

~~CONTAINS INFORMATION PROTECTED BY THE PRIVACY ACT~~  
THE STATE UNIVERSITY OF NEW JERSEY  
**RUTGERS**

License No. 29-05218-31  
Docket No. 030-22083  
MLER RI - 02-127

Rutgers Environmental Health and Safety  
Building 4127 • Livingston Campus • P.O. Box 5077 • New Brunswick • New Jersey 08903-5077 • 908/932-2550

October 9, 1992

Mr. Anthony Demitriades  
Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19405

Gentlemen:

RE: Overexposure of ring badge at Rutgers University

On September 17, 1992, Rutgers Environmental Health & Safety (REHS) received a phone call from Landauer Corporation to report an unusually high reading for a ring badge belonging to [ ] a student of Dr. Robert Niederman (authorization Number

The value for the ring badge exposure for the period April 15, 1992 to July 14, 1992 was 128,960 millirems, far in excess of the yearly permissible limits of 75,000 millirems. The results of the whole body dosimetry for the same period showed nothing above background (minimum M).

During that period, [ ] only use of radioactivity was during the performance of two iodinations, one on June 16, 1992 and June 29, 1992. The activities of <sup>125</sup>I used were 1.5 mCi and 5 mCi respectively. In both instances, the radioactive iodine was delivered the same day of the iodination and used immediately. The radioactive waste generated was stored in the hood. No other isotopes were used. The thyroid uptakes performed within 48 hours after each iodination showed no significant trapping in the thyroid (below):

Date	Thyroid Counts	Background	Net
June 17, 1992	239	229	10 <1 nanocurie
July 1, 1992	237	207	30 <3 nanocurie

The same day of September 17, a thorough survey of the laboratory was carried out by the Radiation Safety Officer. Wipes were taken from 25 sites throughout the laboratory, including benches, hoods, desks, refrigerators, etc. A portable scintillation detector was used to check for contamination. A repeat thyroid uptake performed with a portable detector was again normal. [ ] did not recall any reddening on his fingers or hands.

The results of the survey (see enclosed wipe survey results) showed only two small areas in the hood with very minor contamination (203 and 123 dpm) the largest about twice background.

120044

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RETURN ORIGINAL TO  
REGION I

9302178177-021009  
REG-1-1690  
29-05218-31

- 1 -

Portions Ex 7c

D/S  
1X16

"CONTAINS INFORMATION PROTECTED  
BY THE PRIVACY ACT"

Mr. Anthony Demetriades

October 9, 1992

External exposure to a vial of  $^{125}\text{I}$  would yield an exposure rate of 570 mRem/hour at contact per mCi of activity. There is a possibility that the ring badge was left in the hood for at least 70 hours next to the 3 mCi of liquid waste stored in the hood. [redacted] reported that the ring badge was misplaced between July 1 and July 20. The badge was subsequently mailed to REHS. He stated that he wore his whole body badge and ring badge during both iodinations.

Landauer Corporation has indicated there was no evidence of contamination of the ring badge or other anomalies, during a re-analysis of the dosimetry data; however, the possibility of a faulty badge cannot be completely ruled out, but it appears unlikely.

In conclusion, we discount exposure to the individual investigator because (1) the dose indicated by the whole body badge was background (2) there was no trapping of iodine in the thyroid and (3) results of the REHS survey show no surface contamination in the laboratory (with the exceptions in the hood). We feel that the overexposure was probably due to direct exposure of the ring badge along to a source of  $^{125}\text{I}$  (vial or waste) and does not reflect a true exposure to [redacted]. We will write to Landauer and direct them to delete this ring badge exposure from [redacted] radiation exposure history. Please notify us if you have any questions or concerns for this action.

Sincerely yours,

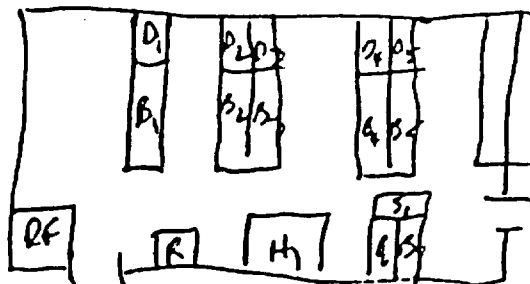


Elan Gandsman  
Radiation Safety Officer

Encs. [redacted] 7C

Wipe survey of Nelson Biology Room A 319  
in response to abnormal Ring Badge Reading

<u>Wipe</u>	<u>Location</u>
1	R/F 1, Freezer door out
2	R/F 1, Freezer compartment in
3	R/F 1, Refrigerator out
4	R/F 1, Refrigerator base in
5	R/F 1, Refrigerator vesper tray in + out
6	Refrigerator out
7	Bench 1
8	Floor Bench 1
9	Bench 2
10	Floor Bench 2
11	Bench 3
12	Floor Bench 3
13	Desk 3 (scale)
14	Bench 4
15	H <sub>2</sub> O Bath, Bench 3
16	Hood 1 sash & foil
17	Hood 1 in, left
18	Hood 1 in, right
19	Floor in front of hood
20	Bench 6
21	Hood 1 in, left side 2x background
22	Sink 1 out, right
23	Sink 1 in, right
24	Sink 1 out, left
25	Sink 1 in, left



Wipe survey of Nelson Biology Room #519 in Regional Co

Abnormal Ring Badge Result - 9/17/92

PGMT: 100 TEST MODE: CFM CO SNGL REPEATS: 0 REPLICATES: 0 FM: ON  
 TIME TERM: 1.00 1 = 1.00

COMMENT: TEST H3 .014 . OPEN CHANNEL

PARAMETERS CHANNEL A CHANNEL B CHANNEL C

DESCRIPTION: H3  
 RANGE: 1 - 1E 1 - 1E5 1 - 2000  
 BACKGRND EVEN: 0  
 PRESET CNT: 0  
 LOW CNT REJ: 0  
 SPILL-OVER CORR: B>A C>A  
 OFF OFF  
 HLC: HALF-LIFE: OFF  
 HLC: ASSAY DATE: 06-21-88 06-21-88 06-21-88

BATCH 16 FROM: see test START TIME: 14:45:45 FEM: 14146: CONT  
 DATE: 09-17-92 TIME: 15:50:37

TRAY	TIME	CPM/A	CPM/B	CPM/C	2E1	2E2	2E3	2E4	2E5	EFF	FLAG
14	0.75	151.3	165.7	170.3	18.5	18.56	18.12	0.631			FHD
15	0.62	154.4	150.0	170.7	19.5	18.03	18.50	0.626			FHD
16	0.87	154.0	112.5	173.1	22.5	20.51	16.81	0.604			FHD
17	1.00	155.0	82.0	173.0	23.0	20.40	16.50	0.613			FHD
18	1.00	155.0	63.0	173.0	24.0	24.47	21.44	0.606			
19	1.00	155.0	67.0	173.0	24.0	24.08	21.61	0.604			
20	1.00	155.0	67.0	173.0	24.0	24.43	21.20	0.726			
21	1.00	155.0	54.0	173.0	27.0	27.22	24.71	0.618			
22	1.00	155.0	63.0	173.0	27.0	26.59	24.24	0.617			
23	1.00	155.0	68.0	173.0	27.0	26.26	21.49	0.617			
24	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
25	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
26	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
27	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
28	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
29	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
30	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
31	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
32	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
33	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
34	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
35	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
36	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
37	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
38	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
39	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
40	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
41	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
42	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
43	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
44	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
45	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
46	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
47	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
48	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
49	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
50	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
51	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
52	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
53	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
54	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
55	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
56	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
57	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
58	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
59	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
60	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
61	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
62	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
63	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
64	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
65	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
66	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
67	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
68	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
69	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
70	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
71	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
72	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
73	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
74	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
75	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
76	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
77	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
78	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
79	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
80	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
81	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
82	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
83	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
84	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
85	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
86	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
87	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
88	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
89	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
90	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
91	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
92	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
93	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
94	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
95	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
96	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
97	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
98	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
99	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			
100	1.00	155.0	64.0	173.0	27.0	26.53	21.58	0.614			

OKED

No Sample  
 No Sample  
 No Sample  
 No Sample  
 No Sample  
 No Sample

<sup>135</sup>I Emission  $\gamma$  0.035 MEV (35 KEV)

Assume 60% counting efficiency in channel B

Wipe 21  $CPM = 175 - 53 / 0.6 = 203$  dpm

23  $CPM = 127 - 53 / 0.6 = 123$  dpm

inside hood, 2x background  
 inside sink, 1x, right side



# LANDAUER

September 25, 1992

The State Univ of Nj  
Rutgers/Rehs Bldg 4127  
Livingston Campus  
Attn Ira Schneider  
Piscataway NJ 08854

Re: Account No. 10721

Dear Mr. Schneider,

Confirming our recent telephone conversation, we have rechecked the following badge(s) and find the dose(s) to be correct:

B A D G E	Exposure Period	Dose	Energy	Additional
No. Type	Begin End	Reported	Range	Notes

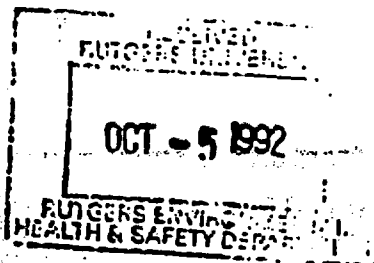
Ex 7c [ ]	04/15/92 TO 07/15/92	128960MR		NO EVIDENCE OF CONTAMINATION OR OTHER ANOMALIES
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Sincerely,

LANDAUER, INC.

*Richard O. Knuth*

Customer Services - Technical



REGION I  
NMSS LICENSEE EVENT REPORT

License No. 29-05218-31

Docket No. 030-22083

MLER-RI 92-127

1. ACTION CONTROL DATA

Licensee Rutgers

Event Description Possible overexposure

Event Date 9.17.92 Report Date 10.9.92

2. REPORTING REQUIREMENT

- 10 CFR 20.402 Theft or Loss
- 10 CFR 35.33 Misadministration
- 10 CFR 30.50 Immediate/24 Hr. Notification Report
- License Condition
- 10 CFR 20.405 30 Day Report
- Other \_\_\_\_\_

3. REGION I RESPONSE

- Immediate Site Inspection
- Special Inspection
- Telephone Inquiry
- Preliminary Notification
- Information entered on the Region I log
- Review at next routine inspection
- Report referred to T. Dimitriadis / J. Kummer
- Inspector/Date \_\_\_\_\_
- Inspector/Date \_\_\_\_\_
- Inspector/Date \_\_\_\_\_
- Daily Report

4. REPORT EVALUATION

- Description of event
- Levels of RAM involved
- Cause of event
- Corrective actions
- Calculation adequate
- Letter to licensee requesting additional information

Completed by Lara Wudner Date 10.28.92

Reviewed by E. Ullrich Date \_\_\_\_\_

5. SPECIAL INSTRUCTIONS OR COMMENTS