

DECONTAMINATION & DECOMMISSIONING

ACTIVITIES PHOTOBRIEFING BOOK FY 1998



Argonne National Laboratory-East
Technology Development Division
Decontamination & Decommissioning Program



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**FISCAL YEAR 1998
DECONTAMINATION AND DECOMMISSIONING
ACTIVITIES PHOTOBRIEFING BOOK**

FOR THE

**ARGONNE NATIONAL LABORATORY-EAST
TECHNOLOGY DEVELOPMENT DIVISION
DECONTAMINATION AND DECOMMISSIONING PROGRAM**

Argonne National Laboratory

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Report Availability

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, P.O. Box 62, Oak Ridge TN 37831; prices available from (423) 576-8401. Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield VA 22161.

Cover

On the cover is an artist's rendition of the Chicago Pile 5 (CP-5) Research Reactor, currently undergoing decontamination and decommissioning. CP-5 operated from 1954 through 1979 at a power level of 5 MW(t).

FOREWORD

The Decontamination and Decommissioning (D&D) Program at Argonne National Laboratory-East (ANL-E) is dedicated to the safe and cost-effective D&D of surplus, contaminated facilities on the ANL-E site. The D&D of these facilities involves

- project identification, design, planning, and budgeting;
- project execution, including disassembling, size reduction, and packaging of all radioactive materials associated with the operation of a facility; demolition of all obsolete support structures; and the decontamination of remaining structures and surrounding areas for unrestricted re-use or demolition; and
- project closeout and facility release.

Knowledge gained through successful project completions is shared with others in the DOE complex through topical presentations and lessons learned. In addition, courses are offered on all aspects of the D&D process.

This FY 1998 Photobriefing Book highlights the activities and successes of the staff of Argonne's D&D Program.

Charles R. Fellhauer
Manager, D&D Operations

INTRODUCTION

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Fiscal Year (FY) 1998 was very successful in terms of Decontamination and Decommissioning (D&D) project completions. This photobriefing book highlights these projects and activities in one ongoing project. Brief descriptions of projects planned for the future are also provided.

Two D&D projects funded by the U.S. DOE Office of Environmental Management (EM-40) were completed safely and on schedule in FY 1998.

- Argonne Thermal Source Reactor (ATSR) was a low-power research reactor that operated from 1950 to 1989.
- The Building 594 (a.k.a. 579) Waste Ion-Exchange Facility was an obsolete facility constructed in the 1950s to process waste fluids from a collecting lagoon.

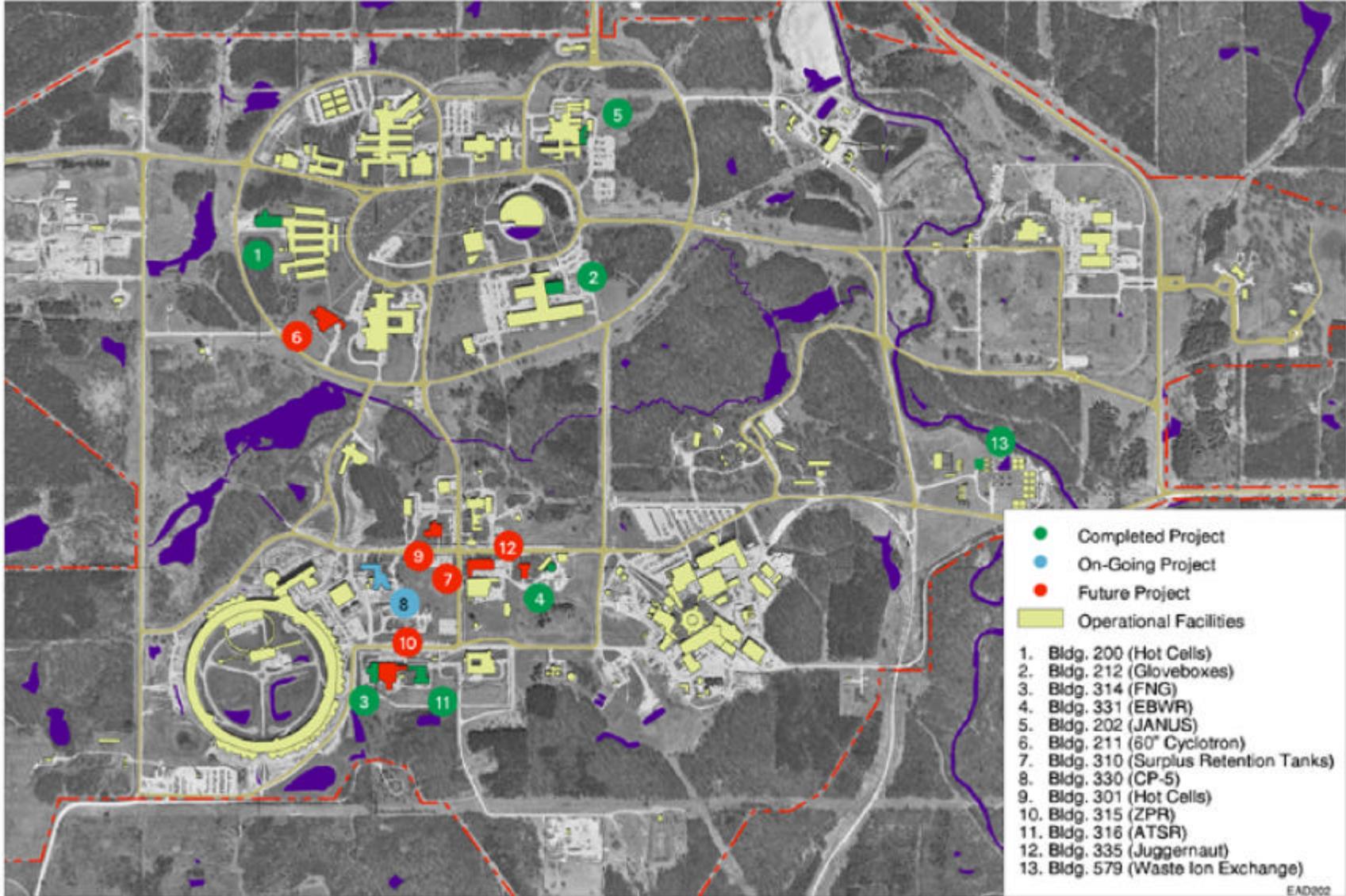
Field work at one project was ongoing during FY 1998.

- Chicago Pile 5 (CP-5) was a 5-megawatt, heavy water-moderated, enriched uranium-fueled reactor used to produce neutrons for scientific research from 1954-79. The reactor was shut down and defueled in 1979. D&D is scheduled to be completed in FY 2000.

Project experience has lent itself to developing unique staff capabilities. The D&D group was chosen as lead organization for a project supported with operating funds provided by Argonne's Plant Facilities and Services (PFS) Division. This project was also completed safely and on schedule in FY 1998.

- The Building 200/205 Pneumatic Transfer Tube was constructed in the late 1960s between Hot Cell M-4 in Building 200 and a glove box in Room F-131, Building 205, and used to transfer irradiated fuel specimens and other samples between the two buildings.
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D&D OPERATIONS



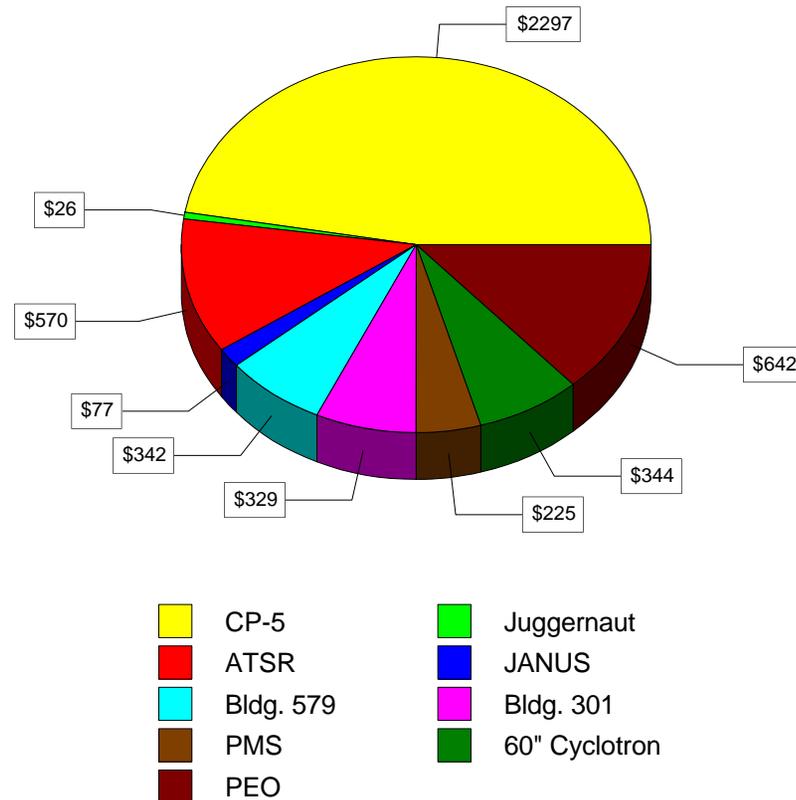
Status of EM-40 D&D Projects at the Argonne National Laboratory-East Site (as of September 30, 1998)

FY 1998 DOE EM-40 Project Highlights

FY 1998 EM-40 Project Status

- FY 1998 DOE EM-40 project funding totaled \$4852K
- JANUS Reactor D&D Project final report was issued
- D&D field work at the Argonne Thermal Source Reactor facility was completed
- D&D field work at the Bldg. 579 Waste Ion-Exchange facility was completed
- D&D field work at the CP-5 Research Reactor facility continued
- Historical evaluation of selected facilities scheduled for FY 1998 was completed
- D&D planning and documentation for the 60" Cyclotron D&D Project and the Building 301 Hot Cells D&D Project were 90% completed
- Characterization Plan was prepared for the Juggernaut Reactor D&D Project
- Program Engineering and Oversight (PEO) and Program Management Support (PMS) activities were conducted

FY 1998 EM-40 Project Funding (in \$K)



FY 1993 - 1998 DOE EM-40 Project Status and Funding

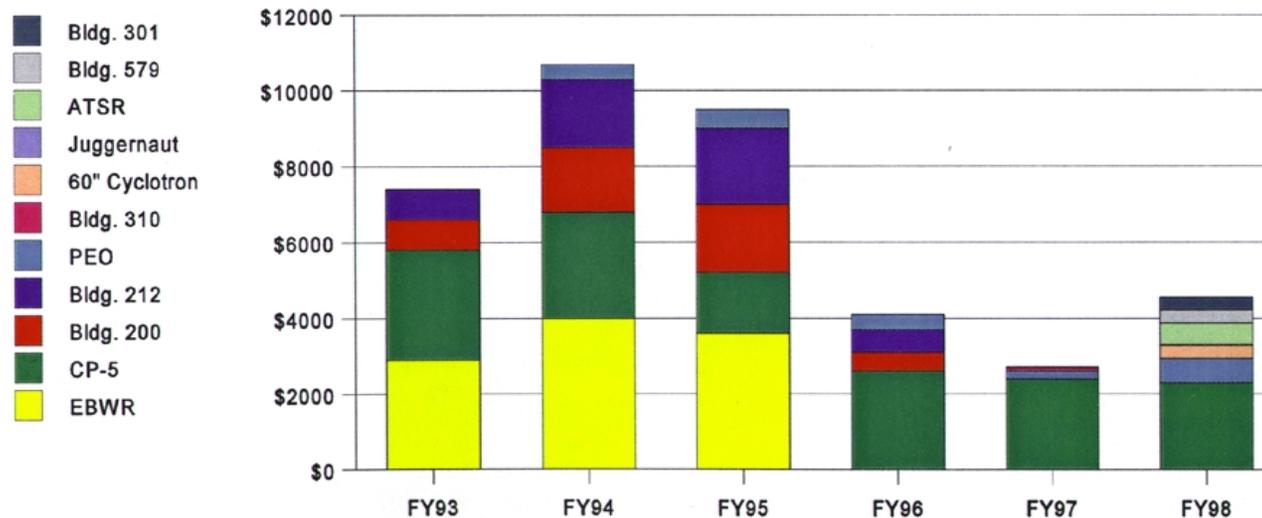
EM-40 D&D Projects Completed

1996: Experimental Boiling Water Reactor (Bldg. 331)
 M-Wing Hot Cells Facilities (Bldg. 200)
 Plutonium Gloveboxes (61 gloveboxes in Bldg. 212)
 Fast Neutron Generator (Bldg. 314)

1997: JANUS Reactor (Bldg. 202)

1998: Argonne Thermal Source Reactor (Bldg. 316)
 Waste Ion-Exchange Facility (Bldg. 579)

DOE EM-40 Funding by Fiscal Year (in \$K)



Future DOE EM-40 D&D Projects at the ANL-E Site

The ANL-E EM-40 D&D Program was initially baselined in 1994. Late in FY 1998, the Department of Energy requested a revision to this document which would incorporate updated cost, schedule, and technical scope; changes in project approach; new direction from DOE and other stakeholders; new regulatory requirements and risk assessments; and the knowledge gained from past project completions and from current characterization studies. If funding profiles are received at the levels proposed in Department of Energy Office of Environmental Management guidance, the ANL-E EM-40 D&D Program would be completed at the end of FY 2003.

In addition to completing the CP-5 Research Reactor D&D project in FY 2000, the following projects will be completed:

- 60" Cyclotron (Bldg. 211) - An accelerator used for basic research, this facility met widely diversified operational requirements, producing beams of deuterons, helium ions, singly charged hydrogen molecules and neutrons of a broad energy spectrum.
 - Hot Cells (Bldg. 301) - The hot cell area, the first permanent cells constructed at ANL-E, contains eight caves that were used to perform a variety of radiological research activities.
 - Surplus Retention Tanks (Bldg. 310) - These tanks were placed into service more than 30 years ago and used for interim storage of radioactive liquids when the processing and holding tanks at an adjacent facility were full.
 - Zero Power Reactors 6&9 (Bldg. 315) and the Argonne Thermal Source Reactor (Bldg. 316) - These facilities were used for reactor physics research and instrumentation studies.
 - Juggernaut Reactor (Bldg. 335) - A light-water moderated and cooled, graphite-reflected research reactor designed to conduct basic research.
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