

Appendix ANOTICE OF VIOLATION

Purdue University

License No. 13-02812-07

License No. 13-02812-04

Based on the inspection conducted on March 17, 1980 at the Calumet Campus, March 18, 1980 at the Fort Wayne Campus and March 11, 12, 19 and 20, 1980 at the West Lafayette Campus, it appears that certain of your activities were in noncompliance with NRC requirements, as noted below. Item 1, an infraction, pertain to License No. 13-02812-07. Items 2 through 8, infractions, and Item 9, a deficiency, pertain to License No. 13-02812-04.

1. License Condition No. 14 requires that licensed material be possessed and used in accordance with the statements, representations, and procedures contained in applications dated October 20, 1965, August 28, 1969 and January 26, 1971; letter dated January 27, 1966, and application dated March 13, 1978. Application dated August 28, 1969, Item 11 states, area monitors will be calibrated at six month intervals.

Contrary to the above referenced application, it was learned through statements of licensee representatives and the absence of records, that the requirement for semiannual calibration of area monitors is not being met. Specifically, the Victoreen "Vamp" Serial #199 was last calibrated on August 21, 1974, and RAM, Model #GA-2T, Serial Nos. 693167 and 693169, showed no evidence of a calibration.

2. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License application dated May 24, 1974, Item 11, states "Dose rate or exposure rate measuring instruments are calibrated at 6 month intervals."

Contrary to the above requirement, it was learned through statements of licensee representatives and the absence of records, that the requirement for semiannual calibration of approximately 200 survey instruments is not being met. Specific examples are, (1) Wm. B. Johnson, Model RML-1A, located in Room 312 (Pharmacy Building) was last calibrated

January 1977, (2) Baird Atomic Model 441-A, located in Room 303 (Pharmacy Building) was last calibrated January 15, 1974, (3) the survey instrument used by the Regional Radiation Safety Officer at the Fort Wayne campus, CDV-700, Serial #91462, showed no evidence of a calibration, (4) four instruments used in the Bionucleonics Department at the West Lafayette campus showed a calibration frequency of 12 to 18 months, April 1978 to October 1979.

3. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License Application dated May 24, 1974, Item #14, references the "Purdue University Radiological Control and Health Physics Handbook" dated September 1, 1971. Section 3.1.2.4 (page 17) of the above referenced handbook states "The storage or preparation of food or beverages and the consumption of food is not permitted in a Type C laboratory".

Contrary to the above requirement, it was determined by observations of the NRC inspector that this requirement is not being met. Specifically, on the day of the inspection, March 12, 1980, a coffee pot was located in Room 352 (Pharmacy Building) a Type C laboratory.

4. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License Application dated May 24, 1974, Item #14, references the "Purdue University Radiological Control and Health Physics Handbook" dated September 1, 1971. Section 2.1.5.1 (Page 7) of the above referenced handbook states "The Radiological Control Committee will meet a minimum of twice per year."

Contrary to the above requirements, it was learned through review of records, the meeting frequency is not being met. Specifically, licensee's records indicated only one meeting was held in 1978, June 6, 1978 and the last Regional Radiologic Control Committee meeting held at the Fort Wayne campus was on April 21, 1978.

5. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License Application dated May 24, 1974, Item #14, references the "Purdue University Radiological Control and Health Physics Handbook" dated September 1, 1971. Section 2.1.1.2 (Page 3) of the above referenced handbook states "The Radiological Control Committee will review and grant permission or disapprove the use of radioactivity or radiation producing devices within the institution."

Contrary to the above requirement, it was determined through review of records, the Radiologic Control Committee did not grant authorization for any use of radioactivity or radiation producing devices within the University for 1979-1980. Specifically, all authorizations expired in the 3rd Quarter 1979 and the Radiation Safety Officer granted blanket approval to all new and renewal authorizations at the West Lafayette Campus and the Committee did not grant official authorizations for 1979-1980.

6. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License Application dated May 24, 1974, Item #14, references the "Purdue University Radiological Control and Health Physics Handbook" dated September 1, 1971. Section 3.1.2.4 (Page 16) of the above referenced handbook states "Classroom authorization for students in radioisotope courses will be granted, provided the course instructor has met the requirements of Section 3.1.2.1 and has obtained project approval.

Contrary to the above requirement, it was determined through statements of licensee representatives and review of current records that course instructor requirements for authorization prior to student use was not met at the Fort Wayne Campus. Specifically, the Chemistry Department in Fort Wayne performs analytical experiments on isotope dilution and is included in the Lab portion of CHM 424. Instrumental analysis and experiments with radioactivity is given in the Advanced General Chemistry classes. One individual is doing work on analytical chemistry of technetium-99^m and also gives a class on radiochemistry, CHM 548, first offered in Spring 1975. The Physics Department is doing slow neutron activation experiments in Modern Physics 342 and occasionally in Physics P202. The Biology Department uses carbon-14 in laboratory experiments in Biology 551. Instructors in the above referenced classes did not meet the requirements of Section 3.1.2.1 and obtain project approval prior to student use of radioactive materials.

7. 10 CFR 20.201(b) requires that you make such surveys as may be necessary for you to comply with all sections of Part 20.

Contrary to this requirement, you failed to make such surveys as necessary to assure compliance with 10 CFR 20.101(a), "Exposure of individuals to radiation in restricted areas," and 10 CFR 20.105 "Permissible levels of radiation in unrestricted areas." Specifically, the Regional Radiation Safety Officer at the Fort Wayne Campus did not perform radiation area surveys and exposure evaluations of the laboratories in which radioactive material was used.

8. License Condition No. 16C requires each sealed source containing byproduct material with a half-life greater than thirty days, be tested for leakage and/or contamination at intervals not to exceed six months.

Contrary to the above requirement, it was determined through statements of licensee representatives and the absence of records that the requirement for 6 month leak tests is not being met. Specifically, a cesium-137, 218uCi calibration standard used in Department No. 1 was not leak tested at the 6 month frequency.

9. License Condition No. 20 requires that licensed material be possessed and used in accordance with statements, representations and procedures contained in application dated May 24, 1974.

License Application dated May 24, 1974, Item #14, references the "Purdue University Radiological Control and Health Physics Handbook" dated September 1, 1971, Section 3.5.1.6(b) (Page 27) of the above referenced handbook states "In cases where individual monthly doses exceed 100 millirems, the Radiological Control Office will notify the individual in writing of the exposure.

Contrary to the above requirement, it was determined through review of records an individual received a wholebody exposure of 1190 millirems in July 1977 and was not notified in writing of this exposure.