



UNITED STATES
ATOMIC ENERGY COMMISSION
DIVISION OF COMPLIANCE
REGION I
970 BROAD STREET
NEWARK, NEW JERSEY 07102

201 645-3943

February 28, 1972

Paul R. Nelson
Paul R. Nelson, Senior Radiation Specialist

INSPECTOR'S EVALUATION
DEPARTMENT OF ARMY
U.S. ARMY ELECTRONICS COMMAND
FORT MONMOUTH, NEW JERSEY
LICENSE NO. 29-01022-06

Inspection performed February 16, 1972 revealed no items of non-compliance. Licensee keeps strict control of use of materials. Facilities appear adequate and no health or safety problem appears to exist.

License is properly categorized as E(1-A), with priority 2. An addition of six months in reinspection interval is recommended. Next inspection to be scheduled during August 1973.

Eugene Epstein
Eugene Epstein
Radiation Specialist

information in this record was deleted
in accordance with the Freedom of Information
Act, exemptions 6
FOIA-2006-0238

HH/5

Inspection Report Cover Sheet
(Region I Work Form)

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

CO Inspection Report No. 72-01

Subject: Department of the Army
U.S. Army ELECTRONICS Command

License No. 29-01022-06

Location: Ft. Monmouth, New Jersey 07703

Priority 3

Category E(1-A)

Type of Licensee: Use of sealed sources for research

Type of Inspection: Special announced because of clearance procedures

Dates of Inspection: 2-16-72

Dates of Previous Inspection: 1-19-70

Principal Inspector: Eugene Petrus

2/28/72
Date

Accompanying Inspectors: None

Date

Other Accompanying Personnel: None State officials were notified

Date

Reviewed by: R.A. Smith

March 23, 1972
Date

Proprietary Information: None

Summary

licensee is a user of sealed sources only. These sources are used only for research and development

Noncompliance

None

Unusual Occurrence

Leaking Po²¹⁰ sealed source reported 10/8/71 and 30 day report. See attached pgs for licensee actions and bioassay results. No uptake or overexposure occurred.

Prior Noncompliance in last Inspection

None

Management Interview

Col. W Price USA Assoc. Director Research and Dr. W Baum Ramon Director, advised of status of inspection and informed that a letter advising of clear status would be forthcoming.

A. Participants -

Persons contacted, persons accompanying the inspector including state and local representatives (report if state officials were invited but declined).

B. Program -

Description of the scope of the licensed program; significant changes since the previous inspection.

*use of sealed sources only. f.r. calibration of instruments -
audit evaluation*

C. Organization -

Management organization as it relates to licensed program and location of this program within the overall organizational structure; radioisotope committee and radiation safety officer; authorities and responsibilities.

ECOM (Electronic Command) is responsible for own safety and facility is 20 miles from Safety office which has staff responsibility for safety. Capt Brundige reviews all film badge reports, leak test and survey data taken by C Patten in charge of radiation safety at ECOM.

D. Administrative Control -

Procurement and transfer of licensed materials and records thereof; authorized users; qualifications of users; supervision exercised; licensee internal inspection.

All receipt of material is approved by the Safety office records and inventory of all materials on hand, location, person responsible. Quarterly inspections are made to assure security and location of sources. Sources not in use are returned immediately to a storage vault, where a log is maintained no change in user all qualifications given in backup. Radwaste Committee meets - and decides on users. Form issued allowing use only after safety office approves.

E. Use of Material -

Uses and isotopes compared to that authorized by license; quantities used; places of use; frequency of use.

Materials on hand as sealed sources only.

Am²⁴¹

100 mc
1 mc

H³ 10 Ci July
10 Ci 3/1/69

H³ = 40 beta light sources
total of 51.2 Ci
in storage 12/8/69

C¹⁴

4.5 mc
4.0 mc
5.5 mc } light sources
1.75 mc
1.75 mc

~~50 light sources~~

5-9 Ci sources for Van Der Graaff targets

Kr⁸⁵ 50 mc
Ni⁶³ 2 mc

Co⁶⁰

7.12 Ci 3/11/53 } in calibration facility Bd 401
1 mc
8.4 Ci 4/13/71

Pm¹⁴⁷ 1.82 mc
300 mc
300 mc
300 "
300 "

Po²¹⁰ 1 mc July 29, 71
8.1 Ci Dec 8/70

Co⁵⁷

50 mc in storage effect source

Sr⁹⁰ 25 mc 10/66
75 mc in MM device -9
25 mc

Cs¹³⁷

120 Ci in UDM-1A calibrator

Cs¹³⁷

220 Ci
2.2 mc

Cs¹³⁷

45 mc

H²

9.5 Ci Philips neutron generator 401
9/23/71 sealed endstage
90 Ci Karman nuclear generator
at Ft. Hancock NY

F. Facilities -

Description of facilities used for licensed program; control of access; storage facilities; use facilities; control devices and alarms, c.f. 20.203(c)(2).

Storage building separate - ~~stone~~ building in field 400' x 400'
locked. Pullet maintains key.

Calibration facility - opening gates causes sources to return to shielded position and reduces radiation levels. opening gate also energizes a plasma alarm.

G. Equipment

Devices utilizing licensed material; instrumentation for monitoring and measuring; special equipment related to the safe use of radioactive materials such as hood, glove boxes, remote handling tools, collimators, filters, respirators, protective clothing.

Remote type calibrators. No manual handling of sources permitted. gloves worn when handling all alpha and beta type sources.

H. Radiological Safety Procedures -

Written operating and emergency procedures; availability of license, regulations, and procedures; training program for employees; instructions to employees, visitors, and others; Form AEC-3.

Written procedures as in license backup. All employees noted to have copies in their facilities. Form AEC-3 noted posted in all facilities.

I. Personnel Monitoring and Exposure to External Radiation -

Type of monitoring; basis for selecting individuals to be monitored; supplier; period worn; exposure history; records and results of personnel monitoring.

Monthly - Army Lab Dept. whole body badges. received results of Aug 1146 from equ to AEC-5. No quantity exposure in excess of 125 mrem. Renewed ~~status~~ between 1170 - 1171.

J. Exposure of Employees to Concentrations of Radioactive Materials -

Method of evaluation (general air samples, breathing zone samples, occupancy factors, etc); radioisotopes involved; records; results of surveys; bioassays.

none involved. use of sealed sources only. Van der Graaf not used for 2 yrs. bioassay taken after loading of Van der Graaf targets. an known nuclear targets. removal of pump outs. all under controlled conditions with H₂ monitor present. No person should have more than 2 usi/peter units.

K. Effluents to Unrestricted Areas -

Types of effluents; source; measurement of contents of effluents; flow rates; applicable MPC; analytical procedures; environmental samples.

none

L. Disposals -

Burial; incineration; release to sanitary sewerage system, storage for decay; records of disposals.

In Edgewood Arsenal. Date activity and radiation levels of containers indicated on inspect records.

M. Miscellaneous Surveys, Evaluations and Records -

External radiation levels in restricted and unrestricted areas; transport vehicles; contamination levels; leak tests of sealed sources.

smear tests of storage buildings

smear tests of sources upon withdrawal of sealed sources from storage

all removed and for use since 1/90 and found not to be excessive

*all sealed sources leak tested by Pullen
records maintained - alpha sources tested at 3 month intervals
beta gamma sources at 6 month intervals*

*leak tests counted using appropriate instrumentation
all leakage less than 0.005 uci with exception of
1, P₂₁₀ sources reported to tot.*

N. Special License Conditions -

10. + 11 Use noted only at authorized locations.
13. Use only by individuals authorized by E-Com Disposal Committee.
14. Leak tests properly performed. No sources fabricated by licensee as proper intervals. Proper reports maintained.
15. Sources have proper tags.
16. Use according to listed documents.

O. Posting and Labeling -

All areas of use and storage posted Caution Radioactive Materials. Bld 401 Calibration Bld posted Caution Radioactive with symbol. All containers used labeled Caution Radioactive with symbol. Labels also indicated.

P. Independent Measurements -

No levels in excess of 0.1 mR/hr detected in unrestricted areas of Bld 401 Calibration ~~area~~ Bld when calibrators were exposed for the exposure.

24-10 mR/hr inside storage building

No level in excess of 0.2 mR/hr noted outside storage Bld.

Q. Operations Observed -

use of calibration devices in Bld 401,

Incident of leaking Po^{210} source S.I.C. 12/18/70.

Transante

(1) [] removed an alpha Po^{210} source from the storage facility. At this point it was totally encased in a lead pipe ~~can~~ sealed container. He brought the container to the laboratory in the adjoining building also used by []

In accordance with procedures [] performed a wipe test of the source, ^{housing} not the window, and monitoring the smear noted immediate activity. He placed the source inside the lead pipe immediately sealing the pipe and notified his superior who called W.J. ~~Ramm~~ Ramm R.S.O. at the time. The smear was counted and found to have 9×10^{-2} uci ~~smear~~ alpha activity.

As a result Ramm on 10/18/70 inspected the source and found ~~that~~ using a periscope device, and found the window was apparently destroyed.

An immediate survey was conducted by Ramm who found [] plastic gloves used on 10/16/71

were contaminated with no contamination on his person laboratory coat or any clothing. Some contamination

less than $500 \text{ dpm}/100 \text{ cm}^2$ alpha was noted on the

Portions Ex 4

Total Sampling was taken since ICRP ~~pre~~ report 10
 indicates that 90% of the activity inhaled or ingested
 is eliminated via the ~~feces~~ feces. A
 person not involved in any way with radiation
 was used as a control. This person according
 the learner present R.S.O. is a heavy smoker
 as well. [] Exp

Date of Sample	Result in PCi / sample	Exp	Control
10/10-11/71	3.7 ± 0.4 / 188 gms	—	—
10/26/71	—	0.8 ± 0.2 / 82.3 gms	—
11/13/71	59.7 ± 17.1 / 174.6 gms	28.4 ± 11.9 / 130 gms	106.9 ± 21.4 / 182.1 gms
11/19-20/71	—	1397.4 ± 34.8 / 194 gms	983.2 ± 292 / 172 gms
11/27-28/71	—	5.9 ± 2.4 / 234 gms	1818.7 ± 1256 / 88 gms
12/4-5/71	—	73.0 ± 8 / 88.3 gms	347.2 ± 17.4 / 92.6 gms
12/10-11/71	4433.5 ± 69.4 / gms	209.8 ± 15.2 / 153.6	89.6 ± 10 / 161.3 gms
12/12/71	—	119.4 ± 11.6 / 42.6 gms	—
1/1-2/72	24.9 ± 7.1 / 147.1 gms	—	—
1/8-9/72	—	—	124.9 ± 13.9 / 216 gms
1/15-16/72	205.3 ± 16.3 / 243 gms	—	—
1/16-17/72	—	73.0 ± 10.2 / 85.8 gms	88.5 ± 11.5 / 109 gms

The results indicate that [] Exp
 did not show for 6 controlled samples more than
 the control and Army Environmental Agency according

to Garner concluded no intake other than
absorption of Po^{210} from smoking occurred. The
Army Agency also according to Garner commented
that I ^{can} show what is Ex 6
normal in ~~Amber~~ Amber.

Garner stated that the source is
in double lead pipes and will be transferred
to waste.

In order to prevent recurrence he stated sources
could be wipe tested in the storage facility prior and
to results known prior to bringing sources to
a laboratory. He stated that team Ex 6
obeyed all procedures.