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LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH

University of California, Davis
Davis, California 95616

Environmental Monitoring Report
Calendar Year 1984

Department of Energy Operating Contractor

DE-AC03-76SF00472

The following environmental summary will address programs and the results of the following areas of concern:

1. Facility Description

- a. Location
- b. Work Performed
- c. Environmental Setting

2. Pollutants Released in Effluents

- a. Air
- b. Liquid (including those released to sanitary sewers)

3. Radiological Impact

- a. Air
- b. Water
- c. Soil
- d. Sediment
- e. Food and Vegetation
- f. Milk
- g. Penetrating

4. Nonradioactive Pollutants

5. Summary

6. Distribution

1. Facility Description

- a. The Laboratory for Energy Related Health Research is a government owned, contractor operated facility located on a 15-acre site at UC Davis Campus in an area designated as appropriate for animal research and one which is rural in nature.
- b. The laboratory program is focused on the study of the biomedical effects of energy derived effluents.
- c. There are approximately 5000 square feet of specialized laboratory and animal holding areas which comprise the facility.

2. Pollutants Released in Effluents

There are no releases pertinent to this category from the LEHR facility.

3. Radiological Impact

- a. There are no releases of isotopes into the air at the LEHR facility. These are prevented by filtering of hood exhausts and subsequent frequent filter monitoring.
- b. There are no releases into the sanitary sewage system at LEHR of any radioisotope. All liquid waste is either contained and removed via the campus waste removal system or is allowed to drain into the Imhoff sewage system. Releases into the Imhoff system for this year were 3.1×10^{-6} Ci of ^{90}Sr and 3.8×10^{-5} Ci of ^{241}Pu .
- c. There are no releases of isotopes from the LEHR facility to the soil either off or on-site.
- d. There are no releases to food and/or vegetation or milk as a result of isotope work done at the LEHR facility.
- e. Penetrating radiation measurements of personnel, visitors, and facility perimeter areas indicate absorbed doses which are well below Federal, State, and the even more restrictive UC Davis campus limits. The following is a summary of the data:

1) Personnel Exposure:

Of the 88 employees at the LEHR facility, 35 received no whole body exposure to ionizing radiation. Fifty-three (53) employees received a dose less than 0.1 Rem/year. No other employee exposures were reported.

2) Visitor Dosimetry:

No visitor to the LEHR facility is permitted in any area whereby they may be exposed to levels of ionizing radiation which are above background (.02 - .04 mR/hr) levels.

3) Perimeter Dosimetry:

The irradiator consists of a 349 curie source of Cobalt 60 mounted on the roof of a concrete building in such a manner as to provide independent irradiation of a segment of an outdoor field with a 170-Ci equivalent source strength and/or the room beneath the source. Seven dosimetry stations are monitored on three-month intervals by LEHR. In addition Environmental Health and Safety monitors fifteen locations at quarterly intervals.

At the fence line of the Co-60 facility the exposure estimates for 24 hour occupancy, 365 days a year result in doses ranging from 1488-4713 mRem. Dosimeters placed in areas directly south and east of the fence line show yearly dose ranges of 549-3689 mRem. It should be stressed that no persons occupy this area on a continual basis. University personnel enter these areas for various periods of time only to feed and care for animals housed in fenced areas and isolation buildings. Our current plan is to restrict public access to all surrounding areas with yearly potential exposure values greater than 500 mRem/year. Gates, fences and signs shall be posted to restrict public access beyond the 500 mRem/year exposure level.

4. Nonradioactive Pollutants

There are no releases pertinent to this category from the LEHR facility.

5. Summary

In summary, environmental monitoring shows no release of pollutants, either chemical or radioactive to the environment.

To insure that there is no dose to the general public from dose in air radioactivity generated from the ⁶⁰Co source, a gate shall be placed at the levee road and a fence extending from the gate to the bridge, completely closing off public access to areas exceeding the 500 mRem/year exposure levels. See attachment A.

6. Distribution

Chuck Taylor U.S.
Department of Energy
San Francisco Office
1333 Broadway
Oakland, California 94612

James W. Overstreet
Acting Director
Laboratory for Energy-Related Health Research
University of California at Davis
Davis, California 95616

Carolyn Owen/DOE Environmental Summary File
Department of Environmental Health and Safety
TB-30
University of California at Davis
Davis, California 95616

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