LABORATORY FOR ENERGY-RELATED HEALTH RESEARCH

University of California, Davis
Davis, California 95616

Environmental Monitoring Report

Calendar Year 1985

Department of Energy Operating Contractor

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Introduction

Laboratory for Energy-Related Health Research is an Organized Research Unit of the University of California, Davis. The laboratory's research objective is to provide new knowledge for an improved understanding of the potential bioenvironmental and occupational health problems associated with energy utilization to contribute to the safe and healthful development of energy resources for the benefit of mankind. This research encompasses several areas of basic investigation that relate to toxicological and biomedical problems associated with potentially toxic chemical and radioactive substances and ionizing radiation with particular emphasis on carcinogenicity. Studies of systemic injury and nuclear medical diagnostic and therapeutic methods are also involved. This is an interdisciplinary program spanning physics, chemistry, environmental engineering, biophysics and biochemistry, cellular and molecular biology, physiology, immunology, toxicology, both human and veterinary medicine, nuclear medicine, pathology, hematology, radiation biology, reproductive biology, oncology, biomathematics, and computer science. The principal themes of the research at LEHR center around the biology, radiobiology, and health status of the skeleton and its blood-forming constituents; the toxicology and properties of airborne materials; the beagle as an experimental animal model; carcinogenesis; and the scaling of the results from laboratory animal studies to man for appropriate assessment of risk.

Scope

The scope of this report is the discussion of the environmental monitoring program results for the year 1985 for LEHR.

Description of Facility and Processes

LEHR 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. The site is rural in nature and located in the southeast quadrant on a remote portion of the campus. Unique to the facility is an indoor/outdoor ^{60}Co irradiator (nominal source strength 170 curies) for chronic exposure of beagles to up to 10 rem/day and an onsite waste treatment plant, for processing and holding radioactive wastes. In 1983, completion of the Toxic Pollutant Health Research Laboratory, a specialized facility for total containment and safe study of highly toxic and/or carcinogenic agents added the dimension facilitating animal studies involving the behavior of internally deposited ^{241}Pu and other materials.

All pollutants, toxic and/or radioactive materials are introduced into the campus waste stream and processed in accordance with UCD regulations. Exceptions to this are those isotopes contained in onsite waste holding tanks and the treatment plant.

Summary of Status of Environmental Impact

A. Pollutants Released in Effluents

There are no releases pertinent to this category.

B. Radiological Impact

1. 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. The Imhoff system processed 54,000 gallons of liquid yielding 26 μCi of ^{90}Sr for 1985.

2. There are no releases of isotopes from LEHR facility to the soil either off or non-site.

3. There are no releases to food and/or vegetation or milk as a result of radioisotope work done at the LEHR facility.

4. Penetrating radiation measurements of personnel, visitors, and facility perimeter areas indicate absorbed doses well below Federal, State, and the even more restrictive UC Davis campus limits. Perimeter dosimetry was in excess of EPA limits and use of the outdoor irradiation was halted.

   Personnel Dosimetry

   Of the 85 employees at the LEHR facility, 79 received no whole body exposure to ionizing radiation. Four (4) employees received a dose less than 0.1 Rem. One (1) employee received a dose from 0.1 to 0.249 Rem and one (1) employee received a dose form 0.250 to 0.499 Rem.

   Visitor Dosimetry

   One thousand four hundred (1,400) persons were logged in as visitors to the facility, none receiving any radiation exposure.

   Perimeter Dosimetry

   The outdoor cobalt irradiator at LEHR is positioned in such a way as to require 14 monitoring sites. The maximum reading, taken at the fence perimeter for the year 1985, was 3.1 Roentgens. Use of the source was discontinued during the final quarter 10/1 - 12/31 of 1985.

5. Nonradioactive Pollutants

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

6. References

   There is a facility map provided for your reference.

   There have been no unusual occurrences at the LEHR facility necessitating the filing of any incident reports for 1985.

7. Distribution

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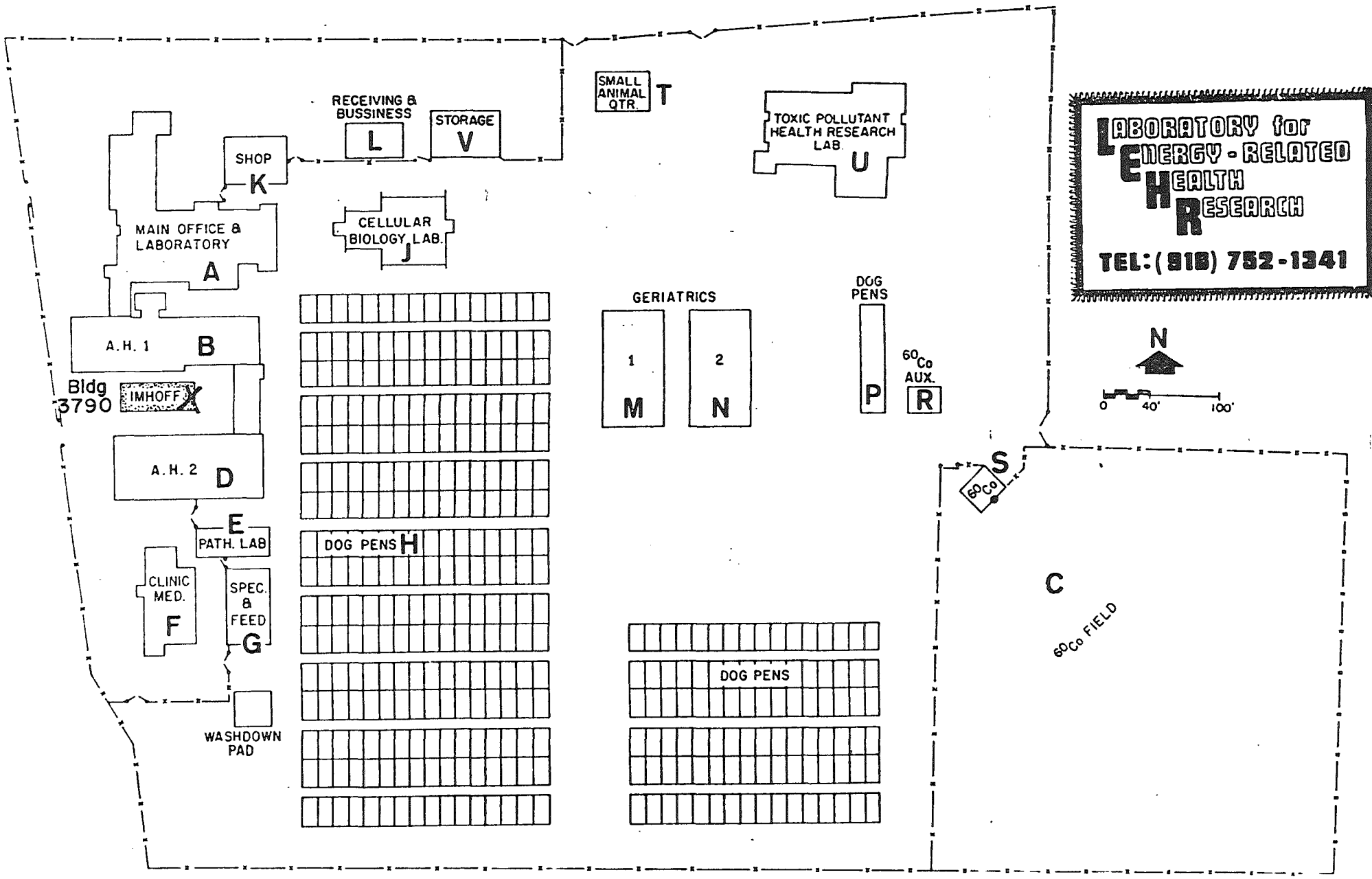
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