

59# BACKUP NOTES

Region I, Division of Compliance
Newark, New Jersey

1. Name and address of licensee: General Electric Company
~~Research and Environmental Systems~~
Space Division Valley Forge Space Technology Center
P. O. Box 8555
Philadelphia, Pennsylvania 19101
2. Date of Inspection: 9/2/71
3. Type of Inspection: Announced Routine
4. License number(s), docket number(s), number and date of last amendment for each license. Category and Priority of each license:
27-02006-05 - amendment No 27 issued 3/7/71, Category EU-A
Priority 2
5. Date of Previous Inspection: 8/28/69
6. Is there "Company Confidential", or proprietary, or classified information contained in this report? No
7. Scope of Inspection: 10 CFR 20, 30
8. Inspected by: Fred W. Brandkamp 9/17/71
Date of Report
Reviewed by: Eugene P. ... for CRM 10/23/71
Date

D-18

Summary

Very well controlled program, much smaller than that authorized under license. Nearly all uses of material involved applications of sealed sources to experimental equipment testing and calibration.

Items of Noncompliance

None

Unusual Occurrences

Mr. Clinton, RSO, said none had occurred except the matter (closed out) discussed in CIM, Nelson to Roeder dated 7/14/70. This incident involved the rupture of the capsule containing 1 mCi Co-109 as a sealed source. Low level contamination was promptly controlled; urinalyses of the 2 individuals involved showed no measurable uptakes.

Status of Previously Reported Noncompliance Items

none

Management Interview

The inspector gave Mr. Tom Stanley, Manager of Security, Safety, and Administrative Services a Form 571 indicating no items of noncompliance. Conversation limited to formalities.

A. Participants -

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

Mr. Tom Hanley - Manager, Safety, Security

Mr. Robert McClinton, R.S.O.

Various users of material

State notified - no representative attended.

B. Program -

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

No significant changes in scope of program since last inspection; primary activity is the use of sealed sources in experimental space flight equipment. Some low level use of C-14 as unsealed sources.

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.

Mr. McClinton, R.S.O., is the eyes and ears of the "Ionizing Radiation Group" - the committee responsible to management for proper control over radiation hazards. He is a member of that committee which is under the chairmanship of Mr. Hanley and of which Drs. Gottlieb or Panero are members representing the C.E. Medical Division

D. Administrative Control -

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

Mr. Clintock, Health Physicist and RSO, must approve requisitions for licensed material and all incoming shipments are turned over to the ultimate user by him. He maintains inventory records and a log which reflects the date of receipt of a source, the kind and amount of activity, the identity and location of the user, and the date and manner in which disposed of, if no longer on hand.

Users are required to submit a written application to the committee which describes their experience, their planned activity and their planned controls over exposure. When and if approved, they are allowed to possess and use sources. Mr. Clintock makes monthly visits to check on satisfactory performance and absence of problems.

A total of ~~14~~ sources were on hand at the time of the inspection, representing 12 separate unsealed quantities of C-14 ranging from $< 1 \mu\text{Ci}$ to 10 mCi and sealed sources covering 14 other nuclides and ranging from $1 \mu\text{Ci}$ Am-241 source and a glass ampoule of Na-22. Eleven of the ~~14~~ sources were in storage.

E. Use of Material -

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

Mr. Clintock said that all sealed sources are used in some application which involves calibration of instrumentation, or calibrations of radiation effects upon other electronic equipment. C-14, as unsealed barium carbonate, has been used in quantities not exceeding $50 \mu\text{Ci}$, in a hood, to deposit activity on planchets.

Mr. Clintock said all material has been used at the King of Prussia facilities of G. E. but none at Chestnut Street, Philadelphia or Cape Kennedy, Florida.

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).

The buildings in which the sources are used ~~are~~ ^{were} designated ~~not~~ to house large numbers of small, independent laboratories. Appropriate posting, storage facilities, and radiation detection equipment was in evidence at all of the use locations visited by the inspector. All labs are arranged to be locked when unoccupied. The source storage vaults were also found to be equipped with suitable locks.

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.

McClintock reported the use of a hood in the ~~use~~ use area, which was not visited by the inspector. Sealed source users were found to have meters, tongs, and in some cases lead bricks for shielding.

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.

McClintock had a current copy of Title 10 CFR, the license, and the supplementary material referenced in the license. Forms AEC-3 were seen posted conspicuously in a number of locations.

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.

Landauer film badge changed quarterly. Processor reports were reviewed by the inspector for the period since the last inspection. Almost all exposures were below minimal detection limits of the processor. The highest quarterly exposure was 100 mrem for the 2nd quarter of 1971.

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.

not applicable.

K. Effluents to Unrestricted Areas -

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

not applicable

L. Disposals -

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

McC said no wastes buried, incinerated, or dumped into sanitary sewer. The waste barrel in the storage area contains all wastes collected during the last 4 years.

M. Miscellaneous Surveys, Evaluations and Records -

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

Radiation level surveys are performed by McClellan at approximately monthly intervals. A review of the records maintained showed no inordinate levels. Leak tests of sealed sources were reviewed and all sealed sources found to have been leak tested and found satisfactory at semi annual intervals for B-8 sources and at quarterly intervals for the Am-241 sources which constitute the only alpha emitting sealed sources held under this license. No removable activity in excess of 0.005 μ ci was found at any time.

N. Special License Conditions -

Each of the conditions of the license were discussed with M.C. Clintoek and no inconsistencies with the various requirements were found. A review of the inventory showed it to be well within license possession limits; all uses are properly defined R&D; use locations, supervision of users and leak testing are discussed in other parts of this report; M.C. said that none of the sources acquired under this license have been launched on missiles or spacecraft and that the procedures referenced in L/C 15 have been followed.

O. Posting and Labeling -

No deficiencies noted during tour of use locations in 2 different buildings or at storage vault.

P. Independent Measurements -

Highest dose rate noted was 4 mR/hr inside storage vault; 0.5 mR/hr at entrance door. The vault was locked and posted CRA, CRM.

Q. Operations Observed -

None