

**Official Transcript of Proceedings**  
**NUCLEAR REGULATORY COMMISSION**

Title: MIT: Incident Investigation Team  
Interview of Joel Lubenau

Docket Number: (not assigned)

Location: Rockville, Maryland

Date: Tuesday, November 7, 1995

Work Order No.: NRC-406

Pages 1-8

NEAL R. GROSS AND CO., INC.  
Court Reporters and Transcribers  
1323 Rhode Island Avenue, N.W.  
Washington, D.C. 20005  
(202) 234-4433

# ADDENDUM

| Page                       | Line                        | Correction and Reason for Correction                      |
|----------------------------|-----------------------------|---|
| 4                          | 11                          | Capitalize "state" } - refers to NRC                      |
| 4                          | 12                          | Capitalize "program's" } program office                   |
| 6                          | 4                           | Change "IG" to "OI" - misstatement by me.                 |
| 7                          | 9                           | Change "Investigator Glenn" to "Mr. Lukanau" -            |
| <del>7</del> <sup>10</sup> | <del>15</del> <sup>15</sup> | <del>Change</del> who was responding to Glenn's question. |
| 7                          | 15                          | Change "it's" to "if" - incorrect transcription           |

4 11 Delete "; " & replace it with a period.  
 Start new sentence with "but" - the  
 phrase beginning, "I'm not too sure" was a  
 follow-on sentence to the previous sentence.



1  
2  
3  
4  
5  
6  
7  
8  
9  
10  
11  
12  
13  
14  
15  
16  
17  
18  
19  
20  
21  
22  
23  
24  
25

UNITED STATES OF AMERICA

- - - - -

NUCLEAR REGULATORY COMMISSION

- - - - -

INCIDENT INVESTIGATION TEAM

- - - - -

INTERVIEW OF JOEL O. LUBENAU

- - - - -

TUESDAY, NOVEMBER 7, 1995

The interview took place in Room 4B-3 in the Nuclear  
Regulatory Commission Building Number Two, Rockville,  
Maryland, at 10:30 a.m., John E. Glenn, Chief  
Investigator, presiding.

PRESENT: JOHN E. GLENN, Chief Investigator  
BETSY ULLRICH  
SAMI SHERBINI

P-R-O-C-E-E-D-I-N-G-S

(10:34 a.m.)

INVESTIGATOR GLENN: Today is November 7. My name is John Glenn. I am the leader of an Incident Investigation Team that was chartered to look into an incident involving P-32 update at the Massachusetts Institute of Technology in August. The time is approximately 10:30. The purpose of this interview is to find out something about precursor events that may have occurred in the past.

I would like at this time to ask that the other members of the interviewing team introduce themselves for the record, and state their names and positions.

MR. SHERBINI: Sami Sherbini, Health Physicist, at NMSS.

MS. ULLRICH: I'm Betsy Ullrich, Senior Health Physicist from UG1.

INVESTIGATOR GLENN: And Mr. Lubenau, if you could state your name and your current position.

MR. LUBENAU: My name is Joel Lubenau. I am a Senior Health Physicist with NMSS.

INVESTIGATOR GLENN: Okay. The purpose of the IIT is to establish what happened at MIT, to identify a probable causes. The reason we are talking to you is also to develop lessons learned and make recommendations to the

NEAL R. GROSS

COURT REPORTER AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

(202) 234-4433

(202) 234-4433

1 agency as to possible changes that need to be made in our  
2 regulatory program.

3 The reason we are recording, having it  
4 transcribed is twofold. One, it permits us not to worry  
5 about writing notes in order to know what is said. Number  
6 two, the facts and findings that come out of the IIT need  
7 to be appropriately documented. This provides the  
8 mechanism for doing that.

9 The transcripts will be made available for your  
10 review, usually within 24 hours. You can contact Cherie  
11 Seigel and make arrangements for a time to come and look  
12 at them. When we are through, I'll give you a little  
13 sheet of paper that talks about the rules for review and  
14 availability of transcripts. You can make changes through  
15 an errata sheet, not by actually changing the text of the  
16 transcript.

17 The other thing is the transcripts will at the  
18 conclusion when the record has written the transcript, it  
19 will be put in the PDR.

20 Okay. I think one of the main reasons we want  
21 to talk to you and in terms of looking at precursor  
22 events, we did run across an event that occurred in  
23 California in 1978. It happened at a time when you were  
24 in the Office of State Programs. We thought you might  
25 know something about that.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 I was wondering if you could just tell us what  
2 you remember about it. Also, what the agency's follow-up  
3 action was, if any, that you remember.

4 MR. LUBENAU: I was afraid you were going to  
5 ask me the second part, because I don't remember. But on  
6 that, let me offer you some suggestions on where you can  
7 go to find the answers to that, because we're talking  
8 about an event that was 17 years ago. My recollections  
9 are pretty much in common with Herb Book's memo. I was  
10 trying to search my memory as to what we did afterwards.

11 I'm not too sure I can recall it, but state  
12 program's files for agreement state matters are organized  
13 by state. So you want to go to State Programs and ask  
14 them to pull out a retirement state file for California  
15 for this time period.

16 Another place to look is the microfiche records  
17 of the Periodic Reviews of the State Programs. In this  
18 particular case, the next review, whenever that was  
19 conducted of the California program. They are kept on  
20 microfiche. Those I think are in State Programs, or they  
21 used to be.

22 The other thing in reading this, of course Herb  
23 brought up the question of whether or not this was an  
24 abnormal or treated as an abnormal occurrence report. I  
25 don't remember. In the library, well you've got all

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 different ways of accessing those.

2 My recollection of this was that this was a  
3 case that caused us a lot of concern at State Programs  
4 because of the way that the state handled it or didn't  
5 handle it. Herb has already addressed the fact that they  
6 were not, state was not conducting an independent  
7 investigation. They were leaving it to the university and  
8 to the local police, who as Herb pointed out, turned out  
9 to be the campus police.

10 It was a case involving deliberate  
11 contamination. There's not that much more I can add to  
12 it. I was trying to search my memory as to what I could  
13 recall in addition to what Herb has reported. Without  
14 having a look at some of the other papers, as I said, it's  
15 17 years ago.

16 It caused us a lot of concern though. I do  
17 know that. At that time, we had just overall -- we had  
18 overall concerns about the State of California. Chet Mott  
19 was head of the compliance program. Another person was in  
20 charge of licensing. Joe Ward was the program director.  
21 This was just another item that caused us concern about  
22 the overall program at that time.

23 INVESTIGATOR GLENN: Okay. I guess you've told  
24 us where to look for additional information. You don't  
25 remember how the program office reacted to it, anything of

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20006

1 that nature?

2 MR. LUBENAU: I remember having conversations  
3 with Chet Mott. I remember having conversations with Bill  
4 Ward -- who was the guy in IG, about providing assistance  
5 to the state, investigative assistance. I guess the other  
6 players in the State Programs would have been Wayne Kerr.  
7 I guess Bob Ryan might have been there at the time. I  
8 remember spending some time on the phone with Chet Mott  
9 trying to get him to change their approach there about  
10 deferring to the licensee to do the investigation. That  
11 was troubling to us.

12 How we escalated it, and there was a reference  
13 to Peter Bradford, Commissioner Bradford, I don't recall  
14 the details.

15 INVESTIGATOR GLENN: We have done a search to  
16 see if there were any INs or anything like that. We  
17 haven't found anything.

18 MR. LUBENAU: There was a PN.

19 INVESTIGATOR GLENN: There was a PN.

20 MR. LUBENAU: Those should be available in the  
21 PDR.

22 INVESTIGATOR GLENN: We have a copy of the PN.

23 MR. LUBENAU: Now I don't know if we issued  
24 anything like we do today with the morning report or the  
25 other communications. That's why I say go to the

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20006



1 California file and see what is there.

2 INVESTIGATOR GLENN: Okay. There's a couple of  
3 other incidences that we have become aware of in agreement  
4 states and just ask you to see whether you recollect  
5 anything about those.

6 There was one at Duke University in North  
7 Carolina. I guess it occurred in 1988. It apparently  
8 wasn't reported until 1990.

9 INVESTIGATOR GLENN: That rang no bell with me.  
10 The one that rang a bell with me was the one at Brown  
11 University of Rhode Island. My recollection on that one  
12 is we saw similarities between that event and the one at  
13 UCSF. In fact, I think at one point we even wondered  
14 whether or not there were some same people involved. In  
15 other words, it's parties that were involved in California  
16 had managed to find their way to the east coast.

17 Other than that, I can not recall any of the  
18 details on the Rhode Island one. The Rhode Island program  
19 overall was always thought to have pretty good program.  
20 My guess is they did an investigation on their own.

21 INVESTIGATOR GLENN: We have a copy of their  
22 report. It, at least on the surface, appears to have more  
23 independence associated with it.

24 MR. LUBENAU: Well that would be consistent  
25 with what we knew about the Rhode Island program.

NEAL R. GROSS

COURT REPORTERS AND TRANSCRIBERS

1323 RHODE ISLAND AVENUE, N.W.

WASHINGTON, D.C. 20005

1 INVESTIGATOR GLENN: About the same time, there  
2 was a contamination incident at Albert Einstein in about  
3 the 1990 period.

4 MR. LUBENAU: That rings no bell with me. That  
5 is not to say I wasn't involved.

6 INVESTIGATOR GLENN: Well, Betsy, do you have  
7 any questions?

8 MS. ULLRICH: No. I don't.

9 MR. LUBENAU: I wish I had a John Dean total  
10 recall memory. I don't.

11 INVESTIGATOR GLENN: Okay. Well, at least you  
12 did give us some ideas of where --

13 MR. LUBENAU: If I can recall anything else,  
14 I'll be more than happy to let you know.

15 INVESTIGATOR GLENN: Okay. The time being  
16 about 10:42, the interview is concluded.

17 (Whereupon, at 10:43 a.m., the interview was  
18 concluded.)  
19  
20  
21  
22  
23  
24  
25

C E R T I F I C A T E

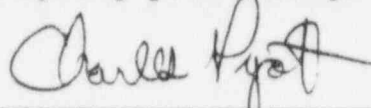
This is to certify that the attached  
proceedings before the United States Nuclear  
Regulatory Commission in the matter of:

Name of Proceeding: INTERVIEW OF JOEL LUBENAU

Docket Number: (NOT ASSIGNED)

Place of Proceeding: ROCKVILLE, MARYLAND

were held as herein appears, and that this is the original  
transcript thereof for the file of the United States Nuclear  
Regulatory Commission taken by me and, thereafter reduced to  
typewriting by me or under the direction of the court  
reporting company, and that the transcript is a true and  
accurate record of the foregoing proceedings.



---

CHARLES PYOTT  
Official Reporter  
Neal R. Gross and Co., Inc.

December 5, 1988 OPERATIONAL EVENTS UPDATE1. Stanford Mining Company - Missing Gauges (Austin)

On October 27, 1988, during review of a license termination request, Region I contacted the firm shown on the NRC Form 314 as the recipient of two (2) Texas Nuclear Model 5090 density gauges. The alleged recipient, Phoenix Environmental Leasing Company, Danville, West Virginia, did not possess a West Virginia or Agreement State license and denied ever taking possession of the gauges. Phoenix had contracted with Stanford to prepare mine sites for land reclamation in exchange for rights to any salvable equipment. A Phoenix representative said he had seen the gauges but the company was not interested in them and had neither sold them to a third party or removed them. Access to the site was not controlled during demolition and other persons could have removed the gauges. The gauges were last seen in February or March 1988, when salvage operations were in progress.

On October 28, 1988, a Region I inspector visited the Stanford site. The building that housed the gauges was demolished, and a survey revealed no sign of the gauges. Region I has directed the licensee to initiate actions to locate the gauges.

ACTION: Region I inspectors to visit site regarding allegations of devices bulldozed into mine by owner. IMAB to provide update at next meeting.

DUE DATE: January 3, 1989

2. National Flange (Texas Nonlicensee) - Contaminated Steel Flanges (SLITP)

On November 8, 1988, the Texas Bureau of Radiation Control (TBRC) informed Region IV that radioactive contamination was found in steel flanges imported from Italy. The contamination was discovered when metal turnings from several flanges were sent to a scrap steel company in Houston, Texas, and a radiation detector alerted personnel. The flanges were part of a batch of 750 flanges imported in July 1988 from SOTOV, Milano, Italy. The Italian supplier was Venete and a heat number was 25340.

On November 9, 1988, TBRC reported that only 11 of the 750 flanges were shipped from the Houston area and the balance had been located for return to Italy. The 11 flanges were sent to Vinson Supply Company and possibly installed in the Salt Lake City area. Utah authorities were notified. The import broker, Ferrostall Metals, Houston, Texas, stated this order of flanges was the only order from Italy with this heat number (25340). Products from other heat numbers do not appear to be contaminated.

Radiation levels on the surface of the flanges read 50-80 microrem/hr. The contamination appears to be Co-60 (100 pCi/g estimated) uniformly distributed throughout the steel. This is very similar to the contaminated well-casing pipe imported from Brazil (PNO-II-85-37).

ACTION: IP to confirm that Italians will accept contaminated flanges back. SLITP to provide update at next meeting.

DUE DATE: January 3, 1989

3. Washington State University (Washington) - State Confirmatory Order to Cease Receipt of Sealed Sources (SLITP)

On November 9, 1988, the State of Washington issued a Confirmatory Order to Washington State University to cease further receipt of sealed sources for use in the pool irradiator. This order resulted from an inspection conducted October 10-13, 1988. The irradiator is located in the TRIGA reactor pool. A total of 27 Co-60 sealed sources encapsulated by different manufacturers, containing approximately 8,049 curies, are presently in the pool. The licensee's RSO was unable to assure the State the sources were evaluated for water emersion in accordance with ANSI standard N452-1977. The largest single source (5,000 curies) encapsulated by General Electric was reportedly not evaluated for compliance with the ANSI standard. The licensee has increased the frequency of pool water analysis for Co-60 to three (3) times a week.

ACTION: Respond to technical assistance request from State. SLITP to provide status at next meeting.

DUE DATE: January 3, 1989

4. Combustion Engineering, Incorporated - Receipt of Contaminated Package (SGTR)

On November 9, 1988, the licensee reported to Region I that a box of equipment received on November 7, 1988, resulted in a single contamination measurement of 50,000 dpm/100 cm<sup>2</sup>. No other wipes revealed any abnormal contamination levels. The box was shipped in an exclusive-use vehicle from the Arkansas Nuclear One reactor facility, Russellville, Arkansas. The box arrived with the lid loosely in place and with no evidence that the box had been banded prior to shipment. The reactor facility survey records shipped with the box indicated a maximum reading of 960 mrem/hr at the surface and no removable contamination. The initial survey by the licensee on November 7, 1988, indicated a maximum reading of 10 mrem/hr at the surface and no removable contamination. Additional surveys by the licensee on November 9, 1988, to identify possible "hot particles" detected the elevated contamination level. The licensee is investigating to determine whether the measured removable contamination represents loose contamination or a single "hot particle." No contamination was found in the vehicle after the shipment was unloaded.

ACTION: SGTR to report at next meeting due to cognizant staff member not available.

DUE DATE: January 3, 1989

5. Additional Events (SLITP)

L. Bolling, SLITP discussed two reports of missing gauges. In both instances the gauges were misplaced, not lost or stolen. The first instance involved a gauge locked in a cabinet different than where it is normally stored. The second instance involved a van containing two gauges reported stolen when it was parked in a different part of parking lot than where it is normally parked.



6. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Austin)

ACTION: IMAB to provide status of 3M's R&D work on Po-210 static eliminators.

DUE DATE: January 3, 1989

7. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Austin/SLITP)

ACTION: IMAB to provide status report. SLITP to determine content of draft report from State Task Force.

DUE DATE: January 3, 1989

8. Amersham Corporation - Excessive Radiation Levels on Shipment (MacDonald)

ACTION: Cognizant staff member not available. SGTR to report at next meeting.

DUE DATE: January 3, 1989

9. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device  
Sealed source failed by release of source wafers
- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit  
Source failed to return to shielded position
- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit  
Source failed to return to shielded position

ACTION: AEOD to report at February meeting

DUE DATE: February 6, 1989

10. Sacred Heart Hospital (Maryland) - Teletherapy Misadministrations (Austin/SLITP)

ACTION: SLITP to provide State report to AEOD to enter into Abnormal Occurrence report. Copy of NRC Information Notice No. 88-93: "Teletherapy Events" attached. IMAB provide status at next meeting.

DUE DATE: January 3, 1989



J. L. T. J. -  
643

UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
OFFICE OF NUCLEAR MATERIAL SAFETY AND SAFEGUARDS  
WASHINGTON, D.C. 20555

December 2, 1988

NRC INFORMATION NOTICE NO. 88-93: TELETHERAPY EVENTS

Addressees:

All NRC medical licensees.

Purpose:

This notice is intended to alert recipients to the circumstances leading to two recent teletherapy events and to emphasize the importance of the correct use of computerized treatment-planning. It is expected that licensees will review this information for applicability to their programs, distribute this notice to those responsible for radiation safety, and consider actions, if appropriate, to preclude a similar situation from occurring at their facilities. However, suggestions contained in this notice do not constitute any new NRC requirements, and no written response is required.

Description of Circumstances:

In March 1987, following a source exchange for a cobalt-60 teletherapy unit at a hospital in an Agreement State, the higher activity of the new source was not properly accounted for in the computerized treatment-planning system. In particular, the computer program related to the use of beam trimmers was not updated because the beam trimmers were not being used by the licensee at the time of source exchange. At a later date, the licensee began using beam trimmers again and based its treatment planning calculations on the incorrect old source output. Because the licensee failed to update the program with the new source output, 33 patients received doses 75 percent in excess of the prescribed doses.

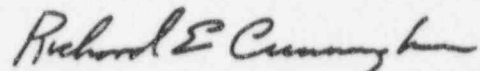
In a second case, in a different Agreement State, teletherapy events occurred at three different hospitals. Each of these hospitals used a different treatment-planning computer system. A consulting physicist who was working at all three of the hospitals made random errors when using the programs. The errors made indicated a misunderstanding of the computer parameter definitions and the limitations of the different treatment-planning systems.

8811290030

Discussion:

All medical licensees are reminded of the importance of making accurate therapy-dose calculations, including computer-assisted calculations. This is particularly important on occasions when the operating characteristics of the equipment might have been modified, such as after servicing or a source exchange. Licensees should consider methods to ensure that only updated programs and data files are used in treatment planning. In addition, licensees should consider steps to ensure that individuals using treatment-planning computer systems are properly trained in the use and limitations of those systems.

No written response is required by this information notice. If you have any questions about this matter, please contact the appropriate NRC regional office or this office.



Richard E. Cunningham, Director  
Division of Industrial and  
Medical Nuclear Safety  
Office of Nuclear Material Safety  
and Safeguards

Technical Contacts: J. R. Metzger, NMSS  
(301) 492-3424

J. McGrath, Region I  
(215) 377-5216

Attachment: List of Recently Issued NRC Information Notices

LIST OF RECENTLY ISSUED  
NRC INFORMATION NOTICES

| Information<br>Notice No. | Subject  | Date of<br>Issuance | Issued to   |
|---------------------------|--|---------------------|---|
| 88-92                     | Potential for Spent Fuel<br>Pool Draindown                                   | 11/22/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |
| 88-91                     | Improper Administration<br>and Control of<br>Psychological Tests             | 11/22/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors and<br>all fuel cycle facility<br>licensees who possess,<br>use, import, export,<br>or transport formula<br>quantities of strategic<br>special nuclear material. |
| 88-90                     | Unauthorized Removal of<br>Industrial Nuclear Gauges                         | 11/22/88            | All NRC licensees<br>authorized to possess,<br>use, manufacture, or<br>distribute industrial<br>nuclear gauges.   |
| 88-89                     | Degradation of Kapton<br>Electrical Insulation                               | 11/21/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |
| 88-88                     | Degradation of Westinghouse<br>ARD Relays                                    | 11/16/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |
| 88-87                     | Pump Wear and Foreign<br>Objects in Plant Piping<br>Systems                  | 11/16/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |
| 86-106,<br>Supp. 3        | Feedwater Line Break   | 11/10/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |
| 88-86                     | Operating with Multiple<br>Grounds in Direct Current<br>Distribution Systems | 10/21/88            | All holders of OLs<br>or CPs for nuclear<br>power reactors.   |

OL = Operating License  
CP = Construction Permit

1989 OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Tuesday, January 3, 1989   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, February 6, 1989   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, March 6, 1989      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, April 3, 1989      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, May 1, 1989        | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, June 5, 1989       | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, July 3, 1989       | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, August 7, 1989     | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 5, 1989 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 2, 1989    | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 6, 1989   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 4, 1989   | - | White Flint | 6B11 | 2:00 p.m. |

## BRIEFING SHEET

Scheduled: December 7, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS, on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees:

- H. Thompson
- R. Bernero
- K. Cunningham
- G. Sjoblom
- J. Hickey
- D. Cool
- K. Ramsey
- L. Rouse
- J. Swift
- G. Bidinger
- J. Austin
- N. McElroy
- M. Lamastra
- R. Burnett
- G. McCorkle
- C. MacDonald
- M. Knapp
- J. Greeves
- R. Browning
- B. J. Youngblood
- K. Black, AEOD
- V. Miller, SLITP
- L. Bolling, SLITP
- E. Flack, OE

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

NEW EVENTS - DECEMBER 5, 1988

1. MQS Inspection, Incorporated - Radiographer Overexposure (Austin)

On November 3, 1988, a 69 Ci Ir-192 source unexpectedly moved from its shielded position in a radiography camera into the guide tube while a radiographer and his assistant were setting up equipment for a radiograph. The work was being performed at the Midland Power Station construction site in Midland, Michigan. The radiographer's survey meter showed a high reading and the source was promptly cranked back into the camera. Pocket dosimeters worn by the two (2) individuals were off-scale.

*from*  
On November 8, 1988, the licensee received the results of expedited film badge processing showing exposures of 4.470 rem to the radiographer and 2.750 rem to the assistant. The workers have been removed from radiation work. The cause of the source entering the guide tube unexpectedly has not been determined. A Region III radiation specialist was scheduled to visit the site on November 10, 1988.

ACTION:

*Failed to install plug, moved & dropped camera handle moved out radiographer didn't realize immediately Hr. of reprimand to both workers.*

DUE DATE:

2. Stanford Mining Company - Missing Gauges (Austin)

*Follow-up*  
On October 27, 1988, during review of a license termination request, Region I contacted the firm shown on the NRC Form 314 as the recipient of two (2) Texas Nuclear Model 5090 density gauges. The alleged recipient, Phoenix Equipment Leasing Company, Danville, West Virginia, did not possess an NRC or Agreement State license and denied ever taking possession of the gauges. Phoenix had contracted with Stanford to prepare mine sites for land reclamation in exchange for rights to any salvable equipment. A Phoenix representative said he had seen the gauges but the company was not interested in them and had neither sold them to a third party or removed them. Access to the site was not controlled during demolition and other persons could have removed the gauges. The gauges were last seen in February or March 1988, when salvage operations were in progress.

On October 28, 1988, a Region I inspector visited the Stanford site. The building that housed the gauges was demolished, and a survey revealed no sign of the gauges. Region I has directed the licensee to initiate actions to locate the gauges.

ACTION: *Alleged: devices bulldozed into the mine. / 2 inspectors this week to visit site Follow-up on allegations and possible scenarios*

DUE DATE:



3. National Flange (Texas Nonlicensee) - Contaminated Steel Flanges (SLITP)

On November 8, 1988, the Texas Bureau of Radiation Control (TBRC) informed Region IV that radioactive contamination was found in steel flanges imported from Italy. The contamination was discovered when metal turnings from several flanges were sent to a scrap steel company in Houston, Texas, and a radiation detector alerted personnel. The flanges were part of a batch of 750 flanges imported in July 1988 from SOTOV, Milano, Italy. The Italian supplier was Venete and a heat number was 25340.

On November 9, 1988, TBRC reported that only 11 of the 750 flanges were shipped from the Houston area and the balance had been located for return to Italy. The 11 flanges were sent to Vinson Supply Company and possibly installed in the Salt Lake City area. Utah authorities were notified. The import broker, Ferrostall Metals, Houston, Texas, stated this order of flanges was the only order from Italy with this heat number (25340). Products from other heat numbers do not appear to be contaminated.

Radiation levels on the surface of the flanges read 50-80 microrem/hr. The contamination appears to be Co-60 (100 pCi/g estimated) uniformly distributed throughout the steel. This is very similar to the contaminated well-casing pipe imported from Brazil (PNO-II-85-37).

ACTION: IP prepared  
telex to Italians  
(not sent yet)  
to confirm  
they will accept flanges  
back

IP to confirm Italians will accept  
contaminated flanges when returned.  
SLITP provide status report.

DUE DATE:

4. Washington State University (Washington) - State Confirmatory Order to Cease Receipt of Sealed Sources (SLITP)

On November 9, 1988, the State of Washington issued a Confirmatory Order to Washington State University to cease further receipt of sealed sources for use in the pool irradiator. This order resulted from an inspection conducted October 10-13, 1988. The irradiator is located in the TRIGA reactor pool. A total of 27 Co-60 sealed sources encapsulated by different manufacturers, containing approximately 8,049 curies, are presently in the pool. The licensee's RSO was unable to assure the State the sources were evaluated for water emersion in accordance with ANSI standard N452-1977. The largest single source (5,000 curies) encapsulated by General Electric was reportedly not evaluated for compliance with the ANSI standard. The licensee has increased the frequency of pool water analysis for Co-60 to three (3) times a week.

ACTION: Tech. Assist. Req. (Respond)  
1. Jurisdiction, NRC is State  
2. Irradiate food to cancer patients. (don't want to shut down completely)  
- Want to separate irradiator from reactor (diff. pools)

DUE DATE:

Respond to technical  
assistance request from State  
SLITP provide status rpt.

5. Combustion Engineering, Incorporated - Receipt of Contaminated Package (SGTR)

On November 9, 1988, the licensee reported to Region I that a box of equipment received on November 7, resulted in a single contamination measurement of 50,000 dpm/100 cm<sup>2</sup>. No other wipes revealed any abnormal contamination levels. The box was shipped in an exclusive-use vehicle from the Arkansas Nuclear One reactor facility, Russellville, Arkansas. The box arrived with the lid loosely in place and with no evidence that the box had been banded prior to shipment. The reactor facility survey records shipped with the box indicated a maximum reading of 960 mrem/hr at the surface and no removable contamination. The initial survey by the licensee on November 7, 1988, indicated a maximum reading of 10 mrem/hr at the surface and no removable contamination. Additional surveys by the licensee on November 9, 1988, to identify possible "hot particles" detected the elevated contamination level. The licensee is investigating to determine whether the measured removable contamination represents loose contamination or a single "hot particle." No contamination was found in the vehicle after the shipment was unloaded.

to follow-up  
(SGTR not ready)

ACTION:

DUE DATE:

6. Additional Events (SLITP)  
7. Abnormal Occurrence Reports (AEOD)  
8. Recent Enforcement Actions

2 reports of missing gauges  
- 1 locked in diff. cabinet  
- 2 stolen gauges (bars moved)  
In both cases the gauges were only misplaced, not lost or stolen.

| <u>Licensee</u>                                       | <u>Date</u> | <u>Action</u>   |
|---|-------------|---|
| E. L. Conwell and Company<br>Bridgeport, Pennsylvania | 11/18/88    | \$1,950 civil penalty proposed<br>Order to Show Cause |
| Babcock and Wilcox Company<br>Lynchburg, Virginia     | 11/18/88    | \$6,250 civil penalty proposed                        |
| Shadyside Hospital<br>Pittsburgh, Pennsylvania        | 11/21/88    | \$2,500 civil penalty paid                            |

NOVEMBER 7, 1988 FOLLOW-UP ITEMS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Austin)

On November 10, 1988, Region III met with management representatives to discuss 3M's schedule to close out several issues including the return of all devices to 3M.

ACTION: IMAB provide status report.

DUE DATE: 12/05/88

Keep

4,500 devices still out  
800 lost devices (this year)  
A. Bert Davis wants to discuss w/ NMS + OGC / Comm. questioning reason why ordinance is effective immed. → (Health & Safety)

2. Problems with Luminous Devices - General Follow-up Topic (LLWM)

LLWM should consider need to look at ultimate disposal of luminous devices. Consideration needs to be given to sending a User-Need memo to RES on tritium-phosphor interactions.

ACTION: LLWM provide status report.

DUE DATE: 12/05/88

Keep

Baggett looking at Contract with Brookhaven to test devices / LLWM - may repl. of signs could gen. 24,000 signs for disposal  
Disposal Limitations → 10 CFR 61 / Richland [C/n3 enc. in concrete → wt. limit, cost] must be stabilized. \$100/sign for disposal

3. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Austin/SLITP)

ACTION: IMAB to provide status report.

DUE DATE: 12/05/88

Keep

SUTP Draft of State Task Force Report prepared (want to know what to expect)

4. Amersham Corporation - Excessive Radiation Levels on Shipment (MacDonald)

ACTION: SGTR to follow-up and provide status report.

DUE DATE: 12/05/88

stopped next month

5. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device

Sealed source failed by release of source wafers

- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit

Source failed to return to shielded position

- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit

Source failed to return to shielded position

ACTION: AEOD to report at ~~December~~ meeting

DUE DATE: 12/05/88

Keep

February

pull lists of events looking for trends

Cause of Problems?  
Age, Maint., other

Can NRC regulate maint. regmt?

6. Bartholomew County Hospital - Patient Crushed by Teletherapy Head (Austin)

ACTION: IMAB provide results of investigation into this incident at next meeting

DUE DATE: 12/05/88

*Maint. problems NRC or FDA action? Can NRC require licensees to follow maint. manuals. (AECL)*

7. Measurex Corporation (California) - Fingertip Overexposure to Two Individuals (Austin)

ACTION: IMAB to provide status report

DUE DATE: 12/05/88

*Failure to verify shutter closed. RI recommending NOV*

8. Sacred Heart Hospital (Maryland) - Teletherapy Misadministrations (Austin/SLITP)

On October 27, 1988, the state called Region I concerning a report from Sacred Heart Hospital that over the last 13 months, 33 patients received therapy treatment doses in excess of the prescribed dose. The licensee indicated that all 33 patients were "terminal," 20 of these 33 patients have died during the course of their treatments. The state sent an inspector to the facility to investigate the circumstances surrounding this occurrence.

On November 3, 1988, Region I reported the patients received doses 75% in excess of the prescribed doses. The Chief Technologist brought her concerns to the radiotherapist/RSO on three separate occasions after noticing erythema on patients. The radiotherapist/RSO took no action to investigate. After the third erythema case, the technologist called in their consultant medical physicist group, Mid-Atlantic Radiation Services, who confirmed the misadministrations. The radiotherapist's hospital privileges were suspended and a new therapist was hired. An independent consultant from the University of Virginia was hired by the hospital to determine if the overexposures contributed to the deaths of 20 patients. The State of Maryland also contacted an independent consultant from the University of Maryland to assist in evaluating this incident.

*Dr. Stanley Order Johns Hopkins Univ. will review patient's charts rpt. in 10 days*

On November 17, 1988, the State's investigation revealed that at the time of the source exchange (March 1987) the hospital's medical physicist was directed by the radiotherapist not to include and/or update the output data for beam trimmers because the therapist never used trimmers during therapy treatment. Approximately 13 months ago the therapist decided to use the beam trimmers for brain tumor therapy and used the old source output with trimmer data in the treatment planning.

ACTION: SLITP to provide state report to AEOD to enter into Abnormal Occurrence report. IMOB to issue Information Notice on "Failure to Check Computer Program Against Source Change." IMAB provide status at next meeting.

DUE DATE: 12/05/88

*QA implications (rulemaking)*

*done get copy of IN*

9. West Virginia University Hospital - Loss of Licensed Material (Austin)

ACTION: Region II to investigate cause of lost source. IMAB to provide status report at next meeting.

DUE DATE: 12/05/88

*drop.*

*No lid on  
lead pig when  
ribbons w/ seeds  
moved to storage*

*personal  
retained  
lid now reg'd.  
count in op. room  
& back at vault.*

NOVEMBER 7, 1988 FOLLOW-UP ITEMS

UPDATE

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

ACTION: IMAB provide status report.

DUE DATE: 12/05/88

2. Problems with Luminous Devices - General Follow-up Topics

LLWM should consider need to look at ultimate disposal of luminous devices. Consideration needs to be given to sending a User-Need memo to RES on tritium-phosphor interactions.

ACTION: LLWM provide status report.

DUE DATE: 12/05/88

3. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLTP)

ACTION: IMAB to provide status report.

DUE DATE: 12/05/88

4. Amersham Corporation - Excessive Radiation Levels on Shipment (MacDonald)

ACTION: SGTR to follow-up and provide status report.

DUE DATE: 12/05/88

5. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device  
Sealed source failed by release of source wafers
- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit  
Source failed to return to shielded position
- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit  
Source failed to return to shielded position

ACTION: AEOD to report at December meeting

DUE DATE: 12/05/88



6. Unscheduled Topics

- a. Hugh Thompson requested a follow-up to crushed patient incident at Bartholomew County Hospital
- b. Discussed liquid low level waste that did not solidify properly at Hope Creek Reactor Plant (Knapp)

7. Measurex Corporation (California) - Fingertip Overexposure to Two Individuals (V. Miller)

ACTION: IMAB to provide status report

DUE DATE: 12/05/88

8. Sacred Heart Hospital (Maryland) - Teletherapy Misadministrations (SLITP)

On October 27, 1988, the state called Region I concerning a report from Sacred Heart Hospital that over the last 13 months, 33 patients received therapy treatment doses in excess of 10% of the prescribed dose. The cause was that after a source change in March 1987, no information regarding the new source was incorporated into the computer program used for treatment planning. The licensee indicated that all 33 patients were "terminal," 20 of these 33 patients have died during the course of their treatments. The state has sent an inspector to the facility to investigate the circumstances surrounding this occurrence.

ACTION: SLITP to provide state report to AEOD to enter into Abnormal Occurrence report. IMOB to issue Information Notice on "Failure to Check Computer Program Against Source Change." IMAB provide status at next meeting.

DUE DATE: 12/05/88

9. West Virginia University Hospital - Loss of Licensed Material (V. Miller)

ACTION: Region II to investigate cause of lost source. IMAB to provide status report at next meeting.

DUE DATE: 12/05/88

October 3, 1988 OPERATIONAL EVENTS UPDATE

1. Berthold Systems (Pennsylvania) - Cobalt-60 Source Lost in Transit (Burnett)

On September 20, 1988 Region I received notification from Berthold Systems that a 2 mCi Co-60 sealed source was lost during transport from West Germany. The licensee noticed the source was missing when surveys of the shipping container received measured background levels. The shipping container handles were damaged and the padlock securing the lid was missing.

The source was transported by truck from the shipper, Laboratorium Berthold, Wilbad, West Germany and delivered to the airport in Stuttgart. Lufthansa Airlines transported the package to JFK Airport in New York. Scalia Airport Service transported the package by truck to the Greater Pittsburgh Airport. A Greater Pittsburgh Air Cargo truck delivered the package to Berthold Systems.

Region I requested the New York State Bureau of Radiological Health to conduct a physical search and radiological survey of the Lufthansa facility at JFK Airport. New York State inspectors detected radiation levels from a large trash dumpster on the premises consistent with expected radiation levels from the source. On September 22, a representative from Berthold Systems searched the dumpster and retrieved the source. The source was not damaged. No leakage was detected by field measurements but New York State inspectors took wipe samples for analysis. The source was placed in the original shipping container and prepared for transport back to West Germany. Shipment is pending New York State sample analysis and confirmation from U.S. Customs that the shipment has been cleared.

ACTION: Provide review of reporting requirements for material in transit (IMOB/JLong).

DUE DATE: 11/7/88

2. Amersham Corporation - Excessive Radiation Levels on Shipment (MacDonald)

On September 23, 1988, Amersham Corporation received four (4) containers from IRE, Belgium. When the truck arrived, all the containers were on their side on a pallet. The containers were righted and moved to the receiving doors where high radiation levels set off the building alarms. The highest radiation levels measured were 1,300 mR/hr at the surface of a package and 40 mR/hr at one (1) meter. The containers were originally flown to Boston by Air France and trucked from Boston to Amersham by Reliable Air Freight. Amersham determined the truck driver received minimal exposure and notified Air France of the incident.

ACTION: SGTR to follow-up and provide status report.

DUE DATE: 12/05/88

3. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device  
Sealed source failed by release of source wafers
- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit  
Source failed to return to shielded position
- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit  
Source failed to return to shielded position

ACTION: AEOD to report at December meeting

DUE DATE: 12/05/88

4. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

ACTION: IMAB provide status report.

DUE DATE: 11/07/88

5. Problems with Luminous Devices ○ General Follow-up Topics

LLWM should consider need to look at ultimate disposal of luminous devices. Consideration needs to be given to sending a User-Need memo to RES on tritium-phosphor interactions.

ACTION: LLWM provide status report.

DUE DATE: 11/07/88

6. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

ACTION: IMAB to provide status report.

DUE DATE: 11/07/88

7. Unscheduled Events

R. Burnett (SGTR) discussed Force-on-Force exercise for security at a Category I Fuel Facility.

OPERATIONAL EVENTS SCHEDULE

|                                 |   |             |      |           |
|---------------------------------|---|-------------|------|-----------|
| <u>Monday, November 7, 1988</u> | - | White Flint | 6B11 | 2:00 p.m. |
| <u>Monday, December 5, 1988</u> | - | White Flint | 6B11 | 2:00 p.m. |

ITEM 4. DEPARTMENT OF THE ARMY - MISSING SEALED RADIATION SOURCES CONTAINING TRITIUM

ACTION: IMAB TO CONTACT ARMY FOR ACCOUNTING OF DEVICES.

Below is a rough outline of how the U.S. Army Armament, Munitions and Chemical Command (AMCCOM) located in Rock Island Illinois accounts for radioactive devices. This command uses two different types of systems to track devices. One is the Radiation Testing and Tracking System (RAT) and is enforced by chapter 4 of Army Regulation 700-3, copy attached. The other is a series of property book officers who are held accountable for them after signing of a hand receipt.

About 43,000 chemical agent detectors containing 250 microcuries of americium-241 are licensed under 12-00722-13 and about 800 (soon to be 30,000) chemical agent monitors with 10 millicuries of nickel-63 are licensed under 12-00722-14. These devices are accounted for by the RAT. The Navy and Marine Corps will also follow this regulation for the detectors and monitors fielded in their services. By using this accountability procedure, the Army Command can account for each device and cell module by serial number throughout its life cycle, that is to say from purchase through disposal. When maintenance is performed on these items, replacement source are not issued until the defective source modules are turned in for disposal.

The other radioactive devices licensed for use by AMCCOM are tritium luminous fire control under 12-00722-06 and 12-00722-09; promethium -147 luminous antitank weapon under 12-00722-02; and tritium luminous rifle sights, licensed under 12-0722-02. Please Note: There are also several thousand devices used under general license provisions and under the exemptions provisions of NRC regulations. These types of devices generally fall outside of any accounting system.

Complete inventory records on devices used under the above specific licenses are not centrally maintained by AMCCOM. They do maintain records on total quantities procured, and records of quantities stored at each bulk storage depots. Once the devices are fielded to users, AMCCOM maintains neither accountability nor visibility of the devices until the devices are turned in to a depot for repair or disposal.

The basic property book accounting system requires the users maintain records of receipts, transfers, annual inventories, and records of adjustments. The property book officer signs for the devices and is held accountable for them until they are transferred to another property book officer.

The tritium luminous fire control devices used under license 12-00722-06 are repaired in the field. The maintenance

units maintain an inventory of replacement source modules. Replacements modules are issued by AMCCOM to users as needed. These replacement source modules are not accounted for by serial number, and AMCCOM does not require turn in of source modules prior to release of replacement modules.

Devices used under research and development programs of the ARMY are subject to the specific controls required by a specific license issues by the NRC.



## Section II Radiation Testing and Tracking System (RATTS)

### 4-24. General

This section provides the DOD services/agencies standard procedures for the DOD Radiation Testing and Tracking System for reporting of the cell, detector chemical, a component of the M43A1 detector. The M43A1 detector and the M43 alarm are, in turn, components of the M5A1 chemical agent alarm. The cell, detector chemical, is hereafter identified as cell. The requirements for these standard procedures are set forth in AR 700-64, AR 385-11, and Nuclear Regulatory Commission (NRC) License 12-00723-13. The NRC requirements pertaining to this item are as follows:

a. Control of cell (NSN 6665-01-114-0073) by serial number through life cycle.

b. Wipe test required 6 months prior to transfer of shipment.

c. Wipe test within a 3-year timeframe.

d. Wipe test of annual random sample (maximum of 30 depending upon the density at site).

### 4-25. Responsibilities

a. The DCSLOG, HQDA, will operate and maintain the DOD RATTS HQ AMCCOM, Rock Island, IL, by license, is the ARA for the DOD Central Registry.

b. The Commanding Generals of the MACOMs will—

(1) Establish procedures to ensure compliance with overall policy stated in this regulation.

(2) Ensure that CONUS activities, currently established for DODSASP, under their jurisdiction for this program, set up files and maintain visibility of all cells in inventory or on-hand in supported units or activities.

c. The USFPO will—

(1) Establish an installation file.

(2) Maintain visibility of all stock record and property book accounts within their State.

d. The Commanding Generals of USAREUR, USABJ, EUSA, and WESTCOM will—

(1) Set up a command overseas area file using the CONUS installation concept.

(2) Set up serial number files at each of their stock record, property book, and M&C or installation concepts.

(3) Appoint an individual as cell serialization survey officer (CSSO).

e. MACOM CGs with subordinate activities in overseas areas will—

(1) Set up serial number files at each property account location.

(2) Ensure that the owning activities reports to the designated overseas area file.

f. The cell serialization survey officer will—

(1) Maintain control and visibility of all cells in inventory or on-hand in supported units or activities.

(2) Monitor, report, and reconcile cell data before reporting to the DOD Central Registry.

### 4-26. Objectives of DOD RATTS

The objectives of the DOD RATTS Program are to—

a. Establish and maintain visibility by serial number and wipe test of all cells within the active Army, USAR, ARNG, and other DOD components, as prescribed herein.

b. Provide strict control of all cells for the purpose of safety of the user or maintainer.

c. Meet requirements imposed by the NRC as outlined in NRC License 12-00723-13.

### 4-27. Scope

The provisions of this chapter apply to all CONUS installations or depots, overseas area files, ARNG, and the USFPO.

### 4-28. Compliance methods

a. The cell serial number control system will maintain visibility over all cell serial numbers—

(1) From the manufacturer to depot.

(2) In storage.

(3) In transit to requisitioners.

(4) In post, comp, and station custody.

(5) In the hands of users.

(6) During turn-ins.

(7) Through final disposition when deemed unserviceable.

(8) During inventory gains and losses.

(9) For shipments to foreign military sales/grant aid.

(10) For activities outside control of the DOD.

(11) For transfers between DOD components.

b. The head of DOD Central Registry will—

(1) Establish an active master file of all cells to include wipe test results.

(2) Establish an active master file of records to identify serial numbers of cells that are lost, stolen, unserviceable or shipped to activities outside the control of DOD.

(3) Be capable of responding to inquiries from authorized agencies by identifying the responsible activity having accountability for a specific serial-numbered cell.

(4) Perform annual reconciliation with reporting activities to validate master record.

c. Depot, installation, overseas area, and USFPO files must be established to—

(1) List and track all cells by serial number. As a minimum, file will identify cell ownership to the property book level.

(2) Identify serial numbers of all cell transactions and report changes to RATTS.

(3) Contain information to advise the DOD Central Registry when—

(a) A serial-numbered cell is received by, or transferred to, another Army field activity or DOD component.

(b) Cells are wipe tested, turned in, lost, stolen, unserviceable, recovered, or shipped out of DOD.

(4) Record each transaction on an inactive file until information has been reconciled with the DOD Central Registry.

(5) Inventory incoming shipments within 10 days after receipt.

(6) Contain information to respond to inquiries from the DOD Central Registry giving the last known address and unit responsible for a specific serial-numbered cell.

(7) Contain information needed to participate in annual "bottoms-up" reconciliation with the DOD Central Registry.

(8) Contain information required to respond to transaction rejects from DOD Central Registry update and reconciliation cycles within the prescribed suspense period.

### 4-29. Data submission

All cell serial number data will be transmitted to the DOD Central Registry Office by punched card or magnetic tape. There are three types of input submissions that may be used.

a. To the maximum extent possible, data will be forwarded to DOD Central Registry Office, Cdr. AMCCOM, Rock Island, IL.

61299-6000, via AUTODIN. The transceiver code to be used is RUCIAFB; content indicator code is AHCM; routing identifier is B14. Where this capability does not exist, certified mail will be used to transmit serial number data.

A Certified mail tape should be used for large submissions from installations that have tape equipment. In order to interface with AMCCOM's IBM system, the following specifications are furnished:

(1) Translate to IBM mode BCD, EBCDIC.

(2) Use 800 BPL/1600 BPL, 7- or 9-track.

(3) Use 80 positions per record, 30 records per block.

(4) Do not use header labels. An external label placed on each reel of tape should indicate the information in (1) through (3) above, along with the return address of the reporting activity. Mail all tapes to Commander, U.S. Army Armament, Munitions, Chemical Command (AMCCOM), ATTN: AMSM (MD-LW, Rock Island, IL 61299-6000).

c. C  
package  
applic.  
AMC  
Rock

sheet,  
pared  
through  
e. T.  
4-13 ar  
are user  
cell stat  
activity  
Cell tra  
column

all cards should be securely  
boxed using filler where  
shipped to Commander,  
N: AMSMC-MMD-LW,  
61299-6000.

at of transaction work-  
ally reproduced and pre-  
sance with tables 4-12

transaction codes in table  
after alphabetic codes that  
ring changes affecting the  
master file of the reporting  
DOD Central Registry.  
e codes are entered in card

Table 4-1  
Cell transaction codes

Code: B  
Explanation: Initial registration of cell.

Code: C  
Explanation: Inventory adjustment gain. Reports gain of a cell serial number through inventory adjustments.

Code: D  
Explanation: Shipment reversal. Reverses an invalid shipment transaction (codes "S", "F", "N") and picks serial number of cell back up on reporting activity's file.

Code: E  
Explanation: Used in annual reconciliation with the DOD central Registry.

Code: F  
Explanation: FMS/grant aid shipment. Reports issue of cells directed under FMS or grant aid agreements.

Code: L  
Explanation: Inventory Adjustment-Loss. Reports inventory adjustment loss after all investigative requirements, including report of survey, have been initiated.

Code: N  
Explanation: Shipment to other agencies. Reports shipment to activities outside the control of DOD. This would include shipments to civilian activities, non-DOD Government activities, and non-reporting (classified) military activities. (Excludes FMS or grant aid.)

Code: P  
Explanation: Procurement gain. Prepared by manufacturer for initial registration and shipment.

Code: Q  
Explanation: Notification of suspected loss. Reports potential lost or stolen cell. Investigation or report of survey is in process.

Code: R  
Explanation: Receipt. Confirms receipt of cell and/or cell and detector.

Code: S  
Explanation: Shipment. Reports shipment from one DOD reporting activity to another.

Code: V  
Explanation: Unserviceable cells. Reports unserviceable cells (to be used by disposal activity only).

Code: W  
Explanation: Wipe test results. Reports results of wipe test to the DOD Central Registry.

Code: X  
Explanation: Cell removal. Reports removal of cell from detector.

Code: Y  
Explanation: Cell insertion. Reports insertion of cell into a detector.

f. Cell transaction code "B" format, in table 4-14, will be used to initially register cells.

Table 4-14  
Cell transaction code "B" format

Card column: 1-3  
Field legend: DIC.  
Instructions: Enter DIC "BDA".

Card column: 4-6  
Field legend: PIC.  
Instructions: Enter "B-4".

Card column: 7  
Field legend: Transaction code.  
Instructions: Enter "B".

Card column: 8-18  
Field legend: Cell serial number.  
Instructions: Enter serial number of cell.

Card column: 19  
Field legend: Service code.  
Instructions:

- Enter "1" for Army.
- Enter "2" for Navy.
- Enter "3" for Marine Corps.
- Enter "4" for Air Force.

Card column: 20-33  
Field legend: Document number.  
Instructions: Optional.

Card column: 34  
Field legend: Document number with

# Instructions: Optional.

Card column: 35-36  
Field legend: Cell wipe test date.  
Instructions: Enter date of wipe test.

Card column: 40-46  
Field legend: Reporting activity.  
Instructions: Enter your DODAAC.

Card column: 48  
Field legend: Leave blank.  
Instructions: Leave blank. (See note.)

Card column: 47-52  
Field legend: Owning activity.  
Instructions: Enter DODAAC/UIC of unit actually possessing the cell. (See note.)

Card column: 53  
Field legend: Leave blank.  
Instructions: Leave blank. (See note.)

Card column: 54-56  
Field legend: Ship-to activity.  
Instructions: Not applicable.

Card column: 60-70  
Field legend: Detector serial number.  
Instructions: Enter serial number of detector concerning the cell.

Card column: 71-73  
Field legend: Wipe test result.  
Instructions: Enter UIC reading. U.S. Army Test Support Group (USATSG)/DG/GS reading should be identified as 566-00; 999-00 GO. Evaluation facility will input actual reading.

Card column: 74-75  
Field legend: Leave blank.  
Instructions: Leave blank.

Card column: 76-80  
Field legend: Transaction date.  
Instructions: Enter date of initial registration; cc 76-77 = year, cc 78-80 = Julian date.

Note: Disposal/storage facilities may use card columns 48-53 to enter storage reference point.

g. Cell transaction code "C" format, in table 4-15, will be used to notify the DA Central Registry of the recovery of a cell previously reported lost or stolen.

Table 4-15  
Cell transaction code "C" format

Card column: 1-3  
Field legend: DIC.  
Instructions: Enter DIC "BDA".

Card column: 4-6  
Field legend: PIC.  
Instructions: Enter "B14".

Card column: 7  
Field legend: Transaction code.  
Instructions: Enter "C".

Card column: 8-18  
Field legend: Cell serial number.  
Instructions: Enter serial number of cell.

Card column: 19  
Field legend: Service code.  
Instructions:

- Enter "1" for Army.
- Enter "2" for Navy.

BRIEFING SHEET

Scheduled: October 3, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS, on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees:

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- D. Cool
- K. Ramsey
- L. Rouse
- J. Swift
- V. Miller
- J. Austin
- N. McElroy
- M. Lamastra
- R. Burnett
- G. McCorkle
- C. MacDonald
- M. Knapp
- J. Greeves
- R. Browning
- B. J. Youngblood
- K. Black, AEOD
- E. Flack, OE
- L. Bolling, SLITP
- S. McGuire, RES

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

October 3, 1988 New Operational Events

1. Baxter Healthcare Corporation (Aibonito, PR) - Apparent Overexposure (V. Miller)

*drp*  
On September 16, 1988, Region II received a report of an apparent overexposure measured on a TLD. An employee received 2,860 mrem in a one (1) month period ending July 24, yielding a second quarter total of 3,640 mrem. The licensee operates a Co-60 irradiation facility for sterilization of medical products. The cause is still under investigation. Employees are now wearing self-reading pocket dosimeters.

ACTION: *Still investigating, pool-type irradiator*  
*R II to issued insp. rpt., AROD enter into data base, no further action req'd*

DUE DATE:

2. Berthold Systems (Pennsylvania) - Cobalt-60 Source Lost in Transit (Burnett)

On September 20, 1988 Region I received notification from Berthold Systems that a 2 mCi Co-60 sealed source was lost during transport from West Germany. The licensee noticed the source was missing when surveys of the shipping container received measured background levels. The shipping container handles were damaged and the padlock securing the lid was missing.

The source was transported by truck from the shipper, Laboratorium Berthold, Wilbad, West Germany and delivered to the airport in Stuttgart. Lufthansa Airlines transported the package to JFK Airport in New York. Scalia Airport Service transported the package by truck to the Greater Pittsburgh Airport. A Greater Pittsburgh Air Cargo truck delivered the package to Berthold Systems.

Region I requested the New York State Bureau of Radiological Health to conduct a physical search and radiological survey of the Lufthansa facility at JFK Airport. New York State inspectors detected radiation levels from a large trash dumpster on the premises consistent with expected radiation levels from the source. On September 22, a representative from Berthold Systems searched the dumpster and retrieved the source. The source was not damaged. No leakage was detected by field measurements but New York State inspectors took wipe samples for analysis. The source was placed in the original shipping container and prepared for transport back to West Germany. Shipment is pending New York State sample analysis and confirmation from U.S. Customs that the shipment has been cleared.

ACTION: *IMOB, provide review of reporting requirements for mat. in transit.*

DUE DATE: *11/7*

*who notifies who & when?*

*reporting requirements of lost items sufficient?  
who is responsible?*

*(DOT rpt. reqmts. for lost haz. mat.)*

*Justin to pursue*



3. Trainer Surveys, Incorporated (Louisiana) - Lost Well Logging Source (SLITP)

On September 21, the Louisiana Nuclear Energy Division notified Region IV that a 3 Ci americium-beryllium source was lost. The source was last used at a field site near Shreveport, Louisiana on September 20 and found missing at the licensee's facility in Shreveport the next day. The source was left on the rear bed of the truck and lost on the road when returning from the field site. Surveys were conducted including the use of the logging tool as a sensitive radiation detector. On September 22, 1988, the source was found just outside the city limits of Shreveport by a man walking his dogs. He recognized the source from public notices and called authorities without handling it. The truck had traveled about 20 miles before the unsecured source fell off the truck bed.

ACTION: *No action*

DUE DATE:

4. Davis Besse, Toledo Edison Company - Detached Radiography Source (Miller/AEOD)

On August 24, 1988, a 47 curie Iridium-192 source detached from its cable and could not be retracted into the shield after a radiographic exposure in a containment. The contractor's home office sent help to recover the source. Davis Besse health physics technicians located the source, a recovery was planned and the source was returned to its shield. The maximum whole body dose received was approximately 400 mrem to a contractor during source recovery.

ACTION: *No action*

DUE DATE:

5. Fitzpatrick, New York Power Authority - Detached Radiography Source (Miller/AEOD)

On September 14, 1988, an 89 Ci Ir-192 source became detached from its drive cable during radiography of a valve in the reactor building. The radiography equipment is licensed to Combustion Engineering (CE). General area dose rate near the camera was about 300 mR/hr. On September 15, a response team from CE returned the source to the shielded container. Less than 100 mrem was received during this recovery action.

ACTION: *Will file part 21 rpt. by CE*

DUE DATE: *further  
no action*

6. Special Presentation - Proposed Regulation of Large Pool-type Irradiators

Discuss AEOD/S807-Review of Events at Large Pool-Type Irradiator and provide status of rulemaking.

ACTION:

DUE DATE:

*no further*

*QA → interlocks, hang-ups on cables  
constr. criteria  
Op. regmts.  
Reporting requirements*

*RST  
Buying Isometrics  
- Financial Abs?  
- New license?*

follow-up  
2 month

7. Additional Events in Agreement States (SLITP)
8. Status of Abnormal Occurrence Reports (AEOD)
9. Recent Enforcement Actions

Monitor package when rec'd  
Amersham 600-1000 mm/hr @ surface  
Ir-92 from Belgium

Carrier - Air France TL = 15-25  
should not carry TI > 10

| <u>Licensee</u>   | <u>Date</u>        | <u>Action</u>                     |
|---|--------------------|-----------------------------------|
| Bridgeton Hospital<br>Bridgeton, New Jersey             | September 1, 1988  | \$1,250 civil penalty<br>paid     |
| Bill Miller, Incorporated<br>Henryetta, Oklahoma        | September 13, 1988 | \$8,000 civil penalty<br>proposed |
| Payne and Payne, Inc.<br>Shawnee, Oklahoma              | September 20, 1988 | \$1,600 civil penalty<br>proposed |
| Wise Appalachian Regional<br>Hospital<br>Wise, Virginia | September 30, 1988 | \$1,250 civil penalty<br>proposed |

follow-up  
MacDonald  
SGTR.



October 3, 1988 Follow-up Items

1. Veterans Administration Medical Center - Excessive Radiation Levels on Molybdenum-99/Techne-99m Generator (Austin)

On July 29 or 30, 1988, a Mo-99/Tc-99m generator was delivered during off hours. It measured 20 mR/hr at 3 feet when surveyed at 10 a.m. on July 30, 1988. Approximately 2,500 cpm removable contamination was found on the package and generator surface (efficiency and area surveyed not provided). The generator was a Medi-Physics Cintichem with 5.3 curies nominal Mo-99 activity. The box containing the generator was delivered by an air freight courier and appeared to be crushed on one corner.

*Drop.*  
On August 1, 1988 the licensee surveyed the facility, delivery vehicle and personnel and found no contamination. On August 2, 1988, a manufacturer's representative examined the generator and performed surveys. The representative concluded that the generator was not damaged or leaking (note: Tc-99m only has a 6 hour half-life). NMSS is coordinating with FDA who is discussing the matter with Cintichem.

ACTION: Verify differences between VA data and Cintichem data (IMAB)

DUE DATE: 10/03/88

*Hospital's detector not working  
haven't been able to get up w/ hospital  
→ follow-up on VA hospitals*

2. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device  
Sealed source failed by release of source wafers
- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit  
Source failed to return to shielded position
- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit  
Source failed to return to shielded position

ACTION: AEOD to report at next meeting

DUE DATE: 10/03/88

*Start this month (teletherapy, radiography)  
M. ... to eyes = sev. rad to thyroid.*

*12/5.*

3. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

stays

ACTION: IMAB provide status report.

RdD allowed  
no distribution  
focus on QA

DUE DATE: 10/03/88

4. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 3.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersburg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION: IMAB to contact Army for accounting of devices.

50,000 devices  
known

DUE DATE: 10/03/88

Some categories  
are  
like gun sights ~~is~~ unk.

5. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

The potential for redistribution of activity from RSI/Decatur pool walls and capsule rack surfaces was evaluated by scrubbing the walls. No significant increase in pool activity was observed. On September 8, DOE notified RSI of plans to recall the WESF capsules and RSI agreed to release the capsules.

On September 9, 1988, DOE began screening/evaluating WESF capsules at RSI/Westerville. On September 12, the State of Georgia RSI Investigative Task Force was scheduled to meet in Atlanta.

On September 16, suspect capsules 1507 and 1542 were shipped from RSI/Decatur to ORNL after modifying the overpacks and revising the loading procedures to ensure dryness prior to shipping. Overpack surveys at ORNL showed no significant contamination. Sipping operations were suspended at RSI/Decatur pending evaluation of sipping techniques.

consideration needs to be given to a user need memo on tritium phosphor interactions. (Higher amount tritium in phosphor than originally estimated.)

Problem  
light emitting  
devices with  
contam.  
phosphor  
ultimate disposal  
of known signs  
(sources)

Research  
user need  
to allow  
manuf.

consider  
user need  
to look at ultimate  
disposal of known  
devices

On September 16, Region III issued a license amendment authorizing RSI/Westerville to load up to 1.2 million curies of Co-60 and initiate commercial operation contingent upon removal and shipment of 36 WESF capsules to DOE/Hanford. Shipment was planned for the week of September 19.

On September 21, RSI/Decatur pool levels had increased from  $1.17 \times 10^{-5}$  uCi/ml on September 16 to  $3.27 \times 10^{-5}$  uCi/ml after the demineralizers were down for 114 hours. Pool vacuuming operations were initiated and processing water through the demineralizers was restarted. Additional sipping tests on the remaining capsules are to begin the first week of October.

On September 23, RSI/Decatur pool levels had decreased to  $1.15 \times 10^{-5}$  uCi/ml. Activity is continuing to be introduced into the pool at a rate of 30-40 uCi/hr. Several pounds of sludge-like material with an activity of 0.5 uCi/gm were vacuumed from the pool bottom. Preliminary results of the two capsules shipped to ORNL indicate they are not leakers.

ACTION: IMAB to provide status report.

DUE DATE: 10/03/88

*BTHW - Naval Fuels:  
a category 1 fuel facility, a rule is before commission.  
new rules - eval. effectiveness of guard force  
to req. force-on-force exercises for security.  
very realistic, laser beam weapons  
very expensive (\$5000/individual)  
- loaner program.*

OPERATIONAL EVENTS SCHEDULE

|                                 |   |             |      |           |
|---------------------------------|---|-------------|------|-----------|
| <u>Monday, November 7, 1988</u> | - | White Flint | 6B11 | 2:00 p.m. |
| <u>Monday, December 5, 1988</u> | - | White Flint | 6B11 | 2:00 p.m. |

K. Far...

SEPTEMBER 6, 1988 OPERATIONAL EVENTS UPDATE

1. Veterans Administration Medical Center - Excessive Radiation Levels on Molybdenum-99/Techetium-99m Generator (Austin)

On July 29 or 30, 1988, a Mo-99/Tc-99m generator was delivered during off hours. It measured 20 mR/hr at 3 feet when surveyed at 10 a.m. on July 30, 1988. Approximately 2,500 cpm removable contamination was found on the package and generator surface (efficiency and area surveyed not provided). The generator was a Medi-Physics Cintichem with 5.3 curies nominal Mo-99 activity. The box containing the generator was delivered by an air freight courier and appeared to be crushed on one corner.

On August 1, 1988 the licensee surveyed the facility, delivery vehicle and personnel and found no contamination. On August 2, 1988, a manufacturer's representative examined the generator and performed surveys. The representative concluded that the generator was not damaged or leaking (note: Tc-99m only has a 6 hour half-life). NMSS is coordinating with FDA who is discussing the matter with Cintichem.

ACTION: Verify differences between VA data and Cintichem data (IMAB)

DUE DATE: 10/03/88

2. Device End-of-Life Problems (AEOD)

- a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device  
Sealed source failed by release of source wafers
- b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit  
Source failed to return to shielded position
- c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit  
Source failed to return to shielded position

ACTION: AEOD to report at next meeting

DUE DATE: 10/03/88

3. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

During the week of August 1-5, 1988, Region III and representatives from OSHA, EPA and ORAU conducted a team inspection at the 3M facility in St. Paul, Minnesota.

ACTION: IMAB provide status report.

DUE DATE: 10/03/88

4. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 3.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersburg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION: IMAB to contact Army for accounting of devices.

DUE DATE: 10/03/88

5. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

On August 29, 1988, a DOE/Westinghouse team began visual examination of WESF capsules at RSI/Westerville. If no leakers are found, DOE plans to test the remaining capsules at RSI/Decatur using an underwater "bell jar" system that will heat the capsules causing "spitting" of any contaminated annulus water from the capsules.

ACTION: IMAB to provide status report.

DUE DATE: 10/03/88



6. Additional Events in Agreement States (SLITP)

None discussed.

7. Status of Abnormal Occurrence Reports (AEOD)

AEOD was unable to attend due to conflict in schedules.

8. Recent Enforcement Actions

| <u>Licensee</u>  | <u>Date</u>     | <u>Action</u>  |
|--|-----------------|--|
| University of Medicine<br>and Dentistry of New Jersey<br>Newark, New Jersey  | July 26, 1988   | \$5,000 civil penalty<br>imposed (paid August<br>29, 1988) |
| Bridgeton Hospital<br>Bridgeton, New Jersey  | July 29, 1988   | \$1,250 civil penalty<br>imposed                           |
| Brigham and Women's<br>Hospital<br>Boston, Massachusetts   | August 10, 1988 | \$5,000 civil penalty<br>paid                              |
| Wrangler Laboratories,<br>Larsen Laboratories,<br>Orion Chemical Company,<br>and Mr. John P. Larsen<br>Provo, Utah | August 15, 1988 | General license<br>authorization revoked                   |
| Yale University<br>New Haven, CT   | August 17, 1988 | \$1,125 civil penalty<br>paid                              |
| Department of the Army<br>Albuquerque, New Mexico  | August 19, 1988 | \$1,000 civil penalty<br>imposed                           |
| Veterans Administration<br>Medical Center<br>Wichita, Kansas   | August 19, 1988 | \$2,500 civil penalty<br>paid                              |
| Computalog, Incorporated<br>Drumright, Oklahoma  | August 22, 1988 | \$1,000 civil penalty<br>imposed                           |
| Midwest Wireline Logging<br>and Perforating, Inc.<br>Seminole, Oklahoma  | August 29, 1988 | Order suspending<br>license and show<br>cause              |

9. Unscheduled Events Discussed

R. Burnett (SGTR) discussed September 5, 1988 event in which NFS security guard shot himself while handling weapon. Guard is recovering. No follow-up action necessary.

BRIEFING SHEET

Scheduled: September 6, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- ~~R. Hall~~
- J. Hickey
- D. Cool
- K. Ramsey
- L. Rouse
- J. Swift
- J. Austin
- N. McElroy
- M. Lamastra
- R. Burnett
- G. McCorkle
- C. MacDonald
- M. Knapp
- J. Greeves
- R. Browning
- B. J. Youngblood
- K. Black, AEOD
- E. Flack, OE
- ~~D. Nussbaumer~~, SLITP

*Loyd Belling (SLITP)*

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

AUGUST 1, 1988 OPERATIONAL EVENTS FOLLOW-UP

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

During the week of August 1-5, 1988, Region III and representatives from OSHA, EPA and ORAU conducted a team inspection at the 3M facility in St. Paul, Minnesota.

*Follow-up*

ACTION: IMAB provide status report.

DUE DATE: 9/6/88

*minor violations  
concerns about mgmt controls  
show cause → OGC talking to 3M  
keep until CAL, comm. paper*

2. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

*LoP*

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

ACTION: Determine if Army is completing decontamination according to schedule.

DUE DATE: 9/6/88

3. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. SLITP to consider training for State personnel responding to event notifications to improve recognition of potentially significant events. (7/11/88)

*Drop*

ACTION: SGTR to issue an Information Notice. Licensee to recertify package. Give status report at next meeting.

DUE DATE: 9/6/88

*telephonic review of QA  
→ new SHP in the sort*

4. Beloit Memorial Hospital - Teletherapy unit malfunction (AEOD)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

*Follow-up  
End-of-life*

*Drop*

ACTION: AEOD to look at end-of-life product and prepare Commission Information Paper (Benaroya) based on this item and other items discussed by Nussbaumer.

DUE DATE: 9/88

5. Penn Inspection Company - Potential Overexposure to a Radiographic Source (Miller)

On May 28, 1988, a Penn Inspection Company radiographer reported a possible overexposure after attempting to return a stuck source to the camera wearing no TLD, film badge or pencil dosimeter. The licensee reported worst-case dose estimates of 15.8 rems to the hands, 2.6 rems to the gonads and 1.1 rems to the whole body.

*Drop*  
On May 31, 1988, the licensee's activities were inspected. On August 11, 1988 an enforcement conference was held in Region IV offices.

ACTION: This incident to be added to AEOD lists of events indicating potential equipment end-of-life problems. Update status at next meeting.

DUE DATE: 9/88

6. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 2.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersburg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION: Determine extent of problem tracking sources and identify possible improvements.

DUE DATE: 9/6/88

*Must radwaste, not tracked.  
Follow-up + how many are issued  
verified returned, lost,  
radwasted*

7. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

On June 7, 1988, Cs-137 contamination from leaking WESF capsule sources was detected in the storage pool of Radiation Sterilizers, Inc., Decatur, Georgia. On June 10, a Confirmatory Action Letter was issued to RSI's sister plant in Westerville, Ohio. On June 13, DOE assumed project management for the recovery and cleanup of the Decatur facility.

On July 19, 1988, DOE reported 29 suspect capsules (out of 252) identified after visual and ultrasound examinations. The pool has been decontaminated to the  $10^{-5}$  to  $10^{-6}$  uCi/ml range and remains stable. Cause of accelerated corrosion and pitting of stainless steel in the RSI/Decatur pool is still unknown.

On July 22, 1988, the State advised RSI/Decatur they had cleared the saline solution process line for operation. FDA approval is still required before this line goes into operation.

On July 27, 1988, the State advised Region II that DOE is drafting an advisory to permanently maintain all Cs-137 WESF capsules in pool storage. On July 28, 1988, representatives of NRC headquarters and regional staffs visited the RSI/Decatur facility.

On July 29, 1988, a Confirmatory Action Letter was sent to RSI/Westerville to suspend operations, place WESF capsules in temporary storage in the pool and monitor pool water for Cs-137 contamination. NRC approval is to be obtained prior to removing Cs-137 sources or introducing any new sources into the pool.

On August 5, 1988, the State's Investigative Task Force met to review management plans and objectives. The next meeting is scheduled for September 1 or 2.

On August 17, 1988, the first suspect capsule was shipped to Oak Ridge National Laboratory (ORNL). About 100 ml of uncontaminated water was found in the annular region of the overpack when received. There was no leakage from the overpack. A second shipment of 2 capsules (identified by ultrasound as containing water) to ORNL is scheduled for August 31, 1988. DOE will be listed as the shipper vice RSI.

On August 23, 1988, DOE completed "sipping" examinations of the 28 suspect capsules remaining at RSI/Decatur. No leaking sources were identified. Additional ultrasound examinations may be performed.

On August 29, 1988, a DOE/Westinghouse team began visual examination of WESF capsules at RSI/Westerville. If no leakers are found, DOE plans to test the remaining capsules at RSI/Decatur using an underwater "bell jar" system that will heat the capsules causing "spitting" of any contaminated annulus water from the capsules.

ACTION: Obtain report from DOE regarding capsule data. Event to be tracked for status reports.

DUE DATE: 9/6/88

*Proposed RII  
CMA to prevent  
use of Co-60 sources  
until Cs-137 sources  
removed.*



SEPTEMBER 6, 1988 NEW OPERATIONAL EVENTS

1. Veterans Administration Medical Center - Excessive Radiation Levels on Molybdenum-99/Technetium-99m Generator (Austin)

On July 29 or 30, 1988, a Mo-99/Tc-99m generator was delivered during off hours. It measured 20 mR/hr at 3 feet when surveyed at 10 a.m. on July 30, 1988. Approximately 2,500 cpm removable contamination was found on the package and generator surface (efficiency and area surveyed not provided). The generator was a Medi-Physics Cintichem with 5.3 curies nominal Mo-99 activity. The box containing the generator was delivered by an air freight courier and appeared to be crushed on one corner.

*is 3 problems  
Since '86  
FDA → Recall?  
bad device design  
Cintichem claims  
bad info. survey  
eter was bad.*

On August 1, 1988 the licensee surveyed the facility, delivery vehicle and personnel and found no contamination. On August 2, 1988, a manufacturer's representative examined the generator and performed surveys. The representative concluded that the generator was not damaged or leaking (note: Tc-99m only has a 6 hour half-life). NMSS is coordinating with FDA who is discussing the matter with Cintichem.

ACTION: *verify if data is good, try to determine if this is another example of design problems.*  
DUE DATE:

2. Providence Hospital (Alabama)- Malfunction of Medical Device (SLITP)

On August 10, 1988, a remote afterloading device containing 5 curies of Iridium-192 failed after 3 attempts to load the sources into a patient. The device is manufactured by Nucletron Engineering BV, Holland, and distributed by Nucletron Corporation, Columbia, Maryland under Maryland License MD-27-035-01. The sealed source is a BYK Mallinckdrodt CI L BV model containing seven source wafers. The patient was removed from the room, catheters removed and surveys conducted. No contamination or radiation levels were detected on the patient or any material outside the treatment room. The Nucletron Corporation's RSO responded and his 200 mr dosimeter went off scale after 3 to 5 minutes in the room. Radiation levels were 800 mrem/hr near the device. A second entry by the RSO under Alabama State guidance revealed all source wafers were contained in the device drive mechanism. The State calculated total exposure for the two entries was approximately 360 mrem.

Preliminary results of a joint investigation by the State and Mallinckdrodt indicate an end cap most likely came off and released the contents of the source within the device. The State intends to transfer the device back to the Nucletron Corporation who will be responsible for shipping the entire device to Mallinckdrodt, St. Louis, Missouri for further investigation. *shipment complete*

ACTION: *Get additional information on why source came apart*  
*Verify (Notify FDA)*  
DUE DATE:



3. Movats, Incorporated (Georgia) - Contamination Found on Testing Equipment Imported from India (SLITP)

On July 22, 1988, contaminated test equipment was shipped from Bombay, India to Movats, Incorporated in Kennesaw, Georgia (an Agreement State). The test equipment was received from AEC of India and used to test "motorized water flow valves" at nuclear power plants. Movats, Incorporated did not have a radioactive materials license but notified the State that an initial survey of a broken package indicated contamination inside.

The State found no contamination on the delivery truck or two (2) delivery personnel. Eastern Airlines was advised to perform a precautionary survey for contamination. On July 25, 1988, the State performed additional surveys on five (5) packages and their contents. No contamination was found on any exterior surface of the packages. Gamma radiation levels of 0.8 mrem/hr and beta radiation levels of 4.0 mrem/hr were found on some equipment. The State will issue a license to Movats, Incorporated for possession of the material until proper disposition is achieved. Samples of removable contamination were taken and are being evaluated by the State.

ACTION:

DUE DATE:

4. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Source to Return to Safe Position (Austin)

On July 28, 1988, the source on a Co-60 teletherapy device could not be returned to a shielded safe position after a patient treatment. The patient was not ambulatory and two (2) physicians entered the therapy room to remove the patient. The patient received an additional 100 Rads to the hip being treated. Licensee physicians determined this dose will not have an adverse effect. The source was eventually retracted using the emergency stop as directed by the licensee's consulting teletherapy physicist.

The licensee estimated the two (2) physicians were in the therapy room for 45 seconds. A film badge worn by one (1) of the physicians was returned to the vendor for emergency processing. After the unit is serviced, licensee representatives will re-enact the incident to estimate doses to the physicians.

ACTION:

DUE DATE:

Lic. issued to  
process.  
Equipment  
decontam.  
Shipment of  
waste to be arranged.  
NRC to perform  
final survey.  
Notify Indian Auth.

Broken devices  
hanging up in  
machine around  
source (repaired)  
memo RMSS → AETD  
example of end of  
life subject to study

dose  
no problem

Power  
was killed  
rather than  
using emerg.  
retract.  
Training

5. Additional Events in Agreement States (SLITP)
6. Status of Abnormal Occurrence Reports (AEOD)
7. Recent Enforcement Actions

| <u>Licensee</u>   | <u>Date</u>     | <u>Action</u>  |
|---|-----------------|--|
| University of Medicine<br>and Dentistry of New Jersey<br>Newark, New Jersey                                     | July 26, 1988   | \$5,000 civil penalty<br>imposed (paid August<br>29, 1988) |
| Bridgeton Hospital<br>Bridgeton, New Jersey   | July 29, 1988   | \$1,250 civil penalty<br>imposed                           |
| Brigham and Women's<br>Hospital<br>Massachusetts  | August 10, 1988 | \$5,000 civil penalty<br>paid                              |
| Engle Laboratories,<br>Larsen Laboratories,<br>Orion Chemical Company,<br>and Mr. John P. Larsen<br>Provo, Utah | August 15, 1988 | General license<br>authorization revoked                   |
| Yale University<br>New Haven, CT  | August 17, 1988 | \$1,125 civil penalty<br>paid                              |
| Department of the Army<br>Albuquerque, New Mexico   | August 19, 1988 | \$1,000 civil penalty<br>imposed                           |
| Veterans Administration<br>Medical Center<br>Wichita, Kansas  | August 19, 1988 | \$2,500 civil penalty<br>paid                              |
| Computalog, Incorporated<br>Drumright, Oklahoma   | August 22, 1988 | \$1,000 civil penalty<br>imposed                           |
| Midwest Wireline Logging<br>and Perforating, Inc.<br>Seminole, Oklahoma   | August 29, 1988 | Order suspending<br>license and show<br>cause              |

OPERATIONAL EVENTS SCHEDULE

|                          |   |             |      |           |
|--------------------------|---|-------------|------|-----------|
| Monday, October 3, 1988  | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988 | - | White Flint | 6B11 | 2:00 p.m. |

BRIEFING SHEET

Scheduled: August 1, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA, and AEOD have also been requested to provide a summary of ~~recent enforcement actions~~, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Berniero
- R. Cunningham
- R. Hall
- J. Hickey
- D. Cool
- K. Ramsey
- L. Rouse
- J. Swift
- J. Austin
- N. McElroy
- M. Lamastra
- R. Burnett
- C. MacDonald
- M. Knapp
- J. Greeves
- R. Browning
- T. Gilbert, OI
- K. Black, AEOD
- D. Nussbaumer, SLITP

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

## AUGUST 1, 1988 NEW OPERATIONAL EVENTS

1. Westinghouse Electric Corporation - Loss of Fuel Rod (SGTR/Burnett/Jackson)

On June 30, Westinghouse could not account for a fuel rod during a routine audit and initiated an investigation. The fuel rod contained low enriched uranium containing 54.4 grams of U-235. Westinghouse believes the rod was transferred to scrap recovery without the appropriate computer entries. On July 8, the licensee notified Region II and is developing corrective action to prevent recurrence. Region II will follow-up during the next routine inspection.

ACTION:

Inspector satisfied on search procedures.

Resolving controversy to reiterate ID problem.

No reports required

DUE DATE:

Will Warehouse use laser or use manual ID?

No more letters

2. Flow Measurements, Inc. - Sealed Sources in Unlicensed Locations (SLITP)

On July 6, 1988, the Idaho Bureau of Hazardous Materials informed Region IV that sealed radiation sources were found stored in unlicensed locations since the licensee went out of business and vacated his facility 1-1/2 to 2 years ago. The licensee manufactured flow densitometers and did not notify the state when operations terminated. Sources were stored in the RSO's garage and the radiation lab at Eastern Idaho Vo-Tech School. The RSO now works for Idaho National Engineering Laboratory (INEL).

During July 12-15, 1988, state inspectors and members of INEL's health physics staff impounded one 25 Ci Cs-137 source, one 250 mCi Am-241 source, two 1.1 mCi Cd-109 sources, fifteen 10 mCi Co-60 sources and several unknown sources in a 55-gallon drum. Sources were stored at INEL awaiting final disposition.

ACTION:

State of Virginia  
 Department of Agriculture

DUE DATE:

11. 10. 1900

### 3. Events in Agreement States (SLITP)

Final deposit

#### 4. Status of Abnormal Occurrence Reports (AEOD)

Former sand pits marked RAm (open)  
(last year 1984)

Don't know

DSE 50- equivalent

AUGUST 1, 1988 OPER. UNAL EVENTS FOLLOW-UP

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

ACTION: IMAB provide status report.

DUE DATE: 8/1/88

*Gen. dist. & R&D suspect shipping  
pending inspection & investigation.*

2. Warrenton Refining Co. - Radioactive contamination found in smelted copper slag (Miller)

Region III was advised on 5/19/88 that Warrenton Refining Company Shipped two boxcars of copper slag to Noranda Co. in Toronto, Canada. Upon arrival at Noranda Co., the slag was checked by a company representative for radioactivity and found to contain radioactive material including Co-56, Co-57, Co-58, Co-60, Mn-54, and Zn-65. Region III was advised that the Canadian Atomic Energy Control Board is going to "order" Noranda Co. to return the contaminated material to the U.S.

On June 7, RIII received a phone call from Warrenton Refining Company who demanded to know who within the NRC was heading NRC's investigation of the copper slag problem. RIII informed him that NRC was not conducting an investigation and has no jurisdiction in this matter because the radioactive material is believed to be accelerator-produced. The Company representative indicated that it was his belief that it was a federal problem because the energies of the accelerator that could have produced the isotopes in question indicate that it is a DOE accelerator. When RIII suggested that Warrenton Refining contact DOE, the representative felt that it would be inappropriate to ask DOE to investigate a problem that might have been caused by one of their own facilities.

The representative indicated that NRC could expect to receive a formal request to investigate this matter signed by either the Governor or Attorney General of Missouri.

ACTION: Follow-up to determine disposition of slag.

DUE DATE: 8/1/88

*No further*

*accelerator  
— list of who said have gen. info.  
(list not avail. yet) NRC to info.  
— status in Canada  
not sure of status, Canada may not  
be following  
Warrenton  
— request Missouri to take  
material*



3. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

ACTION: Determine the facility is decontaminated according to plan approved by RI. IMAB to determine if current work by DOE will be satisfactory.

DUE DATE: 8/1/88

4. P-32 Ingestion at Einstein Medical College (SLITP)

SLITP to work with State of New York and City of New York to determine cause of incident. Case is being investigated as a poisoning. Case may be referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report. Region I to issue an updated PN with information received from New York City Police. Investigation still pending (7/11/88)

ACTION: AO report being prepared by New York for submission in time for 3rd Quarter Abnormal Occurrence Report. (Note: AO report received on 7/11/88.)

DUE DATE: 8/1/88

5. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. SLITP to consider training for State personnel responding to event notifications to improve recognition of potentially significant events. (7/11/88)

ACTION: Continue tracking per action plan developed by SGTR.

DUE DATE: 8/1/88

Follow-up

→ working on IN to ask services to investigate QA this week  
→ Mars. will try to recert. package

6. Beloit Memorial Hospital - Teletherapy unit malfunction (AEOD)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

ACTION: AEOD to look at end-of-life product and prepare Commission Information Paper (Benaroya) based on this item and other items discussed by Nussbaumer.

DUE DATE: 8/88

Penn Inspection Company - Potential Overexposure to a Radiographic Source (Miller)

On May 28, 1988, a Penn Inspection Company radiographer sought medical attention to establish whether he had been overexposed to a 45 Ci iridium-192 source. The State of Oklahoma and NRC were notified by the Grady Memorial Hospital. The potential overexposure resulted from attempts to return a stuck source to the camera. The radiographer was not using a TLD, film badge, or pencil dosimeter at the time of the incident. On May 30, the licensee's owner reported that he and his consultant had reenacted the incident and obtained worst-case dose estimates of 15.8 rems to the hands, 2.6 rems to the gonads, and 1.1 rems to the whole body. An NRC inspector, accompanied by a representative of the State of Oklahoma, was to inspect the licensee's activities on May 31, 1988.

ACTION: Region IV to seek possible assistance from OI to interview individual. This incident to be added to AEOD lists of events indicating potential equipment end-of-life problems.

DUE DATE: 8/88

old designs  
don't allow  
compliance w/ sp.  
if new design  
such, do you  
accept or limit  
use of old design.  
Recommend design  
changes to 7.  
File

Keep  
info. & do  
not re-

8. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 3.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersberg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION: Determine how Army controls generally licensed devices. Determine if the problem is limited to these devices or if there are other problem areas. Status report due at next meeting.

10,000+ sources  
tracking not good  
keep  
determine extent  
of tracking problem  
possible improvement

DUE DATE: 8/1/88

9. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

On June 7, 1988, Cs-137 contamination was detected in the water shielding of Radiation Sterilizers, Inc., Decatur, Georgia. The contamination was determined to be caused by leakage from the WESF capsule sources located in the pool. On June 10, a Confirmatory Action Letter was issued to RSI's sister plant in Westerville, Ohio. In addition, the State of Colorado was asked to inform IOTEC (a State licensee) who also utilizes the WESF Cesium sources. On June 13, DOE sent senior representatives to RSI to assume project management of the recovery and cleanup of the facility.

Based on results of June 28, 1988, demineralization of pool water continues to lower concentrations of cesium to 0.022 microcurie/ml, down about half from the precleanup concentration of 0.06 microcurie/ml. Leaking source identification equipment is expected to be onsite and ready for use on July 5, 1988. RSI is discussing with FDA the restart of the saline packaging operations on site.

On July 19, 1988, the Westinghouse Hanford team (DOE) performing visual and ultrasound examinations reported 29 suspect capsules (out of 252) identified. A color camera identified the pinhole capsule stains as rust emanating from the weld area. Three (3) or four (4) of the most suspect capsules are to be shipped to Oak Ridge National Laboratory (ORNL) for examination by August 6, 1988. The remaining suspect capsules are expected to be returned to Hanford. *10/14*

*action letter  
DOE Ingot 140  
approval prior to  
removal of m.  
check water chem  
recirc. sys.*

On July 20, 1988, the divider wall between the ophthalmic canning area and rest of RSI/Decatur facility was complete. The pool activity level is  $3.4 \times 10^{-5}$  uCi/ml. Cause of accelerated corrosion and pitting of stainless steel in RSI/Decatur pool is still unknown. DOE may recommend RSI begin visual examination of their capsules at Westerville, Ohio using binoculars and a bright swim pool light. State plans to establish an investigation team to develop operation lessons learned.

On July 22, 1988, the State advised RSI they had cleared the saline solution process line for operation. This portion of the building is now on its own ventilation system and has separate entrances. FDA approval is still required before the line goes into operation.

ACTION: Obtain report from DOE regarding capsule data. Event to be tracked for status reports.

DUE DATE: 8/1/88

10. Marion Steel Company - Leaking Radioactive Gauges; Employees Contaminated (Miller)

*RIII still has  
No final report  
from CWSI for  
CWSI est. Aug?*

On June 10, Region III was notified by the licensee that on the evening of June 9, 1988, a ladle of molten steel structurally failed, pouring its contents directly into four cesium-137 level gauges (500 mCi each). The molten steel stuck the gauge shutters in the open position and proceeded to melt out their protective lead linings and radioactive sources. Without performing a radiation survey, the licensee removed the gauges from the steel slag and moved them via a forklift (three unshielded and one in a steel box) to a field within the licensee's property. Initial wipe tests of the gauges reported contamination levels of 1.1 mR/h to 45 mR/h.

On June 11, State and DOE specialists surveyed approximately 16 homes (none contaminated), 60 plant employees (16 with detectable contamination), and plant facilities (two major contaminated areas found and restricted).

One June 24, a Region III inspector surveyed areas decontaminated by Chem-Nuclear Services, Inc., and found the areas to be within the NRC release criteria. The sealed sources and other contaminated equipment are scheduled for waste shipment during the week of June 28-July 1.

ACTION: RIII waiting for final report from licensee. Verify that waste was shipped as scheduled.

DUE DATE: 8/1/88

*drop*

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Tuesday, September 6, 1988 | - | White Flint | 6911 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6811 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6811 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6811 | 2:00 p.m. |

BRIEFING SHEET

Scheduled:

July 11, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject:

Operational Events Briefing

Purpose of Briefing:

To brief Director, NMSS on Recent Operational Events.

Background Information:

Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

OE, GPA, and AEOD have also been requested to provide a summary of recent enforcement actions, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts:

To be distributed at the meeting if necessary.

Enclosure:

List of Events

Invitees

H. Thompson  
R. Bernero  
R. Cunningham  
G. Sjoblom  
J. Hickey  
D. Cool  
L. Rouse  
J. Swift  
V. Miller  
N. McElroy  
M. Lamastra  
R. Burnett  
C. MacDonald  
M. Knapp  
J. Greeves  
R. Browning  
OE E. Flack  
OI T. Gilbert  
AEOD K. Black  
SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING



## NEW EVENTS

1. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources) (Miller/SLITP)

On June 7, 1988, Cs-137 contamination was detected in the water shielding of Radiation Sterilizers, Inc., Decatur, Georgia. The contamination was determined to be caused by leakage from the WESF capsule sources located in the pool. On June 10, a Confirmatory Action Letter was issued to RSI's sister plant in Westerville, Ohio. In addition, the State of Colorado was asked to inform IOTEC (a State licensee) who also utilizes the WESF Cesium sources. On June 13, DOE sent senior representatives to RSI to assume project management of the recovery and cleanup of the facility.

Based on results of June 28, 1988, demineralization of pool water continues to lower concentrations of cesium to 0.022 microcurie/ml, down about half from the precleanup concentration of 0.06 microcurie/ml. Leaking source identification equipment is expected to be onsite and ready for use on July 5, 1988. RSI is discussing with FDA the restart of the saline packaging operations on site.

ACTION:

DUE DATE:

2. Marion Steel Company - Leaking Radioactive Gauges; Employees Contaminated (Miller)

On June 10, Region III was notified by the licensee that on the evening of June 9, 1988, a ladle of molten steel structurally failed, pouring its contents directly into four cesium-137 level gauges (500 mCi each). The molten steel stuck the gauge shutters in the open position and proceeded to melt out their protective lead linings and radioactive sources. Without performing a radiation survey, the licensee removed the gauges from the steel slag and moved them via a forklift (three unshielded and one in a steel box) to a field within the licensee's property. Initial wipe tests of the gauges reported contamination levels of 1.1 mR/h to 45 mR/h.

On June 11, State and DOE specialists surveyed approximately 16 homes (none contaminated), 60 plant employees (16 with detectable contamination), and plant facilities (two major contaminated areas found and restricted).

On June 24, a Region III inspector surveyed areas decontaminated by Chem-Nuclear Services, Inc., and found the areas to be within the NRC release criteria. The sealed sources and other contaminated equipment are scheduled for waste shipment during the week of June 28-July 1.

ACTION:

DUE DATE:

3. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 3.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersburg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION:

DUE DATE:

4. Department of the Navy - Potential Over-Exposure to A Radiography Source (Miller)

The licensee notified Region II by telephone on 6/28/88 of a 11.5 Rem exposure on a TLD assigned to a radiographer at Norfolk Naval Shipyard, Portsmouth, VA. The radiographer was assigned to the graveyard shift, 11:00 p.m. 6/27/88 to 7:00 a.m. 6/28/88, and recorded a pocket dosimeter reading of zero. The TLD had been returned for daily routine processing.

The Navy was to interview the individual on 6/28/88 to gather further information. A RII inspector was expected to be onsite on 6/28/88. The Commonwealth of Virginia was notified.

ACTION:

DUE DATE:

5. Events in Agreement States (SLITP)

6. Status of Abnormal Occurrence Reports (AEOD)

### FOLLOW-UP EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

On June 14, 1988, members of RIII and NMSS staff initiated a team assessment at the 3M facility. The first phase of the assessment was from June 14-17 to evaluate problems encountered by 3M customers using radioactive products manufactured and distributed via 3M's NRC license.

ACTION:

DUE DATE:

2. Warrenton Refining Co. - Radioactive contamination found in smelted copper slag (Miller)

Region III was advised on 5/19/88 that Warrenton Refining Company Shipped two boxcars of copper slag to Noranda Co. in Toronto, Canada. Upon arrival at Noranda Co., the slag was checked by a company representative for radioactivity and found to contain radioactive material including Co-56, Co-57, Co-58, Co-60, Mn-54, and Zn-65. Region III was advised that the Canadian Atomic Energy Control Board is going to "order" Noranda Co. to return the contaminated material to the U.S.

On June 7, RIII received a phone call from Warrenton Refining Company who demanded to know who within the NRC was heading NRC's investigation of the copper slag problem. RIII informed him that NRC was not conducting an investigation and has no jurisdiction in this matter because the radioactive material is believed to be accelerator-produced. The Company representative indicated that it was his belief that it was a federal problem because the energies of the accelerator that could have produced the isotopes in question indicate that it is a DOE accelerator. When RIII suggested that Warrenton Refining contact DOE, the representative felt that it would be inappropriate to ask DOE to investigate a problem that might have been caused by one of their own facilities.

The representative indicated that NRC could expect to receive a formal request to investigate this matter signed by either the Governor or Attorney General of Missouri.

ACTION: //

DUE DATE:

3. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

ACTION: Investigation on tritium contamination needed. IMAB to determine if current work by DOE will be satisfactory.

DUE DATE: 7/11/88

4. P-32 Ingestion at New York University (SLITP)

SLITP to work with State of New York and City of New York to determine cause of incident. Case is being investigated as a poisoning. Case may be referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report. Region I to issue an updated PN with information received from New York City Police. Investigation still pending (7/11/88)

ACTION:

DUE DATE:

5. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. SLITP to consider training for State personnel responding to event notifications to improve recognition of potentially significant events. (7/11/88)

ACTION:

DUE DATE:

FUTURE FOLLOW-UP EVENTS

4. Beloit Memorial Hospital - Teletherapy unit malfunction (AEOD)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

AEOD to look at end-of-life product and prepare Commission Information Paper (Benaroya) based on this item and other items discussed by Nussbaumer.

DUE DATE: 8/88

2. Penn Inspection Company - Potential Overexposure to a Radiographic Source (Miller)

On May 28, 1988, a Penn Inspection Company radiographer sought medical attention to establish whether he had been overexposed to a 45 Ci iridium-192 source. The State of Oklahoma and NRC were notified by the Grady Memorial Hospital. The potential overexposure resulted from attempts to return a stuck source to the camera. The radiographer was not using a TLD, film badge, or pencil dosimeter at the time of the incident. On May 30, the licensee's owner reported that he and his consultant had reenacted the incident and obtained worst-case dose estimates of 15.8 rems to the hands, 2.6 rems to the gonads, and 1.1 rems to the whole body. An NRC inspector, accompanied by a representative of the State of Oklahoma, was to inspect the licensee's activities on May 31, 1988.

Region IV to seek possible assistance from OI to interview individual. This incident to be added to AEOD lists of events indicating potential equipment end-of-life problems.

DUE DATE: 8/88

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, August 1, 1988     | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6B11 | 2:00 p.m. |



BRIEFING SHEET

Scheduled:

June 6, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject:

Operational Events Briefing

Purpose of Briefing:

To brief Director, NMSS on Recent Operational Events.

Background Information:

Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

OE, GPA, and AEOD have also been requested to provide a summary of recent enforcement actions, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts:

To be distributed at the meeting if necessary.

Enclosure:

List of Events

Invitees

H. Thompson  
R. Bernero  
R. Cunningham  
G. Sjoblom  
J. Hickey  
~~D. Cool~~  
L. Rouse  
J. Swift  
V. Miller  
N. McElroy  
M. Lamastra  
R. Burnett  
C. MacDonald  
M. Knapp  
R. Bangart  
J. Greeves  
R. Browning  
OE E. Flack  
OI T. Gilbert  
AEOD K. Black  
SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

## NEW EVENTS

1. Warrenton Refining Co. - Radioactive contamination found in smelted copper slag (Miller)

Region III was advised on 5/19/88 that Warrenton Refining Company Shipped two boxcars of copper slag to Noranda Co. in Toronto, Canada. Upon arrival at Noranda Co., the slag was checked by a company representative for radioactivity and found to contain radioactive material including Co-56, Co-57, Co-58, Co-60, Mg-54, and Zn-65. Region III was advised that the Canadian Atomic Energy Control Board is going to "order" Noranda Co. to return the contaminated material to the U.S.

ACTION: Follow up for general interest. Check for contamination of product (with Miller)

DUE DATE: *None*

2. Midcoast Aviation - Excavation of possible contaminated drums (Rouse/LLWM)

On May 17, Region III was notified regarding the uncovering of 55-gallon drums containing liquid material at Lambert International Airport near St. Louis, Missouri. The drums were uncovered during excavation for a new hanger on May 6, 1988. During removal of the drums, some liquid leaked onto the surrounding soil. The contaminated soil was contained, redrummed, and sampled. The results indicated possible radioactive contamination from thorium and/or radium. The EPA and Missouri radiological health department were notified. On May 17, NMSS contacted DOE who is taking the lead because the site may be part of the DOE program for cleaning up contaminated sites in the vicinity of St. Louis. DOE and NRC were onsite on 5/18/88, and excavation will not be reinitiated until DOE or NRC gives approval.

ACTION: Turned out not to be radioactive

DUE DATE: *NONE*

*contains  
contaminated slag  
is copper  
Accelerator Produced  
State of Missouri  
EPA not usually to  
Warrenton*

3. Edlow International/Allied Chemical - Loss of UF<sub>6</sub> cylinders during shipment (SGTR)

Region II was notified by Edlow International that the Dart Container Lines ship, "America," was transporting eight 48Y UF<sub>6</sub> cylinders from France to Charleston, South Carolina when it encountered high seas on May 5. This resulted in the loss overboard in international waters of one cylinder and valve cover damage to others. The lost cylinder is probably floating. The lost and damaged cylinders were "empty" and contained only three to five kilograms of natural uranium. A survey of the cylinders upon arrival in Charleston did not detect any radioactive contamination. The coast Guard is attempting to determine the location where the cylinder was lost.

**ACTION:** No further action

DUE DATE: 1/2/88

4. E.I. Dupont/NEN - Possible exposure to tritium in excess of regulatory limits (Miller)

On May 4, 1988, licensee representatives reported to Region I that a chemist had accidentally injected herself with tritium, resulting in a possible uptake in excess of regulatory limits. The incident occurred at the licensee's Boston facility on May 2, 1988 and the injected material included tritiated bromoacetic acid and tritiated water. The licensee estimates that between 9 and 11 millicuries were injected into the chemist's finger and that approximately one millicurie was in the form of bromoacetic acid. The peak concentration of tritium measured in the chemist's urine after the incident was 2,000 microcuries per liter, which quickly decreased in subsequent samples to 290 microcuries per liter. The licensee estimates that the uptake was equivalent to an exposure of 900 MPC-hours and that the dose commitment from the uptake is approximately 2.3 rem.

ACTION: No further action No escalated response

DUE DATE: *Next*

⑧ Multiple misadministration  
Marquette University  
being considered as AO of Schedule C

more info needed

was not to therapy or brachytherapy

need to get the

FD by state

within 100

ASBP

5. Wellex (Halliburton Company) - Potential neutron overexposure (Miller)

maybe  
deliberate tampering  
by 3rd party

The licensee was informed on May 3, 1988 by its personnel dosimetry vendor that one of its employee's first quarter 1988 TLD's received 0.255 rem (gamma) and 105 rem (neutron). The employee works on occasion with well logging sources out of the Oklahoma City District Office. The licensee and the State of Oklahoma are investigating the cause of the apparent overexposure. No apparent reason for the high TLD reading has been discovered, although improper wearing of the monitoring device has been mentioned as a possible reason for a portion of the dose. The individual involved is undergoing medical tests.

ACTION: No further action

DUE DATE: None

6. Penn Inspection Company - Potential Overexposure to a Radiographic Source (Miller)

incident occurred  
200000 Rads  
to some hands

On May 28, 1988, a Penn Inspection Company radiographer sought medical attention to establish whether he had been overexposed to a 45 Ci Iridium-192 source. The State of Oklahoma and NRC were notified by the Grady Memorial Hospital. The potential overexposure resulted from attempts to return a stuck source to the camera. The radiographer was not using a TLD, film badge, or pencil dosimeter at the time of the incident. On May 30, the licensee's owner reported that he and his consultant had reenacted the incident and obtained worst-case dose estimates of 15.8 rems to the hands, 2.6 rems to the gonads, and 1.1 rems to the whole body. An NRC inspector, accompanied by a representative of the State of Oklahoma, was to inspect the licensee's activities on May 31, 1988.

ACTION: Refer to AEOD for wear-out problem at "end of life"  
Determining if there is an equipment problem

DUE DATE:

7. Events in Agreement States (SLITP)

① TC 99 Powder de Anes, Iowa illegally transported by person from Switzerland  
SLITP to follow-up w/ Stat of Iowa and what it was how much

8. Status of Abnormal Occurrence Reports (AEOD)

② Misadministration in Texas May 17  
70 mG 1-131 instead of 30 mG

West  
Houston  
medical  
center

③ Eastman Medical  
Center  
Fall 1988  
AEOD to follow-up

- to follow for what happened and what is taken  
4-8-89 PM June 1

- referred to Abnormal Occurrence Report  
- (SLITP/MOR)

9. Recent Enforcement Actions (OE)

St. Louis University - Imposition of Civil Penalty - \$6,000

Bridgeton Hospital, Bridgeton, NJ - Notice of Violation and Proposed  
Imposition of Civil Penalty - \$1,250

Radiology and Nuclear Medicine, Inc., Tulsa, Oklahoma - Order Suspending  
License and Order to Show Cause Why License Should Not Be Revoked

Professional Service Industries, Inc. - Proposed Imposition of Civil  
Penalty - \$500

Southern Ohio Coal Company - Proposed Imposition of Civil Penalty - \$750

Osage Wireline Service - Imposition of Civil Penalties - \$1,450

Finlay Testing Laboratories, Inc. - Settlement Agreement

Syncor Corporation - Enforcement For Multiple Misadministrations and  
Proposed Modification to Enforcement Policy

*OE to check details w/ ART*



### FOLLOW-UP EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

*looking w/ HCT on 6/7/88*

On May 18, 1988, a Notice was signed by H.L. Thompson, NMSS, relaxing Sections III A and B of the Order to General Licensees dated February 18, 1988. The Notice gives the licensees permission for continued use of 3M static elimination devices for a prescribed period of time, provided that certain conditions are met. The relaxation did not apply to devices used in the production or packaging of food, beverage, pharmaceutical, or cosmetic products.

The Food and Drug Administration reported analyzing approximately 520 samples and visiting 320 sites associated with the food, beverage, pharmaceutical, medical device, and cosmetic applications. No confirmed evidence of product contamination was found in any cases.

ACTION: *SLTP to get to Miller about the 12 in Agreement States that still need to come back from field/coverage*

DUE DATE:

2. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

Follow-up investigation for QA and reasons for personnel exposure. Plan to be prepared by IMNS. (IMNS/R1) (6/6/88)

ACTION: *What to index but investigation to be checked. Need to know what DOE is for can or are willing to do*

DUE DATE:

3. Evenflo-Crator, Inc. - Incident involving Polonium-210 contamination (Miller)

On April 19, 1988, Region I was notified by Evenflo-Crator, Inc. (a manufacturer of plastic baby bottles and similar products) of contamination of products and their facility in Tionesta, Pa as a result of the inadvertent destruction of a NRD static elimination device containing polonium-210. According to the report, the NRD device had fallen into a machine used to regrind plastic scrap accumulated from the manufacture of plastic bottles.

The licensee contacted NRD on April 13, 1988 after discovery of the incident, and NRD conducted surveys and decontamination. NRD will dispose of waste from the decontamination effort and contaminated plastic from product and additional material used to ensure that the process line was decontaminated.

An inspection by NRC Region I on April 21 indicated that additional contamination was present in at least two locations. These have now been decontaminated. Both the Food and Drug Administration and the US Consumer Product Safety Commission have been advised, and FDA visited the facility on April 20, 1988.

SLITP to follow-up to see that State notified about NRD not completely clearing contamination. INMS/SLITP to check on license coverage of waste disposal. (6/6/88)

ACTION: *NRD report has been given. License renewed.*

DUE DATE:

4. Beloit Memorial Hospital - Teletherapy unit malfunction (AEOD)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

AEOD to look at end-of-life product and prepare Commission Information Paper (Benaroya) based on this item and other items discussed by Nussbaumer. (8/88)

ACTION:

DUE DATE:

*1. (b) & (c) College of Medicine of NYU*

5. P-32 Ingestion at New York University (SLITP)

SLITP to work with State of New York and City of New York to determine cause of incident. Case is being investigated as a poisoning. Case may be referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report. Region I to issue an updated PN with information received from New York City Police. (6/6/88)

ACTION:

DUE DATE:

6. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. (6/6/88)

ACTION: *SLITP to have a meeting for a date proposed*

DUE DATE: *depending on next notification*

OPERATIONAL EVENTS SCHEDULE

*on video* 11

|                                  |   |             |      |           |
|----------------------------------|---|-------------|------|-----------|
| <del>Tuesday, July 5, 1988</del> | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, August 1, 1988           | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 6, 1988       | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 3, 1988          | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988         | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988         | - | White Flint | 6B11 | 2:00 p.m. |

H. Thompson  
R. Bernero  
R. Cunningham  
G. Sjoblom  
J. Hickey

~~D. Cool~~

L. Rouse  
V. Miller  
N. McElroy  
M. Lamastra  
R. Burnett  
C. MacDonald  
M. Knapp  
R. Bangart  
J. Greeves  
R. Browning  
OE E. Flack  
OI T. Gilbert  
AEOD K. Black  
SLITP D. Nussbaumer

05/02/88 OPERATIONAL EVENTS UPDATE

1. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

ACTION: Follow-up investigation for QA and reasons for personnel exposure. Plan to be prepared by IMNS. (IMNS/RI)

DUE DATE: 6/6/88

2. Evenflo-Crator, Inc. - Incident involving Polonium-210 contamination (Miller)

On April 19, 1988, Region I was notified by Evenflo-Crator, Inc. (a manufacturer of plastic baby bottles and similar products) of contamination of products and their facility in Tionesta, Pa as a result of the inadvertent destruction of a NRD static elimination device containing polonium-210. According to the report, the NRD device had fallen into a machine used to regrind plastic scrap accumulated from the manufacture of plastic bottles.

The licensee contacted NRD on April 13, 1988 after discovery of the incident, and NRD conducted surveys and decontamination. NRD will dispose of waste from the decontamination effort and contaminated plastic from product and additional material used to ensure that the process line was decontaminated.

An inspection by NRC Region I on April 21 indicated that additional contamination was present in at least two locations. These have now been decontaminated. Both the Food and Drug Administration and the US Consumer Product Safety Commission have been advised, and FDA visited the facility on April 20, 1988.

ACTION: SLITP to follow-up to see that State notified about NRD not completely clearing contamination. INMS/SLITP to check on license coverage of waste disposal.

DUE DATE: 6/6/88



3. Events in Agreement States (SLITP)

- A. Teletherapy source failure due to broken spring. Patient overexposure as a result of incident. State following up. SLITP to evaluate need for information notice and coordinate with FDA. AEOD to consider a Commission Paper on "End-of-Life Problems." (8/88)
- B. Transportation incident regarding medical research radioisotopes on commercial aircraft.

4. Status of Abnormal Occurrence Reports (AEOD)

1st Quarter 1988 Report now in preparation. Events likely to include 3M Static Eliminators, and three misadministrations.

5. Recent Enforcement Actions (OE)

OE provided summary of recent enforcement actions. OE to pursue revision of enforcement policy to reflect severity levels for mislabeling of pharmaceuticals.

### FOLLOW-UP EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

On April 21, 3M reported that 52.2% of the static elimination devices had been returned. Of devices in the food, beverage, pharmaceutical, and cosmetic applications, 86.9% have been returned. Of those returned, 1.89% were leaking greater than 5 nanocuries.

On April 13, NMSS extended the date for 3M to file their response to the February 18, 1988 Order to Show Cause from April 18 to July 18, 1988.

ACTION: INMS to give briefing on how to close out 3M Items

DUE DATE: Meeting scheduled for 5/19/88 - 10:00 - 11:00 a.m.

2. Beloit Memorial Hospital - Teletherapy unit malfunction (Follow-up - AEOD to examine for potential trend. Due Date: May 2, 1988)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

ACTION: AEOD to look at end-of-life product and prepare Commission Information Paper (Benarcya) based on this item and other items discussed by Nussbaumer.

DUE DATE: 8/88

3. Montana Resources, Inc. - Lost Cesium-137 source (Followup - IMNS/LLWM (Hickey) to check with Region IV on location of scrap to determine if the scrap went to a dealer that can be located. Due Date: May 2, 1988)

Montana Resources, Inc. reported a lost cesium-137 source at their Butte, Montana, milling facilities. The missing source was used as a slurry density gauge and had been initially installed in 1963. The present source strength is estimated a 11 mCi. The licensee suspects that the source was lost on the off shift of July 15, 1987, when a section of pipe was removed that may have contained the gauge. It is theorized that the gauge was then placed in a scrap dumpster and was either placed in an onsite waste dump (which now has a 20 ft. dirt covering) or shipped to a scrap metal dealer.

ACTION: Item closed - No further action required by NMSS

4. P-32 Ingestion at New York University (SLITP)

SLITP to work with State of New York and City of New York to determine cause of incident. Case is being investigated as a poisoning. Case may be referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report.

ACTION: Region I to issue an updated PN with information received from New York City Police.

DUE DATE: Report status at next OP meeting

5. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. (6/6/88)

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, June 6, 1988       | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, July 5, 1988      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, August 1, 1988     | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6B11 | 2:00 p.m. |

BRIEFING SHEET

Scheduled: Monday, May 2, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

OE, GPA, and AEOD have also been requested to provide a summary of recent enforcement actions, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- ~~D. Cool~~
- L. Rouse
- V. Miller
- M. Lamastra
- R. Burnett
- C. MacDonald
- M. Knapp
- R. Bangart
- J. Greeves
- R. Browning
- OE E. Flack
- OI T. Gilbert
- AEOD K. Black
- SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

## NEW EVENTS

### 1. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

*- Why was people exposed after damage? GAO manufacture? Remediation necessary and should be laid on the industry (manufacture) (IMMS)*

*- RI should be follow up with reporting problems. (IMAB)*

**DUE DATE:**

*Also to be laid out by 5/5/88*

### 2. Evenflo-Crator, Inc. - Incident involving Polonium-210 contamination (Miller)

On April 19, 1988, Region I was notified by Evenflo-Crator, Inc. (a manufacturer of plastic baby bottles and similar products) of contamination of products and their facility in Tionesta, Pa as a result of the inadvertent destruction of a NRD static elimination device containing polonium-210. According to the report, the NRD device had fallen into a machine used to regrind plastic scrap accumulated from the manufacture of plastic bottles.

The licensee contacted NRD on April 13, 1988 after discovery of the incident, and NRD conducted surveys and decontamination. NRD will dispose of waste from the decontamination effort and contaminated plastic from product and additional material used to ensure that the process line was decontaminated.

An inspection by NRC Region I on April 21 indicated that additional contamination was present in at least two locations. These have now been decontaminated. Both the Food and Drug Administration and the US Consumer Product Safety Commission have been advised, and FDA visited the facility on April 20, 1988.

*- RI to check up NY on why NRD missed the contamination (SLTP)*  
**ACTION:** *- SLTP to check on what authority NRD has to take waste from decontamination activities (SLTP)*

*6/1/88* **DUE DATE:** *- ~~find out~~ find out the root cause for this case (IMAB)*



OE - Buckley

- Micromedex System
- Joslin Diabetes Center
- Froehling & Rotstein \$4,100 CP
- H & C Inspection Company 7,500 CP
- Veterans Affairs Medical Center, Wichita 2,500 CP
- Finlay Testing Lab Order continued

Commission Paper on Lynch, Allerton, PA

Breakdown of management control leading to overexposure of hand  
to mislabeling problem leading to 14 misadministration



Followup - revision of policy to reflect medical severity levels  
for mislabeling (OE)

Commission Paper to be prepared on  
civil penalty (OE)

---

AirForce -

---

VA not to be

3. Events in Agreement States (SLITP)

4. Status of Abnormal Occurrence Reports (AEOD)

5. Recent Enforcement Actions (OE)

① To Therapist, some did not retract due to broken spring - Technician went in and removed patient - when the patient picked up state following up on incident  
SLITP to evaluate need for Information Notice and coordinate of FDA 3 months - AEOD paper on how to approach end of life problem

② PN Friday - American Transport of pharmaceuticals <sup>medical research</sup> via American Airlines to Canada - several in total activity

AEOD

no events are candidates

1st quarter report now in preparation

{ 3 ~~in~~  
3 misadministration 4 events

- Radiographer exposure to ankles (Agreement States) (SLITP)

- Question on Transport accident when some had road median (SLITP)

Follow up on Transport, by - failure of Type B

### FOLLOW-UP EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

On April 21, 3M reported that 52.2% of the static elimination devices had been returned. Of devices in the food, beverage, pharmaceutical, and cosmetic applications, 86.9% have been returned. Of those returned, 1.89% were leaking greater than 5 nanocuries.

On April 13, NMSS extended the date for 3M to file their response to the February 18, 1988 Order to Show Cause from April 18 to July 18, 1988.

ACTION:

DUE DATE:

2. Beloit Memorial Hospital - Teletherapy unit malfunction (Followup - AEOD\* to examine for potential trend. Due Date: ~~May 2, 1988~~ *March 10, 1988* *See previous*)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

ACTION:

DUE DATE:

3. Montana Resources, Inc. - Lost Cesium-137 source (Followup - IMNS/LLWM (Hickey) to check with Region IV on location of scrap to determine if the scrap went to a dealer that can be located. Due Date: May 2, 1988)

Montana Resources, Inc. reported a lost cesium-137 source at their Butte, Montana, milling facilities. The missing source was used as a slurry density gauge and had been initially installed in 1963. The present source strength is estimated a 11 mCi. The licensee suspects that the source was lost on the off shift of July 15, 1987, when a section of pipe was removed that may have contained the gauge. It is theorized that the gauge was then placed in a scrap dumpster and was either placed in an onsite waste dump (which now has a 20 ft. dirt covering) or shipped to a scrap metal dealer.

ACTION:

DUE DATE:

4. P-32 Ingestion at New York University (SLITP)

SLITP to work with State of New York and City of New York to determine cause of incident. Case is being investigated as a poisoning. Case may be referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report.

ACTION:

DUE DATE:

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, June 6, 1988       | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, July 5, 1988      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, August 1, 1988     | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6B11 | 2:00 p.m. |

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, May 2, 1988        | - | White Flint | 6811 | 2:00 p.m. |
| Monday, June 6, 1988       | - | White Flint | 6811 | 2:00 p.m. |
| Tuesday, July 5, 1988      | - | White Flint | 6811 | 2:00 p.m. |
| Monday, August 1, 1988     | - | White Flint | 6811 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6811 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6811 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6811 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6811 | 2:00 p.m. |

H. Thompson  
R. Bernero  
R. Cunningham  
G. Sjoblom  
J. Hickey  
~~D. Cool~~  
L. Rouse  
V. Miller  
M. Lamastra  
R. Burnett  
C. MacDonald  
M. Knapp  
J. Greeves  
R. Browning  
OE E. Flack  
OI T. Gilbert  
AEOD K. Black  
SLITP D. Nussbaumer



APRIL 4, 1988 OPERATIONAL EVENTS UPDATE

1. American Telephone and Telegraph Technology System, Lee's Summit, MO - Krypton-85 gas release from Tracer-Flo unit (Miller)

On March 17, 1988, the licensee reported that a vacuum pump from one of its two Tracer-Flo units failed, resulting in the release of approximately 50 curies of Krypton-85 to the outside air. Reconstruction of the event revealed that only 2.63 curies were released rather than the initial estimate. The eight processed film badges showed a maximum radiation dose of 60 millirems to one individual who was involved in the cleanup of oil and debris near the damaged vacuum pump. Radiation surveys by Region III on March 18 indicated no contamination remaining.

ACTION: No Action necessary

2. Beloit Memorial Hospital - Teletherapy unit malfunction (Miller)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

ACTION: AEOD to examine for potential trend.

DUE DATE: May 2, 1988

3. Montana Resources, Inc. - Lost Cesium-137 source (Knapp)

Montana Resources, Inc. reported a lost cesium-137 source at their Butte, Montana, milling facilities. The missing source was used as a slurry density gauge and had been initially installed in 1963. The present source strength is estimated at 11 mCi. The licensee suspects that the source was lost on the off shift of July 15, 1987, when a section of pipe was removed that may have contained the gauge. It is theorized that the gauge was then placed in a scrap dumpster and was either placed in an onsite waste dump (which now has a 20 ft. dirt covering) or shipped to a scrap metal dealer.

ACTION: LLWM to check on location of scrap to determine if the scrap went to a dealer that can be located.

DUE DATE: May 2, 1988

4. Multiple Licensees - Loss of Moisture/Density Gauges (Miller/SLITP)

A number of moisture/density gauges have been involved in incidents involving loss or theft. The licensees include Professional Services Industries, Inc., in Oak Brook, IL, Soils Engineering Services, Inc., Shippany, NJ, Driggers Engineering Company, Clearwater, Florida, and Alabama Highway Department, Birmingham, Alabama. Three of these incidents were in Agreement States.

ACTION: No action necessary

5. Events in Agreement States (SLITP)

- a. Houston Inspection Service - Transportation incident involving ejection of radiography source from camera.

DOT investigating failure of Type B package.  
Referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report.

- b. ICN Biomedicals Inc. - Loss of tritium gas.

No action necessary

- c. Cintichem, Inc. - Contaminated individual leaving the facility.

RI investigating.

- d. P-32 Ingestion at New York University

SLITP working with State of New York and City to determine cause of incident. Case is being investigated as a poisoning. Case maybe referred to AEOD as a potential for inclusion in the Abnormal Occurrence Report.

6. Status of Abnormal Occurrence Events (AEOD)

AEOD provided of summary of reports.

7. Recent Enforcement Actions (OE)

OE was not represented.

NOTE TIME CHANGE

BRIEFING SHEET

Scheduled: Monday, April 4, 1988  
10:00 ~~a.m.~~ - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

OE, GPA, and AEOD have also been requested to provide a summary of recent enforcement actions, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

H. Thompson  
R. Bernero  
R. Cunningham  
G. Sjoblom  
J. Hickey  
~~D. Cool~~  
L. Rouse  
V. Miller  
M. Lamastra  
R. Burnett  
C. MacDonald  
M. Knapp  
R. Browning  
OE E. Flack  
OI T. Gilbert  
AEOD K. Black  
SLITP D. Nussbaumer

*f. Groves*

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

### NEW EVENTS

1. American Telephone and Telegraph Technology System, Lee's Summit, MO - Krypton-85 gas release from Tracer-Flo unit (Miller)

On March 17, 1988, the licensee reported that a vacuum pump from one of its two Tracer-Flo units failed, resulting in the release of approximately 50 curies of Krypton-85 to the outside air. Reconstruction of the event revealed that only 2.63 curies were released rather than the initial estimate. The eight processed film badges showed a maximum radiation dose of 60 millirems to one individual who was involved in the cleanup of oil and debris near the damaged vacuum pump. Radiation surveys by Region III on March 18 indicated no contamination remaining.

*Event was not as bad as originally thought. Most contamination was in oil.*  
ACTION: *no significant doses. No Action necessary.*

DUE DATE:

2. Beloit Memorial Hospital - Teletherapy unit malfunction (Miller)

*See Licensee  
for more details*  
On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

*Vendor checking on new frequent schedule - trying to determine if there is a genuine problem. \*NRC asked to check into this on one of previous years. Notes might be given through FDA*  
ACTION:

DUE DATE:

3. Montana Resources, Inc. - Lost Cesium-137 source (Knapp)

Montana Resources, Inc. reported a lost cesium-137 source at their Butte, Montana, milling facilities. The missing source was used as a slurry density gauge and had been initially installed in 1963. The present source strength is estimated a 11 mCi. The licensee suspects that the source was lost on the off shift of July 15, 1987, when a section of pipe was removed that may have contained the gauge. It is theorized that the gauge was then placed in a scrap dumpster and was either placed in an onsite waste dump (which now has a 20 ft. dirt covering) or shipped to a scrap metal dealer.

*it is probably not worth chasing it if you don't know where it went.*  
ACTION:

*Check out licensee to determine if the scrap dealer could be located. Try to trace the scrap, or determine if in fact it is in the land fill.*  
DUE DATE:

4. Multiple Licensees - Loss of Moisture/Density Gauges (Miller/SLITP)

A number of moisture/density gauges have been involved in incidents involving loss or theft. The licensees include Professional Services Industries, Inc., in Oak Brook, IL, Soils Engineering Services, Inc., Shippany, NJ, Driggers Engineering Company, Clearwater, Florida, and Alabama Highway Department, Birmingham, Alabama. Three of these incidents were in Agreement States.

*Question: Do we have a mechanism to report that these are formal?*

*SLITP, working on a reg guide*

ACTION:

*None -*

DUE DATE:

5. Events in Agreement States (SLITP)

- a. Houston Inspection Service - Transportation incident involving ejection of radiography source from camera.

*Not investigating the failure of the device, which was a Type 6 container. SLITP meeting w/ HDS on April 6, 1988*

- b. ICN Biomedicals Inc. - Loss of tritium gas.

*Old equipment failed - Biomedicals are below MPC. Samples on and off site were also below MPC*

- c. Cintichem, Inc. - Contaminated individual leaving the facility.

*Region 8 investigating*

6. Status of Abnormal Occurrence Events (AEOD)

*24*

*Therapy*

7. Recent Enforcement Actions (OE)

*Not one present*

*Lowell Falls*

*Hellbore*

*East Windsor, NJ*

*North Carolina*

*1. P-32 ingestion case. WNU being treated as a poisoning case. Nothing is contaminated, no P-32 is missing, she never used P-32 so case is very bizarre. Probably exposed about 26 Feb to organic form. Should be checked for an AO, because dose she took could be around 1000 uCi.*

### FOLLOW-UP EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Eliminator Devices (Miller)

Orders were issued on February 18, 1988, to 3M and the general licensees using Po-210 3M static elimination devices, which called for the immediate suspension of use and recall of the devices. Exceptions have been issued on the basis of workplace safety for a number of companies by both agreement states and the NRC.

On March 21, 1988, a memorandum to the Commission responded to the Staff Requirements Memorandum concerning the briefing held on February 18, 1988. The memorandum presented information on other manufacturers of polonium-210 static elimination devices (NRD and a company that uses NRD foils), coordination with the International Atomic Energy Agency, and steps being taken to ensure protection of the public health and safety.

On March 18, 1988, a Brookhaven National Laboratory (BNL) scientist presented a briefing concerning BNL's investigation into failure of the devices at Ashland Chemical Company's Easton plant. The report concluded that (1) imperfect microspheres appear to have been manufactured, (2) rough handling may cause loosening of microspheres, and (3) the epoxy binder used in the manufacture may not be suitable for the conditions of use.

ACTION:

DUE DATE:

2. Allied Signal Corporation - Spills of Uranium (Rouse)

IMSB to followup discussions on uranium spills at the Allied UF<sub>6</sub> conversion facility in Metropolis, IL. Spills involved uranium<sup>6</sup>oxides from a calciner and UO<sub>2</sub>/UF<sub>4</sub> from a hydrofluorinator.

ACTION:

DUE DATE:

3. Sequoyah Fuels Corporation - Overfilled Cylinder (Rouse)

IMSB to followup DOE actions on overfilled depleted UF<sub>6</sub> cylinder received by Sequoyah Fuels for use in the UF<sub>6</sub> to UF<sub>4</sub> process. DOE was to conduct an investigation and obtain an exemption from DOT for return of the cylinder.

ACTION:

DUE DATE:



OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, May 2, 1988        | - | White Flint | 6811 | 2:00 p.m. |
| Monday, June 6, 1988       | - | White Flint | 6811 | 2:00 p.m. |
| Tuesday, July 5, 1988      | - | White Flint | 6811 | 2:00 p.m. |
| Monday, August 1, 1988     | - | White Flint | 6811 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6811 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6811 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6811 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6811 | 2:00 p.m. |

*D. Carl*

03/07/88 OPERATIONAL EVENTS UPDATE

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Eliminator Devices (Miller)

Orders were issued on February 18, 1988, to 3M and the general licensees using Po-210 3M static elimination devices, which called for the immediate suspension of use and recall of the devices. The recall was initiated because data uncovered in the preceding weeks by field surveys had revealed widespread evidence of the uncontrolled release of radioactive material from these devices in ordinary use. The recall of devices is now underway, and the impact on users of the devices is expected to be substantial. The order to 3M also included an order to show cause why License No. 22-00057-32G should not be revoked in its entirety and why License No. 22-00057-06 should not be revoked to the extent that it authorizes manufacturing of static elimination devices containing Po-210.

ACTION: SLITP to track Agreement States for responses to survey.  
NMSS to prepare response to SRM dated February 25, 1988.

DUE DATE: March 25, 1988 to SECY, to NMSS Director 3/10/88, to EDO 3/18/88

2. Allied Signal Corporation - Spills of Uranium (Rouse)

On February 6, 1988, Allied informed the NRC of an uranium spill and the  $UF_6$  conversion facility in Metropolis, IL. The incident involved about 300 pounds of uranium oxides that leaked past a metal seal in the calciner. The spill resulted when an operator failed to terminate ore feed to the calciner during a production shutdown. Production shutdown situations will be more frequent because Allied has placed the facility on a 10 day on 4 day off production schedule.

On February 28, Allied informed the NRC that approximately one pound of uranium in the form of  $UO_2/UF_6$  had leaked from a crack in a hydrofluorinator shell into the hydrofluorinator cooling air, which exhausts outside the plant. The release mechanism was identified after two consecutive elevated air samples. Surveys showed the maximum contamination spread to be about 25 feet from the feed material building. The nearest site boundary is several hundred feet from the release point.

ACTION: IMSB to provide R. Bernero with trip report on upcoming inspection and comparison of Sequoyah Fuels and Allied Chemical.

DUE DATE: April 4, 1988

3. V. A. Edward Hines, Jr. Medical Center - Order to Show Cause (Miller/Flack)

On February 25, 1988, an Order to Show Cause Why License Should Not Be Modified, Effective Immediately, was issued to V. A. Edward Hines Medical Center. This Order imposed verification requirements before a certain technologist administers any licensed material. The Order also imposed a reporting requirement as to the technologist's performance in radiological activities. The action was based on a technologist injecting a patient with a second agent in an effort to cover up a mistake and his subsequent false statements to VA and NRC personnel.

ACTION: None - Department of Justice Case

DUE DATE: N/A

4. Sequoyah Fuels Corporation - Overfilled Cylinder (Rouse)

On February 29, Sequoyah Fuels Corporation (SFC) reported that it had received an overfilled Model 48G UF<sub>6</sub> depleted uranium cylinder at its facility in Gore, Oklahoma. The cylinder, which had been received in recent months from the DOE Paducah plant as feed for SFC's UF<sub>6</sub> to UF<sub>4</sub> process line, was determined to be about 3,300 pounds overweight when weighed in preparation for processing. After confirming the weight measurement, the cylinder was returned to storage and DOE was promptly notified. DOE's contractor, Martin-Marietta, is in contact with SFC. As of March 1, 1988, no decision had been made by DOE on actions to be taken. DOE is reviewing records and has verbally notified other sites that have been shipped depleted UF<sub>6</sub> cylinders. This included Carolina Metals, a South Carolina licensee that processes UF<sub>6</sub> to UF<sub>4</sub>. SLITP has notified the State of South Carolina of the matter.

ACTION: DOE to conduct investigation. DOE to obtain exemption for return of cylinder from Sequoyah.

DUE DATE: N/A

5. Kerr-McGee Refining Corporation - Possible Radiography Overexposure (Miller)

The potential radiation exposure of two welders at the Wynnewood, Oklahoma refinery (PNO-IV-88-15) has not yet been resolved. Thermoluminescent dosimeters obtained from INEL were used to measure exposure rates inside the pipe where the welders may have been exposed. Also, blood sample kits are being sent from Oak Ridge Associated Universities to Oklahoma in order to make cytogenetic analyses of the potentially exposed individuals.

ACTION: Region IV to follow-up with welders.

DUE DATE: N/A

6. Status of Abnormal Occurrence Events (AEOD)

AEOD unable to attend.

7. Events of Interest in Agreement States (SLITP)

1. Leaking Cs Source manufactured by 3M
2. Albert Einstein Medical Center --P-32 Contamination and potential ingestion
3. University of Toledo - Storage of radium in basement of building

8. Recent Enforcement Actions (OE)

Summary was provided on 11 Enforcement Actions taken during February.

9. LLWM Items

1. Letter to DOE on accountability for Greater-than-Class C Waste signed 3/4/88.
2. Lucky Mack Uranium Mill shutdown. Shirley Basin mill remains as the only fully operating facility.

LIST OF ATTENDEES  
OPERATIONAL EVENTS MEETING

| <u>NAME</u>                | <u>PHONE EXTENSION</u> |
|----------------------------|------------------------|
| Mike Lamaster, NMSS        | 49-23416               |
| Patricia Vacca IMAB        | 49-20615               |
| Lloyd Bolling, SLITP       | 49-20327               |
| Leland C. Rouse, NMSS:IMFS | 49-23361               |
| D Nussbaumer GPA           | 4920650                |
| R Cunningham               | 23426                  |
| R Berners                  |                        |
| Glen Sjoblom               | 4923430                |
| Vandy Miller               |                        |
| John Hickey, NMSS          | X23425                 |
| Paul Lahaus LLWM           | X20553                 |
| Scott Pennington FCSB      | 20693                  |
| MIKE BELL, HLWM            | 23406                  |
| Nancy Hickey               | 23419                  |
| DONALD A. COOL             | 23422                  |
| Derry J. Swift             | 20609                  |
| Richard B Provencher       | 20690                  |
| Ed 30000                   | 2-3282                 |
| Liz Jacobs-Pagard          | 2-0658                 |
|                            |                        |
|                            |                        |

~~NOTE TIME CHANGE~~

BRIEFING SHEET

Scheduled: Monday, March 7, 1988  
10:30 a.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

OE, GPA, and AEOD have also been requested to provide a summary of recent enforcement actions, events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- ~~D. Cool~~
- L. Rouse
- V. Miller
- M. Lamastra
- R. Burnett
- C. MacDonald
- M. Knapp
- R. Browning
- OE E. Flack
- OI T. Gilbert
- AEOD K. Black
- SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING



## NEW EVENTS

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Eliminator Devices (Miller)

Orders were issued on February 18, 1988, to 3M and the general licensees using Po-210 3M static elimination devices, which called for the immediate suspension of use and recall of the devices. The recall was initiated because data uncovered in the preceding weeks by field surveys had revealed widespread evidence of the uncontrolled release of radioactive material from these devices in ordinary use. The recall of devices is now underway, and the impact on users of the devices is expected to be substantial. The order to 3M also included an order to show cause why License No. 22-00057-32G should not be revoked in its entirety and why License No. 22-00057-06 should not be revoked to the extent that it authorizes manufacturing of static elimination devices containing Po-210.

ACTION:

DUE DATE:

2. Allied Signal Corporation - Spills of Uranium (Rouse)

On February 6, 1988, Allied informed the NRC of an uranium spill and the UF<sub>6</sub> conversion facility in Metropolis, IL. The incident involved about 300 pounds of uranium oxides that leaked past a metal seal in the calciner. The spill resulted when an operator failed to terminate ore feed to the calciner during a production shutdown. Production shutdown situations will be more frequent because Allied has placed the facility on a 10 day on 4 day off production schedule.

On February 28, Allied informed the NRC that approximately one pound of uranium in the form of UO<sub>2</sub>/UF<sub>6</sub> had leaked from a crack in a hydrofluorinator shell into the hydrofluorinator cooling air, which exhausts outside the plant. The release mechanism was identified after two consecutive elevated air samples. Surveys showed the maximum contamination spread to be about 25 feet from the feed material building. The nearest site boundary is several hundred feet from the release point.

ACTION:

- Provide Bureau with explicit comparison of Allied & Saguayah.  
- Get new data on nearest residences

DUE DATE:

- Focus on Procedures adherence and Training during upcoming inspection

*Call Call on Feb 18  
to discuss decision  
new type of decision  
✓ to see if all the  
AG's agreed with the  
stop new order  
All AG's are not  
agreeing  
Now last will be based on the  
findings upon return  
WMS checking on getting a  
complete picture to 3M  
to get up date record  
to 3M data*

*1. private  
① XTS 64 for  
② XTS 64 for  
③ XTS 64 for*

*RT April 18  
before in  
findings*

*Report to SEV Chubb & Co. March 22  
modest length, short, concise*

*More substantial report  
to COM after "How Could Have DATE"*

*Conch in terms of short term, mid-term, long term*

*35-40*

3. V. A. Edward Hines, Jr. Medical Center - Order to Show Cause (Miller/Flack)

52 info  
5 card for measuring

On February 25, 1988, an Order to Show Cause Why License Should Not Be Modified, Effective Immediately, was issued to V. A. Edward Hines Medical Center. This Order imposed verification requirements before a certain technologist administers any licensed material. The Order also imposed a reporting requirement as to the technologist's performance in radiological activities. The action was based on a technologist injecting a patient with a second agent in an effort to cover up a mistake and his subsequent false statements to VA and NRC personnel.

ACTION: none - in hands of DOJ

DUE DATE: N/A

State Arizona has  
requested Carolina to  
verify that DOE  
is not to have and  
check if cylinders are  
ID out during check in

4. Sequoyah Fuels Corporation - Overfilled Cylinder (Rouse)

On February 29, Sequoyah Fuels Corporation (SFC) reported that it had received an overfilled Model 48G UF<sub>6</sub> depleted uranium cylinder at its facility in Gore, Oklahoma. The cylinder, which had been received in recent months from the DOE Paducah plant as feed for SFC's UF<sub>6</sub> to UF<sub>4</sub> process line, was determined to be about 3,300 pounds overweight when weighed in preparation for processing. After confirming the weight measurement, the cylinder was returned to storage and DOE was promptly notified. DOE's contractor, Martin-Marietta, is in contact with SFC. As of March 1, 1988, no decision had been made by DOE on actions to be taken. DOE is reviewing records and has verbally notified other sites that have been shipped depleted UF<sub>6</sub> cylinders. This included Carolina Metals, a South Carolina licensee that processes UF<sub>6</sub> to UF<sub>4</sub>. SLITP has notified the State of South Carolina of the matter.

DOE to determine if other overfilled cylinders are at SFC  
ACTION:

DUE DATE:

5. Kerr-McGee Refining Corporation - Possible Radiography Overexposure (Miller)

The potential radiation exposure of two welders at the Wynnewood, Oklahoma refinery (PNO-IV-88-15) has not yet been resolved. Thermoluminescent dosimeters obtained from INEL were used to measure exposure rates inside the pipe where the welders may have been exposed. Also, blood sample kits are being sent from Oak Ridge Associated Universities to Oklahoma in order to make cytogenetic analyses of the potentially exposed individuals.

Results to be received on TLD's end of this week. need data  
next week. Also Sp. Gen. concern that there is follow up with

DUE DATE: welders.

- Getting ready to close down  
GA Tech reactor, bring in  
an independent auditor.
- issue of discrimination  
on allegance

## 6. Status of Abnormal Occurrence Events (AEOD)

*Kathleen Black worth the effort*

## 7. Events of Interest in Agreement States (SLITP)

## 8. Recent Enforcement Actions (OE)

- ① 39 mCi Cs source from IMA leaking, LA, state of. 5 patients,  
two w/ slight contamination. Follow-up needed to find out  
what IMA is doing
- ② Albert Einstein Med Center, P-32 contamination, PN  
6000 cpm/pd urine
- ③ NARM case, University of Toledo, elevated levels due to  
radium sources, external contamination
- ④ Order to Finley - Hearing in progress. Commission stayed the  
hearing to review info, final decision from Commission yet  
to come out.
- Feb 2 Civil Penalty Kermit Butcher, gauge use
- Feb 4 Gamma Diagnostic - Proposed CP overexposure of extremities
- Rad Sterilizers - CP paid 5000 Irradiators
- Feb 10 Precision Medical Corp - Irradiators - ~~complied with~~ ~~revoked~~ ~~license~~
- SFC, \$2,000 CP - OI findings Paid 3/4
- Feb 23 Case Western Union CP 10000
- 23 Log Tech - well loggers - license revoked
- Va. Ponds
- John Larsons - Suspended board license
- March 1 BP Oil \$2,000 CP multiple violations w/ gauges

OPERATIONAL EVENTS SCHEDULE

|                            |   |             |      |           |
|----------------------------|---|-------------|------|-----------|
| Monday, April 4, 1988      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, May 2, 1988        | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, June 6, 1988       | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, July 5, 1988      | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, August 1, 1988     | - | White Flint | 6B11 | 2:00 p.m. |
| Tuesday, September 6, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, October 3, 1988    | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, November 7, 1988   | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, December 5, 1988   | - | White Flint | 6B11 | 2:00 p.m. |

*Paul Loukas*

- letter to DOE on accountability on waste than class c  
signed 1/4/88

- Lucky Mach will shut down.

Shirley Basson, Potlatch is only one resource operating

FOLLOW-UP EVENTS

Document Name:  
OP EVENTS

Requestor's ID:  
COOL

Author's Name:  
COOL DONALD A

Document Comments:  
operational events breifing sheet - do not destroy



BRIEFING SHEET

Scheduled: Tuesday, February 2, 1988 (NOTE DATE CHANGE)  
10:30 a.m. - White Flint North - 6 ~~8~~ 11  
6

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Operational Events in the Office.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety and the Division of Safeguards and Transportation.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- ~~D. Cost~~
- L. Rouse
- V. Miller
- M. Lamastra
- R. Burnett
- C. MacDonald
- M. Krapp
- R. Browning
- OE E. Flack
- OI T. Gilbert
- AEOD K. Black
- SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

TENTATIVE SCHEDULE FOR FUTURE NMSS OPERATIONAL EVENTS BRIEFINGS

|                       |   |             |           |
|-----------------------|---|-------------|-----------|
| Monday, March 6, 1988 | - | White Flint | 2:00 p.m. |
| Monday, April 4, 1988 | - | White Flint | 2:00 p.m. |

## NEW EVENTS

### 1. Ashland Chemical Company - Po-210 Contamination from Static Eliminator (Miller)

On January 22, 1988, Ashland Chemical Company's (ACC) radiation safety consultant notified NRC's Region I office of the detection of alpha contamination of worker clothing at its electronic chemicals packaging plant in Easton, Pennsylvania. Contamination was also detected in the plant areas in the vicinity of Minnesota Mining and Manufacturing Company (3M) high pressure static elimination air guns. Contamination was also detected at ACC's facility in Dallas, Texas.

The NRC has established an AIT to investigate the incident, and has issued an order to 3M regarding the static eliminators.

ACTION: *Keep heat on 3M to find root cause to determine failure and suitability of design for continued use. RII will be looking at enforcement actions.*

DUE DATE: *FOH will deal with it through NRC*

*N/A*

### 2. West Valley Demonstration Project - Welding QA Problem in High Level Waste Transfer Piping (Rouse)

During a pre-startup inspection conducted by Region I the first week of January, 1988, quality assurance problems with the radiography of welds for the high-level waste transfer piping were discovered. The transfer piping is triple-walled and buried underground; it was not possible to see any welds directly. The inspector examined a random sample of the radiographs of welds on the innermost pipe and found numerous code violations in the radiography. There was no code requirement to radiograph welds on the outer two pipes, but those pipes were subjected to other required tests. The inspector did not find evidence of bad welds in the radiographs, but the radiography itself was inferior to that normally required for nuclear plant work. This matter was discussed with DOE at the site and DOE has started an investigation.

DOE is evaluating all radiographs of the pipe to assess the welding and determine if the piping is suitable for intended service and is to keep the NRC informed of its actions. The staff will evaluate DOE findings and proposals.

ACTION: *No further action on our part for now*

DUE DATE: *N/A*

*4. DOE receiving all work orders and is reviewing all radiographs. 4. RII wants us to be confident in how much resources we pour into radiography of pipes.*

3. Combustion Engineering, Inc. - Drug Use Allegation (Rouse)

In response to previous allegations and actions by Region I, evidence of drug use onsite was uncovered at the Combustion Engineering, Inc. facility at Windsor, Connecticut. Region I is presently requesting Combustion Engineering management to establish and implement a policy to deter further drug use at the facility, and provide some assurance that the policy and implementation is adequate.

*1st response inadequate, 2nd response being prepared to deal with implementation*  
ACTION: SETA will take some of this and factor into Fitness for Duty Rule  
*RT following license action*

DUE DATE: N/A

4. Transnuclear, Inc. (Burnett)

Recently, the NRC learned that West German authorities had suspended the transportation licenses of Transnuclear (FRG), part owner of Transnuclear, Inc. (US), because of charges of illegal shipments of nuclear waste between the FRG and Belgium and financial irregularities. NRC also learned that these authorities have suspended the operating licenses of NUKEM in Hanau, FRG, the part owner of Transnuclear (FRG), for the same reasons. While the primary charges reported relate to Transnuclear's and NUKEM's nuclear waste handling operations, West German officials are also investigating allegations that the firms have been involved in illegal shipments of nuclear material to Libya and Pakistan. U.S. Government authorities continue to investigate this matter and are awaiting receipt of official reports from responsible governmental authorities in Europe.

In view of Transnuclear, Inc.'s (US) current authorizations under NRC export licenses to ship nuclear material from the U.S. to the FRG (including to NUKEM) and its connections with the FRG companies whose licenses have been suspended, these developments raise questions concerning the continued reliability of Transnuclear, Inc., (US) as a shipper and exporter of nuclear material.

ACTION: G-PA demand for information to Transnuclear, Inc.  
SE TR to follow-up on cash certification

DUE DATE: N/A

# 5. Status of Abnormal Occurrence Events (AEOD)

AEOD to provide briefing on status of events presently under consideration for the quarterly Abnormal Occurrence Report to Congress.

ACTION: *Trace Labs - possible revocation of license 3rd Quarter 87*  
*Wright-Patt, Cars Western may make a 4th Quarter 87*  
 DUE DATE: *[From Hospital therapy, undisturbed]*  
*@ Patient pulled catheter out of nose*

# 6. Events of Interest in Agreement States (SLITP)

SLITP to provide briefing on status of events in Agreement states for activities similar to those regulated by the NRC for non-agreement states.

ACTION: *Stolen Truck Cause in Arizona RN, last Thursday*  
 DUE DATE:

3M

Texas - action to go out and inspect those that make consumer products

- *Alcoa - makes eyewear - not contaminated*
- *several other plants sampled, only the one Coca Cola plant not contaminated*
- *State requested to keep NRC informed*
- *make us aware of any proposed press releases*

Update: *Saltwater Well Survey*

- *not found*

United Technologies rail cars now in Indiana,

Utah opening NORM waste site this week *Now to go there*

Texas - correspondence to cables of two industrial radiographers

*16 Nov incident, reported 8 Dec to Texas, reported to NRC by Texas 20 Jan*  
*Skin reddening on one side of each person, dose in excess of limit*  
*Source not fully identified, stored under beach 125 C. 01 197*

FOLLOW-UP EVENTS

1. Brazilian Cs-137 Contamination From Teletherapy Source (Nussbaumer)

ACTION: R. Greeves (LLWM) to prepare a letter to DOE requesting assistance for criteria for disposal of greater than class C waste.

DUE DATE: 2/1/88

- Draft of letter written
- DOE can accept waste from our licensees for greater than Class C
- IP, Bill Upshaw, Brazil wants Reg Guide, etc

DUE DATE 3/1/88 next meeting, letter to be out



*Don Cool*

TENTATIVE SCHEDULE FOR FUTURE NMSS OPERATIONAL EVENTS BRIEFINGS

|                       |   |             |      |           |
|-----------------------|---|-------------|------|-----------|
| Monday, March 7, 1988 | - | White Flint | 6B11 | 2:00 p.m. |
| Monday, April 4, 1988 | - | White Flint | 6B11 | 2:00 p.m. |

02/02/88 OPERATIONAL EVENTS UPDATE

1. Ashland Chemical Company - Po-210 Contamination from Static Eliminator (Miller)

On January 22, 1988, Ashland Chemical Company's (ACC) radiation safety consultant notified NRC's Region I office of the detection of alpha contamination of worker clothing at its electronic chemicals packaging plant in Easton, Pennsylvania. Contamination was also detected in the plant areas in the vicinity of Minnesota Mining and Manufacturing Company (3M) high pressure static elimination air guns. Contamination was also detected at ACC's facility in Dallas, Texas.

The NRC has established an AIT to investigate the incident, and has issued an order to 3M regarding the static eliminators.

ACTION: Daily highlights will be provided by IMOB as incident develops.

DUE DATE: N/A

2. West Valley Demonstration Project - Welding QA Problem in High Level Waste Transfer Piping (Rouse)

During a pre-startup inspection conducted by Region I the first week of January, 1988, quality assurance problems with the radiography of welds for the high-level waste transfer piping were discovered. The transfer piping is triple-walled and buried underground; it was not possible to see any welds directly. The inspector examined a random sample of the radiographs of welds on the innermost pipe and found numerous code violations in the radiography. There was no code requirement to radiograph welds on the outer two pipes, but those pipes were subjected to other required tests. The inspector did not find evidence of bad welds in the radiographs, but the radiography itself was inferior to that normally required for nuclear plant work. This matter was discussed with DOE at the site and DOE has started an investigation.

DOE is evaluating all radiographs of the pipe to assess the welding and determine if the piping is suitable for intended service and is to keep the NRC informed of its actions. The staff will evaluate DOE findings and proposals.

ACTION: RI to follow DOE activities, possibly to include further inspection.

DUE DATE: N/A

3. Combustion Engineering, Inc. - Drug Use Allegation (Rouse)

In response to previous allegations and actions by Region I, evidence of drug use onsite was uncovered at the Combustion Engineering, Inc. facility at Windsor, Connecticut. Region I is presently requesting Combustion Engineering management to establish and implement a policy to deter further drug use at the facility, and provide some assurance that the policy and implementation is adequate.

ACTION: Region I to follow licensee actions for policy implementation.  
SGTR to factor event into Fitness for Duty Rulemaking.

DUE DATE: N/A

4. Transnuclear, Inc. (Burnett)

Recently, the NRC learned that West German authorities had suspended the transportation licenses of Transnuclear (FRG), part owner of Transnuclear, Inc. (US), because of charges of illegal shipments of nuclear waste between the FRG and Belgium and financial irregularities. NRC also learned that these authorities have suspended the operating licenses of NUKEM in Hanau, FRG, the part owner of Transnuclear (FRG), for the same reasons. While the primary charges reported relate to Transnuclear's and NUKEM's nuclear waste handling operations, West German officials are also investigating allegations that the firms have been involved in illegal shipments of nuclear material to Libya and Pakistan. U.S. Government authorities continue to investigate this matter and are awaiting receipt of official reports from responsible governmental authorities in Europe.

In view of Transnuclear, Inc.'s (US) current authorizations under NRC export licenses to ship nuclear material from the U.S. to the FRG (including to NUKEM) and its connections with the FRG companies whose licenses have been suspended, these developments raise questions concerning the continued reliability of Transnuclear, Inc., (US) as a shipper and exporter of nuclear material.

ACTION: GPA to issue Demand for Information Letter to Transnuclear, Inc.

DUE DATE: N/A

5. Status of Abnormal Occurrence Events (AEOD)

AEOD to provide briefing on status of events presently under consideration for the quarterly Abnormal Occurrence Report to Congress.

3rd Quarter CY 1987 - Tracer Labs - Possible revocation of license  
4rd Quarter CY 1987 - Wright-Patterson  
Case Western Reserve University

6. Events of Interest in Agreement States (SLITP)

SLITP to provide briefing on status of events in Agreement states for activities similar to those regulated by the NRC for non-agreement states.

Stolen Troxler gauge in AZ, violation of requirement to lock gauge.  
PNO-V-88-05 issued 1/28/88.

Update on State of Texas actions regarding 3M static eliminators.

Update on Schlumberger Well Services - source still not found.

Update on United Technologies - Railcars now in Indiana. Material may be disposed of at NORM disposal site to be opened by the State of Utah.

Overexposure to ankles of two industrial radiographers in Texas. Source not fully retracted while stored under bench in office. Reporting to State of Texas and NRC was delayed to 1/20/88.

7. Brazilian Cs-137 Contamination From Teletherapy Source (Nussbaumer)

ACTION: Information Notice being prepared by J. Hickey. Letter to DOE being reviewed by IMNS and State Programs.

DUE DATE: 3/1/88

8. Case Western Reserve University

ACTION: Headquarters currently considering Enforcement Package prepared by Region.

DUE DATE: 2/12/88 to Bernero on status of Enforcement Package  
(Flack/Miller)



BRIEFING SHEET

Scheduled: January 4, 1988  
2:00 p.m. - 9th Floor Conference Room

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Operational Events in the Office.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- D. Cool ✓
- L. Rouse
- V. Miller
- M. Lamastra
- R. Burnett
- C. MacDonald
- M. Knapp
- R. Browning
- OE E. Flack
- OI T. Gilbert
- AEOD K. Black
- SLITP D. Nussbaumer

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING



## NEW EVENTS

### 1. Schlumberger Well Services - Missing well-logging source (Miller/Nussbaumer)

On December 17, 1987, the Louisiana Nuclear Energy Division (LNED), which is responsible for Louisiana's radiation control programs, informed NRC Region IV that the state is requesting the Department of Energy to conduct an aerial survey in the Lake Charles, Louisiana area in search of a missing 1.5 Ci Cesium-137 well-logging source.

The source, which was discovered missing from its shielded container on December 9, belongs to Schlumberger Well Services, Lake Charles, a licensee of the state. Ground-based surveys done by LNED and company personnel have been unsuccessful in locating the source. Company officials have told the state that the source was last accounted for on November 9. Surveys have been conducted of all known locations at which the source may have been since then, including an offshore drilling platform. Company and LNED officials are also investigating the possibility of it having been stolen.

ACTION: None LA needs to follow-up

DUE DATE: N/A

### 2. Allied Chemical - Chemical Spill (Rouse)

On December 2, 1987, Allied Chemical Corporation, Metropolis Works, informed Region III of a chemical spill containing about 10 pounds of uranium. A waste stream containing potassium diuranate collected from treated ore concentrates, was being pumped to a hold tank. The liquid level alarm failed and the tank overflowed. The operators engaged the shut-off valve and estimated that 20 gallons of the waste stream had overflowed into the spill prevention basin beneath the tank. The spill was washed into the basin sump pump and discharged to an onsite waste pond. There was no offsite release. The licensee stated that the spill was reported to the U.S. EPA offices as required by CERCLA.

ACTION: Put on agenda to discuss w/ EPA to clarify reporting requirements.

DUE DATE:

There were three other spills since then  
a couple didn't involve radioactive

Source not yet  
found LA waiting  
w/ DOE today 1/4 to  
decide next step

"all sleeping  
dog"  
he

3. City of Toledo - Sewage Sludge with low levels of iodine-131 (Miller)

On about November 25, 1987, a resident living near the Davis-Besse Nuclear Power Station requested that the plant analyze a sample of sewage sludge which had been recently applied to adjacent farmland. Samples were analyzed on December 2 and detected low concentrations of iodine-131. The preliminary belief is that the iodine-131 is from sanitary sewage discharged by medical facilities served by the Toledo sewage treatment system.

ACTION:

*N/A no further action necessary at this time*

DUE DATE:

4. Atlanta Federal Penitentiary - Burned Generally Licensed Material (Miller)

The U.S. Department of Justice, Bureau of Prisons, Atlanta Federal Penitentiary reported that a maximum of 10 exit signs (each containing 21 curies of tritium) has been totally destroyed in the recent fire at the prison. The building was a four-story complex with 275,000 sq. ft. and the signs were located throughout the building. During the fire, prisoners vacated the building but re-entered after the fire. Given the nature of the fire and the configuration of the signs, (i.e., gaseous tritium contained in a sealed phosphor-coated tube), the staff believes that there would be no residue, since the fire was allowed to burn with no attempts to extinguish it.

ACTION:

*N/A no further action*

DUE DATE:

5. Marathon Petroleum Co. - Hydrofluoric acid release (Hickey)  
[Non-licensee event]

On October 30, 1987, a tank containing about 35,000 gallons of hydrofluoric acid at Marathon Petroleum Co.'s refinery in Texas City, Texas, ruptured and released a large plume of toxic acid vapor, forcing the evacuation of 3,000 residents and seriously injuring 52 people. The hydrofluoric acid was controlled by water spray and neutralization with lime, soda ash, and water, with the remaining contents transferred to other storage facilities. Evacuation from a 52 block area was required, with relocation when the initial evacuation point was threatened. NRC licensed material was not involved in the incident.

ACTION:

*Get copy of EPA report on effect on the 52 injured people to supplement info data base for evacuation*

DUE DATE:

*Mallinckrodt 200 uCi Tc<sup>99m</sup> generators  
stolen in Houston Texas*

### FOLLOW-UP EVENTS

1. Case-Western Reserve University - News media interest in laboratory Contamination. (Miller)

A license consultant detected 0.5 millicuries 3 H and 0.5 millicuries 14C contamination in a research laboratory in the Rainbow Babies and Children's Hospital. Cleveland area press were contacted by two technicians who work in the lab full time, and covered the story.

Patients had been allowed into the lab for Halloween treats. There is no apparent health hazard. The two technicians had negative bioassays; there is no contamination in the hallway.

A confirmatory action letter was issued November 19 requiring surveys and verification of training. An inspection was scheduled for November 23.

Local news media interest continues. The State of Ohio is receiving updates.

ACTION: Enforcement Conference scheduled for 11/30 at 1:00 p.m. with RIII and OE V. Miller to let H. Thompson know who attended from the university. IMNS to keep OCA apprised of actions on incidents in Ohio.

V. Miller to do review of adequacy of inspection program and inspectors role.

DUE DATE: 12/30/87

2. Brazilian Cs-137 Contamination From Teletherapy Source (Nussbaumer)

ACTION: D. Nussbaumer to send letter to Agreement States asking how many units similar to the one involved in the incident do they have. *done.*

DUE DATE:

3. United Technology - Contaminated aluminum found in scrap yard. (Hickey/Nussbaumer)

ACTION: GPA was requested to provide follow-up information on how Missouri and Indiana resolved who gets contaminated rail cars.

DUE DATE: *last cars still at United Technology*

*Ed Fluck got brief summary of enforcement actions*

*- CE  
- help hospital*

*RIE - question dividing line between willful violation vs medical security*

*Letter being written  
from NRC to DOE  
requesting assistance  
to locate for disposal  
of generator that close  
work*

*Letter being written  
now. Please return  
letter by 11/30  
when RII  
MS new action*

TENTATIVE SCHEDULE FOR FUTURE NMSS OPERATIONAL EVENTS BRIEFINGS

|                          |   |             |           |
|--------------------------|---|-------------|-----------|
| Monday, February 1, 1988 | - | White Flint | 2:00 p.m. |
| Monday, March 6, 1988    | - | White Flint | 2:00 p.m. |
| Monday, April 4, 1988    | - | White Flint | 2:00 p.m. |

01/04/88 OPERATIONAL EVENTS UPDATE

1. Schlumberger Well Services - Missing well-logging source (Miller/Nussbaumer)

On December 17, 1987, the Louisiana Nuclear Energy Division (LNED), which is responsible for Louisiana's radiation control programs, informed NRC Region IV that the state is requesting the Department of Energy to conduct an aerial survey in the Lake Charles, Louisiana area in search of a missing 1.5 Ci Cesium-137 well-logging source.

The source, which was discovered missing from its shielded container on December 9, belongs to Schlumberger Well Services, Lake Charles, a licensee of the state. Ground-based surveys done by LNED and company personnel have been unsuccessful in locating the source. Company officials have told the state that the source was last accounted for on November 9. Surveys have been conducted of all known locations at which the source may have been since then, including an offshore drilling platform. Company and LNED officials are also investigating the possibility of it having been stolen.

ACTION: Louisiana to have meeting with DOE to determine future course of action.  
State to have lead on whether to call off search if not able to be found

DUE DATE: N/A (update any additional information at next meeting)

2. Allied Chemical - Chemical Spill (Rouse)

On December 2, 1987, Allied Chemical Corporation, Metropolis Works, informed Region III of a chemical spill containing about 10 pounds of uranium. A waste stream containing potassium diuranate collected from treated ore concentrates, was being pumped to a hold tank. The liquid level alarm failed and the tank overflowed. The operators engaged the shut-off valve and estimated that 20 gallons of the waste stream had overflowed into the spill prevention basin beneath the tank. The spill was washed into the basin sump pump and discharged to an onsite waste pond. There was no offsite release. The licensee stated that the spill was reported to the U.S. EPA offices as required by CERCLA.

ACTION: Possible discuss with EPA on interpretation of CERCLA.

DUE DATE: No follow-up action necessary



3. City of Toledo - Sewage Sludge with low levels of iodine-131 (Miller)

On about November 25, 1987, a resident living near the Davis-Besse Nuclear Power Station requested that the plant analyze a sample of sewage sludge which had been recently applied to adjacent farmland. Samples were analyzed on December 2 and detected low concentrations of iodine-131. The preliminary belief is that the iodine-131 is from sanitary sewage discharged by medical facilities served by the Toledo sewage treatment system.

ACTION: No Action necessary

DUE DATE:

4. Atlanta Federal Penitentiary - Burned Generally Licensed Material (Miller)

The U.S. Department of Justice, Bureau of Prisons, Atlanta Federal Penitentiary reported that a maximum of 10 exit signs (each containing 21 curies of tritium) has been totally destroyed in the recent fire at the prison. The building was a four-story complex with 275,000 sq. ft. and the signs were located throughout the building. During the fire, prisoners vacated the building but re-entered after the fire. Given the nature of the fire and the configuration of the signs, (i.e., gaseous tritium contained in a sealed phosphor-coated tube), the staff believes that there would be no residue, since the fire was allowed to burn with no attempts to extinguish it.

ACTION: No Action necessary

DUE DATE:

5. Marathon Petroleum Co. - Hydrofluoric acid release (Hickey)  
[Non-licensee event]

On October 30, 1987, a tank containing about 35,000 gallons of hydrofluoric acid at Marathon Petroleum Co.'s refinery in Texas City, Texas, ruptured and released a large plume of toxic acid vapor, forcing the evacuation of 3,000 residents and seriously injuring 52 people. The hydrofluoric acid was controlled by water spray and neutralization with lime, soda ash, and water, with the remaining contents transferred to other storage facilities. Evacuation from a 52 block area was required, with relocation when the initial evacuation point was threatened. NRC licensed material was not involved in the incident.

ACTION: Get copy of formal report on effect on three people for comparison with our enrichment facilities (Justin Long/Don Cool)

DUE DATE: N/A



6. Case-Western Reserve University - News media interest in laboratory Contamination. (Miller)

A license consultant detected 0.5 millicuries 3 H and 0.5 millicuries 14C contamination in a research laboratory in the Rainbow Babies and Children's Hospital. Cleveland area press were contacted by two technicians who work in the lab full time, and covered the story.

Patients had been allowed into the lab for Halloween treats. There is no apparent health hazard. The two technicians had negative bioassays; there is no contamination in the hallway.

A confirmatory action letter was issued November 19 requiring surveys and verification of training. An inspection was scheduled for November 23.

Local news media interest continues. The State of Ohio is receiving updates.

ACTION: PN to be issued on 1/6/88 updating information.  
A Civil Penalty is also forthcoming from.  
(copy attached)

DUE DATE: N/A

7. Brazilian Cs-137 Contamination From Teletherapy Source (Nussbaumer)

ACTION: R. Greeves (LLWM) to prepare a letter to DOE requesting assistance for criteria for disposal of Greater-than-Class-C Waste.

DUE DATE: 2/1/88

8. United Technology - Contaminated aluminum found in scrap yard. (Hickey/Nussbaumer)

ACTION: Hanford has agreed to accept waste - problem is now how to package and ship car to Hanford

DUE DATE: N/A

9. Ed Flack brought NMSS up-to-date on pending enforcement action concerning NMSS.
10. D. Nussbaumer discussed stolen generators from Texas and PN was to be issued on 1/5/88. (copies attached on PN and Updates)

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNC-III-87-193C DATE JANUARY 6, 1988

THIS PRELIMINARY NOTIFICATION CONSTITUTES EARLY NOTICE OF EVENTS OF POSSIBLE SAFETY OR PUBLIC INTEREST SIGNIFICANCE. THE INFORMATION IS AS INITIALLY RECEIVED WITHOUT VERIFICATION OR EVALUATION, AND IS BASICALLY ALL THAT IS KNOWN BY THE REGION III STAFF ON THIS DATE.

FACILITY: CASE WESTERN RESERVE UNIVERSITY  
10900 EUCLID AVENUE  
CLEVELAND, OH 44106

LICENSE No. 34-00738-04

LICENSEE EMERGENCY CLASSIFICATION:  
☐ NOTIFICATION OF AN UNUSUAL EVENT  
☐ ALERT  
☐ SITE AREA EMERGENCY  
☐ GENERAL EMERGENCY  
☒ NOT APPLICABLE

SUBJECT: NEWS MEDIA INTEREST IN LABORATORY CONTAMINATION----(THIRD UPDATE)

ON DECEMBER 8, 1987, REGION III (CHICAGO) AUTHORIZED THE LICENSEE TO BEGIN LIFTING ITS SUSPENSION OF NRC-LICENSED ACTIVITIES, BASED ON THE LICENSEE'S PROGRAM TO UPGRADE ITS MANAGEMENT CONTROLS AND ITS RADIATION SAFETY STAFF. THE LICENSED ACTIVITIES HAD BEEN SUSPENDED BY THE UNIVERSITY ON NOVEMBER 25, 1987, BECAUSE OF PROBLEMS IDENTIFIED IN THE CONTROL AND MANAGEMENT OF ITS RESEARCH PROGRAM UTILIZING RADIOACTIVE MATERIALS. (MEDICAL PROGRAMS INVOLVING PATIENT TREATMENT AND CARE WERE NOT AFFECTED.)

THE LICENSEE'S RADIATION SAFETY COMMITTEE HAS REVIEWED THE QUALIFICATIONS OF 197 PRIMARY INVESTIGATORS HEADING VARIOUS RESEARCH PROJECTS. TO DATE, 129 OF THE INVESTIGATORS HAVE BEEN APPROVED. THE LICENSEE CONDUCTED RADIATION SAFETY TRAINING FOR SOME 700 RESEARCHERS AND TECHNICIANS ON DECEMBER 2 AND 3, 1987. AN INTERIM RADIATION SAFETY OFFICER HAS BEEN RETAINED TO AUDIT LICENSED ACTIVITIES, AND A CONSULTANT HAS INSPECTED AND SURVEYED THE LICENSEE'S LABORATORIES. ABOUT 300 LABORATORIES HAVE BEEN INSPECTED AND APPROVED FOR REOPENING.

THE DIABETES RESEARCH LABORATORY WHERE EXTENSIVE LOW-LEVEL CONTAMINATION WAS IDENTIFIED IN NOVEMBER 1987 HAS NOT BEEN REOPENED, PENDING FURTHER DECONTAMINATION.

IN RESPONSE TO REGION III CONCERNS WITH A WASTE STORAGE AREA, THE LICENSEE HAS SEPARATED ITS CHEMICAL WASTE AND RADIOACTIVE WASTE. ALL RADIOACTIVE WASTE IS TO BE SHIPPED TO A LICENSED DISPOSAL SITE ON JANUARY 6, 1988. THE LICENSEE IS ALSO PLANNING TO REDESIGN ITS WASTE STORAGE AREA.

THE STATE OF OHIO WILL BE INFORMED OF THIS UPDATED INFORMATION.

THIS INFORMATION IS CURRENT AS OF 11 A.M., JANUARY 6, 1988.

CONTACT: J. MULLAUER  
FTS 388-5623

D. WIEDEMAN  
FTS 388-5616

B. MALLET  
FTS 388-5612

DISTRIBUTION:

H. ST.  
CHAIRMAN ZECH  
COMM. ROBERTS  
COMM. BERNTHAL  
COMM. CARR  
COMM. ROGERS  
SECY  
OGC-H  
CA  
GPA  
ACPS  
PDR

NMBB  
AEDD  
ARM  
EDO  
PA  
OGC

PHILLIPS  
NRR  
  
AIRRIGHTS  
SLIP

E/W  
OTA  
OI

WILLSTE  
NPSS

MAIL TO:  
DCS (ORIGINAL)  
DOT (TRANS. ONLY)

FAX TO:  
INPO  
NSAC  
LICENSEE  
RESIDENT INSPECTOR  
HQS. OPERATIONS OFFICER

NICHOLSON LANE  
RES

REGIONS  
REGION I  
REGION II  
REGION IV  
REGION V

REGION III

FOR ROUTING ONLY

THOMPSON ✓  
BLUMBERG ✓

CC: PCMA  
PCMA  
PCMA  
PCMA

January 6, 1987

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-88-02

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region IV staff on this date.

FACILITY: NONE

Licensee Emergency Classification:

☐ Notification of Unusual Event  
☐ Alert  
☐ Site Area Emergency  
☐ General Emergency  
☒ Not Applicable

SUBJECT: TRANSPORTATION ACCIDENT

At about 8:20 p.m. CST, January 5, 1988, an Associated Couriers truck/trailer carrying 84 spent molybdenum-technicium generators to Mallinckrodt in St. Louis was hit by a car that crossed a median on the Turner Turnpike near Oklahoma City. The car driver was killed; the truck driver was not injured. Although the truck/trailer tipped over onto a guard rail, the generators were undamaged. The truck was replaced and the shipment has continued on to St. Louis.

Oklahoma State Radiological Health personnel responded to the accident scene.

According to the licensee and Oklahoma State Radiological Health personnel, there was no media interest. Neither the licensee nor the NRC intend to issue a press release.

Region IV received notification of this occurrence by telephone from the Headquarters Operations Officer at 11:15 p.m. on January 5, 1988.

CONTACT: W. L. Fisher, FTS 728-8215

DISTRIBUTION:

H. St.  
Chairman Zech  
Comm. Roberts  
Comm. Bernthal  
Comm. Carr  
Comm. Rogers  
ACRS  
SECY  
CA  
PDR  
OGC-H  
GPA  
ACRS  
PDR

MNBB  
AEOD  
PA  
OGC  
MPA  
ARM  
E/W  
OIA  
OI  
VIB

Phillips  
NRR  
AirRights  
SLITP

Nicholson Lane  
RES

Regional Offices

MAIL:  
Willste DCS (Original)  
NMSS DOT: (Trans only)  
ROUTING ONLY  
FAX:  
THOMPSON INPO  
B. WERO NSAC  
RRI  
NRC OC  
LICENSEE:  
(Reactor Licensee)

PIV:D:DRSS  
RLBangart;ap  
/ /88

RA  
RDMartin  
/ /88

Transmitted via 5520 @

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNC-III-87-157A Date January 5, 1988

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region III staff on this date.

Facility: Mallinkrodt, Inc.  
2703 Wagner Place  
Maryland Heights, Missouri

License No. 24-04206-01

Licensee Emergency Classification:  
☐ Notification of an Unusual Event  
☐ Alert  
☐ Site Area Emergency  
☐ General Emergency  
☒ Not Applicable

Subject: MISSING MOLYBDENUM-99 GENERATOR----(UPDATE)

On January 5, 1988, the licensee reported to Region III (Chicago) that a molybdenum-99/technetium-99m generator, reported missing on December 22, 1987, had been found.

The licensee's review determined that the generator was not delivered to a Fort Worth, Texas, hospital on November 16, 1987, as intended, and was mixed with used generators returned to the licensee's facility in Missouri. According to the licensee's report, the generator in question was dismantled on December 22, 1987, in accordance with standard procedures for used generators. Because the contents (molybdenum-99 with a half-life of 66 hours) had decayed to about 11 microcuries, the dismantling procedure did not represent a significant hazard to licensee personnel.

The matter will be reviewed by Region III during the next routine inspection. Region IV (Dallas) has been advised that the licensee had determined the missing generator had been returned to its facility and was dismantled.

The States of Texas, Oklahoma, and Missouri will be notified.

Region III was notified of the licensee's findings at 2:55 p.m. on January 5, 1988. This information is current as of that time.

CONTACT: R. Caniano  
FTS 388-5721

B. Mallett  
FTS 388-5612

DISTRIBUTION:

H. St.  
Chairman Zech  
Comm. Roberts  
Comm. Bernthal  
Comm. Carr  
Comm. Rogers  
SECY  
OGC-H  
CA  
GPA  
ACRS  
PDR

NMBS  
AEOD  
ARM  
EDO  
PA  
OGC

FAX TO:  
INPO  
NSAC  
Licensee  
Resident Inspector  
HQS. Operations Officer

Phillips  
NRR  
  
AirRights  
SLTP

E/W  
OIA  
OI

Willste  
NMSS

Mail To: OIC  
DCS (Original)  
DOT (Trans. Only)

Regions  
Region I  
Region II  
Region IV  
Region V

Region III  
Rev. November 1987

ROUTING ONLY

T. J. PSON ✓  
L. J. RO ✓  
C. J. VA  
C. J. RO  
C. J. VA



PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE -- PNO-IV-88-01

Licensee Emergency Classification:  
 ----- Notification of Unusual Event  
 ----- Alert  
 ----- Site Area Emergency  
 ----- General Emergency  
 X ----- Not Applicable

|                |                |           |         |                   |
|----------------|----------------|-----------|---------|-------------------|
| H. St.         | MNBB           | E/W       | Willste | MAIL:             |
| Chairman Zech  | AEOD           | OIA       | NMSS    | DCS (Original)    |
| Comm. Roberts  | PA             | OI        |         | DOT: (Trans only) |
| Comm. Bernthal | OGC            | VIB       |         |                   |
| Comm. Carr     | MPA            |           |         |                   |
| Comm. Rogers   | ARM            |           |         |                   |
| ACRS           |                |           |         |                   |
| SECY           |                |           |         |                   |
| CA             |                |           |         |                   |
| PDR            | Phillips       | AirRights |         |                   |
| OGC-H          | NRR            | SLIP      |         |                   |
| GPA            |                |           |         |                   |
| ACRS           |                |           |         |                   |
| DNR            | Nicholson Lane |           |         |                   |
|                | RES            |           |         |                   |
| SAG            |                |           |         |                   |
| RJDodajic      | RA             |           |         |                   |
| 1 / 88         | RDMartin       |           |         |                   |
|                | 1 / 88         |           |         |                   |

*DAC - don't put anything in here, even as background. This does not need to be discussed!*

*Fanne  
Cool*

BRIEFING SHEET

Scheduled: November 30, 1987  
2:00 p.m. - 9th Floor Conference Room  
1:00

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS on Operational Events in the Office.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved. Input for this meeting was received from the Division of Industrial and Medical Nuclear Safety.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- D. Cool
- L. Rouse
- V. Miller
- R. Burnett
- C. MacDonald
- M. Knapp
- R. Browning
- UE Ed Flack
- OI Ted Gilbert
- AEOD Kathy Black
- SLITP Don Nussbaumer



# NEW EVENTS

*Discuss as follow-up for Jan*

Case-Western Reserve University - News media interest in laboratory Contamination. (McElroy)

*and special assignment of W.C. inspector program*

A license consultant detected 0.5 millicuries 3 H and 0.5 millicuries 14C contamination in a research laboratory in the Rainbow Babies and Children's Hospital. Cleveland area press were contacted by two technicians who work in the lab full time, and covered the story.

*When this is local interest PR/CA need to be kept up to speed*

Patients had been allowed into the lab for Halloween treats. There is no apparent health hazard. The two technicians had negative bioassays; there is no contamination in the hallway.

A confirmatory action letter was issued November 19 requiring surveys and verification of training. An inspection was scheduled for November 23.

Local news media interest continues. The State of Ohio is receiving updates.

*Following on inspection program adequacy of Region III - our inspectors role*  
**ACTION:** *Was there a breakdown in licensing? What level of support by University - who showed up at enforcement conf. President?*  
**DUE DATE:** 12/31/87

*CA - are they receiving updates*

2. Nuclear Fuel Services, Inc. (NFS) - Explosion in scrap Recovery Facility, October 27, 1987 (Rouse)

At 4:30 p.m. on October 27, an explosion occurred in a furnace in the licensees high enriched uranium scrap recovery facility. The explosion occurred as a production foreman was adjusting a damper on exhaust system serving the furnace. This adjustment was initiated because of smoke escaping from the furnace into the work area. Other workers had evacuated the immediate area because of the smoke. The explosion broke the prexiglass covers of the ventilated entrance of the furnace. No one was injured and no unusual contamination or airborne radioactivity was detected. The furnace is used to combust uranium bearing scrap waste placed in a 2-inch deep trays in a single layer prior to further processing of the ash residues for uranium recovery. The license called in consultants from the Oak Ridge Y-12 Plant to assist the licensees investigation. No license violations have been noted to date by Region II or the Resident Inspector.

*Follow up on NFS consultant report to look at airflow, organics allowed, etc. look at addit controls for license cond?*  
**ACTION:**

**DUE DATE:** N/A

*Enhanced conf with W.C. on a last lesson management breakdown disorganized and protection further of first NAC inspection which did not find the problems*

3. Nuclear Fuel Services, Inc (NFS) - Contamination Event in Fuel Production Facility, November 7, 1987 (Rouse)

At 1:00 p.m. on November 7, 1987, as a worker was tightening a clamp on an off-gas trap on a finishing unit, the clamp bolt broke and the trap fell off. The worker sustained skin contamination to 100,000 d/m and nasal contamination of 1500 d/m. Three other employees in the area showed positive nasal smears. Air concentration to about 100 times Appendix B, 10 CFR Part 20, were detected. The work area was evacuated immediately after the event. Evaluations of employee exposures revealed no significant intakes.

*Person already in work to reduce airborne contamination*

ACTION: *NONE*

DUE DATE: *N/A*

4. Nuclear Fuel Services, Inc. (NFS) - Water Leak at a Process Furnace in Fuel Production Facility, November 4, 1987 (Rouse)

On November 4, an operator observed water overflowing from a cooling water trough on a process furnace in Building 303. Approximately 30 liters of water had drained to the elevator pit below the furnace before the operator cleared the trough drain, but the quantity of water in the pit was insufficient to activate the level alarm. The event was reported by the licensee in accordance with a specified license condition.

ACTION: *NONE*

DUE DATE: *N/A*

5. Combustion Engineering (Windsor, Conn.) - Confirmatory Action Letter and Scheduled Management Enforcement Conference, December 1, 1987 (Rouse)

Inadequate contamination control practices in the pellet production area, inadequate respiratory protection program and procedural deficiencies as observed by a Region I inspector, including follow-up on employee allegations, resulted in a confirmatory action letter for decontamination to specified license action levels on October 27, 1987. A management enforcement conference is scheduled for December 1, at Region I to discuss deficiencies in the licensees radiation protection program and management controls.

ACTION: *Region I to continue monitoring*

DUE DATE:

NOTE: Next meeting is scheduled for Monday, January 4, 1988, at 2:00 p.m.

Region 1

Honolulu Harbor

may get congressional

5 acre park - sugar production

Released for unrestricted use 1976

- 20 pc/g Cr at that time

- 196 mls 5000/m at surface

2-4 cubic yards total

---

- Allegation of shipment of "nuclear waste" to  
South America OI investigating

- Nuclear Hoax over weekend  
Cincinnati Ohio nuclear bomb threat

## FOLLOW-UP EVENTS

### 1. Contamination Events (Miller/Hickey)

Draft Manual Chapter to cover NRC actions when radioactive material is not under proper control is currently being circulated for comments to other offices.

ACTION:

DUE DATE:

*continuing*

*will this give  
guidance that regions have  
interests available to deal  
w/ contamination / clean-up*

*What amount of time do  
we have - we have if  
we can pump all of the  
keeps for a final inc  
by then*

### 2. Eastern Testing Inspection Company - Transportation Accident on October 26, 1987 (Miller/MacDonald)

Follow-up inspection and possible enforcement action to be coordinated with Region I and OE.

ACTION:

DUE DATE:

*DUE*

### 3. Combustion Engineering Drug Use Allegation (Rouse/Burnett)

Resolve allegations and determine drug policy for CE in the future. Enforcement conference with CE tentatively scheduled for November 30, 1987.

ACTION:

DUE DATE:

### 4. Oral

*Follow-up on other types of sources which may  
be comparable in radiation that do not have the same  
levels of controls. Question of storage vs*

*1st HCT schedule for followup by midday*

*will radiographers must it should include  
notes of slips like ACCO report*

## BACKGROUND

### OPERATIONAL EVENTS UPDATE

November 2, 1987

NOTE: NEXT MEETING IS SCHEDULED FOR MONDAY, NOVEMBER 30, 1987 AT 2:00 P.M.

1. BRAZILIAN - Cs-137 Contamination from Teletherapy Source (Miller)

ACTION: IP will receive briefing every other day from the U.S. Embassy in Brazil and keep NMSS offices informed.

DUE DATE: N/A

2. Eastern Testing Inspection Company - Transportation accident on October 26, 1987 (Muller/MacDonald)

An Order imposing Civil Penalties was issued on October 20, 1987. The action was based, in part, on transportation of a radiography source to a field site without the source being accompanied by the required shipping papers. On October 26, 1987, a vehicle operated by the licensee was involved in an accident on the new Jersey Turnpike. The radiographic source (17 Curies Ir-192) remained intact and no release of radioactivity was reported. Initial discussions with the New Jersey authorities indicated a potential problem with shipping papers.

ACTION: Check with Region I on follow-up inspection and possible enforcement action. Is DOE taking enforcement action? Coordinate with OE.

DUE DATE: 11/30/87

3. Combustion Engineering - Drug Use Allegation (Rouse/Burnett)

During an NRC inspection of Combustion Engineering, Windsor facility, conducted during the week of October 5, 1987, an allegation was received concerning drug and alcohol usage by employees while performing their duties onsite. On October 16, 1987, the licensee was notified that three employees had been arrested on drug charges while offsite and during nonworking hours. Region I is continuing to follow licensee actions with regard to drug policy and fitness for duty.

ACTION: Resolve allegations and determine what kind of Drug Policy CE will have in the future. An enforcement Conference is tentatively scheduled for 11/30/87.

DUE DATE: 12/15/87

## BACKGROUND

- 2 -

## FOLLOW-UP EVENTS

1. New Jersey State Police - Tritium Contamination (Muller/Hickey)

Draft Manual Chapter to cover NRC actions when radioactive material is not under proper control is currently being circulated for comments to other offices.

ACTION: NMSS draft is currently being commented on by the regions.

DUE DATE: 12/18/87

2. United Technology - Contaminated Aluminum Found in Scrap Yard (Hickey/Nussbaumer)

GPA was requested to provide follow-up information on how Missouri and Indiana resolved who gets contaminated rail cars.

ACTION: Closed. Radium will be disposed of at Hanford by United Technology. Further distribution of "Hazardous Scrap Warning Poster" being made to non-ferrous metal scrap dealers and metal industries (copy attached)

DUE DATE: N/A

3. Misadministrations (AEOD)

AEOD was requested to conduct a special study on teletherapy misadministrations and identify the relationship of these occurrences to our current rulemaking packages on QA, to determine if our QA packages are sufficiently detailed to have prevented these misadministrations. AEOD report due November 15, 1987.

ACTION: Study almost completed.

DUE DATE: 11/15/87



DISTRIBUTION

DCool, IMNS/OB

PLohaus, LLWM/OB

LRouse, INMS/FC

RBurnett, SG

RBernero, NMSS

HThompson, NMSS

TMartin, ~~Region I~~

VMiller, NMSS/IMNS

DNussbaumer, GPA/SLITP

GLear, NMSS

LBolling, GPA/SLITP

LJacobs-Baynard, PAB/NMSS

FSt.Mary, NMSS/IMNS

CMacDonald, NMSS/SGTB

JSwift, IMNS/FC

RBrowning, NMSS/HLWM

Don 320  
Call Pat  
When you  
CP Follow-up item X7406

11/30/87 OPERATIONAL EVENTS UPDATE

NOTE: AT NEXT MEETING SCHEDULED FOR 1/4/87 AT 2:00 P.M., IN 9TH FLOOR CONFERENCE ROOM BE SURE TO INCLUDE PROJECT MANAGERS WHENEVER POSSIBLE

1. Case-Western Reserve University - News media interest in laboratory Contamination. (McElroy)

A license consultant detected 0.5 millicuries 3 H and 0.5 millicuries 14C contamination in a research laboratory in the Rainbow Babies and Children's Hospital. Cleveland area press were contacted by two technicians who work in the lab full time, and covered the story.

Patients had been allowed into the lab for Halloween treats. There is no apparent health hazard. The two technicians had negative bioassays; there is no contamination in the hallway.

A confirmatory action letter was issued November 19 requiring surveys and verification of training. An inspection was scheduled for November 23.

Local news media interest continues. The State of Ohio is receiving updates.

ACTION: Enforcement Conference scheduled for 11/30 at 1:00 p.m. with RIII and OE V. Miller to let H. Thompson know who attended from the university. IMNS to keep OCA apprised of actions on incidents in Ohio.

V. Miller to do review of adequacy of inspection program and inspectors role.

DUE DATE: 12/30/87

2. Nuclear Fuel Services, Inc. (NFS) - Explosion in scrap Recovery Facility, October 27, 1987 (Rouse)

At 4:30 p.m. on October 27, an explosion occurred in a furnace in the licensees high enriched uranium scrap recovery facility. The explosion occurred as a production foreman was adjusting a damper on exhaust system serving the furnace. This adjustment was initiated because of smoke escaping from the furnace into the work area. Other workers had evacuated the immediate area because of the smoke. The explosion broke the prexiglass covers of the ventilated entrance of the furnace. No one was injured and no unusual contamination or airborne radioactivity was detected. The furnace is used to combust uranium bearing scrap waste placed in a 2-inch deep trays in a single layer prior to further processing of the ash residues for uranium recovery. The license called in consultants from the Oak Ridge Y-12 Plant to assist the licensees investigation. No license violations have been noted to date by Region II or the Resident Inspector.

ACTION: R. Burnett and R. Bernero to see how management is doing and to get copy of report. This is basically an OSHA issue and no NMSS follow-up is needed.

DUE DATE: N/A

3. Nuclear Fuel Services, Inc (NFS) - Contamination Event in Fuel Production Facility, November 7, 1987 (Rouse)

At 1:00 p.m. on November 7, 1987, as a worker was tightening a clamp on an off-gas trap on a finishing unit, the clamp bolt broke and the trap fell off. The worker sustained skin contamination to 100,000 d/m and nasal contamination of 1500 d/m. Three other employees in the area showed positive nasal smears. Air concentration to about 100 times Appendix B, 10 CFR Part 20, were detected. The work area was evacuated immediately after the event. Evaluations of employee exposures revealed no significant intakes.

ACTION: No follow-up action needed

DUE DATE: N/A

4. Nuclear Fuel Services, Inc. (NFS) - Water Leak at a Process Furnace in Fuel Production Facility, November 4, 1987 (Rouse)

On November 4, an operator observed water overflowing from a cooling water trough on a process furnace in Building 303. Approximately 30 liters of water had drained to the elevator pit below the furnace before the operator cleared the trough drain, but the quantity of water in the pit was insufficient to activate the level alarm. The event was reported by the licensee in accordance with a specified license condition.

ACTION: No follow-up action needed

DUE DATE: N/A

5. Combustion Engineering (Windsor, Conn.) - Confirmatory Action Letter and Scheduled Management Enforcement Conference, December 1, 1987 (Rouse)

Inadequate contamination control practices in the pellet production area, inadequate respiratory protection program and procedural deficiencies as observed by a Region I inspector, including follow-up on employee allegations, resulted in a confirmatory action letter for decontamination to specified license action levels on October 27, 1987. A management enforcement conference is scheduled for December 1, at Region I to discuss deficiencies in the licensees radiation protection program and management controls.

ACTION: J. Swift to attend Enforcement Conference on 12/1/87

DUE DATE: N/A

6. Contamination Events (Miller/Hickey/Don Cool)

Draft Manual Chapter to cover NRC actions when radioactive material is not under proper control is currently being circulated for comments to other offices.

ACTION: Final Draft being prepared

DUE DATE:

7. Eastern Testing Inspection Company - Transportation Accident on October 26, 1987 (Miller/MacDonald)

Follow-up inspection and possible enforcement action to be coordinated with Region I and OE.

ACTION: Schedule inspection within the next six months

DUE DATE: N/A

8. Combustion Engineering Drug Use Allegation (Rouse/Burnett)

Resolve allegations and determine drug policy for CE in the future. Enforcement conference with CE tentatively scheduled for November 30, 1987.

ACTION: N/A

DUE DATE: N/A

9. Brazilian - Cs-137 Contamination From Teletherapy Source (TMartin/VMiller/DNussbaumer)

ACTION: D. Nussbaumer to send letter to Agreement States asking how many units similar to the one involved in the incident do they have.

10. Misadministrations

ACTION: V. Miller to give H. Thompson copy of AEOD report dated 11/13  
AEOD will be issuing another report in January on Radiographers

11. United Technology - Contaminated aluminum found in scrap yard. (Hickey/  
Nussbaumer)

GPA was requested to provide follow-up information on how Missouri and Indiana resolved who gets contaminated rail cars.

BRIEFING SHEET

Scheduled: November 7, 1988  
2:00 p.m. - White Flint North - 6 B 11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS, on Recent Operational Events.

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

Invitees:

- H. Thompson
- R. Bernero
- R. Cunningham
- G. Sjoblom
- J. Hickey
- D. Cool
- K. Ramsey
- L. Rouse
- J. Swift
- V. Miller
- N. McElroy
- M. Lamastra
- R. Burnett
- G. McCorkle
- C. MacDonald
- M. Knapp
- J. Greeves
- R. Browning
- B. J. Youngblood
- K. Black, AEOD
- L. Bolling, SLITP
- E. Flack, OE

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING



NOVEMBER 7, 1988 NEW OPERATIONAL EVENTS

1. Amoco Oil Company (Indiana) - Explosion, Fire and Fatalities at Site (V. Miller)

On October 31, 1988, the licensee notified Region III that a fire and explosion occurred at their facility on October 30, 1988. Two (2) nuclear gauges containing 7 curies of Cs-137 each were involved in the explosion. Licensee personnel measured 100 mR/hr in the general area where the gauges were located. Two (2) NRC inspectors were immediately dispatched to the site. The Indiana State Department of Health and DOE/Agronne were notified.

ACTION: *CAL → isolate, don't remove sources  
No evidence of contain at site.*

DUE DATE:

*No followup  
Sources to be  
returned  
no disposal → C.I.C*

2. Measurex Corporation (California) - Fingertip Overexposure to Two Individuals (V. Miller)

On September 16, 1988, Measurex Corporation informed Region I of an exposure incident while two (2) employees were servicing a gauge at a Kimberly-Clark facility in New Milford, CT. The individuals directly contacted that source housing window of a Measurex Model 2201 gauge containing 319 mCi Kr-85 with their fingertips for a maximum of 20 seconds. Exposure at that time was calculated to 17 Rad to the extremities of each employee.

On October 7, 1988, the Measurex RSO reassessed the exposure and determined it to be about 58 Rad for each individual. The licensee will report this event in writing within 30 days (10 CFR 20.405). The gauge was distributed and serviced by Measurex as a generally licensed device in accordance with California licenses 1856-43 and 1663-43. Kimberly-Clark is authorized to possess and use the gauge in accordance with Measurex instructions, and Measurex is authorized to service the device (10 CFR 31.5 and 31.6).

ACTION: *Employees live in CT and work out of their homes  
Did not have detector w/ them (at hand)  
Could not easily see indicator light for shutter (source shield)*

DUE DATE: *Investigate servicing (training) and device design/installation*

*Consider sending  
User Need Hr.  
(Austin)  
RSE lead  
to meet.  
human factors  
FMAB*

3. B&W/NNFD - Research Laboratory - ~~Possible~~ Release of Contaminated Liquid (L. Rouse)

On October 13, 1988, Babcock & Wilcox (B&W) Naval Nuclear Fuel Division Research Laboratory (Lynchburg, VA) detected a loss of about ~~1,000~~ gallons of water from the Fuel Storage pool. B&W has determined that the pool was overfilled. Water passed thru the overflow scupper into the pipes leading to the collection tank and leaked through cracks or breaks in the pipes into the soil. The estimated activity in the 1,000 gallons was about 1.6 millicuries (major contaminants are Cobalt, Cesium and Manganese); the concentration of radioactivity in the water was 1.5 times the restricted area MPC. The licensee has established an operations requirement to maintain the water level in the pool below the scupper. The licensee is formulating a plan to identify the location of the leak.

*560 gallon  
actual*

ACTION: *change alarm setting, inspect pool liner, try to locate leak (fiberscope)*

DUE DATE:

*drop*

4. Sacred Heart Hospital (Maryland) - Teletherapy Misadministrations (SLITP)

On October 27, 1988, the state called Region I concerning a report from Sacred Heart Hospital that over the last 13 months, 33 patients received therapy treatment doses in excess of 10% of the prescribed dose. The cause was that after a source change in March 1987, no information regarding the new source was incorporated into the computer program used for treatment planning. The licensee indicated that all 33 patients were "terminal," 20 of these 33 patients have died during the course of their treatments. The state has sent an inspector to the facility to investigate the circumstances surrounding this occurrence.

ACTION:

Would anything under proposed QA program caught this. Enter into AEOB  
Use of phantoms would have caught this. → Abnormal Occurrence Rpt  
(5 different phantoms after each source change) → Send IN when more info avail.

DUE DATE:

→ Lieberman - should WRC identify name of doctor  
failure to check computer program against source change

5. West Virginia University Hospital - Loss of Licensed Material (V. Miller)

During September 9-11, 1988, a patient underwent implant of 11 strands of Ir-192 seed [six (1) mCi seeds/strand] for treatment of cancers of the neck. During removal of the strands, one (1) was unretrievable under conventional methods and was removed under a fluoroscope and placed in a lead shield. The first ten (10) strands were also placed in a lead shield after an inventory count in the patient's room. The licensee suspects one (1) strand of seeds (6 mCi) was lost during transport to the vault. The loss was not discovered until a routine inventory was conducted on October 18, 1988. Between October 18 and October 27, an extensive search was performed by the licensee.

On October 28, 1988, Region II received initial notification of the event from the licensee's Radiation Safety Officer. The State of West Virginia has been notified.

ACTION:

Several previous cases of lost ribbons (AEOB)  
Investigate how to secure transport to prevent loss. (not likely lost during transport)

DUE DATE:

RII follow-up (enforcement action, possible special inspection)  
Imaging status rpt.

6. Amereco Environmental Services, Inc. (Missouri) - Fire Destroys Facility (V. Miller)

On October 7, 1988, the licensee reported a two-story building was destroyed by fire on September 30, 1988, and fell into the basement area where four (4) gas chromatograph detector cells were located. Three (3) cells contained 15 mCi of Ni-63 each and one (1) cell contained 5 mCi of Ni-63. The burned facility was roped off and posted on October 7, 1988, pending radiation surveys and leak tests during the week of October 10-14, 1988. The facility is on a 10-acre site patrolled by a 24-hour security force. Region III will issue a CAL requiring the licensee to restrict access to the burned area until the cells and any identified Ni-63 contamination are removed.

ACTION:

manufacturer refused to pick-up sources  
Univ. of Missouri holding sources.

DUE DATE:

drop

NOVEMBER 7, 1988 FOLLOW-UP ITEMS

1. Berthold Systems (Pennsylvania) - Cobalt-60 Source Lost in Transit (Burnett)

On September 20, 1988 Region I received notification from Berthold Systems that a 2 mCi Co-60 sealed source was lost during transport from West Germany. The licensee noticed the source was missing when surveys of the shipping container received measured background levels. The shipping container handles were damaged and the padlock securing the lid was missing.

The source was transported by truck from the shipper, Laboratorium Berthold, Wilbad, West Germany and delivered to the airport in Stuttgart. Lufthansa Airlines transported the package to JFK Airport in New York. Scalia Airport Service transported the package by truck to the Greater Pittsburgh Airport. A Greater Pittsburgh Air Cargo truck delivered the package to Berthold Systems.

Region I requested the New York State Bureau of Radiological Health to conduct a physical search and radiological survey of the Lufthansa facility at JFK Airport. New York State inspectors detected radiation levels from a large trash dumpster on the premises consistent with expected radiation levels from the source. On September 22, a representative from Berthold Systems searched the dumpster and retrieved the source. The source was not damaged. No leakage was detected by field measurements but New York State inspectors took wipe samples for analysis. The source was placed in the original shipping container and prepared for transport back to West Germany.

On October 3, 1988, the source was received by Laboratorium Berthold in Stuttgart and inspected with three members of the Stuttgart Trade Board. It is Laboratorium Berthold's opinion that the loss of the source could only have been caused by irregularities in handling the package and they plan to seal similar packages on all sides in the future to minimize external interference.

180 mCi/hr

On October 18, 1988, Berthold Systems reported the source must have been in the cargo area of the airport adjacent to the dumpster in which it was found. It was in a black trash bag suggesting the sweeper at JFK must have placed it there and then thrown the bag into the dumpster.

ACTION: Provide review of reporting requirements for material in transit (IMOB/JLong).

No follow-up.

DUE DATE: 11/7/88

49 CFR 171.15 "a continuing danger to life"  
sender to rpt 2nd (not triggered)  
Does DOT require lost shipments - not unless above some threshold level.  
or carrier - no or substantial hazard.

2. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination From Static Elimination Devices (Miller)

ACTION: IMAB provide status report.

DUE DATE: 11/07/88

Commission Paper sent  
OI ongoing

3. Problems with Luminous Devices - General Follow-up Topics

LLWM should consider need to look at ultimate disposal of luminous devices. Consideration needs to be given to sending a User-Need memo to RES on tritium-phosphor interactions.

ACTION: LLWM provide status report.

DUE DATE: <sup>12/6</sup>~~11/07~~/88

4. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

On September 27, 1988, sediment vacuumed from the pool floor was observed to contain resin beads. Possible sources of the sediment include deteriorated cardboard boxes and duct particles. A 46.3 gram sediment sample requested by DOE to assay for Cs-137 read 30 mrad/hr Beta on contact and contained 0.5 uCi/gram. There is speculation the sediment may be a radioactivity sink rather than a possible source. Rust spots have been observed on the pool floor similar to those seen on the sides.

On September 28, 1988, Chem-Nuclear Systems, Inc., (CNSI) completed removal and packaging of the contaminated trolley chain. Four (4) filter bags were collected from pool vacuuming operations. Each bag contained 2-3 pounds of sludge reading from 200 to 280 mrad/hr on contact. The filter bags were packaged and stored onsite awaiting further disposition. CNSI is continuing disassembly and decontamination of conveyor/elevator components.

On September 30, 1988, DOE completed design work on a revised method of capsule sipping. The new method involves wet sipping six (6) capsules in an enclosure which can heat the capsules. The new device is to be fabricated, tested and sent to the site on or about October 17.

On October 11, 1988, the State notified Region II the cesium leakage rate was estimated to have increased from 25 uCi/hr to about 244 uCi/hr. The State requested DOE to expedite preparation of procedures to deal with capsule failure. DOE advised they would dispatch additional technical representatives to the State. The pool concentration rose to approximately  $1.7 \times 10^{-4}$  uCi/ml. A public hearing is scheduled for October 17 in Dekalb County, Georgia.

On October 12, 1988, DOE/CNSI estimated the capsule-to-pool inleakage rate to be about 600 uCi/hr, which remains within the resin capacity when operated at 30 GPM rather than 20 GPM. The pool concentration has been reduced to  $5.7 \times 10^{-5}$  uCi/ml. The new capsule heating sipper is not expected to be ready for another two (2) weeks.



On October 26, 1988, the State notified Region II they have strong indications from sipping results of leaking sources in the north racks in drawer C-4. Four (4) or five (5) capsules in the drawer have been identified for individual sipping. A date to begin individual sipping was not specified. The Cs-137 inleakage rate is currently ranging from 130-190 uCi/hr.

ACTION: IMAB to provide status report.

DUE DATE: 11/07/88

*RI investigating allegations*

*never checked outer capsule weld  
will stress capsules to force a leak  
DOE Draft investigation not due in Dec.  
- may not get if leak not found.*

5. Amersham Corporation - Excessive Radiation Levels on Shipment (MacDonald)

On September 23, 1988, Amersham Corporation received four (4) containers from IRE, Belgium. When the truck arrived, all the containers were on their side on a pallet. The containers were righted and moved to the receiving doors where high radiation levels set off the building alarms. The highest radiation levels measured were 1,300 mR/hr at the surface of a package and 40 mR/hr at one (1) meter. The containers were originally flown to Boston by Air France and trucked from Boston to Amersham by Reliable Air Freight. Amersham determined the truck driver received minimal exposure and notified Air France of the incident.

ACTION: SGTR to follow-up and provide status report.

DUE DATE: 12/05/88

6. Device End-of-Life Problems (AEOD)

a. Providence Hospital (Alabama) - Malfunction of Remote Afterloading Device

Sealed source failed by release of source wafers

b. Beloit Memorial Hospital - Malfunction of Picker C-9 Teletherapy Unit

Source failed to return to shielded position

c. Greenwich Hospital Association - Failure of Cobalt-60 Teletherapy Unit

Source failed to return to shielded position

ACTION: AEOD to report at December meeting

DUE DATE: 12/05/88

7. Additional Events (SLITP)

8. Abnormal Occurrence Reports (AEOD)

*Follow-up on  
teletherapy unit  
that fell on patient*

*NMSS  
to provide  
list of events  
to AEOD*

*Kathy Black has  
another PN on  
device where rollers  
got twisted.*

9. Recent Enforcement Actions

| <u>Licensee</u>   | <u>Date</u> | <u>Action</u>   |
|---|-------------|---|
| Penn Inspection Company<br>Chickasha, Oklahoma                | 10/6/88     | \$2,500 civil penalty proposed<br>Order Modifying License<br>(effective immediately)<br>Order to Show Cause |
| Combustion Engineering, Inc.<br>Windsor, Connecticut          | 10/07/88    | \$12,500 civil penalty proposed   |
| Syncor International<br>Corporation<br>Chadsworth, California | 10/12/88    | Order modifying licenses<br>(effective immediately)   |
| Payne and Payne, Inc.<br>Shawnee, Oklahoma                    | 10/24/88    | \$1,600 civil penalty paid  |
| Hole Truth, Inc.<br>Oklahoma City, Oklahoma                   | 10/24/88    | Order Modifying License<br>(effective immediately)  |
| Davis Great Guns Logging<br>Wichita, Kansas                   | 10/27/88    | \$500 civil penalty proposed  |
| Ford Motor Company<br>Dearborn, Michigan                      | 10/27/88    | \$500 civil penalty proposed  |
| Wise Appalachian<br>Regional Hospital<br>Wise, Virginia       | 10/28/88    | \$1,250 civil penalty paid  |
| Shadyside Hospital<br>Pittsburgh, Pennsylvania                | 10/28/88    | \$2,500 civil penalty proposed  |



OPERATIONAL EVENTS SCHEDULE

Monday, December 5, 1988

- White Flint 6B11

2:00 p.m.

AUGUST 1, 1988 OPERATIONAL EVENTS FOLLOW-UP

1. Minnesota Mining & Manufacturing Company (3M) - Po-210 Contamination from Static Elimination Devices (Miller)

ACTION: IMAB provide status report.

DUE DATE: 9/6/88

2. Letterkenny Army Depot - Tritium Contamination (Miller)

Surveys by the Letterkenny Army Depot Site Safety Office indicated that the entire radiographic facility at the depot was contaminated with tritium as a result of improper non-destructive examination of a tritium light source. The light source was originally part of a range finder for an artillery piece. As a consequence of the general contamination, the radiographic facility was shut down immediately on April 14, 1988, and isolated from personnel.

An investigation is being conducted by the Letterkenny Army Depot. Decontamination methods are expected to be determined as part of the investigation.

ACTION: Determine if Army is completing decontamination according to schedule.

DUE DATE: 9/6/88

3. Houston Inspection Service (SLITP/AEOD/SGTR)

SLITP/AEOD/SGTR to follow-up on reasons for Type B package failure and any generic implications. SLITP to consider training for State personnel responding to event notifications to improve recognition of potentially significant events. (7/11/88)

ACTION: SGTR to issue an Information Notice this week. Licensee to recertify package. Give status report at next meeting.

DUE DATE: 9/6/88

3. Beloit Memorial Hospital - Teletherapy unit malfunction (AEOD)

On March 12, 1988, during a routine safety check following installation of a new 5470 curie cobalt-60 source in a Picker C-9 teletherapy unit, the licensee discovered that the source failed to return to its shielded position. A service representative from the vendor was able to return the source to its shielded position the next day. The cause of the failure may have been a chip in the nylon pinion gear of the shutter drive mechanism.

ACTION: AEOD to look at end-of-life product and prepare Commission Information Paper (Benaroya) based on this item and other items discussed by Nussbaumer.

DUE DATE: 9/88

4. Penn Inspection Company - Potential Overexposure to a Radiographic Source (Miller)

On May 28, 1988, a Penn Inspection Company radiographer sought medical attention to establish whether he had been overexposed to a 45 Ci iridium-192 source. The State of Oklahoma and NRC were notified by the Grady Memorial Hospital. The potential overexposure resulted from attempts to return a stuck source to the camera. The radiographer was not using a TLD, film badge, or pencil dosimeter at the time of the incident. On May 30, the licensee's owner reported that he and his consultant had reenacted the incident and obtained worst-case dose estimates of 15.8 rems to the hands, 2.6 rems to the gonads, and 1.1 rems to the whole body. An NRC inspector, accompanied by a representative of the State of Oklahoma, was to inspect the licensee's activities on May 31, 1988.

ACTION: This incident to be added to AEOD lists of events indicating potential equipment end-of-life problems. Update status at next meeting.

DUE DATE: 9/88

5. Department of the Army - Missing Sealed Radiation Sources Containing Tritium (H-3) (Miller)

On June 15, the licensee reported to Region III that it was unable to locate 27 sealed sources each containing between 0.075 and 3.0 curies of tritium in gaseous form. The sources were missing from devices sent from various military bases to the Letterkenny Army Depot in Chambersburg, PA, for repair. The Depot is reviewing its records to determine which bases returned the devices for repair. These sources are used to illuminate level vials and sighting devices on weapons. The Army does not maintain a master inventory listing of these sources and devices since there are tens of thousands of these devices used at 480 bases worldwide.

The licensee has sent notices to all bases on June 8 and 16, 1988 reiterating the instructions which require that they do not remove the radioactive sources from the devices. The second notice requires a response from the users.

Region III is monitoring the Army's review.

ACTION: Determine extent of problem tracking sources and identify possible improvements.

DUE DATE: 9/6/88

6. Radiation Sterilizers, Inc. (RSI) - Incident involving leaking WESF (Cesium-137) Sources (Miller/SLITP)

On June 7, 1988, Cs-137 contamination was detected in the water shielding of Radiation Sterilizers, Inc., Decatur, Georgia. The contamination was determined to be caused by leakage from the WESF capsule sources located in the pool. On June 10, a Confirmatory Action Letter was issued to RSI's

sister plant in Westerville, Ohio. In addition, the State of Colorado was asked to inform IOTEC (a State licensee) who also utilizes the WESF Cesium sources. On June 13, DOE sent senior representatives to RSI to assume project management of the recovery and cleanup of the facility.

Based on results of June 28, 1988, demineralization of pool water continues to lower concentrations of cesium to 0.022 microcurie/ml, down about half from the precleanup concentration of 0.06 microcurie/ml. Leaking source identification equipment is expected to be onsite and ready for use on July 5, 1988. RSI is discussing with FDA the restart of the saline packaging operations on site.

On July 19, 1988, the Westinghouse Hanford team (DOE) performing visual and ultrasound examinations reported 29 suspect capsules (out of 252) identified. A color camera identified the pinhole capsule stains as rust emanating from the weld area. Three (3) or four (4) of the most suspect capsules are to be shipped to Oak Ridge National Laboratory (ORNL) for examination by August 6, 1988. The remaining suspect capsules are expected to be returned to Hanford.

On July 20, 1988, the divider wall between the ophthalmic canning area and rest of RSI/Decatur facility was complete. The pool activity level is  $3.4 \times 10^{-5}$  uCi/ml. Cause of accelerated corrosion and pitting of stainless steel in RSI/Decatur pool is still unknown. DOE may recommend RSI begin visual examination of their capsules at Westerville, Ohio using binoculars and a bright swim pool light. State plans to establish an investigation team to develop operation lessons learned.

On July 22, 1988, the State advised RSI they had cleared the saline solution process line for operation. This portion of the building is now on its own ventilation system and has separate entrances. FDA approval is still required before the line goes into operation.

ACTION: Obtain report from DOE regarding capsule data. Event to be tracked for status reports.

DUE DATE: 9/6/88

OPERATIONAL EVENTS SCHEDULE

|                                   |   |             |      |           |
|-----------------------------------|---|-------------|------|-----------|
| <u>Tuesday, September 6, 1988</u> | - | White Flint | 6B11 | 2:00 p.m. |
| <u>Monday, October 3, 1988</u>    | - | White Flint | 6B11 | 2:00 p.m. |
| <u>Monday, November 7, 1988</u>   | - | White Flint | 6B11 | 2:00 p.m. |
| <u>Monday, December 5, 1988</u>   | - | White Flint | 6B11 | 2:00 p.m. |

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-I-88-24

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region I staff on this date.

Facility:  
Albert Einstein Medical Center  
New York, New York  
(Agreement State Licensee)

Licensee Emergency Classification:  
☐ Notification of Unusual Event  
☐ Alert  
☐ Site Area Emergency  
☐ General Emergency  
☒ Not Applicable

Subject: WORKER INGESTION OF P-32

On March 2, 1988, Region I received a call from the New York City Department of Health concerning an incident at Albert Einstein Medical Center in which a female graduate student apparently ingested a quantity of Phosphorus-32 (P-32). A routine survey with a thin window GM of the student on March 1 revealed counts of 10,000 cpm (efficiency of the counter not known at this time) at contact over most portions of her body with readings of 15,000 cpm at the top of her head. Analysis of a urine sample from the student revealed 6,000 cpm/ml of P-32. At this time it is not known how or when the uptake occurred, but the student had been working with P-32 during the period February 24 to March 1. Further bioassays are planned and the Department of Health has inspectors on-site to conduct an investigation.

CONTACT: John R. McGrath - 346-5216

DISTRIBUTION:

|                |            |                |           |               |                   |
|----------------|------------|----------------|-----------|---------------|-------------------|
| H. St. _____   | MNBB _____ | Phillips _____ | E/W _____ | Willste _____ | Mail: ADM:DMB     |
| Chairman Zech  | EDO        | NRR            |           | NMSS          | DOT:Trans only    |
| Comm. Roberts  | PA         |                | OIA       | RES           |                   |
| Comm. Bernthal | OGC        |                | AEOD      |               | NRC Ops Crt _____ |
| Comm. Carr     |            |                |           |               |                   |
| Comm. Rogers   |            |                |           |               |                   |

|      |            |          |
|------|------------|----------|
| ACRS | Air Rights | INPO---- |
| SECY | SP         | NSAC---- |
| CA   |            |          |
| PDR  |            |          |

Regional Offices \_\_\_\_\_ TMI Resident Section \_\_\_\_\_  
RI Resident Office \_\_\_\_\_

Licensee:  
(Reactor Licensees)

Region I Form 83  
(Rev. August 1987)

0/1  
7E 34



PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-I-88-24A

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region I staff on this date.

Facility:  
Albert Einstein Medical Center  
New York, New York  
(Agreement State Licensee)

Licensee Emergency Classification:  
☐ Notification of Unusual Event  
☐ Alert  
☐ Site Area Emergency  
☐ General Emergency  
☒ Not Applicable

Subject: WORKER INGESTION OF P-32

This is to update PNO-I-88-24 dated March 3, 1988 which reported the apparent ingestion of a quantity of P-32 by a female graduate student. As reported earlier the analysis of a urine sample taken from the student on March 1, 1988 revealed 6,000 cpm/ml of P-32. An analysis taken at 4:00 p.m. on March 2 revealed 11,000 cpm/ml of P-32. An analysis taken at 4:00 p.m. on March 3 revealed 5,000 cpm and one taken at 8:00 a.m. March 4 revealed 4,500 cpm. A bone scan taken on March 2 was inconclusive and a whole body count is being scheduled. Contrary to earlier information, the student states that she has not used P-32 while working at this lab. Surveys of the student's apartment and roommates were negative. A survey of a refrigerator where food and beverages are kept on the same floor of the lab was negative. Beverages were also sampled with negative results. All individuals working on the same floor as the lab in question were bioassayed with negative results. The responsible investigator's laboratories have all been shut down as of March 4.

The Department has engaged a medical consultant to follow the student's progress. The Department intends to hold an enforcement conference in the next few days. Some off-the-record statements by individuals indicate possible intentional contamination of the student's food or beverages. The Department has notified the NYPD and some preliminary questioning has taken place.

CONTACT: John McGrath  
346-5216

## DISTRIBUTION:

H. St. \_\_\_\_\_  
Chairman Zech  
Comm. Roberts  
Comm. Bernthal  
Comm. Carr  
Comm. Rogers

MNBB \_\_\_\_\_ Phillips \_\_\_\_\_  
EDO \_\_\_\_\_ NRR  
PA  
OGC

E/W \_\_\_\_\_ Willsto \_\_\_\_\_  
NMSS  
RES  
OIA  
AEOD

Mail: ADM:DMB  
DOT:Trans only  
NRC Ops Crt \_\_\_\_\_

ACRS  
SECY  
CA  
PDR

Air Rights  
SP

INPO----  
NSAC----

Regional Offices \_\_\_\_\_

TRI Resident Section \_\_\_\_\_  
RI Resident Office \_\_\_\_\_

Licensee:  
(Reactor Licensees)

8803100119 880307  
PDR IRE  
PNO-I-88-024A NCR

219  
0/1 E-5

DCS No: 99999880303  
Date: March 14, 1988

PRELIMINARY NOTIFICATION OF EVENT OR UNUSUAL OCCURRENCE--PNO-I-88-24B

This preliminary notification constitutes EARLY notice of events of POSSIBLE safety or public interest significance. The information is as initially received without verification or evaluation, and is basically all that is known by the Region I staff on this date.

Facility:  
Albert Einstein Medical Center  
New York, New York  
(Agreement State Licensee)

Licensee Emergency Classification:  
☐ Notification of Unusual Event  
☐ Alert  
☐ Site Area Emergency  
☐ General Emergency  
☒ Not Applicable

Subject: WORKER INGESTION OF P-32

This is to update PNO-I-88-24 and 24A regarding the ingestion of P-32 by a female graduate student. As previously reported, urine samples were begun on the day the uptake was detected. However, results were erratic and no firm conclusion could be drawn regarding the extent of the original uptake. On Friday, March 11, a whole body count was performed at New York University. The results indicated that the amount of P-32 remaining in the body was around 130 microcuries. Assuming the uptake occurred on February 29, the day before the uptake was detected, the estimated total uptake was in the range of 400 microcuries. If the uptake occurred shortly after the previous background check on the student (February 17) the total uptake could have been as high as 800 microcuries. Further whole body counts are anticipated to try to refine these estimates. The opinion of the NYU staff is that the uptake was the result of a very freak accident or the intentional administration of the isotope to the student, the latter being the most likely.

The city Department of Health is considering a number of enforcement options in this case and have attempted to involve police authorities, however, neither the individual nor the University will file a complaint with the authorities.

CONTACT: John McGrath  
346-5216

4-18  
K Y  
10

DISTRIBUTION:

H. St. \_\_\_\_\_  
Chairman Zech  
only

Comm. Roberts  
Comm. Bernthal  
Comm. Carr  
Comm. Rogers

MNBB  
EDO

Phillips  
NRR

E/W

Willste  
NMSS

Mail: ADM:DMB  
DOT:Trans

PA  
OGC

OIA  
AEOD

RES

NRC Ops Crt \_\_\_\_\_

ACRS  
SECY  
CA  
PDR

Air Rights  
SP

INPO----  
NSAC----

Regional Offices \_\_\_\_\_

TMI Resident Section \_\_\_\_\_  
RI Resident Office \_\_\_\_\_

Licensee:  
(Reactor Licensees)

Region I Form 83  
(Rev. August 1987)

BRIEFING SHEET

Scheduled: Monday, July 1, 1991  
2:00 p.m. - White Flint North 6B-11

Subject: Operational Events Briefing

Purpose of Briefing: To brief Director, NMSS, on Recent Operational Events

Background Information: Monthly briefing to discuss significant events that may have high visibility, generic implications, or problems which will not be quickly resolved.

GPA and AEOD have also been requested to provide a summary of events in Agreement States and events being considered for the Abnormal Occurrence Report to Congress.

Handouts: To be distributed at the meeting if necessary.

Enclosure: List of Events

|                  |                  |                      |
|------------------|------------------|----------------------|
| <u>Invitees:</u> | R. Bernero       | K. Black, AEOD       |
|                  | G. Arlotto       | H. Karagiannis, AEOD |
|                  | R. Cunningham    | S. Schwartz, GPA     |
|                  | J. Greeves       | V. Miller, SP/GPA    |
|                  | C. Haughney      | L. Bolling, SP/GPA   |
|                  | J. Hickey        | R. Hauber, IP/GPA    |
|                  | C. Trottier      | J. Delmedico, OE     |
|                  | K. Ramsey        | K. Dattilo, OC       |
|                  | J. Swift         | R. Bellamy, R-I      |
|                  | J. Glenn         | W. Cline, R-II       |
|                  | L. Camper        | J. Grobe, R-III      |
|                  | M. Lamastra      | A. Beach, R-IV       |
|                  | S. Baggett       | R. Pate, R-V         |
|                  | P. Vacca         |                      |
|                  | J. Schlueter     |                      |
|                  | R. Burnett       |                      |
|                  | C. N. Smith      |                      |
|                  | C. MacDonald     |                      |
|                  | R. Bangart       |                      |
|                  | E. Ten Eyck      |                      |
|                  | L. Person        |                      |
|                  | B. J. Youngblood |                      |
|                  | J. Linehan       |                      |
|                  | C. Jones         |                      |
|                  | F. Goldberg, EDO |                      |

NOTE: THE PROJECT MANAGER COGNIZANT FOR EACH EVENT SHOULD ATTEND THE MEETING

New Operational Events - July 1, 1991

1. General Electric (Wilmington, NC) - Excess Uranium in Unsafe Geometry Tank (Haughney)

In the early morning of May 29, 1991, the licensee identified higher than expected amounts of uranium in a process tank of the waste treatment system, posing a potential criticality safety problem. The systems apparently causing the situation were shutdown. The maximum concentration in the tank of concern (V104) was measured at 2300 ppm or 150 kg of total uranium. The licensee informed Region II of this finding at 3:40 pm on May 29 and the NRC entered Standby mode at 5:50 pm. A Site Team consisting of three Region II staff members was dispatched and arrived at approximately 1:00 am on May 30, 1991. Contingency measures to extract the excess uranium from the tank using a centrifuge continued through the night. The State of North Carolina and Federal Agencies were notified.

At approx. 6:30 am on May 30, 1991, the licensee declared on Alert. Although some equipment problems were experienced, centrifuge operations were conducted until approx. 3:00 am on June 1, 1991. The contents of the V-104 tank were reduced to less than critical mass. The Alert was terminated by the licensee and NRC went out of Standby Mode. All uranium recovery operations from tanks V-103, V-104, and the connecting lines were completed on June 3, 1991. An incident investigation team was dispatched to the site.

*drop*

ACTION: *GE trying restart everything except scrap recovery. GE says problem was malfunctioning feed valve, but we feel that root cause was a mgmt problem.*  
DUE DATE: *We may allow restart by end of week.*

2. Siemens AG (Hanau, Federal Republic of Germany) - Explosion at Fuel Fabrication Plant (Haughney)

On December 12, 1990, an explosive mixture ignited in the circulating pump of a spray scrubber at the Siemens facility. The shock wave from the ignition was transmitted along the pipeline to the scrubber and caused the scrubber to explode. One employee was severely injured.

ACTION: *800 kg U released from other containers damaged in the explosion (all onsite). We had issued IN on Ammonium Nitrate explosions at GE-Wilmington & Westinghouse last year.*  
DUE DATE: *Consider supplement to earlier IN. Obtain more info.*

3. Del-Med, Inc. (South Plainfield) - Material Lost by Common Carrier (Glenn)

On June 10, 1991, the DOT National Response Center notified the NRC Operations Center that two packages of iodine-123 had fallen off a truck onto I-78 (exit 13) near Bloomsbury, NJ. One of the packages was reported to be damaged. The shipper was Del-Med, Inc. of South Plainfield, NJ.



A radiation protection specialist for Del-Med was contacted and reported that two type 7A fiber board packages carrying iodine-123 (half-life 13 hours) had fallen off a Del-Med truck transporting the packages from the Amersham Corporation (South Plainfield, NJ) to the Syncor Corporation (Allentown, PA). Each package carried 20 lead vials with a single gelatin capsule containing 0.1 millicurie of I-123 in each vial. The driver did not know that the package had fallen off his truck but discovered them missing during a rest stop. He informed company management and a search of his route ensued. When the packages were found, one was undamaged but the other appeared to have been run over by other vehicles and the contents scattered. Of the 20 vials in the damaged package, 10 vials were recovered with 1 intact and 9 damaged. The other 10 were still missing. The damaged vials were removed from the scene and carried back to the Del-Med warehouse. The two individuals that moved them have been surveyed and no contamination found. However, they will receive a thyroid scan.

Del-Med contacted the NJ State Police and the NJ Department of Environmental Protection for assistance. Two representatives from the State Bureau of Radiation Protection and two members of an environmental response unit responded to the scene and helped Del-Med management to search for the 10 missing vials. Darkness hampered the search. It was decided that blocking through traffic on I-78 was not warranted.

On June 11, 1991, the state reported that Del-Med had assumed they had recovered 10 of the sources (capsules) because they had recovered 10 lead pigs. Based on this information, the search teams looked for 10 missing capsules and in fact recovered 9 capsules and parts of another one. However, it has been discovered that the capsules (sources) were not inside of 9 of the 10 lead pigs that were originally assumed to have been recovered. Therefore, an additional 9 capsules are still at the site. Members of the Del-Med and state search teams recommenced the search to recover the balance of the capsules on June 12.

*drop.*

ACTION: Truck swerved to miss other car and door ~~came~~ open, *May not have properly blocked & braced.*  
NJ located one more capsule. They gave up search on remaining capsules because of 13-hour half-life & hard rain that would have dissolved the gelatin capsules. RI will work with DOT to resolve transport problems.

DUE DATE:

4. Wilford Hall Medical Center (San Antonio, TX) - Lost Radiotherapy Ribbon (Glenn)

*Keep*

On May 31, 1991, the Brooks Air Force Base (AFB) Radioisotope Committee notified the NRC Operations Center that they could not account for twelve Ir-192 radiotherapy seeds. During the removal of 14 radiotherapy implant ribbons from a patient, the licensee discovered that one ribbon had become dislodged and was missing. The ribbon contained twelve Ir-192 seeds (approx. 16 mCi). The licensee was reasonably sure that the ribbon was still intact. A search was made of the facility including trash and laundry facilities. On June 1, 1991, the licensee notified the Operations Center that the ribbon only contained 11 seeds, instead of 12. They called in health physics support from Armstrong Laboratory to locate the ribbon. A complete search of the facility had negative results. The licensee planned to survey local landfills.

ACTION: Survey of landfill surface was negative. Wait for licensee's report.

DUE DATE:



5. University of California (Irvine, CA) - Potentially Deliberate Internal Contamination (SP)

drop On June 18, 1991, the State of California notified Region V that the licensee had reported a thyroid burden of 78 microcuries of I-125 in a foreign researcher. During a routine laboratory survey, the researcher appeared to be contaminated. When the contamination could not be removed and the most intense spot appeared at the front of the neck (approx. 10 millirem/hour), the researcher was sent immediately for a thyroid bioassay. The bioassay indicated approx. 78 microcuries of I-125 in the thyroid. A second bioassay two days later indicated 73 microcuries. The researcher's visa was due to expire on June 15, 1991. The university and state investigation had revealed that the isotope was most likely self-ingested. Nose, mouth, and throat samples indicate an ingestion pathway. In addition, there was no volatile iodine present in the facility and the researcher was not working with volatile iodine. The researcher did not have a good relationship with the university.

Still waiting on report. Researcher's parents had visa canceled  
ACTION: to bring researcher home for wedding.

DUE DATE:

6. North Ridge Hospital (North Ridge, CA) - Therapeutic Misadministration (SP)

drop On May 5, 1991, the licensee administered 15 millicuries of I-131 to the wrong patient. The licensee did not notify the State of California until May 31, 1991. The state has cited the licensee for numerous violations and has retained a consultant to evaluate the thyroid status of the patient.

AO ACTION: Two patients with same name. Wrong patient was Spanish and could not speak English. Doctor was not present and that may be a violation. California may take escalated enf. action.

DUE DATE:

7. Additional Events

8. Abnormal Occurrence Report (AEOD)

9. Significant Enforcement Actions (OE)

Followup Operational Events - July 1, 1991

1. Cleveland Clinic Foundation (Cleveland, OH) - Laboratory Contamination Spread Offsite (Glenn)

On May 16, 1991, a researcher in a Cleveland Clinic Foundation laboratory found evidence of radioactive contamination from leaking vial of phosphorus-32 which had been used earlier in the day in the laboratory.

ACTION: IMAB provide status report at next meeting.

DUE DATE: July 1, 1991

*Inspection found 5 violations.  
+ 10 more violations.  
Aggregate Level III severity.  
Ent. conf. on July 15.  
Only 1 RSO for very large program. & personality conflicts.*

2. QEST Corporation (Tulsa, OK) - Contaminated Radiography Sources and Equipment (Glenn)

On April 16, 1991, Amersham Corporation in Massachusetts notified the licensee that a returned sealed source and its changer was found to be contaminated with iridium-192. On April 17, 1991, the radiography licensee notified Region IV that iridium-192 contamination had been identified at the licensee's office and work site at Tulsa.

ACTION: IMAB follow Amersham's investigation of leakage through the inner capsule weld and provide status report at next meeting.

DUE DATE: July 1, 1991

3. Mislabeled and Mishandled Chemicals - (Haughney)

On March 15, 1991, Babcock and Wilcox (Lynchburg, VA) received four 55-gallon drums of toluene labeled as "AMSCO 140/TBP." On April 12, 1991, General Electric (Wilmington, NC) received a tank truck of nitric acid that the driver identified as hydrochloric acid.

ACTION: Region II draft an information notice on the use of hazardous chemicals. IMAB provide status report at next meeting.

*→ Info notice is ready for signature*

DUE DATE: July 1, 1991

4. A State-Run University Hospital (Zaragoza, Spain) - Therapeutic Overexposures with a Linear Accelerator (Hickey)

On March 4, 1991, NRC Headquarters was notified by IAEA and REAC/TS that several overexposures had occurred in Spain during December 1990 when a linear accelerator was used for cancer treatment. Seven people have died.

ACTION: IMOB provide status report at next meeting.

DUE DATE: July 1, 1991

*Keep.*

*Drop  
Amersham is investigating guide tubes for cause of wear. They are also investigating why QA checks did not catch bad weld. Still waiting on report.*

*Drop*

*Keep*

1991 OPERATIONAL EVENTS SCHEDULE

| <u>Date</u>                 | <u>Time</u> | <u>Location</u> |
|-----------------------------|-------------|-----------------|
| Monday, July 1, 1991        | 2:00 p.m.   | 6B-11           |
| Monday, August 5, 1991      | 2:00 p.m.   | 6B-11           |
| *Tuesday, September 3, 1991 | 2:00 p.m.   | 6B-11           |