



RADIATION PROTECTION COMMITTEE

CAMBRIDGE, MASSACHUSETTS 02139

MINUTES OF THE 113TH MEETING OF THE RADIATION
PROTECTION COMMITTEE ON OCTOBER 5, 1994

MEMBERS PRESENT: Hemond, Dedon, Galanek, Hughes, King, Massé,
Powell, Styles (Lodish), Wenzel.

MEMBERS ABSENT: Davison, Fiore, Haldeman, Housman, Lipman,
McCunney, Pratt, Yanch.

EX OFFICIO MEMBERS PRESENT: Fuller, Haes, Irwin, Lavallee,
Spearman.

The meeting was called to order at 1:35 PM.

I. The minutes of the 112th meeting were reviewed and accepted as presented.

II. Ratification of Administratively Approved Authorizations:
The following administratively approved authorizations were ratified as presented:

II. 1. 10-A-3	Amendment	II. 2. CCR-V-1	Amendment
II. 3. 5-AD-4	Amendment	II. 4. W-J-3	Amendment
II. 5. 7-BP-1	New Auth.	II. 6. NRL-J-1	New Auth.
II. 7. 7-BN-1	Amendment	II. 8. 3-AL-1	New Auth.
II. 9. 7-BO-1	New Auth.	II. 10. CCR-U-2	Amendment
II. 11. CSR-A-7	Amendment	II. 12. W-B-3	Amendment
II. 13. HST-K-2	Amendment	II. 14. W-F-3	Amendment
II. 15. 7-BK-1	Amendment	II. 16. EMS-E-1	New Auth.
II. 17. W-Q-3	Amendment		

Note II. 11. CSR-A-7: This amendment involves the loan of a radioactive source from U.C. Berkeley. The RPC directed RPO to forward any formal loan agreements for radioactive sources to the MIT Property Office for signature.

III. Ratification of administratively-approved renewal of authorizations. The following applications were approved as presented:

III. 1. 8-G-24
III. 3. LL-A-2
III. 5. W-F-4
III. 7. 5-AL-2
III. 9. 7-W-12
III. 11. W-C-4
III. 13. 7-AH-14
III. 15. 7-BM-2
III. 17. 1-G-2
III. 19. T-A-3
III. 21. 9-A-4

III. 2. CSR-A-7
III. 4. 10-G-4
III. 6. W-D-4
III. 8. 7-BD-5
III. 10. 7-BA-6
III. 12. W-U-3
III. 14. 7-H-3
III. 16. HST-L-2
III. 18. 10-N-2
III. 20. LNS-V-4

Note: Tom Fuller to check if sources listed in II.20 are sealed sources with source registration members.

IV. Review of application that exceed administrative-approval guidelines:

No applications.

V. SNM-986 License Activities

V.1 Don Haes - quarterly report to the RPC -

1. No new SNM material received and none shipped from the Institute. RPO technicians to receive annual retraining during the next quarter.
2. See attached reports from Haes, McWilliams, Fallon.

VI. Analytical X-ray Program: Tom Fuller

1. No new X-Ray devices were registered during the previous quarter.
2. Tom Fuller to investigate the proposed transfer of the X-Ray machine from the PFC to Batelle Northwest labs and are there any proposed uses during transport.

VII. Laser Safety Program

VII.1 D. Haes - Lincoln Lab Request

1. Lincoln Lab to file laser installation registration with Massachusetts DLI. Laser is ground based shooting into sky at an airplane. RPO has reviewed the application and approves the proposed laser safety controls.

VIII. New Business

1. State Licensure:

The state has begun a program to license naturally occurring (NORM) and accelerator produced (NARM) radioactive materials. The state program will closely mimic the current NRC byproduct material licensing program. It is anticipated that the state will assess annual fees without exemption.

2. Low Level Radioactive Waste:

There is no access to any low level waste site. RPO and WI currently storing all waste on site. Five year storage plans are being submitted to NRC with both broad scop license reapplications.

3. Department of Energy:

The DOE Health and Safety Clause for the Plasma Fusion Center has been dropped, thus that section of the PFC program will no longer be inspected and administrated by DOE. The radiation safety program will be regulated and inspected by the Commonwealth of Massachusetts Department of Radiological Control (as the Bates Linac is currently). The RPC will continue to review all uses of radiation sources at the PFC and all PFC radiation protection programs will fall under current RPO programs.

Meeting adjourned at 3:00 P.M.



RADIATION PROTECTION OFFICE

To: Francis X. Massé, Radiation Protection Officer
From: Donald Haes, Assistant Radiation Protection Officer
Subject: SNM Under Campus Control
Date: October 5, 1994

A handwritten signature in dark ink, appearing to be "DH", located to the right of the "From:" line.

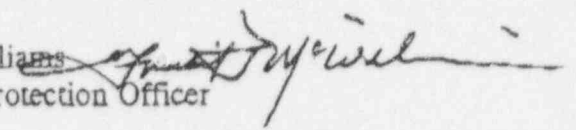
● All Special Nuclear Material and Accountable Material under control of the Campus Radiation Protection Program is in dead storage in 6-017 with the following exceptions:

- Ten (10) Eberline ^{239}Pu alpha sources ranging from 9.90×10^2 - 3.78×10^6 dpm are in occasional use and stored under lock and key in 20C-205 (counting room). These sources are included in the RPO periodic wipe-test and inventory schedule. Records of inventory control and wipe-test results are kept in accordance with current NRC license requirements. Eberline ^{239}Pu alpha source #830 (42609 dpm) is on loan to the Bates LINAC RPO.
- The Plasma Fusion Center has RPO authorization (PFC-C-1) to use a 1 Curie ^{239}Pu -Be neutron source under control of the Reactor RPO. Specific conditions of approval of the authorization require the source to be returned to RRPO after each day of use, and when no longer of use to the project.
- The Plasma Fusion Center has now received twelve fission chambers containing ^{235}U enriched to $\leq 93\%$. The fission chambers in possession are as follows: 4 mg (≈ 9 nCi) each in 2 detectors from TGM; 1.68 gm (≈ 3.6 μCi) each in 2 detectors from Imaging and Sensing Technology Corp.; 95 mg (≈ 0.20 μCi) and 104 mg (≈ 0.22 μCi) contained in 2 detectors from LND; 1.28 gm (≈ 2.62 μCi) each in 2 detectors and 1.74 gm (≈ 3.57 μCi) each in 4 detectors from University of California - LL National Labs. As of this date, all fission chambers are or will soon be located in the Alcator C-Mod cell (NW21-199).
- The above information be will reported at the 113th meeting of the MIT RPC.

cc. M. Galanek

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Environmental Medical Service
Reactor Radiation Protection Office

To: Frank X. Masse
E.M.S., Radiation Protection Officer

From: Frederick F. McWilliams 
Reactor Radiation Protection Officer

Date: July 15, 1994

Subject: Inspection/Audit of Radiation Protection Activities during the Period of the Second Quarter of 1994

A. Previous Audits

1. Summary

No findings

2. Status

N/A

B. N.R.C. Inspections

The NRC Inspection report was received during the reporting period for the last quarter and as indicated no violations, no followup items, and no findings were reported.

C. Review of SNM-986 License Activities

1. Authorizations and Status

- a. SNM-001. Neutron diffraction spectrometers containing 122.4 lbs as depleted uranium for shielding. S-2 Spectrometer is the only system containing material in present use. All others have been removed and are in storage.

S-2 spectrometer is located at port 4DH3 and contains 8.6 lbs of depleted Uranium. This spectrometer was modified for use as a prompt gamma facility. This facility had considerable use for prompt gamma analysis during the reporting period. All use governed under part II format.

3. Representative shipping records were reviewed and records are in accordance with D.O.T. regulations.
4. Personnel dosimetry records were reviewed and all exposures are within the specified limits of 10 CFR 20.
5. Source inventory and leak tests conducted during reporting period were performed as scheduled and no discrepancies were identified.

F. Receipt and Disposition of SNM material

1. None.

FFMcW/ka

File: RRPO-M-SNM9403

- b. SNM-002. BTF Bundle (6 CH 1). System contains 30 rods of 1.99 w/o UO_2 . The 6CH1 facility has not been used during the reporting period. This facility is secured and withdrawn from the neutron flux region of the BTF.
- c. SNM-003. 5 $1\text{Ci } ^{239}\text{PuBe}$ neutron sources. All sources are in storage and secured at the time of this report. No use of these sources were reported for this period.
- d. SNM-004. Neutron detectors. Neutron detectors are either in storage (not in use) or used as part of reactor instrumentation and are inventoried per reactor operations procedures. The remaining detectors are accounted for under the Reactor Operations Accountability Program.
- e. SNM-005. BTF vault. This authorization is for storage of SNM material not in use and maintained under control within the BTF vault. Status covered under Reactor Operations Accountability Program.
- f. SNM-006. Depleted uranium shipping containers. Accounted for as being on-site during audit.
- g. SNM-007. Pu alpha calibration standards. Under direct control of RRPO. Used for calibration of alpha particle detecting instruments. Properly stored and accounted. Leak test surveillance acceptable.
- h. SNM-008. Blanket Test Facility (BTF). No activity reported for this period. The facility is presently not in use.
- i. SNM-009. Graphite sub-critical piles. Used for teaching purposes. No use of this facility was reported during this period

D. Criticality Safety

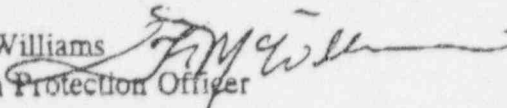
Audits of criticality safety are conducted quarterly by the criticality officer in accordance with the Reactor Procedure Manual. These audits are presented to the Reactor Safeguards Committee.

E. Records Review

- 1. All routine surveillance was conducted in the time frame established and no discrepancies were identified.
- 2. Calibrations were conducted accordingly. No discrepancies were identified.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY
Environmental Medical Service
Reactor Radiation Protection Office

To: Frank X. Masse
E.M.S., Radiation Protection Officer

From: Frederick F. McWilliams 
Reactor Radiation Protection Officer

Date: October 3, 1994

Subject: Inspection/Audit of Radiation Protection Activities during the Period of the Third Quarter of 1994

A. Previous Audits

1. Summary

No findings

2. Status

N/A

B. N.R.C. Inspections

1. An NRC inspection governing the BNCT treatment protocol was conducted during the reporting period. This inspection did not concern the SNM license.
2. An NRC licensing exam was conducted for Senior Reactor Operators during this period. This inspection did not concern the SNM license.

C. Review of SNM-986 License Activities

1. Authorizations and Status

- a. SNM-001. Neutron diffraction spectrometers containing 122.4 lbs as depleted uranium for shielding. S-2 Spectrometer is the only system containing material in present use. All others have been removed and are in storage.

S-2 spectrometer is located at port 4DH3 and contains 8.6 lbs of depleted Uranium. This spectrometer was modified for use as a prompt gamma facility. This facility had considerable use for prompt gamma analysis in support of the Boron Neutron Capture Therapy Program during the reporting period. All use governed under part II format.

E. Records Review

1. All routine surveillance was conducted in the time frame established and no discrepancies were identified.
2. Calibrations were conducted accordingly. No discrepancies were identified.
3. Representative shipping records were reviewed and records are in accordance with D.O.T. regulations.
4. Personnel dosimetry records were reviewed and all exposures are within the specified limits of 10 CFR 20.
5. Source inventory and leak tests conducted during reporting period were performed as scheduled and no discrepancies were identified.

F. Receipt and Disposition of SNM material

1. None.

FFMcW/ka

File: RRPO-M-SNM9402

- b. SNM-002. BTF Bundle (6 CH 1). System contains 30 rods of 1.99 w/o UO_2 . The 6CH1 facility is used periodically during the reporting period as a standard fast flux irradiation facility. The experiment previously installed and operational for Sandia National Laboratories has been removed due to Lack of funding. This facility is secured and withdrawn from the neutron flux region of the BTF.
- c. SNM-003. 5 $^{239}\text{PuBe}$ neutron sources. All sources are in storage and secured at the time of this report. No use of these sources were reported for this period except for one which is associated with the course 22.59. This source is located in a locked shielded storage container and used for neutron activation experiments through an access port.
- d. SNM-004. Neutron detectors. Neutron detectors are either in storage (not in use) or used as part of reactor instrumentation and are inventoried per reactor operations procedures. The remaining detectors are accounted for under the Reactor Operations Accountability Program.

The experiment previously reported in first Quarter report was completed and the detectors (9) are in decay storage. Upon significant decay, these chambers will be relocated to the BTF vault. It is anticipated that this experiment may be repeated in the future.
- e. SNM-005. BTF vault. This authorization is for storage of SNM material not in use and maintained under control within the BTF vault. Status covered under Reactor Operations Accountability Program.
- f. SNM-006. Depleted uranium shipping containers. Accounted for as being on-site during audit.
- g. SNM-007. Pu alpha calibration standards. Under direct control of RRPO. Used for calibration of alpha particle detecting instruments. Properly stored and accounted. Leak test surveillance acceptable.
- h. SNM-008. Blanket Test Facility (BTF). No activity reported for this period. The facility is presently not in use.
- i. SNM-009. Graphite sub-critical piles. Used for teaching purposes. The course 22.59 used this facility during the reporting period. No material was affected during these instruction periods.

D. Criticality Safety

Audits of criticality safety are conducted quarterly by the criticality officer in accordance with the Reactor Procedure Manual. These audits are presented to the Reactor Safeguards Committee.