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The Goodyear Tire & Rubber Company

Akron, Ohio 44316

March 3, 1980

Paul R Guinn
Material Licensing Branch
Division of Fuel Cycle and
Material Safety
Nuclear Regulatory Commission
Washington, D C 20555

Mr Guinn:

This refers to our application dated July 25, 1979, for renewal of License Number 34-00508-06. Reference Mail Control Number 95025. The additional information you requested is provided below.

1. Facilities and Equipment: Enclosed, is a sketch of the laboratory where byproduct materials are used and stored.

2. Control of Effluent Releases: We have determined that monitoring is not required for the following reasons:

   a) limited use - traditionally once every two years

   b) amount used is generally less than 10 microcuries

   c) policy of no sink disposal

   d) all work carried out in a tray lined with absorbent paper

   e) any spill absorbed with diatomaceous earth which is then sealed in a 5 gallon can and placed in a 55 gallon by-product waste drum for disposal

3. Radiation Exposure: For the last six years levels of exposure to the personnel in this lab have been less than 5% of the limits, specified in 10 CFR Part 20, as determined by film badge readings. If our levels were to reach the 10% level we would reevaluate our procedures to lower the levels. Current usage schedule would not permit any level of exposure near the 10% limit.

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4. Bioassay Program: It has been determined that a bioassay program is unnecessary. Any work done with HTO is carried out within a fume hood, that runs 24 hours a day (See item 5 (d) for specifics on hood). Under the guidelines for bioassay set up by the NRC (Table I) if the process quantities are less than .1 Ci processed by an individual at any one time, or total amount processed per month, a bioassay program is not needed. We currently have a .007 Ci inventory of tritium and traditionally utilize it once every two years with a working activity of less than 10 uCi.

ITEM 5 RADIATION PROTECTION PROGRAM

a) A member of the Radiation Section performs routine instrument and wipe test surveys at intervals not exceeding six months. Contamination by gamma emitters can be detected by portable survey meters. Contamination by beta emitters such as S^{35}, C^{14}, and H^{3} are detected by wipe testing with clean cotton swabs (Q-tips) which are then assayed by liquid scintillation counting.

Areas surveyed in the isotope laboratory (diagram - item I) include: (1) exhaust hood; (2) south bench tops; (3) sink; (4-5) east bench tops; (8) isotope storage cabinet; (9) balance table; and (12) work table. Floor space immediately surrounding or in front of the above areas is included in the survey. In the office area of the laboratory, desk tops are surveyed for the presence of contamination. Non-routine surveys are conducted usually prior to, and upon completion of, experimental work with isotopes in the area of principal use (exhaust hood).

As a general rule, contamination levels in excess of five times the normal background count, would call for the decontamination of the affected area as the circumstances indicate.

Since a continuous negative pressure is maintained in the isotope laboratory, air-borne contamination could not be spread to hallways or adjacent laboratory areas.

Records of wipe-testing and contamination inspection are maintained by the Radiation Section.

b) Experimental use of radioisotopes is performed inside the exhaust hood utilizing relatively low activities (generally less than 10 microcuries). No liquid wastes (including scintillation solutions) are ever discharged

into the laboratory sink. Wipe tests and instrument surveys of the hood area have never shown significant levels of contamination. In view of these facts, the present survey program (item 5a) is deemed adequate to allow maintenance work in these areas.

c,d) The exhaust hood in the isotope laboratory operates continuously and displaces 1120 cubic ft/min. An indicator is attached inside the hood to give visual assurance that lab air is being ventilated. Based on the room volume, laboratory air is changed nine times per hour. Intake air is adjusted to maintain a negative pressure. Air flow is thus directed away from the office area and door, toward the hood in the SE corner of the lab. Hood exhaust is directly to the roof and no exhaust air re-enters the building system.

Based on the exchange rate of air in the laboratory, minimal work with radioactive isotopes, and low activity (generally less than 10 uCi) the air quality in the laboratory is deemed to be in compliance with the ALARA concept.

5e) Inventory records for all individual isotopes are maintained by the radiation section. A physical inventory of all radioactive materials is conducted at intervals not exceeding three months. These inspections require checks against inventory records of accountability as well as correctness of labeling and integrity of storage containers.

Acquisitions and disposals of radioactive materials are coded and logged into a master notebook and added into the individual isotope file. Information entered into the recordkeeping system includes: isotope; supplier; physical form; specific activity; assay date; and principal user. Withdrawals for experimental use are entered as necessary. The inventory records, which allow for purchases, experimental use, waste disposal, and natural decay, for each isotope are kept current.

f) Emergency Procedures

Laboratory personnel are thoroughly familiar with precautionary measures to be taken when working with radioactive materials to minimize the possibility of accidents. However, in the event of an accident, immediate action must be taken to achieve the following three objectives:

(1) Minimize personal contamination and radiation exposure.

(2) Minimize the spread of radioactive material.

(3) Decontaminate the affected area.

Procedures involving accidental spills include the following:

(1) Notify all other persons in the room at once.

(2) Permit only the minimum number of persons necessary to deal with the spill into the area.

(3) Confine the spill immediately

Liquid spills:

Don protective gloves and respirator(s)
Apply absorbent to the spill

Dry spills:

Don protective gloves and respirator(s)
Remove solid material, taking care not to spread contamination.

(4) Notify the Radiation Protection Officer as soon as possible.

(5) Decontaminate the area.

(6) Monitor all persons involved in the spill and cleaning.

(7) Permit no person to resume work in the area until a survey is made, and approval of the Radiation Protection Officer is secured.

(8) Prepare a complete history of the accident and subsequent activity for the laboratory records.

Adequate forced ventilation is a first precaution to be considered when working with volatile radioactive materials. Consequently, it is mandatory that persons engaged in this work use the exhaust hood and work with minimal activity (less than 10 uCi). The hood is lined with disposable papers to catch condensate.

If contamination is suspected inside the hood, a survey is to be conducted before allowing further use of the equipment.

In the event of fire or other emergency situations during normal working hours, any member of the radiation section is to immediately ascertain whether a radiation hazard is immediately present. If a radiation hazard exists, then company fire department and/or Research safety personnel must wear self-contained breathing devices and protective clothing to combat the emergency. Emergency activities are to be governed by the radiation section (RPO if available) in this instance. During non-working hours, or if a radiation section member is not on the scene, then emergency personnel must wear the protective devices before entering the laboratory. Notification to the RPO or other section member (names and telephone numbers posted on entry door) must be made as soon as possible.

Following the emergency, the lab area is to be monitored to determine protective devices necessary for safe decontamination. All persons involved in combating the emergency are to be monitored and no work is to resume without approval of the RPO. A complete history of the emergency is to be entered into the laboratory records.

We hope that the preceeding answers your questions satisfactorily. If you have any further questions, please do not hesitate to contact me.

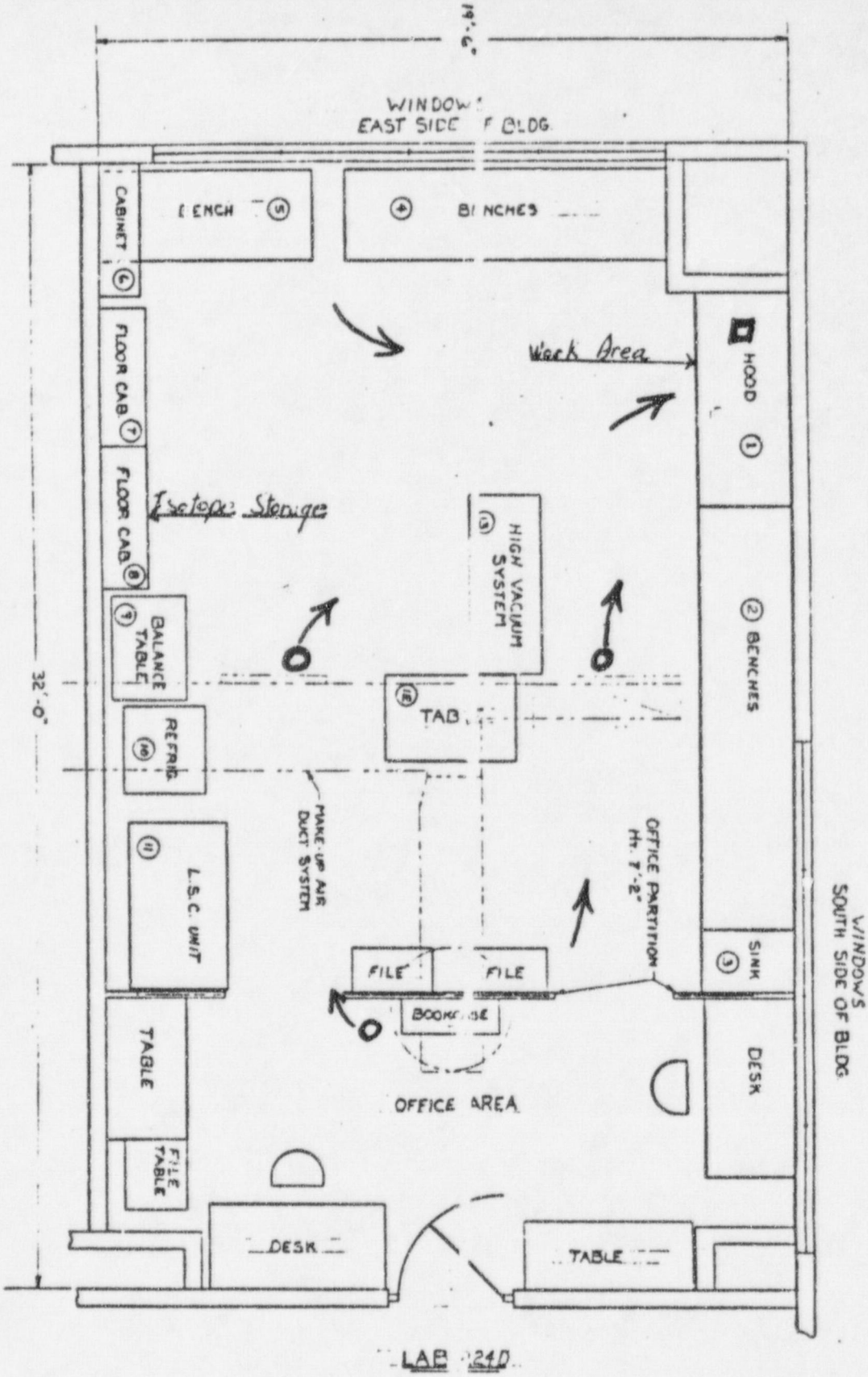
Sincerely,

J. L. Holtshouser

J L Holtshouser
Radiation Protection Officer
Corporate Industrial Hygiene

JLH:car

enclosures



NOTE: CEILING HEIGHT (13'-0")

□ Exhaust 1120 cfm

O Make up 1000 cfm

→ Air Flow

TITLE LAYOUT - LAB 224D