RI - DNMS Licensee Event Report
Disposition

Licensee: Penn State University

Event Description: Report of Loss of Licensed Mate

License No: 37 00185-04 Docket No: 030 00952 MLER-RI: 2005-045

Event Date: Report Date: 6-7-05 HQ Ops Event #:

1. REPORTING REQUIREMENT

- [ ] 10 CFR 20.1906 Package Contamination
- [x] 10 CFR 20.2201 Theft or Loss
- [ ] 10 CFR 20.2203 30 Day Report
- [ ] Other
- [ ] 10 CFR 30.50 Report
- [ ] 10 CFR 35.3045 Medical Event
- [ ] License Condition

2. REGION I RESPONSE

- [ ] Immediate Site Inspection — Inspector/Date
- [ ] Special Inspection — Inspector/Date
- [ ] Telephone Inquiry — Inspector/Date
- [ ] Preliminary Notification/Report
- [ ] Daily Report
- [x] Information Entered in RI Log
- [x] Review at Next Inspection
- [ ] Report Referred To:

3. REPORT EVALUATION

- [x] Description of Event
- [x] Levels of RAM Involved
- [x] Cause of Event
- [x] Corrective Actions
- [ ] Calculations Adequate
- [ ] Additional Information Requested from Licensee

4. MANAGEMENT DIRECTIVE 8.3 EVALUATION

- [ ] Release w/Exposure > Limits
- [ ] Repeated Inadequate Control
- [ ] Exposure 5x Limits
- [ ] Potential Fatality
- [ ] Deliberate Misuse w/Exposure > Limits
- [ ] Pkging Failure>10 rads/hr or Contamination>1000x Limits
- [ ] Large# Indivs w/Exp>Limits or Medical Deterministic Effects
- [ ] Unique Circumstances or Safeguards Concerns

If any of the above are involved:

- [ ] Considered Need for IIT
- [ ] Considered Need for AIT

Decision/Made By/Date:

5. MANAGEMENT DIRECTIVE 8.10 EVALUATION (additional evaluation for medical events only)

- [ ] Timeliness - Inspection Meets Requirements (5 days for overdose / 10 days for underdose)
- [ ] Medical Consultant Used-Name of Consultant/Date of Report:
- [ ] Medical Consultant Determined Event Directly Contributed to Fatality
- [ ] Device Failure with Possible Adverse Generic Implications
- [ ] HQ or Contractor Support Required to Evaluate Consequences

6. SPECIAL INSTRUCTIONS OR COMMENTS

- [ ] Non-Public
- [x] Public-SISP REVIEW COMPLETE

Inspector Signauture: Betty Ullrich Date: 7/29/05

Branch Chief Initials: Date: 7/29/05

Location of File: G:\Reference\Blank Forms\LER FORM.wpd

Rev. 02/25/05

From: "ERIC BOELDT" <BOELDT@EHS.PSU.EDU>
To: <RidsRgn1MailCenter@nrc.gov>
Date: 6/14/05 11:14AM
Subject: 30 day report of event number: 41750, dated June 8, 2005

US Nuclear Regulatory Commission Region I
ATTN: Administrator
475 Allendale Road,
King of Prussia, PA 19406-1415.
RidsRgn1MailCenter@nrc.gov

In accordance with 10 CFR 20.2201 "Reports of theft or loss of licensed material" I am providing this written report as a followup of the verbal report I made to the NRC Operations Center on June 7, 2005. That call was made to report missing radioactive material at 10:44 Eastern time.

The missing material consisted of a nominal 74 MBq (2 mCi) of phosphorus-32 Adenosine 5`-Triphosphate frozen liquid material. This material, along with other radioactive material, had been purchased for use at Penn State University from MP Biomedicals, Inc. in Irvine, California.

According to the shipping papers, on June 4, 2005, a Type-A package containing five kilograms of dry ice and three vials of P-32 with a total activity of 2.75 mCi, was shipped from California to Penn State University via FedEx (tracking number 689818990843). When the package arrived at Penn State University at 9:31 on June 6, 2005 it only contained 2 of the three vials of P-32 with a total activity of 0.75 mCi. When the vendor was contacted by Penn State University personnel, the vendor insisted that the material had been placed inside the package as was indicated on the shipping papers. The Penn State Health Physics Office staff member who opened the package reported that the security seal tape was properly attached and that the package displayed no evidence of tampering.

The total activity reported on the shipping papers matched the total activity reported on the Yellow-II radioactive material label. Both indicated the presence of three vials of radioactive material inside the package.

Although the shipping papers indicated the presence of three vials of P-32 within the package, only two were present when the container was opened. Three different compounds were ordered from MP Biomedicals and it was expected that all three would arrive in the same container as was indicated on the shipping papers. Contrary to that expectation only two vials were present in the package.

I do not expect that the shipment was diverted, but rather that the person or equipment responsible for loading the package somehow accidentally failed to place the third vial into the container. This would be similar to ordering three shirts from a vender and only two arriving at your house.

This radioactive material could be hazardous to a person who failed to take proper precautions. If the whole 2 mCi were placed on a person's skin, the initial shallow dose equivalent rate would exceed 1,000 rem/h. With an oral ALI of 600 uCi, the committed effective dose equivalent is on the order of 16 rem if the product were consumed by an adult. Again, since it is expected that the material never left the company of origin, no exposures are expected.

Since the package's security seal was intact, there was no evidence of tampering with the package, and the material never arrived at Penn State University, no actions have been taken, or will be taken, to recover the material. I was able to contact the Radiation Safety Officer of MP Biomedicals on June 10, 2005. He said he would discuss this situation with appropriate personnel.

Penn State does not believe there are any changes in procedures or measures within the control of Penn State that can be taken to reduce the likelihood of recurrence of this type of incident.

Please contact me if you have any questions or need further information about this incident.

Thank you,

Eric

Eric Boeldt
Radiation Safety Officer
The Pennsylvania State University
License # 37-00185-04
Docket # 030-00952
University Park, PA 16802
814-865-6391 ejb6@psu.edu

cc: Elizabeth Ullrich EXU@nrc.gov

CC: <exu@nrc.gov>