued.

③ Organization and Administration

Geiger stated that he is in charge of the radioisotope program, that he reports to Norman Cochran (Physical Chemistry Dept. Head), and that Cochran reports to Dr. P.T. Strong. (attached sheet)

Geiger stated that the following personnel were involved in the isotope program since the last inspection:

attached sheet

Geiger stated that the Radiation Safety Committee composed of Geiger, Cochran,

Geiger, Thomas Jack, Walter Hill, John Moozinski, and William Frank. Geiger stated that, due to the inactivity of the program, only Thomas Jack and Geiger are still in it.

(4) Facilities. See attachment "G" application dated 3/28/66.

(5) Material on Hand

Geiger stated that the following was a current inventory of radioisotopes on hand.

Isotope	Date Received	Assay
H^3 (water)	4/5/65	2 Ci
H^3 (gas)	11/7/65	25 Ci
S^{35}	12/11/65	99 mci
Be^7	1/16/67	1 mci
C^{14} (gas)	3/15/62	1 mci
Al^{26}	3/7/57	580 mci
P^{32}	2/3/68	1.76 Ci
Cr^{51}	1/4/67	1.8 Ci
Mn^{54}	12/3/65	2 mci
Zn^{65} (metal)	6/20/66	1 Ci
Zn^{65}	1/25/66	153 mci
Tl^{204}	10/19/66	10 mci

C^{14}	10 mci	3/30/56
C^{14}	1.25 mci	7/18/61
C^{14}	10 mci	1/15/68
Al^{26}	10 mci	9/10/58
Cr^{51}	250 mci	8/29/67
Co^{60}	32 mci	7/20/67
Co^{60} (Tool bit)	30 mci	12/31/64
Co^{60} (in Al)	36 mci	1/1/55
Cs^{137} (in HCl)	87 mci	12/31/64

Sealed Sources

Co^{60} (Level gauge)	100 mci	1/15/64
Sr^{90} (gauge)	13.5 mci	
Sr^{90} (gauge)	300 mci	

(6) Use of Material

Geiger stated that the following represented most of the work done under this license since 1965 at the Research Center on Freeport Rd, New Kensington.

1965: (A) tool wear studies - steel with 8% Co^{60}

(B) Surface area studies of Al oxide using P^{32}

(C) Study of Al properties using Cr^{51}, Mn^{54}

(D) Stress and corrosion principals study using H^3 had stopped.

1966: (A) + (B) + (C)

(E) activation of aluminum for impurity determination.

(F) Bauxite studies using Sc^{46} (samples irradiated at BNL – analyzed on gamma spectrometer)

1967: (G) Zone refining in which uci amounts of Zn^{65}, Cr^{51}, + Cu^{64} were used. A heating bar was passed over the sample in an attempt to move the contaminant. Work was done in a hood.

1968: No isotope work done. Geiger stated that, although two shipments had been received, no radioisotope work had been done in 1968 and that none was in the offing. Geiger stated that this

lack of projects was reflected in the cutback of his staff. Geiger stated that, although he and Jack were still assigned to the radioisotope program, they were currently busy in other areas.

(7) Geiger stated that the tool wear studies mentioned above had been done at Alcoa's facility at 7th St. Road, Route 780, New Kensington, Penn. during 1967. Geiger stated that a 300 mc; Sr^{90} sealed source (U.S. Radium Mod LAB 370-1) in an Ohmart Mod LB6-2 source holder was used as a thickness gauge at 7th Street Rd., Route 780, New Kensington. Geiger stated that all other gauges were now stored at the Research Center and that he had inspected the gauges when they were used at the facilities listed in License Condition 11.

(8) Instrumentation + Calibration

The Inspector noted the following equipment to be on hand.

(A) Nuclear Chicago, Mod 2650, ser 1842, thin window survey meter, 0-100 mr/HR range

(B) Nuclear Chicago, Mod 2612, G.M. survey meter, 0-20 mr/HR range

(C) Victoreen Radector, , ionization chamber survey meter, .05 mr/HR 50 R/HR range

(D) Various pieces of counting equipment, such as, 4" NaI crystal, G.M. tube, + gas flow proportional counter for C^{14} and H^3

(E) Air Samplers and filter paper holders + Atomic accessories H^3 gas monitor.

(8) Geiger stated that the counting equipment is calibrated with small counting standards and that the survey

instruments are sent to Applied Health Physics for calibration on a six month frequency.

(10) Surveys

The Inspector noted records of surveys conducted while the various radioisotope programs were active. These records included swipe surveys, air samples, and radiation surveys. The Inspector noted that the swipe surveys done by Geiger are still conducted - now every two months although no work is going on. The areas surveyed included the work areas in rooms 600, 606, and 608, the storage room 604, the counting room 614, and the corridors outside this area. The Inspector noted no instance of uncontrolled contamination or excessive levels of radiation.

(11) Personnel monitoring

The Inspector noted that Geiger maintained AEC-5's on personnel and that film badges were supplied by St. John's X-Ray Lab on a two week frequency. The Inspector noted the following exposures.

1965	- highest	quarterly	- 530 mrem for	[redacted]	Ex 6
	"	yearly	- 1,115 mrem for	[redacted]	
1966	"	quarterly	- 463 mrem for	[redacted]	
	"	yearly	- 867 " "	[redacted]	
1967	"	quarterly	- 345 " "	[redacted]	
	"	yearly	- 552 " "	[redacted]	

(12) Geiger states that Victoreen Kelbet 0-200 mr pocket dosimeters were used by personnel working with radioisotopes and results logged at the end of the day.

(13) Geiger stated that blood counts are taken every 6 months now, that they had been taken every 3 months when the program was active, and that all results were negative.

(14) The Inspector noted urinalysis had been done by New England Nuclear Assay Corp in 1965 when H^3 program was active. Inspector noted highest result to be 4 uci/l for [redacted] on a sample taken 1/19/65. No urinalysis has been done since 1965. Ex6

(15) <u>Leak Testing of Sealed Sources</u>

Geiger stated that he leak tested all sealed sources every six months, and the Inspector noted the method decribed by Geiger corresponded to the method described in the application dated 3/28/66. A review of these

records by the Inspector revealed no instances when the leak testing had not been done within a six month period or when the results were greater than .005 uci.

(16) Storage + Security

The Inspector noted that all isotopes and sources on hand were stored in Room 604 and that the room was locked. Geiger stated that he and Security had keys and that he (Geiger) performed needed janitorial service in this room. The Inspector surveyed this ~~room~~ room with a Juno model 7 survey meter and found no reading in the unrestricted areas greater than .3 mr/HR.

(17) Posting + Labeling

The Inspector noted all containers

and storage devices to be properly labeled with a CRM sign and symbol and information indicating kind, quantity and date of assay of material. The Inspector noted Room 604 to be posted with CRM and CRA signs + symbols.

(18) The Inspector noted an AEC-3 form to be posted in the corridor outside the radioisotope area. The Inspector noted that Geiger had copies of the license, procedures and regulations available. Geiger stated that he subscribed to the Federal Register to keep the regulations current.

(19) Waste Disposal

Geiger stated that all solid and liquid radioactive wastes had been disposed of to Nuclear Engineering Co, Inc. The Inspector noted records indicating that three drums had been so

disposed of on 3/18/66 containing 100 mci Cs^{137}, 20 Ci H^3 and 100 mci Co^{60} and three more disposed of on 4/12/67 containing 300 mci P^{32}, 100 mci Cr^{51}, and 100 mci Sc^{46}.

(20) License Conditions + Procedures

The Inspector reviewed all License conditions and procedures, referenced in License Condition 16, with Geiger and noted no instance when these conditions + procedures had not been followed.

(21) Summation with Management

The Inspector contacted Dr. Stroup and told him that he had found no items of noncompliance and that everything seemed to be in order. Dr. Stroup stated he was glad to hear this and that he had thought that Geiger was doing a good job.