

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 70-1359/85-03

Docket No. 70-1359

License No. SNM-1405

Licensee: IRT Corporation
3030 Callan Road
San Diego, California 92121

Facility Name: IRT Corporation
Fast Spectrum Cell

Inspection at: Linac Facility Fast Spectrum Cell
10955 John Jay Hopkins Drive
San Diego, California

Inspection Conducted: August 13, 1985

Inspector: J. L. Montgomery
J. L. Montgomery, Chief
Nuclear Materials Safety and Safeguards Branch

8/29/85
Date Signed

Approved by: R. D. Thomas
R. D. Thomas, Chief
Nuclear Materials Safety Section

8/29/85
Date Signed

Summary:

Inspection of August 13, 1985 (Report No. 70-1359/85-03)

In a letter dated August 7, 1985, the licensee reported the results of their radiation surveys and decontamination at the Fast Spectrum Cell located at the "Linac Facility", 10955 John Jay Hopkins Drive, San Diego, California. The confirmatory survey of the licensee's work was conducted by one NRC inspector on August 13, 1985.

Results: This confirmatory survey, conducted with a Micro-R portable gamma scintillation survey instrument; an air proportional alpha survey instrument; and contamination wipes found the radiation and contamination levels to be within the NRC "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses for Byproduct, Source, or Special Nuclear Material, July 1982," which are referenced in Condition 13 of the license. Based on the results of this survey, it was determined that the Fast Spectrum Cell located at 10955 John Jay Hopkins Drive, San Diego, California may be released for unrestricted use. A total of 3 inspector hours were expended conducting this survey.

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DETAILS

1. Persons Contacted

P. R. Maschka, Radiation Safety Officer (RSO), IRT Corporation

2. Background

The licensee has filed a license application amendment with NRC to delete from their license certain cells, including the "Fast Spectrum Cell", located at 10955 John Jay Hopkins Drive, San Diego, California. This address is located on the property of GA Technologies, Inc.

The licensee's activities in this building were mainly the use of a linear accelerator which resulted in some neutron activation of building materials. Also, some special nuclear material was used including enriched (and depleted) uranium in sealed and unsealed sources.

The survey criteria were based on NRC requirements established by the "Guidelines for Decontamination of Facilities and Equipment Prior to Release for Unrestricted Use or Termination of Licenses For Byproduct, Source, or Special Nuclear Material, July 1982".

3. Confirmatory Survey of August 13, 1985

A. Instruments

The field radiation detection instruments selected for this survey were: (1) an Eberline Model PRM-7 micro R meter; and (2) a Ludlum Model 12 count rate meter with Ludlum Model 43-4 air proportional alpha probe. The smear samples were counted on a Tenelec LB-5100 Counting System utilizing thirty minute counts for gross alpha, beta and gamma radiation.

The specific instruments used and their calibration status were:

<u>Instrument</u>	<u>NRC I.D. No.</u>	<u>Calibration Due</u>
Eberline PRM-7 Micro R Meter	006383	11/4/85
Ludlum Model 12 Count Rate Meter W/Air Proportional Alpha Probe	003565/003562	11/10/85
Tenelec LB-5100	calibrated with standards prior to use	

B. Areas Surveyed

(1) Micro R Meter Survey

The survey included all reachable floor, wall and ceiling areas in the Fast Spectrum Cell Area (approximate dimensions 40 feet

by 15 feet). The room was empty except for a 3 feet by 8 feet wooden table.

This instrument indicated a background level of 8-10 μ R/hr. One small area located at the left edge of a steel wall plate gave readings of 50-100 μ R/hr. It was not clear whether the radiation was emanating from the steel or the adjacent stucco wall. Wipes taken on both the wall and plate indicated no significant removable contamination.

No other significant readings above background were noted.

(2) Alpha Surveys

Approximately 50% of the reachable floor and wall surfaces were surveyed for alpha contamination. Surveys were concentrated in areas where the accelerator, beam ports and fuel elements were used. With the following exceptions, all readings were background (i.e. less than 50 cpm):

- 3 fuel element storage bins - 100-200 cpm
- Accelerator beam port - small fragments of metal read up to 1000 cpm

The RSO attempted to remove these fragments and contamination in the beam port with a wet paper towel. This reduced the alpha readings by 10-20%. Wipe sample results indicated slightly elevated readings for both alpha and beta/gamma radiation but well below the NRC release limits previously referred to in this report.

The RSO was instructed by the NRC inspector to decontaminate and resurvey the area in the interest of the ALARA philosophy.

(3) Wipe Surveys

Wipe surveys were taken in areas where SNM had been used; in areas where the linear accelerator and neutron generator had been used; and in areas which showed gamma or alpha radiation readings above background.

The wipe results are shown in Table 1. All wipe results were acceptable.

4. Conclusion

The radiological survey of the Fast Spectrum Cell located at 10955 John Jay Hopkins Drive in San Diego, California, indicated that all areas of the facility are well within the NRC release limits for unrestricted use.

Since this building has been found to meet the NRC guidelines for release to unrestricted use, it is the recommendation of Region V that the Fast Spectrum Cell facility be removed from NRC License No. SNM-1405.

TABLE 1

Date Taken: August 13, 1985
 Inspector: J. L. Montgomery
 Location: IRT Corporation (Fast Spectrum Cell)

Removable Radioactive Contamination

<u>Sample</u>	<u>Location</u>	<u>Alpha dpm/100 cm²</u>	<u>Beta/Gamma dpm/100 cm²</u>
1.	A-elevated concrete pad	2.1	6.5
2.	B-entrance passage floor	0.7	3.0
3.	C-beam port - internal	2.2	2.6
4.	D-shielding blocks	1.5	2.0
5.	E-steel wall plate (north)	0.9	0.5
6.	F-north beam port-internal front	18.5	11.0
7.	G-steel wall plate	0.4	2.0
8.	H-stucco wall adjacent to steel wall plate	0.7	0.6
9.	I-beam port steel plate	1.7	41.3
10.	J-wooden table surface	0.9	3.3
11.	K-fuel element storage bin B-2	1.1	3.0
12.	L-North beam port-internal rear	61.6	55.3

NOTE: All data are within the NRC guidelines for release to unrestricted use.