



E. I. DU PONT DE NEMOURS & COMPANY  
INCORPORATED

GLENOLDEN LABORATORY  
GLENOLDEN, PENNSYLVANIA 19036

CENTRAL RESEARCH & DEVELOPMENT DEPARTMENT

October 21, 1981

John E. Glenn, Ph.D.  
Material Licensing Branch  
Division of Fuel Cycle & Material Safety  
U. S. Nuclear Regulatory Commission  
Region 1  
631 Park Avenue  
King of Prussia, PA 19406

Dear Dr. Glenn:

CONTROL NO. 00151 & APPLICATION FOR LICENSE

This is in response to your letter of October 1, 1981 concerning Control No. 00151 and the application for license for the E. I. duPont de Nemours & Co. (Inc.), Glenolden facility. The following addendum is submitted:

1. The radiation safety committee management representative will be Dr. L. J. Rasero, Site Manager. His curriculum vitae is included.
2. The Radiation Protection Officer will spend approximately 30% of his work week on Radiation Safety related matters; the balance of his responsibilities are health and safety related. In addition, the Radiation Protection Officer will have a technician who will spend approximately 50% of his time on radiation safety.
3. Packages containing radioisotopes shall be received in accordance with procedures described in 10 CFR 20.205 (see item 15.B.1). They shall be promptly picked up by the RPO or his designate and moved to a strictly controlled area until they can be delivered to the user by the RPO or his designate. Before this delivery, the RPO or designate shall wipe test the external surface for possible leakage except for packages containing no more than 10 mCi  $^3\text{H}$ ,  $^{14}\text{C}$ ,  $^{35}\text{S}$ , or  $^{125}\text{I}$ , or as specified in 10 CFR 20.205. The results of this test shall be recorded on the receipt and kept on file for two years. In the presence of the RPO or his designate, the user shall open the package wearing protective gloves and inspect and identify the contents. The packing material shall be checked for radioactive contamination with a portable monitor, or if there are signs of leakage, the RPO or designate shall conduct wipe tests. Containers

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of radioactive materials will then be dated and labeled with the initials of the user. These containers will be stored in strictly controlled areas unless quantities do not exceed those set forth in Item 15.C.9.

4. The RPO or his designate shall conduct surveys of strictly controlled areas at intervals of no greater than one month. Removable contamination shall be wipe tested by swabbing an area of approximately 100 cm<sup>2</sup> with a disposable cotton swab wetted with 70% ethanol. Radioactivity in excess of 200 dpm net shall be reported to laboratory occupants with a request for decontamination and verification by the users. Strictly controlled areas with wipe tests showing for any isotope more than 2000 dpm/100 cm<sup>2</sup> on the floor or 5000 dpm/100 cm<sup>2</sup> on any other surfaces including safety clothing (e.g., lead aprons, face shields) shall be closed to use or occupancy except during decontamination procedures.

Non-removable contamination will also be surveyed with a calibrated portable monitor with an appropriate probe. Levels of radiation in the strictly controlled area shall not exceed 0.75 mR/hour on the average, except for brief periods during experiments when exposure to users shall be kept well below 100 mR per week (10 CFR 20.105 b). Non-removable contamination with more than 2.5 mR/hour at a surface, will be properly shielded.

Users of radioisotopes in strictly controlled areas shall survey working surfaces and the floor at the end of each experiment, unless exempt quantities of isotopes have been used.

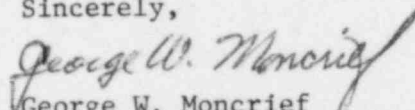
5. Food and beverages shall not be permitted in controlled and strictly controlled areas. Smoking is prohibited in all laboratory areas.
6. The following special safety instructions will be supplied to users of millicurie quantities of P-32:

Quantities of P-32 in excess of 1 mCi must be used in strictly controlled areas and with special precautions to prevent excessive exposure of skin or eyes to strong  $\beta$ -radiation as well as ingestion. The following will be required:

- a. the area will be posted as a strictly controlled area;
- b. only persons authorized by the RPO may enter or work in these areas;
- c. a portable monitor with a thin window G.M. probe will be used to survey work areas during and at the conclusion of each procedure;

- d. levels of radiation shall not exceed 0.75 mR/hour on the average except for brief periods during experiments when exposure to users shall be kept well below 100 mR per week;
  - e. all portable equipment must be monitored with a G.M. counter for contamination before being removed from the strictly controlled area;
  - f. shoes, lab coats and hands must be monitored before leaving the strictly controlled areas;
  - g. P-32 radioactivity on surfaces and equipment in excess of 500 cpm net, as determined with a portable monitor with a 1-inch diameter G-M thin window probe, will be decontaminated. Decontamination of removable activity will be confirmed by wipe tests.
  - h. ring badges will be worn by individuals working with mCi quantities of P-32 and urine samples submitted as required (use of 10 mCi per month if in a vented hood, otherwise 1 mCi per month);
  - i. every reasonable attempt should be made to prevent unnecessary exposure by use of suitable 2 cm thick plastic screens which absorb  $\beta$ -particles and prevent generation of secondary X-rays;
  - j. a "dry run" will be required before performance of an unfamiliar procedure employing P-32. The RPO or a member of the RSC shall also be present during initiation of new procedures using more than 1 mCi of P-32; and
  - k. all rules in the Glenolden Site Manual for radiation safety shall also apply.
7. Sealed sources such as the Election Capture Detectors for Gas chromatography containing 10 - 15 mCi of  $^{63}\text{Ni}$  [example - Perkin Elmer] will be purchased. All sealed sources containing greater than 100 uCi will be leak-tested at six-month intervals by wiping the accessible surface with cotton swabs moistened with 70% alcohol. Wipe test swabs will be analyzed in calibrated liquid scintillation spectrometers such as the Packard "Tricarb" 460 C Liquid Scintillation system using appropriate settings for the sealed source. Any wipe test swab exceeding 0.005 uCi will indicate the source is leaking or defective and the use of the sealed source will promptly be discontinued and disposed of according to NRC recommendations.

Sincerely,

  
George W. Moncrief  
Radiation Protection Officer

ITEM 15 ADDENDUM: TRAINING & EXPERIENCE

Lawrence J. Rasero, Site Manager  
Management representative on radiation safety committee

Education

B. S. Pharmacy, 1960, University of Connecticut  
M. S. Hospital Pharmacy, 1962, University of Michigan  
Ph. D., 1966, University of Connecticut

Experience

Bionucleonics - 2 credit graduate course 1963-64  
Intro. Nuclear Chemistry - 3 credit graduate course 1964-65

Ph. D. Thesis, 1966 - The Effect of Gamma Radiation From a Cobalt-60  
Source On Aqueous Solutions of Chlorobutanol,  
Theophylline, and Sodium Carboxymethylcellulose  
Packaged In Glass and Polyethylene Containers

Rasero, L. J. and Skaven, D. M., J. Pharm. Sci., "Effect of Gamma  
Radiation on Selected Pharmaceuticals",  
1967, pp 724-728