

FORMERLY UTILIZED SITES REMEDIAL ACTION PROGRAM

ELIMINATION REPORT

FOR

PALMER PHYSICAL LABORATORY AND FRICK CHEMICAL LABORATORY  
PRINCETON UNIVERSITY  
PRINCETON, NEW JERSEY

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Department of Energy  
Office of Nuclear Energy  
Office of Remedial Action and Waste Technology  
Division of Facility and Site Decommissioning Projects

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INTRODUCTION

The Department of Energy (DOE), Office of Nuclear Energy, Office of Remedial Action and Waste Technology, Division of Facility and Site Decommissioning Projects (and/or predecessor agencies, offices, and divisions) has reviewed the past activities of the Manhattan Engineer District (MED) and Atomic Energy Commission (AEC) at Princeton University, Princeton, New Jersey, and the radiological survey and decontamination activities performed at the University. Based on the review of the survey and related correspondence, DOE has determined that the conditions at this site are in compliance with current radiological guidelines and standards and that no potential for radiological exposure exists beyond those resulting from natural background. Therefore, this site requires no remedial action and will not be included in the Formerly Utilized Sites Remedial Action Program.

This report presents information supporting the determination that the radiological conditions at Palmer Physical Laboratory and Frick Chemical Laboratory, Princeton University, are in compliance with current DOE radiological guidelines and standards<sup>1</sup> and provides assurance that use of these facilities will not result in any measurable radiological hazard to site occupants or to the general public.

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<sup>1</sup>U.S. Department of Energy Guidelines for Residual Radioactivity at Formerly Utilized Sites Remedial Action Program and Remote Surplus Facilities Management Program Sites (Rev. 1, July 1985).

This elimination report will be archived by DOE through the Assistant Secretary for Management and Administration. A copy of this package will be available for public review between 8:00 a.m. and 4:00 p.m., Monday through Friday (except Federal holidays), at the DOE Public Document Room located in Room 1E-190 of the Forrestal Building, 1000 Independence Avenue, SW., Washington, D.C.

## BACKGROUND

### Site Function

During the 1940's, scientists at Princeton University performed several functions for MED and AEC. The basement of Palmer Physical Laboratory housed experiments on uranium isotope separation. One project used a machine known as the "isotron" and involved very small research quantities (gram amounts) of natural uranium. Another used a cyclotron and involved approximately 20 to 30 pounds of natural uranium, mostly in the form of uranium oxide, and a small amount in the form of uranium metal. In Frick Chemical Laboratory, experiments were aimed at development of diffusion barrier material for the gaseous diffusion enrichment process. This work did not involve uranium. Frick personnel also sampled and assayed African uranium ore for the federal government. However, available records do not specify whether this work was performed in Frick Laboratory, Palmer Laboratory, or the Middlesex Sampling Plant.

### Site Description

The buildings are owned and operated by Princeton University and are located on the main Princeton campus. The involved areas include the basement of Palmer Hall (23 rooms, cyclotron area, and corridors) and all of Frick Chemical Laboratory.

## Radiological History and Status

Following an initial site visit by Chicago Operations Office and Argonne National Laboratory personnel on September 28, 1976, Princeton's health physics personnel conducted probe and smear surveys on three floors of Frick Laboratory. All results were negative. Palmer Laboratory was surveyed from January 6 through February 11, 1977. Low-level contamination was found in five areas of the basement, concentrated along pipe trenches, floor joints, and cracks. Removable contamination, verified by spectral analysis as uranium, was found in only one area. The levels encountered did not represent a radiation hazard to occupants of the rooms. However, Princeton expressed concern that a hazard could arise if substantial renovations of the building were undertaken in the future.

In 1977, in order to unequivocally eliminate any concern with a potential radiation problem, Princeton contracted with ATCOR, Inc., Peekskill, New York, to conduct a survey and perform any required decontamination of the facility. The work was completed in August 1977, and a final radiological survey was performed and completed on August 29, 1977, by the Bureau of Radiation Protection of the New Jersey Department of Environmental Protection. The Bureau reported that the site was adequately decontaminated.

### ELIMINATION ANALYSIS

Although Frick Chemical Laboratory was used for MED/AEC work, no evidence that the work involved radioactive materials has been found to date. A comprehensive survey conducted by the University's health physics personnel found no contamination in this building. Post remedial action surveys of the basement of Palmer Hall conducted by Princeton University and the New Jersey Bureau of Radiation Protection, confirmed that formerly contaminated areas had been

cleaned to levels typical of natural background for the area. Based on the information summarized in this report, DOE's Division of Facility and Site Decommissioning Projects has determined that no further remedial action is necessary at this site and has eliminated Princeton University's Palmer and Frick Laboratories from further consideration under the Formerly Utilized Sites Remedial Action Program.

#### REFERENCES

- o Faust, Jack C. (Princeton University) to Robert H. Bauer (Energy Research and Development Administration), "Resurvey Program MED/AEC-Palmer Hall," February 28, 1977.
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- o Faust, Jack C. (Princeton University), to Edward Jascewsky (Department of Energy), "ERDA Resurvey Program MED/AEC of Palmer Physical Laboratory of Princeton University-Final Report," February 16, 1978.
- o Liverman, James L. (Department of Energy), to Jack C. Faust (Princeton University), letter of June 28, 1978.
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