



University Hospitals
of Cleveland

3074 Abington Road
Cleveland, Ohio 44106
216-844-1428

Senior Vice President
Hospital Services
Management Center

Lakeland Hospital
Rainbow Babies & Childrens Hospital
MacDonald Hospital for Women
Leonard C. Hanna House
Howard M. Hanna Pavilion
George M. Humphrey Building
Robert H. Bishop Building
Abington House
Western Medical Research Laboratories
Harry J. Bakewell Health Center
University Hospitals Health Center/East
University Suburban Health Center

P.1

Attachment A

DRAFT

February 12, 1988

FACSIMILE

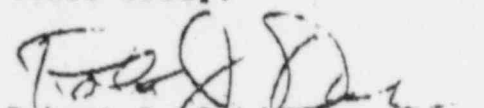
Mr. James R. Mullauer, M.H.S.
Radiation Specialist
U.S. Nuclear Regulatory Commission, Region III
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Dear Mr. Mullauer:

RE: Report of loss of licensed material as per
10 CFR 20.402 (b)
License No. 34-05469-01

As per your request, enclosed please find a draft
of the report on the loss of a package containing
phosphorus-32.

Yours truly,


Robert J. Dabicki
Senior Vice President and
General Manager

RJD:abv

Enclosure

cc U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

12 FEB 88 10:44

8803300302 880325
REG3 LIC30
34-05469-01 DCD

DRAFT

REPORT OF LOSS OF PACKAGE CONTAINING PHOSPHORUS-32

NRC LICENSEE: University Hospitals of Cleveland
2074 Abington Road
Cleveland, Ohio 44106

NRC LICENSE NO: 34-05469-01

The following report of the loss of a package containing phosphorus-32 on January 18, 1988, is being made as required by 10 CFR 20.402(b).

A. Description of Material

The material was phosphorus-32-labelled dCEP in liquid form in 2 vials each containing 25 microliters. The activity in each vial had been calibrated to be 250 microcuries on January 15, 1988. The vials were bound together and enclosed within a styrofoam liner inside a blue plastic canister approximately 2" in diameter and 4" high. The canister was packed together with standard packing materials inside a cardboard box bearing the logo of the New England Nuclear Company. It had no trifoil markings, but was labelled as containing exempt quantities of radioactive materials and conforming to the conditions of 49 CFR 173.421.

B. Description of loss

The package described above was delivered to the receiving dock of University Hospitals on Friday, January 15, 1988. It had been ordered by Dr. Y. Huang, an investigator in Room 519 of the Pathology Building. It was delivered to his lab on Monday, January 18, 1988, at about 9:30 a.m. By that time, the dry ice that had been originally packed inside the box had evaporated and the chemical had thawed. Dr. J. Stark, a research fellow working in the lab, did not want to accept the shipment and called the Receiving Department to dispose of it. Mr. Hall, Supervisor of the Receiving Department, went to the lab and took away the package. He then left it inside a bigger box in a pile of empty cardboard boxes that were awaiting disposal in a fifth-floor corridor of Rainbow Babies and Children's Hospital (RB&C), the adjoining building. This was in an area which was near some laboratories and which was rarely, if ever, frequented by patients or visitors. At about 11 a.m., Mr. T. Morton of the hospital Material Management Division, asked Mr. Hall to recover the package, but when he went back, the pile of boxes was no longer there. He took no further immediate action.

Shortly after noon on January 18, a purchasing agent, unaware that the package was already missing, telephoned P.S. Rao, the RSC for University Hospitals, about the procedure for returning an unwanted radioactive package. After some discussion, it was agreed that the agent would inform the Receiving Department

*Hall's Supervisor**Loss Goldstein*

to take the package to the RSO's office for safe-keeping until administrative details could be worked out.

At about 1:30 p.m. on Tuesday, January 19, since no package had yet been brought to the RSO's office, P.S. Rao and R.B. Adams of the Radiation Physics Division, made inquiries at the Receiving Department and discovered that it was not in their possession. Further inquiries were made at the laboratory and with the housekeeping staff. Attempts were made to locate the box by following alternative paths it might have taken. At about 4:00 p.m., it was concluded that the package was lost.

January 20, 1988 per Rao 2:40 p.m. call made
C. Probable disposition of package

It is most probable that the package, together with the empty cardboard boxes with which it was left, was taken to the trash dumpster at the rear of Lakeside Hospital (part of University Hospitals). From there it was hauled away by the North Coast Disposal Company to the landfill site in Painesville in Lake County and buried there. It presents no imminent danger to the public. Because of the 14 day half-life of phosphorus-32, the activity contained therein will decay to negligible levels in a few months, and will not constitute a hazard to any possible future developer of the land-fill site.

D. Radiation exposure

From measurements on a package similar to the one that was lost, it is known that the exposure level at the surface of the box was no different from that of background. Therefore, any person who might have handled the box on its way to the trash site would not have received any significant exposure.

E. Actions taken

Immediately after it became apparent on Tuesday, January 19, that the package had been mislaid, P.S. Rao questioned personnel at other laboratories near the spot where the package had been left. Nobody had any knowledge of it. He also asked some of the staff in a nearby patient ward on the same floor, but with similar results. He and V.T. Hall checked with the housekeeping staff, but they had no clear recollection of the boxes.

The radiation safety office of Case Western Reserve University (CWRU) was informed, since the Pathology Building belongs to the university. The office was temporarily staffed by members of the consulting firm, Nuclear Energy Services (NES). Survey teams from that group, equipped with appropriate meters:

- 1) Surveyed the compactor and dumpster behind the CWRU Medical School.
- 2) Collected and counted smears from the internal surfaces of the compactor and dumpster. No significant counts above

- background were observed.
- 3) Surveyed two remaining dumpsters behind Lakeside Hospital by emptying and refilling each dumpster.

When contacted, Mr. J. Crawford of the trash hauling company indicated that one dumpster taken to the landfill site had already been emptied, and that standard practice was to cover every 3 feet of trash with one foot of dirt and gravel. He estimated that at least 10 feet of fill was on top of where his truck would have emptied its load. A second dumpster had not yet been emptied, and he had it brought back so that the NES team could survey it the next morning. Smears from the surfaces were taken, but they too yielded no significant results.

A sign was posted on the wall near where the package had been left behind, asking if anyone might have taken away the boxes. There was no response, and the sign was taken down after a week.

At about 4 p.m. on Wednesday, January 20, Mr. R.J. Dubicki, Senior Vice President, telephoned the offices of the Nuclear Regulatory Commission, Region III, at Glen Ellyn, Illinois, to inform about the incident.

F. Procedures and measures to be adopted to prevent recurrence

1. All investigators will be instructed not to reject an unwanted radioactive package, but to store it safely until its eventual disposition has been arranged with the RSO.
2. The staff in the Receiving Department will again receive training in the handling of radioactive materials.

Attachment B

REPORT NO. CPR107 -R03
PREPARED 01/15/88

RECEIVING REP
UNIVERSITY HO

SHIP TO - UNIV HOSP OF CLEVELAND

VENDOR - NEW ENGLAND NUCLEAR CORP

VENDOR NO. 1 14

LINE
NO

DESCRIPTION

ITEM ID
NUMBER

UN
O

NSTK

CHG TO J 186 7401 2 611 0

M/R - 000238467

MR REQUESTED BY PATHOLOGY

[Handwritten signature] 1/15/88

[Handwritten signature] 5/19

\$66.00

RECEIVING REPORT
UNIVERSITY HOSPITALS OF CLEVELAND

PURCHASE ORDER NO. C C 238467 013
RECEIPT-REVISION NO.
PAGE

REFER TO - PATHOLOGY 519

VENDOR NO. 1 16023100

BUYER - LOIS GOLDSTEIN

REC CODES -
C - COMPLETE
I - INCOMPLETE
R - RETURN / REJECT
UNIT OF REC
RECEIPT CODE
DETAIL DESCRIPTIONS

ITEM ID NUMBER	UNIT OF ORDER EACH	QTY/BAL ORDERED	QUANTITY RECEIVED OR RETURNED	UNIT OF REC RECEIPT CODE	DETAIL DESCRIPTIONS
J 186 7401 2 611 00 - 000238467	LINE - 0001	2.00	2		
REQUESTED BY PATHOLOGY 519					
CAT #NEG-013H 2-32P-DCTP QUOTE 21G00203					

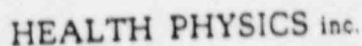
Tom Mottan

1/15/88

Ang Shu

1/18/88

21G
21G
21G



2906 Industrial Blvd. • Box 197 • Bethel Park, Pa. 15102 • Phone 412 • 563-2242

Client: CWRU PO# Date: Page #

Description of survey: TRASH COMPACTOR

Survey by: B. GALLAGHER J RATHOVICH Date: 1-19-88 Suspected Activity: _____

Contact Name: _____ Phone: _____ Analyzed by: _____

Counter Manufacturer: _____ Model: _____ Serial Number: _____

Background before counting: a _____ CPM b _____ CPM; After counting: a _____ CPM b _____ CPM

Efficiency before counting: _____% After counting _____%

[illegible]

BLDG TR-21-30M

Tech. P. C. C.Count
Date

1-17-86

TASC-12@ 36 V.

B-2

Sample #	Gross c/m			Net cpm			A.H.P. SMEAR #		
	α	β	γ	α	β	γ			
430	0	5	126	0	0	0	1		
441	1	4	141	1	0	0	2		
500	0	2	150	1	1	0	3		
641	1	2	144	1	0	0	4		
242	0	3	149	0	2	0	5		
343	0	2	132	0	0	0	6		
640	1	4	137	1	0	0	7		
544	0	4	134	0	0	0	8		
542	0	1	154	0	0	0	9		
445	0	3	119	0	2	0	10		
345	0	3	137	0	2	0	11		
347	0	5	130	0		0	12		
350	0	1	141	0	0	0	13		

Beckman Batch
Pg

3H

14C

P# SH

TIME

OPMA/K XDEV
DPML/KCPMB/K XDEV
DPN2/K

CPMC/K XDEV

QIP FLAG

SCR

MIN

BLDG PLS 4 Compactor Rm.

Tech. C. Cole

Count Date 1-11-88

TASC-12@ B6.5 V.

B-7

Sample #	Gross c/m			Net cpm			A.H.P. SMEAR #		
	α	β	γ	α	β	γ			
B51	0	2	153	0	0	0	14		
B52	0	2	164	0	0	7	15		
B53	0	2	163	0	0	6	16		
B54	0	2	147	0	0	0	17		
B55	0	1	138	0	0	0	18		
B56	1	2	137	0	0	0	19		
B57	1	5	143	0	0	0	20		
B58	1	6	153	0	0	0	21		
B59	1	3	137	0	0	0	22		
B60	0		157	0	0	0	23		

Beckman Batch
Pg

³H

¹⁴C

PH SH TIME CPMA/K XDEV CPMB/K XDEV CPNC/K XDEV GIP FLAG SQR MIN

BLDG STORAGE B1/L
Rm.

Tech. C. W. L.

Count Date 1-20-88

TASC-12@ 86.6 V.

B-2

Sample #	Gross c/m			Net cpm			A.H.P. SMEAR #		
	α	β	γ	α	β	γ			
869	0	2	146	0	2	2	1		
870	0	0	147	0	0	1	2		
871	0	1	148	0	1	2	3		
872	0	3	151	0	3	3	4		
873	0	1	159	0	1	13	5		
874	0	2	162	0	2	6	6		
875	0	3	144	0	3	0	7		
876	0	3	162	0	3	16	8		
877	0	3	174	0	3	28	9		
878	0	2	191	0	2	6	10		
879	0	0	143	0	0	0	11		
880	0	5	139	0	5	0	12		

Beckman Batch
Pg

³H

¹⁴C

PH SH TIME OFHA/K XDEV CPMB/K XDEV CPNC/K XDEV QIP FLAGS SDR MIN

BLDG STORAGE BIN 2
Rm. _____

Tech. C. Wheeler

Count Date 1-20-88

TASC-12@ 96.6 V.

B 2

Sample #	Gross c/m			Net cpm			A.H.P. SMEAR #		
	α	β	γ	α	β	γ			
961	0	5	140	0	5	7	1		
962	0	4	138	0	4	6	2		
963	0	3	147	0	3	1	3		
964	0	4	134	0	4	0	4		
965	0	4	148	0	4	2	5		
966	0	3	122	0	3	0	6		
967	0	3	152	0	3	6	7		
968	0	1	138	0	1	0	8		

Beckman Batch _____
Pg _____

³H

¹⁴C

PH SH TIME OPMA/K XDEV CPMB/K XDEV CPMD/K XDEV QIP FLAGS SCR MIN

January 21, 1988

Attachment C

TO: Robert B. Adams, Chairman
Radiation Safety Committee
University Hospitals

FROM: Stewart R. Smith *Stewart R. Smith*
Nuclear Energy Services, Inc.

1. Description of Licensed Material Lost

- a. Kind - P-32
- b. Quantity - (2) 250 uCi each
- c. Chemical form - DCTP
- d. Physical form - Liquid ~25ul

2. Description of Circumstances

On Monday, January 18, 1988, a laboratory technician in Dr. Hwang's laboratory refused a shipment of P-32 stating that it was "no good". The box was given to Mr. V. Hall. Mr. Hall stated that there were no tri-foil radioactive materials markings on the box. He put the P-32 container into another box in the hallway of Rainbow Babies & Childrens Hospital.

On Monday, January 18, 1988, Mr. Hall was asked to go and find the box at 11:00 a.m. It was not where he had left it. On Tuesday, January 19, 1988, at about 1:45 p.m., attempts were made to locate the box by Dr. Rao and Prof. Robert Adams of the University Hospital (UH) staff. Dr. Rao is the UH Radiation Safety Officer. At 1423 hours Mr. F. Trejo was notified as a representative of the CWRU Radiation Safety Office. Attempts to locate the box by means of interviewing the housekeeping staff did not turn up the container or any additional information other than it might be in the compactor or one of the dumpsters in the back of the Lakeside Building.

3. Disposition

- A survey team with appropriate meters surveyed the compactor/ dumpster at the rear of the University Medical School.
- A survey team, with appropriate meters, surveyed the two remaining dumpsters to the rear of the Lakeside Building by emptying and refilling each dumpster.
- Smears were collected and counted from internal surfaces of the compactor and the dumpsters. No significant counts above background were observed.

- The garbage hauling company (North Coast Disposal, 866 Addison Street; Cleveland, Ohio (216 391-5200) was contacted. Mr. J. Crawford of that company indicated that one of two dumpsters taken from the University Hospital had already emptied its load into the Painesville Landfill in Lake County. It is their practice to have 1-foot of dirt/gravel for every 3-feet of trash. He estimated that at least 10-feet of fill was on top of where his truck would have emptied its load. The other dumpster had not yet been taken to the dump. He held that dumpster in the lot for a survey team from CURU.
- A survey team did go through that dumpster and its contents with appropriate meters. Smears were taken of the internal surfaces. No significant counts above background were detected.
- It is reasonable to place the location of the P-32 at the Painesville Landfill under at least 10-feet of fill.

4. Radiation Exposures to Individuals

It is not expected that any measurable exposure was received by persons involved. The radioisotope had been placed into its original container, a 49 CFR 173 exempt quantities container with a styrofoam liner and inside another box itself.

At this point it is reasonable to believe that the P-32 is not an imminent danger to the public while in the Painesville Landfill.

5. Actions Taken for Recovery

Outlined in section 3 -Disposition-

6. Procedures or Measures to be Adopted to Prevent Recurrence

- a. Personnel on the UH staff that might handle radioactive materials will receive training that would cover handling of radioactive materials. This training would also include those contractors that might handle radioactive materials.
- b. A procedure requiring that any/all disposition of radioactive waste be specifically approved by the Radiation Safety Officer or authorized representative.
- c. Notification to all Primary Investigators of this procedure and appropriate disposition forms.
- d. Most important, every investigator who receives a package of radioactive material should immediately place it in safe storage, and should not reject the package even if the shipment is deemed defective or improperly delivered. Instead, he should notify the RSO to arrange disposition.

KEY:
 ✓ = okay
 X = needs
 improvem
 C = Corrected
 Blank = N/A

CASE WESTERN RESERVE UNIVERSITY
 Radiation & Radioisotope Laboratory Survey

Bldg. TRASH
COMPACTOR

Rm. # OUTSIDE

Ext. _____

P.I. _____

Dept. _____

Survey _____

Date 1-19-89

ISOTOPE USED	H ³	C ¹⁴	P ³²	S ³⁵	I ¹²⁵						
MAX. mCi											
ACTIVITY											

Labelling Door _____ Storage _____ Work Area _____ Waste _____
 Refrigerator or Other Storage Absence of Food, etc. _____
 Fumes Hoods Operational _____ Total _____
 Dosimeters Appropriate _____ In Use _____ Current _____ Needed _____
 Shielding Present _____ Adequate _____ Needed _____
 Ionizing Radiation Producing Equipment Present _____ Hl's _____
 Survey Meter on Hand Appropriate _____ Working _____ Reading _____
 Sealed Sources Present _____
 Emergency Procedures Posted _____
 Housekeeping _____

REMARKS:

Letter Code Smears & Record Meter Readings on Figure:

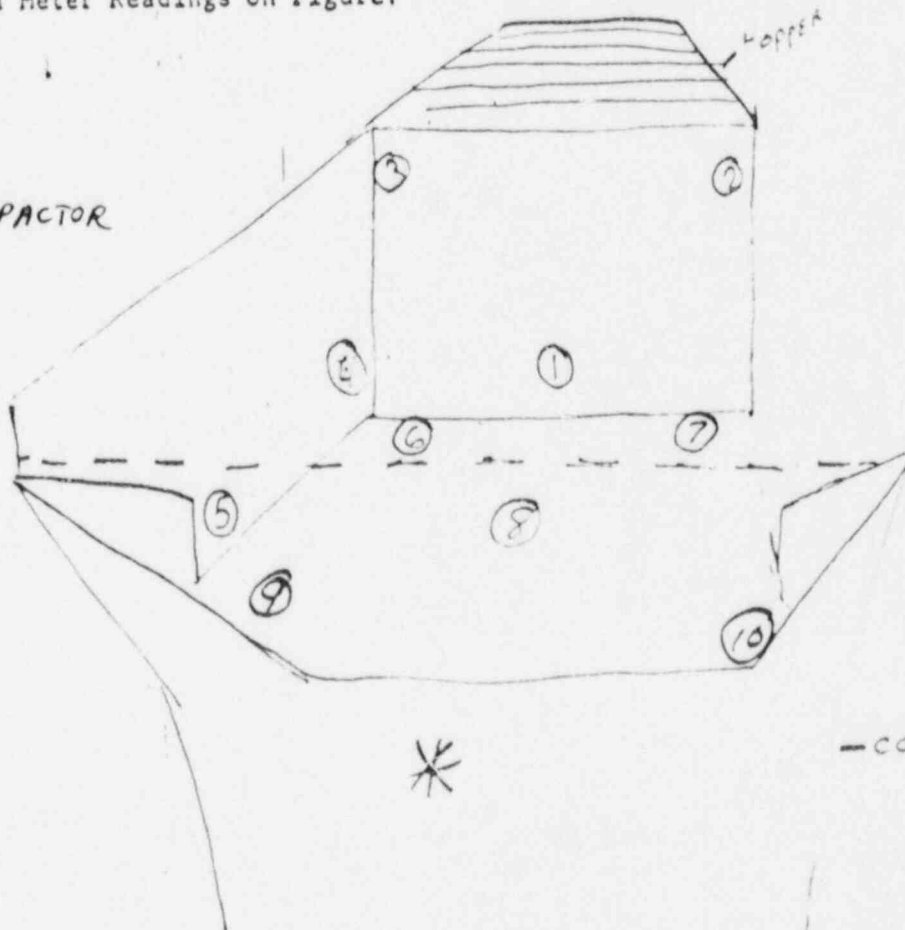
*

SMears

11-17

INSIDE COMPACTOR

1-17
 838-854



LOW UP:

eld Technicians _____

S & EA
 10/83