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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**

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This photobriefing book is a product of Argonne's Technology Development Division, Decontamination and Decommissioning (D&D) Program. For further information on the activities of the D&D Program, contact:

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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).

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## 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

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# INTRODUCTION

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## INTRODUCTION

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.

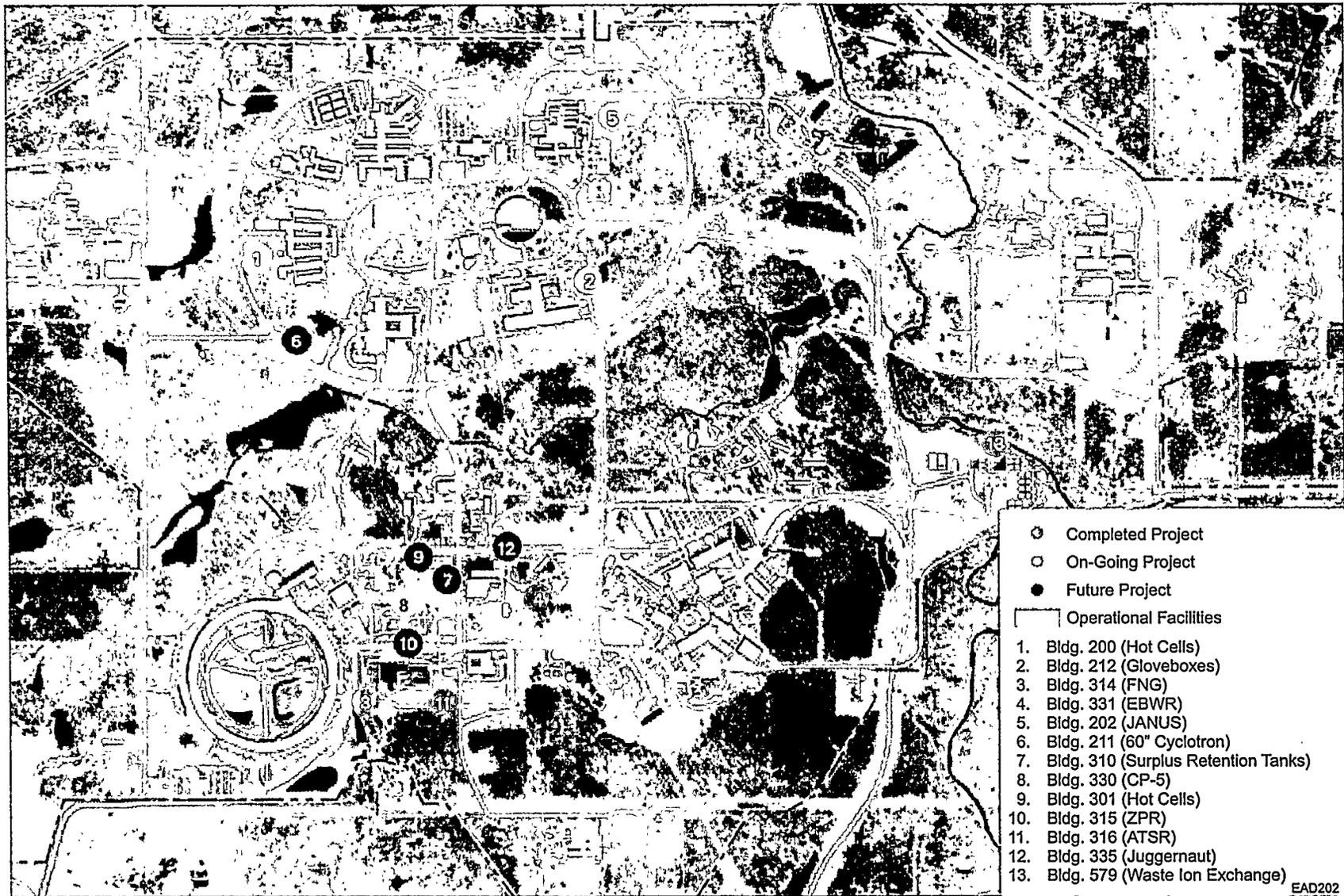
Field work at one project was ongoing during FY 1998.

- ▶ 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**



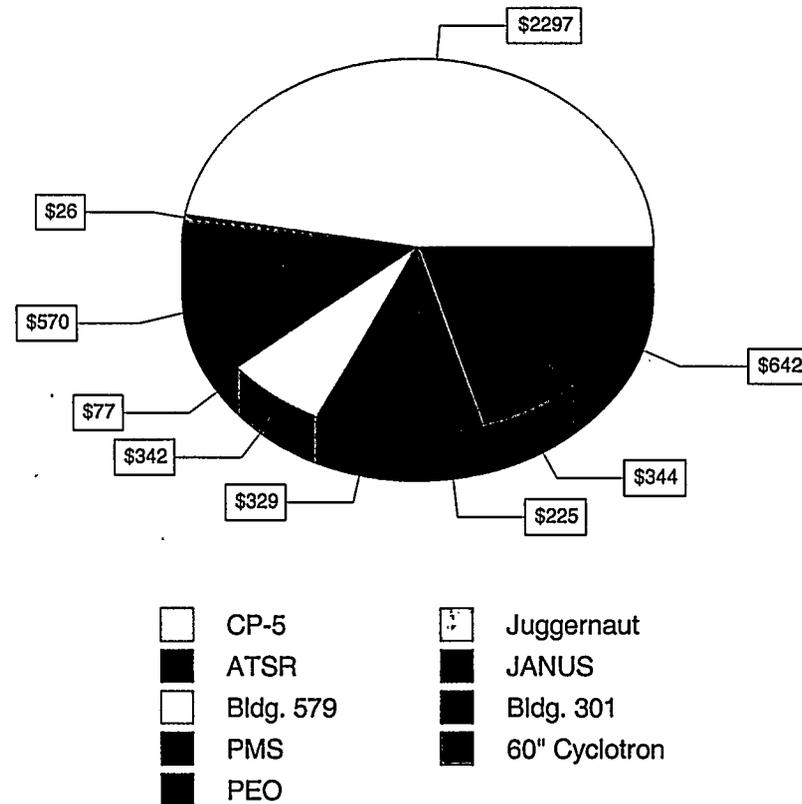
Status of EM-40 D&D Projects at the Argonne National Laboratory-East Site (as of September 30, 1998)

## 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)





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## 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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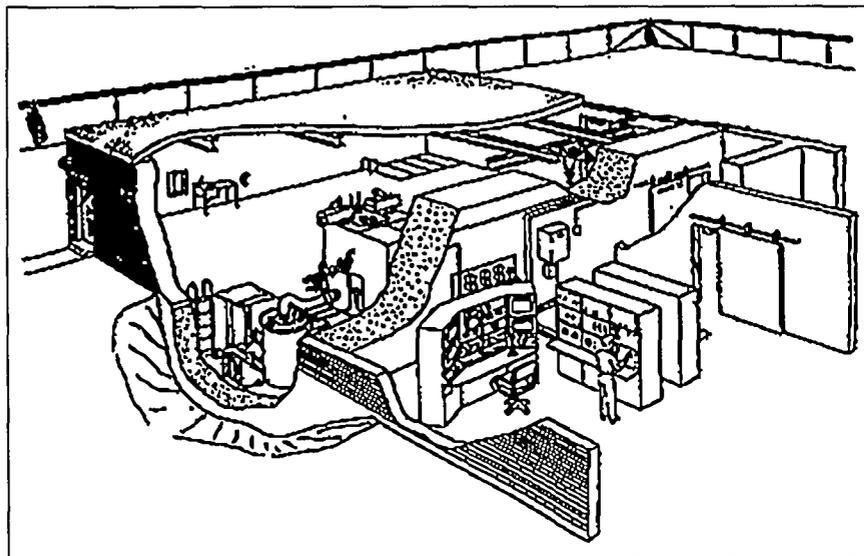
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# **Argonne Thermal Source Reactor D&D Project**

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## Argonne Thermal Source Reactor D&D

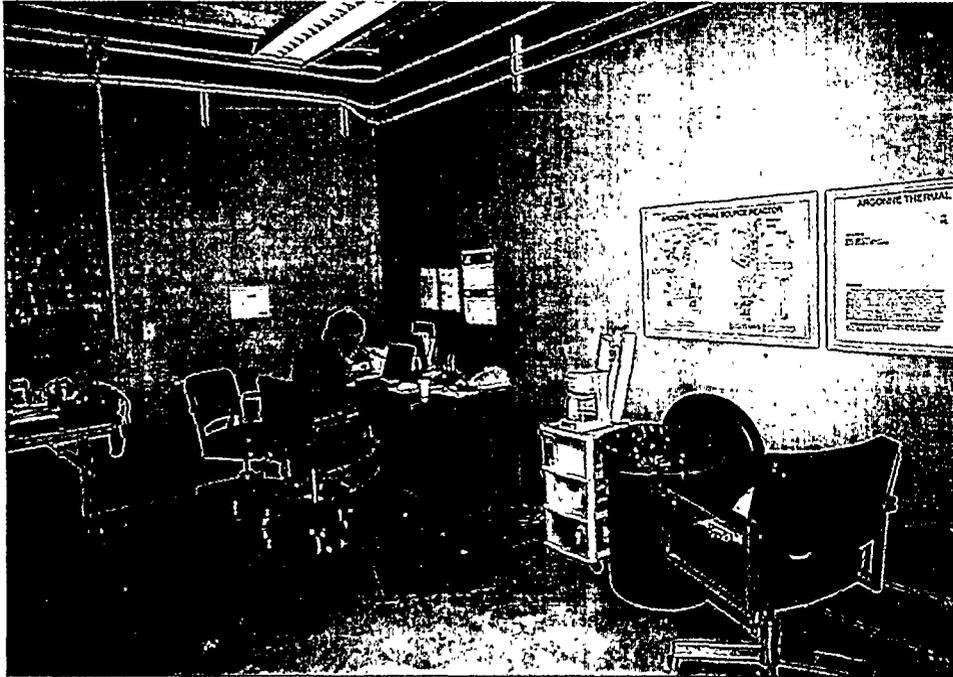


The Argonne Thermal Source Reactor (ATSR) facility was located in Bldg. 316. The light-water moderated reactor was fueled with highly enriched (93.5%) Uranium-235 and was capable of operating at 10 kW for sustained periods. D&D work was contracted to MOTA Corporation (Columbia SC) in July 1998, and D&D activities began July 29.

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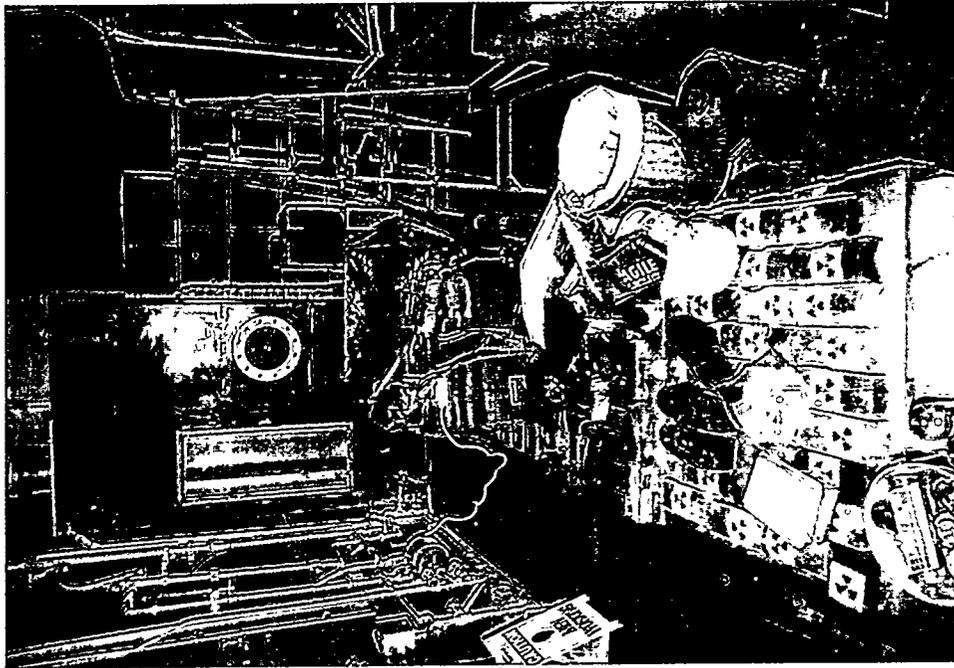
## Argonne Thermal Source Reactor D&D



During facility characterization, loose flaking lead-based paint was identified in the ATSR control room. Peel Away™ paint remover was applied to the walls, and the paint was stripped away. Paint residue was collected on paper and rags, and packaged as hazardous waste. The walls were repainted with latex paint to prevent any additional flaking, as shown in this photo (ANL Neg. No. 24571K, Frame 6A).

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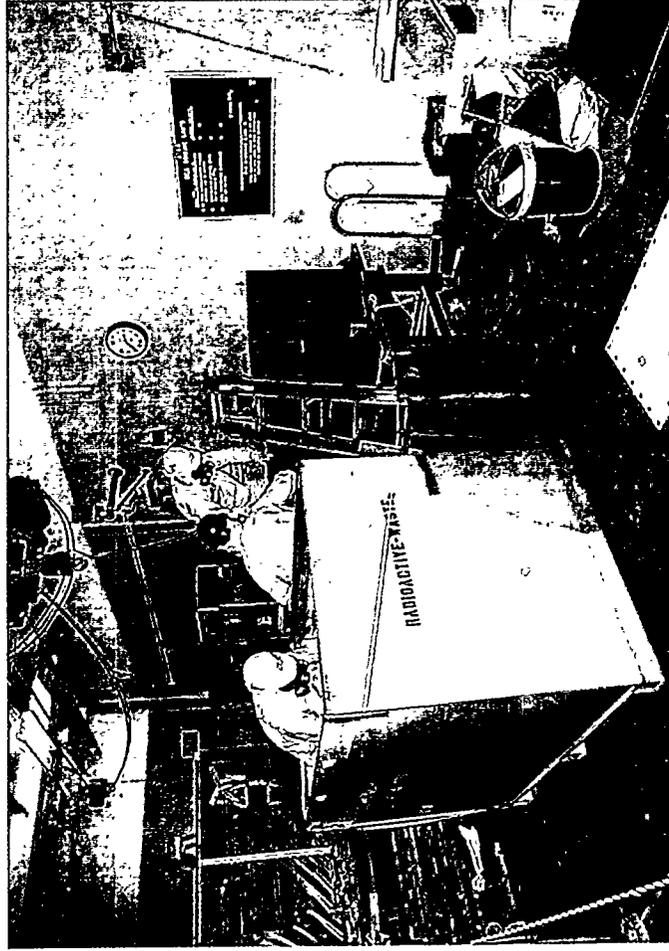
## Argonne Thermal Source Reactor D&D



Approximately 20,000 lbs. of activated and contaminated lead were present inside the ATSR facility. The lead was stacked on pallets prior to packaging into B-12 metal bins. The material was transferred to ANL Waste Management Operations for storage as mixed waste (ANL Neg. No. 24571K, Frame 15A).

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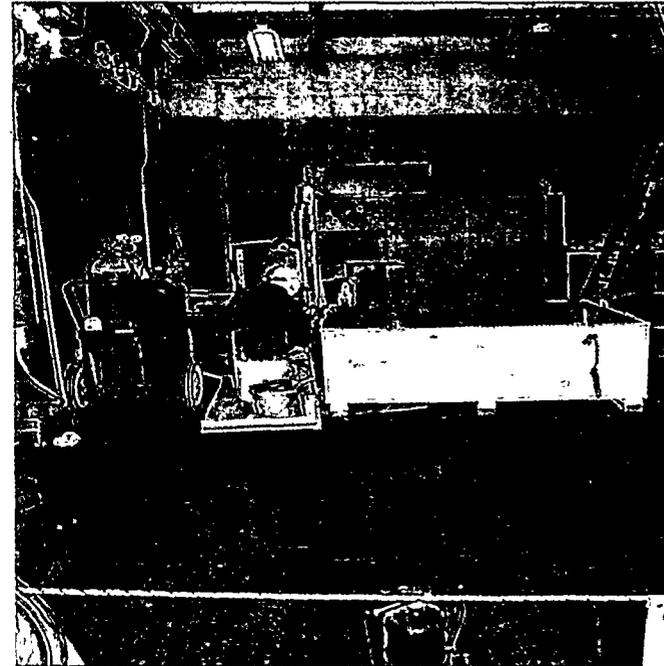
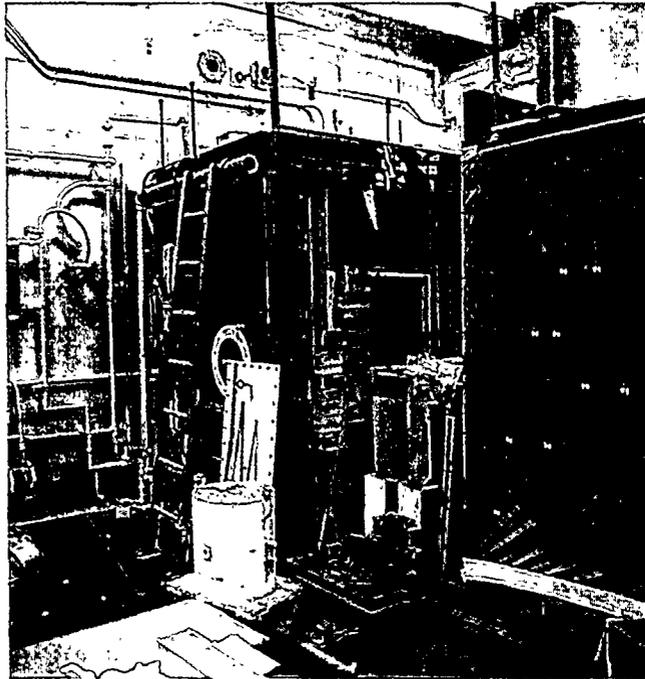
## Argonne Thermal Source Reactor D&D



Two piles of graphite were found in the facility, the ATSR graphite pile and graphite from the original Chicago Pile-1 (CP-1) reactor that was being stored at ATSR. These piles were unstacked and packaged into waste containers for disposal as low-level radioactive waste. This photo shows D&D technicians packaging graphite from CP-1 (ANL Neg. No. 24572K, Frame 26A).

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## Argonne Thermal Source Reactor D&D

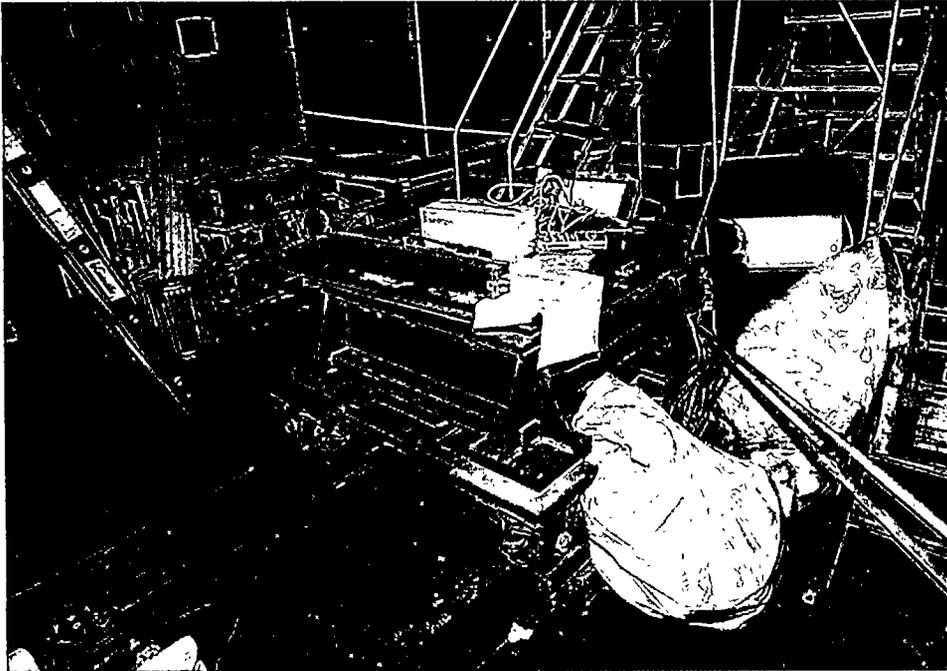


These photos show the Argonne Thermal Source Reactor prior to and during removal operations. Surrounding the ATSR core tank were 6 inches on lead shielding. After removing the shield tank covers, the lead block shielding was removed from around the core tank and packaged as mixed waste. Removal of the reactor and shield tank involved the disassembly, size reduction, and packaging as low-level radioactive waste, the reactor internals, core tank, and shield tank (ANL Neg Nos. 23988K, Frame 1, and 24637K, Frame 19A).

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## Argonne Thermal Source Reactor D&D

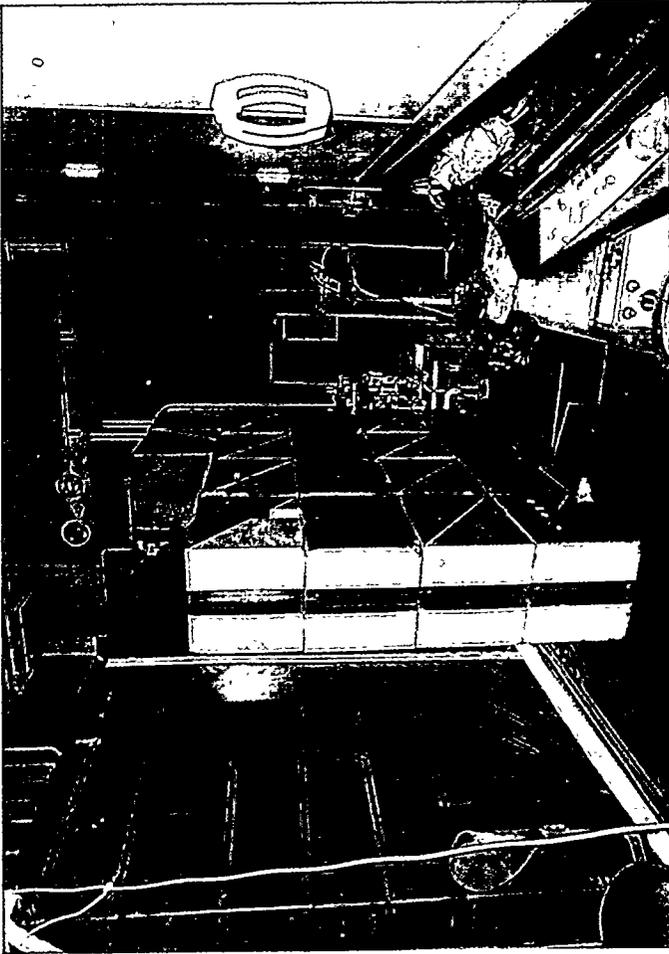


A Snell block was used to obtain fast-reactor-like fluxes of neutrons for research purposes. The block was installed on rail-mounted tables and could be positioned next to the leakage face of the reactor. This photo shows a Snell block table that was located in the ATSR facility. It was dismantled, size reduced, and packaged for disposal as low-level radioactive waste (ANL Neg. No. 23988K, Frame 29).

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## Argonne Thermal Source Reactor D&D



Twenty activated concrete shield blocks were removed and packaged as low-level radioactive waste. ANL safety procedures required a lift plan and special rigging due to the absence of the facility's original lifting and rigging equipment (ANL Neg. No. 23988K, Frame 33).

**Argonne Thermal Source Reactor D&D**



Steel floor tracks for the ATSR and the rail-mounted Snell block tables were removed, size reduced, and packaged as low-level radioactive waste (ANL Neg. No. 23988K, Frame 30).

**Argonne Thermal Source Reactor D&D**



The reactor dump tank, located in a floor pit just north of the reactor, was rigged and lifted from the floor pit, size reduced, and packaged as low-level radioactive waste (ANL Neg. No. 23988K, Frame 12).

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## Argonne Thermal Source Reactor D&D

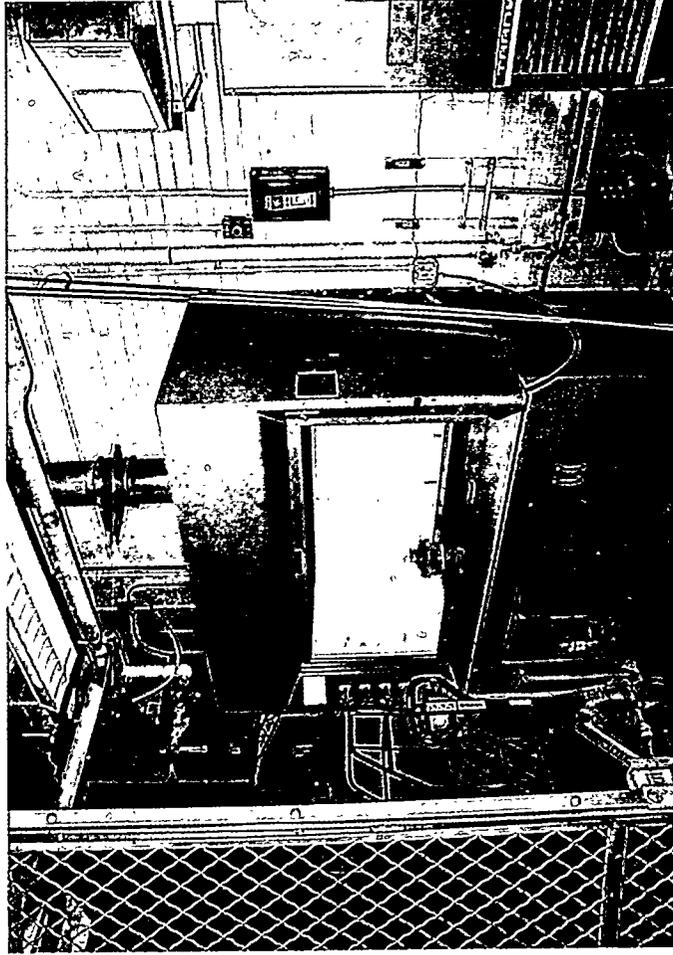


The fuel storage pit contained a large quantity of miscellaneous equipment and material. The pit was emptied and the material packaged as low-level radioactive waste (ANL Neg. No. 23988K, Frame 26).

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**Argonne Thermal Source Reactor D&D**

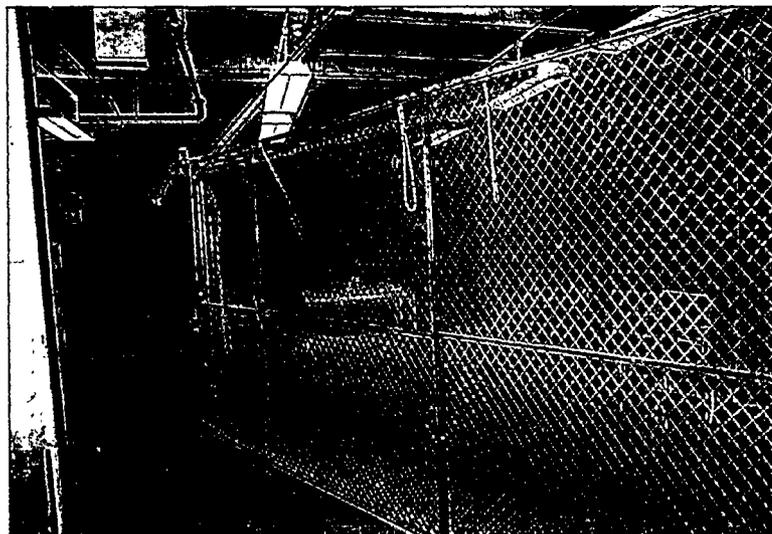


The fume hood was disconnected from existing services (air, electrical, HEPA ventilation), relocated to a contamination control area, and size reduced and packaged as low-level radioactive waste (ANL Neg. No. 23988K, Frame 5).



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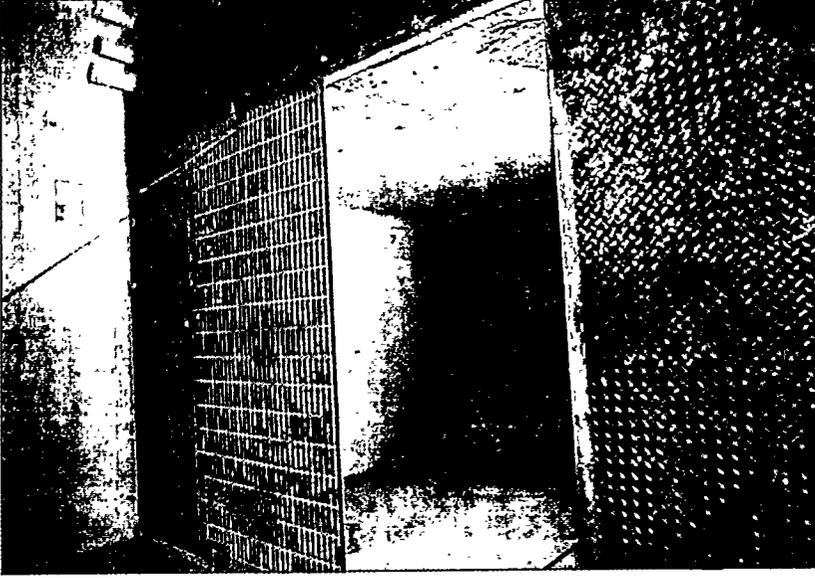
## Argonne Thermal Source Reactor D&D



D&D activities were completed in September. The following photos show the post-D&D condition of the ATSR facility control room and the reactor room area looking northeast (ANL Neg. Nos. 24748K, Frame 9, and 24748K, Frame 10).

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**Argonne Thermal Source Reactor D&D**



These photos show the post-D&D condition of the ATSR dump tank pit and the fuel storage pit (ANL Neg. Nos. 24748K, Frame 15, and 24748K, Frame 16).

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**Building 594 Waste Ion-Exchange Facility  
D&D Project**

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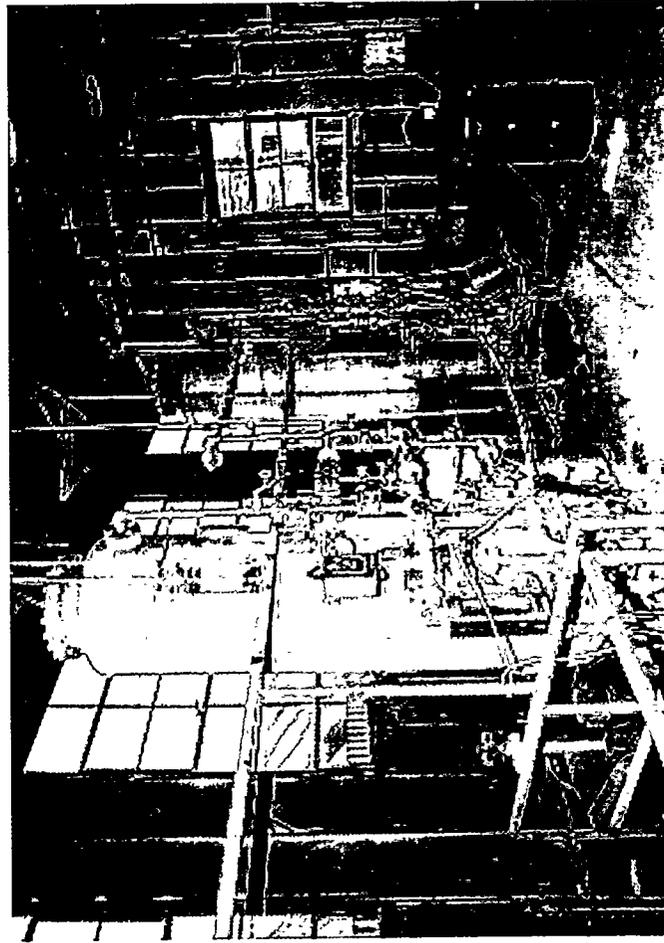
**Building 594 Waste Ion-Exchange Facility D&D**



Building 594 (a.k.a. 579) was a pre-engineered metal building with a concrete foundation and floor (ANL Neg. No. 24191K, Frame 12).

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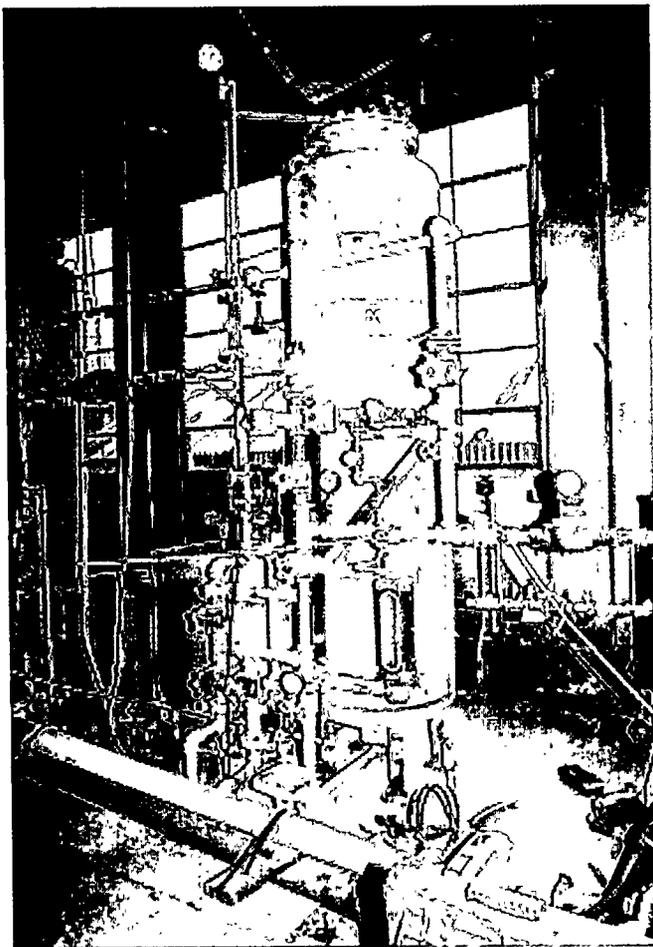
**Building 594 Waste Ion-Exchange Facility D&D**



The waste ion-exchange equipment located on the east side of Building 594 consisted of two resin tanks, a cation exchange vessel, and a mixed bed exchange vessel (ANL Neg. No. 24344K, Frame 5).

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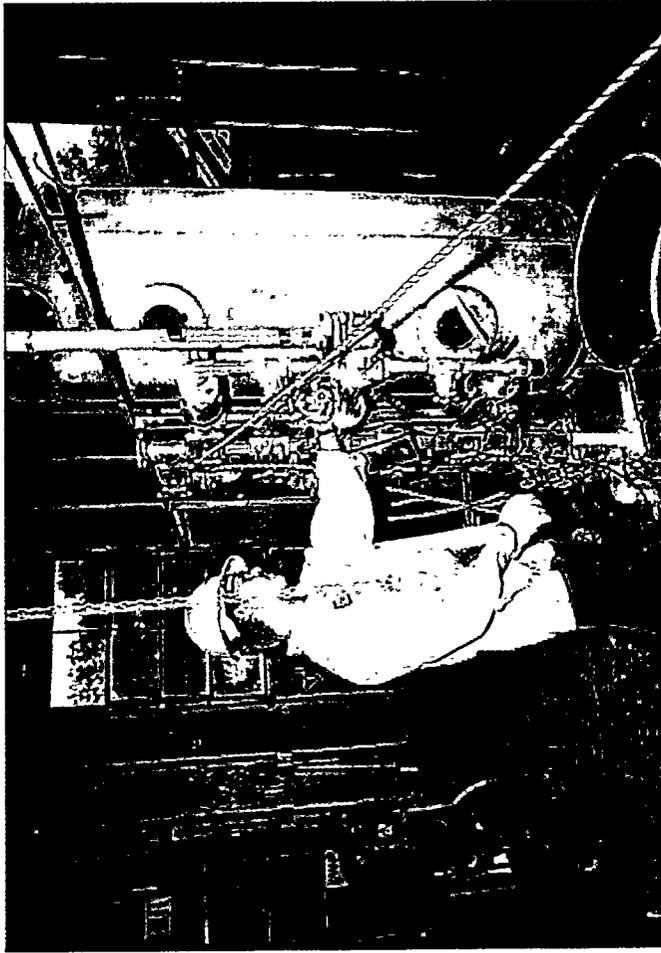
## Building 594 Waste Ion-Exchange Facility D&D



Connected to the cation exchange vessel were a caustic regenerant tank and an acid regenerant tank along with miscellaneous piping, valves, gauges, and pumps (ANL Neg. No. 24191K, Frame 26).

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**Building 594 Waste Ion-Exchange Facility D&D**



An ANL-E Waste Management Operations D&D worker removed valves from the waste ion-exchange system prior to demolition (ANL Neg. No. 24344K, Frame 8).

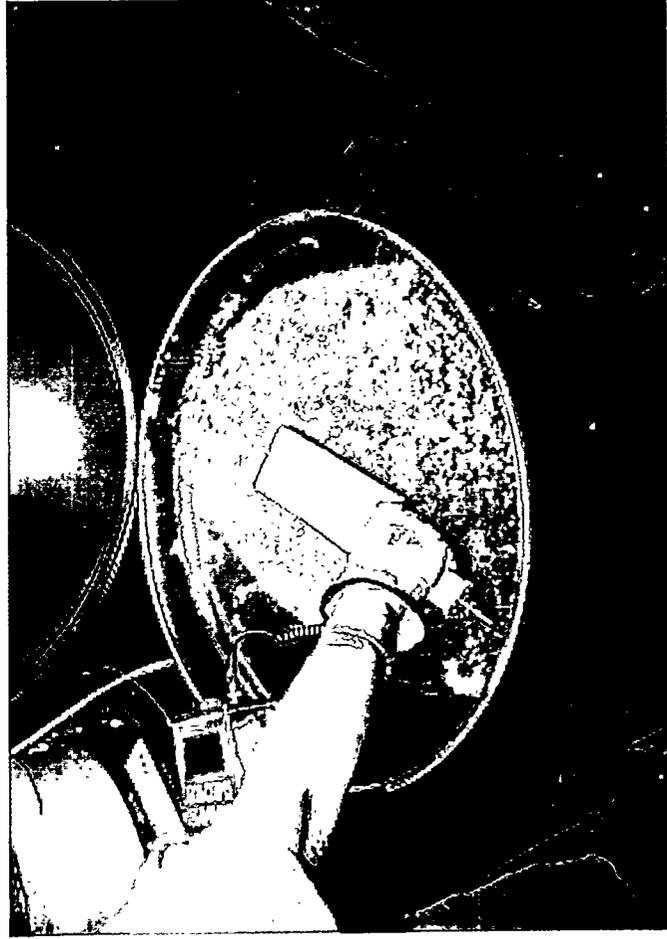
**Building 594 Waste Ion-Exchange Facility D&D**



Prior to dismantlement of the ion exchange system, miscellaneous components were surveyed by ANL Health Physics technicians and released to the clean scrap pile for recycling (ANL Neg. No. 24344K, Frame 7).

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**Building 594 Waste Ion-Exchange Facility D&D**

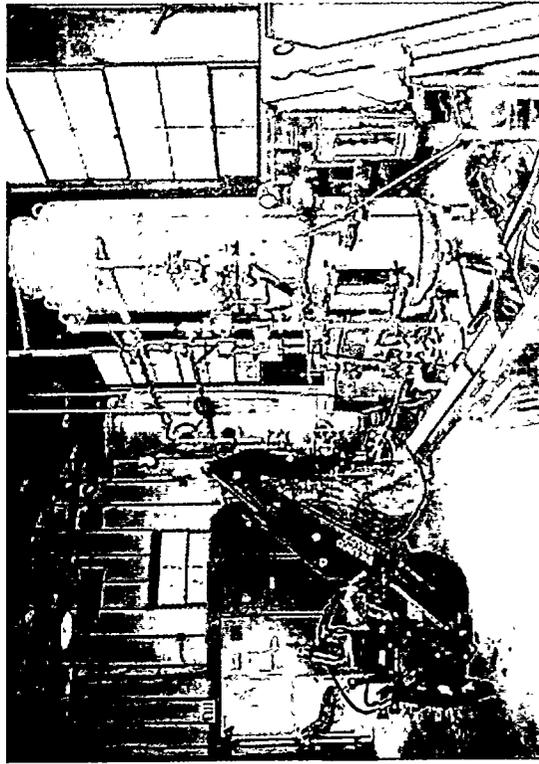


After all piping and valves were removed, the tops of the ion-exchange tanks were opened to gain access to the resin that had been used as filter material. Before removal, ANL Health Physics technicians surveyed the resin prior to disposal (ANL Neg. No. 24344K, Frame 16).



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**Building 594 Waste Ion-Exchange Facility D&D**



Bldg. 594 was cleared of all equipment and components after D&D and prior to demolition, as shown in these before and after photos. This view looking north (ANL Neg. Nos. 24193K, Frame 5A, and 24571K, Frame 2A).

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**Building 594 Waste Ion-Exchange Facility D&D**



These photos are of the interior of Bldg. 594, looking south, before and after D&D (ANL Neg. Nos. 24193K, Frame 10A, and 24571K, Frame 3A).

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**Building 594 Waste Ion-Exchange Facility D&D**

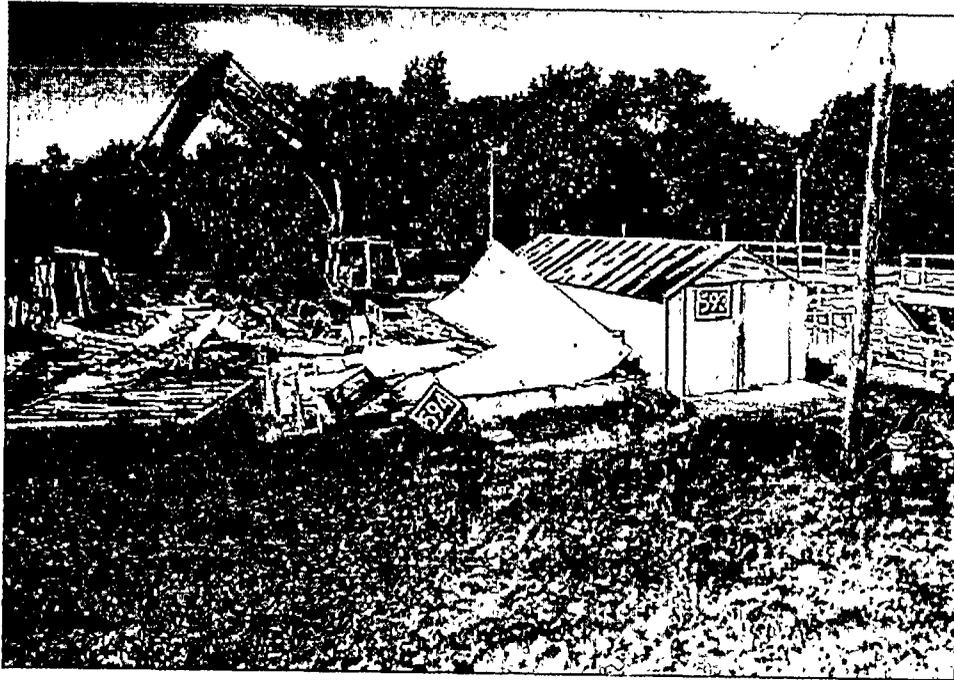


In August, a contract was awarded to Action Wrecking Company (Darien IL) to demolish Bldg. 594. Demolition took place in September (ANL Neg. No. 24692K, Frame 9).

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**Building 594 Waste Ion-Exchange Facility D&D**

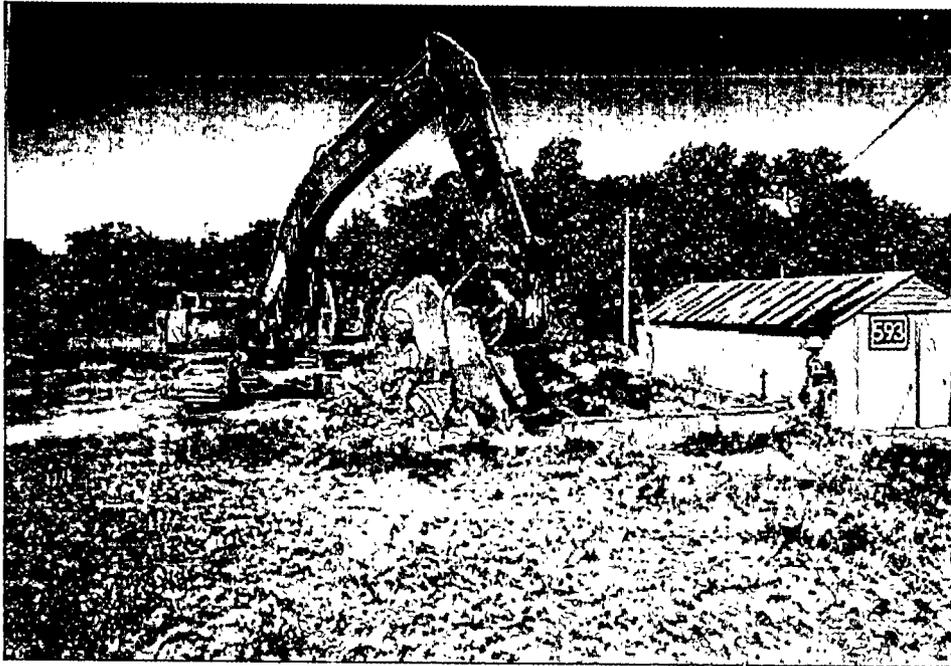


Once demolition was completed, materials were segregated for recycling (ANL Neg. No. 24692K, Frame 17).

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**Building 594 Waste Ion-Exchange Facility D&D**



Action Wrecking removed the concrete floor and foundation. After the material was size-reduced, it was removed from the site (ANL Neg. No. 24693K, Frame 1).

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**Building 594 Waste Ion-Exchange Facility D&D**



All underground piping associated with Bldg. 594 and the soil surrounding the piping were surveyed by ANL Health Physics technicians (ANL Neg. No. 24693K, Frame 7).

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**Building 594 Waste Ion-Exchange Facility D&D**



In September, after all demolition activities were completed, the area was backfilled with dirt and made ready for grading and seeding (ANL Neg. No. 24693K, Frame 10).

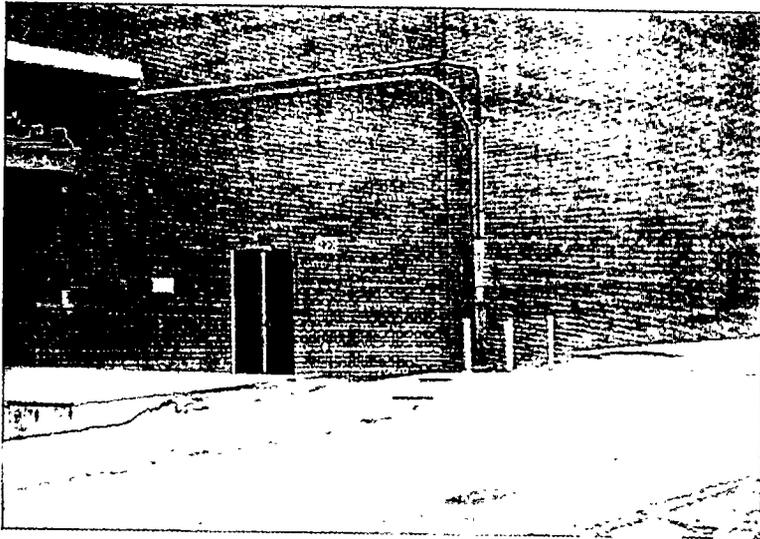
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**Building 200/205 Pneumatic Transfer Tube  
D&D Project**

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## Building 200/205 Pneumatic Transfer Tube D&D

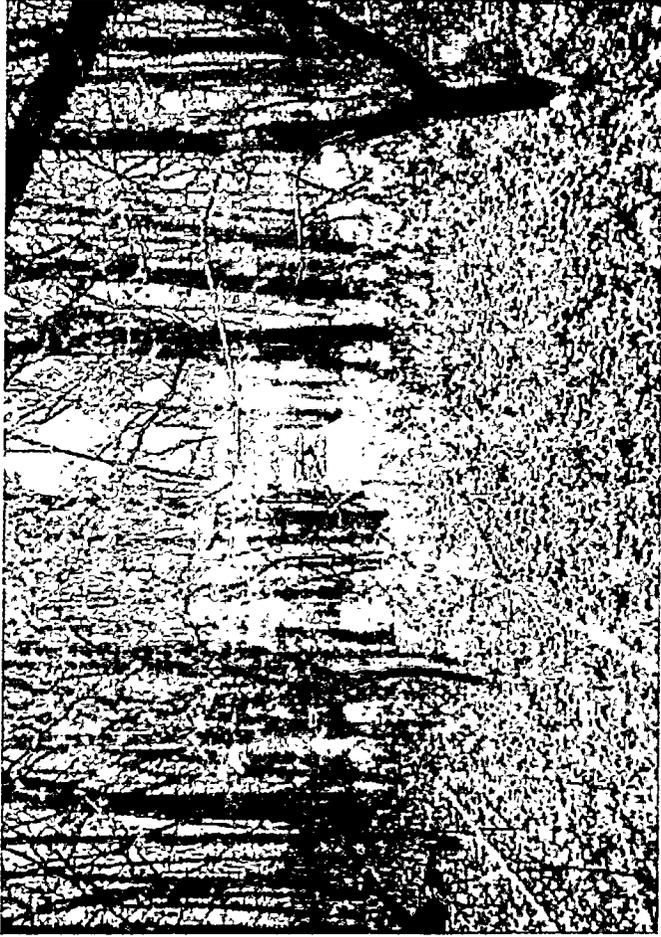


The Bldg. 200/205 pneumatic transfer tube was constructed in the late 1960s to transfer irradiated fuel specimens and other samples between Hot Cell M-4 in Bldg. 200 and a glove box in Room F-131, Bldg. 205. The tube was in operation until the mid-1970s. Project scope encompassed only the removal of the tube between the two buildings and not the facilities within the buildings (ANL Neg. Nos. 23887K, Frames 25 and 6).

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**Building 200/205 Pneumatic Transfer Tube D&D**



The pneumatic transfer tube system ran 4 feet underground for approximately 1,850 linear feet. It was routed through the woods south of Bldg. 200 until it approached Outer Circle Road. There it turned southeast, and followed the road 600 feet before it turned east toward Bldg. 205 (ANL Neg. No. 23887K, Frame 20).



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## Building 200/205 Pneumatic Transfer Tube D&D



Northwest Contractors (Elgin IL) was hired by ANL Plant Facilities and Services to perform the excavation and the restoration work. Once the trench was dug, it was surveyed by ANL Health Physics technicians for loose contamination. The wooden plank covering the tube was removed, uncovering the tube from its sand bedding. The tube was examined for holes or punctures and surveyed (ANL Neg. No. 24692K, Frame 22).

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## Building 200/205 Pneumatic Transfer Tube D&D



Argonne's Waste Management Operations (WMO) was responsible for the removal and size reduction of the tube, and for its packaging and disposal as low-level waste. WMO technicians first flattened the tube at various intervals using a hydraulic crimper. The tube was then cut in the middle of each crimped area using a hydraulic cutter. Tube ends were taped over and further size reduced as needed for disposal (ANL Neg. No. 24692K, Frame 24).

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# **CP-5 Research Reactor D&D Project**

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## CP-5 Research Reactor D&D



A major FY 1998 task for the CP-5 project staff was the dismantlement of the reactor vessel. The Rosie mobile work system, supplied by RedZone Robotics, Inc., and demonstrated as part of the DOE EM-50 Large-Scale Demonstration Project was used to complete this task. Operators, such as this ANL Waste Management Operations technician, were required to have special training and complete a qualification process in order to teleoperate Rosie (ANL Neg. No. 24663K, Frame 4A).

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## CP-5 Research Reactor D&D



The CP-5 facility's polar crane could be teleoperated from the second floor observation area. The crane was retrofitted for remote-control operations as part of the DOE EM-50 CP-5 Large-Scale Demonstration Project. It is used to move heavy objects inside the CP-5 facility (ANL Neg. No. 23982K, Frame 20).

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**CP-5 Research Reactor D&D**



This overhead-view photo of the CP-5 bioshield looking down from the polar crane was taken shortly after the last segment of the reactor tank was removed (ANL Neg. No. 24327K, Frame 2A).

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## CP-5 Research Reactor D&D

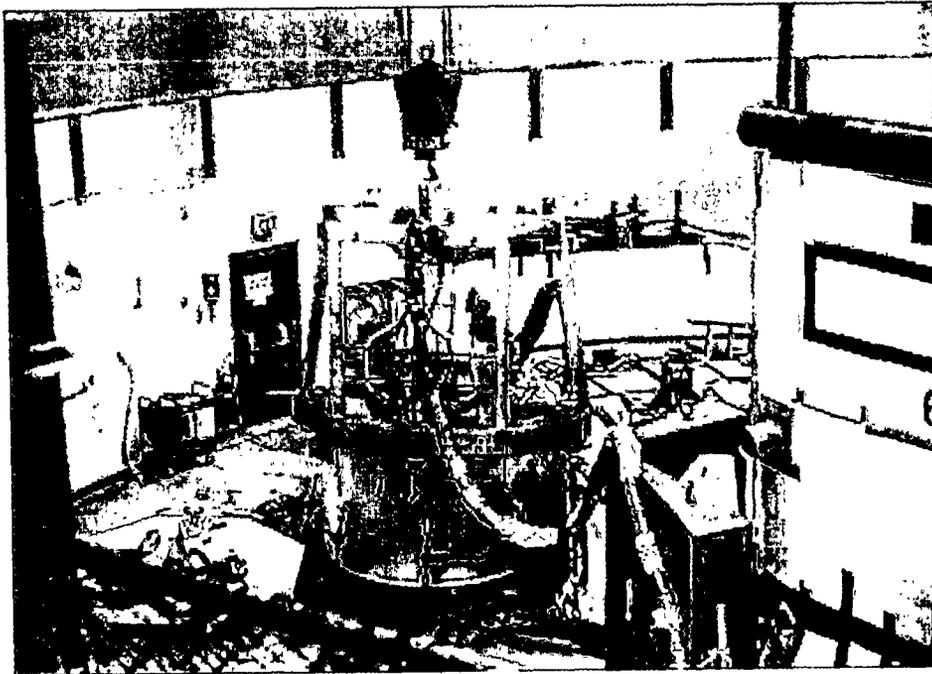


The Dual Arm Work Platform, provided by Schilling Robotics Systems, RedZone Robotics, Inc., Oak Ridge National Laboratory, and the Idaho National Environmental Engineering Laboratory was demonstrated as part of the DOE EM-50 CP-5 Large-Scale Demonstration Project. It was operated remotely using joystick-like controls and was used on a variety of tasks (ANL Neg. No. 23982K, Frame 17).

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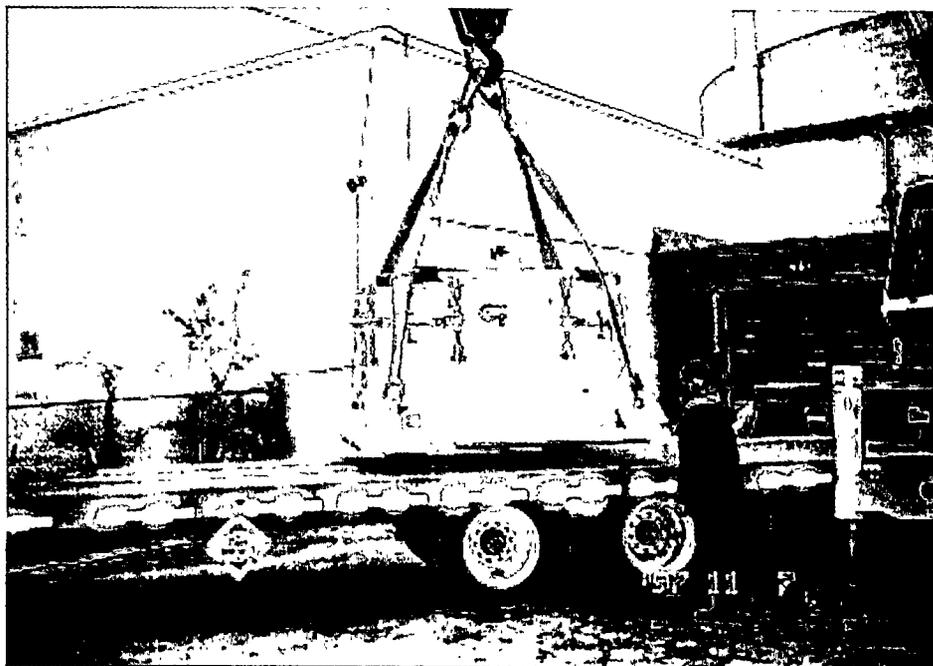
CP-5 Research Reactor D&D



The Dual Arm Work Platform was used to move freshly cut segments of the reactor tank into a 7-100 cask. Personnel radiation exposures were greatly reduced by performing this work remotely (ANL Neg. No. 23982K, Frame 8).

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CP-5 Research Reactor D&D



After a 7-100 cask is fully loaded, it is transferred from the CP-5 containment building to the yard area for temporary storage (ANL Neg. No. 23755K, Frame 22A).

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## CP-5 Research Reactor D&D

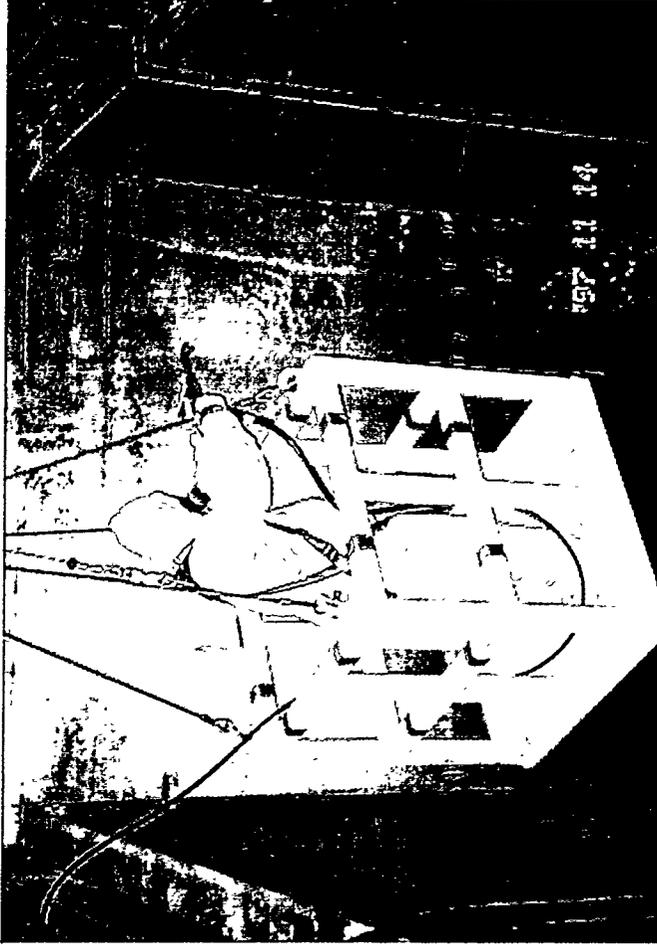


Another major FY 1998 task was the removal of the CP-5 spent fuel pool and liner. Here, last-minute preparations are being made prior to entering the CP-5 spent fuel pool (ANL Neg. No. 23849K, Frame 20).

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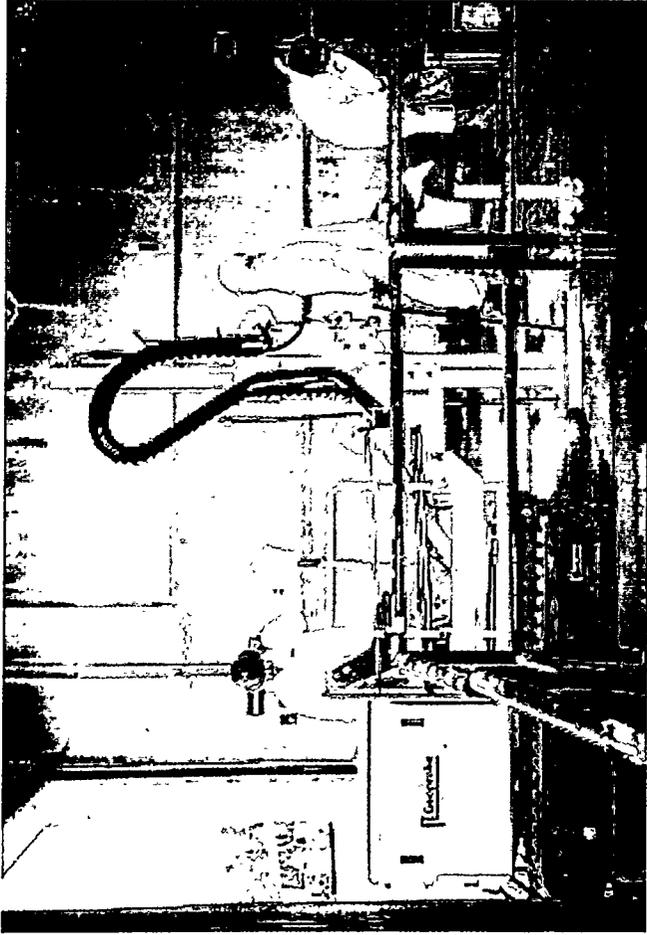
## CP-5 Research Reactor D&D



The walls of the CP-5 spent fuel pool were pressure washed. This D&D technician is suspended within the pool walls on a specially built personnel lift platform that is suspended by the overhead crane (ANL Neg. No. 23849K, Frame 2).



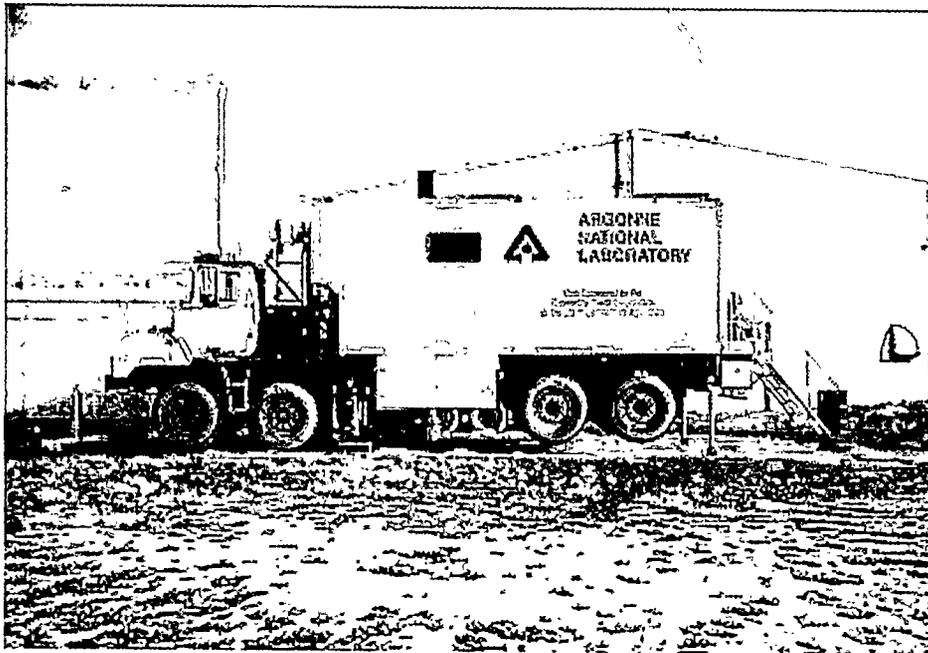
**CP-5 Research Reactor D&D**



A breach in the spent fuel pool liner caused concern. Personnel working adjacent to the spent fuel pool collected soil samples for tritium analysis from below the concrete floor (ANL Neg. No. 24018K, Frame 18A).

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## CP-5 Research Reactor D&D

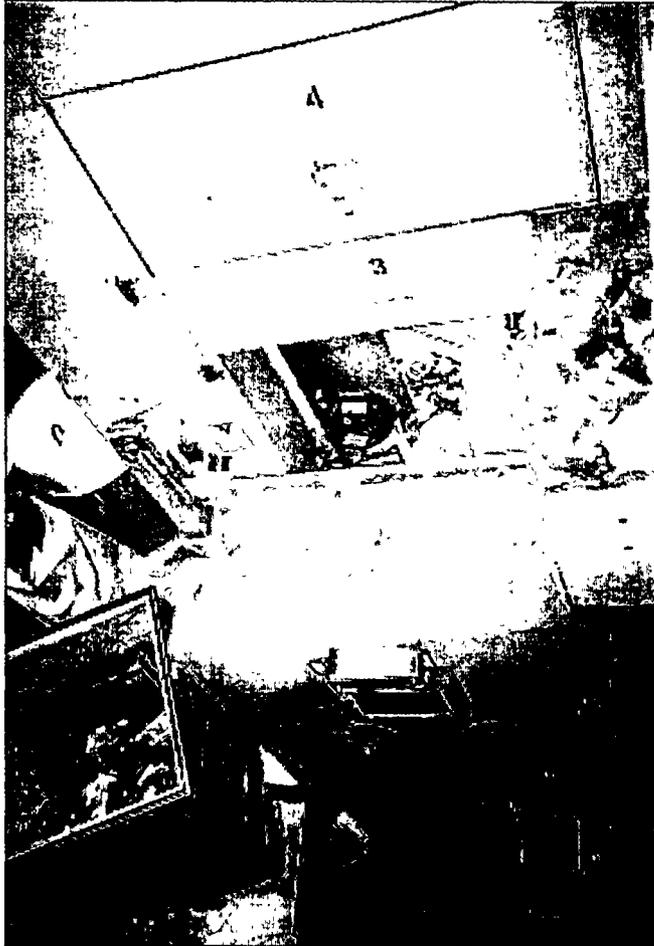


This core sampling rig, built to Argonne National Laboratory specifications for performing soil boring and sampling in remote locations, was used to obtain soil samples for analysis (ANL Neg. No. 23925K, Frame 10A).

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## CP-5 Research Reactor D&D



During FY 1998, work was also being done in the facility's E-Wing Hot Cell. Prior to performing gross decontamination of the hot cell's interior, an ANL Waste Management Operations technician removed excess tools and materials from the hot cell (ANL Neg. No. 23849K, Frame 5).

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**CP-5 Research Reactor D&D**

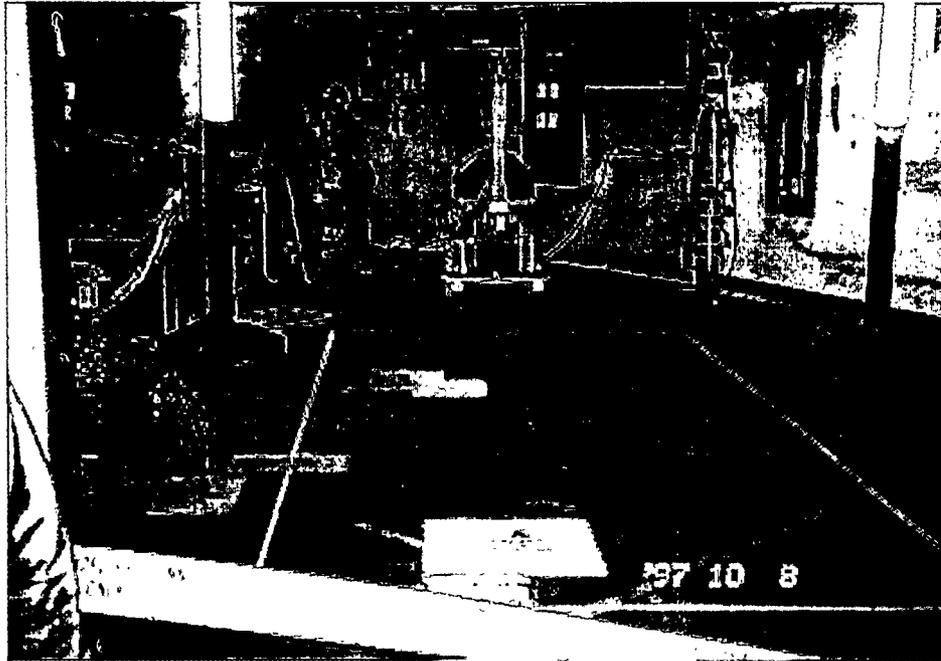


A B-25 low-level waste disposal bin was used to collect the radioactive materials removed from the E-wing hot cell. The materials were surveyed by an ANL Health Physics technician prior to final disposition (ANL Neg. No. 23849K, Frame 6).

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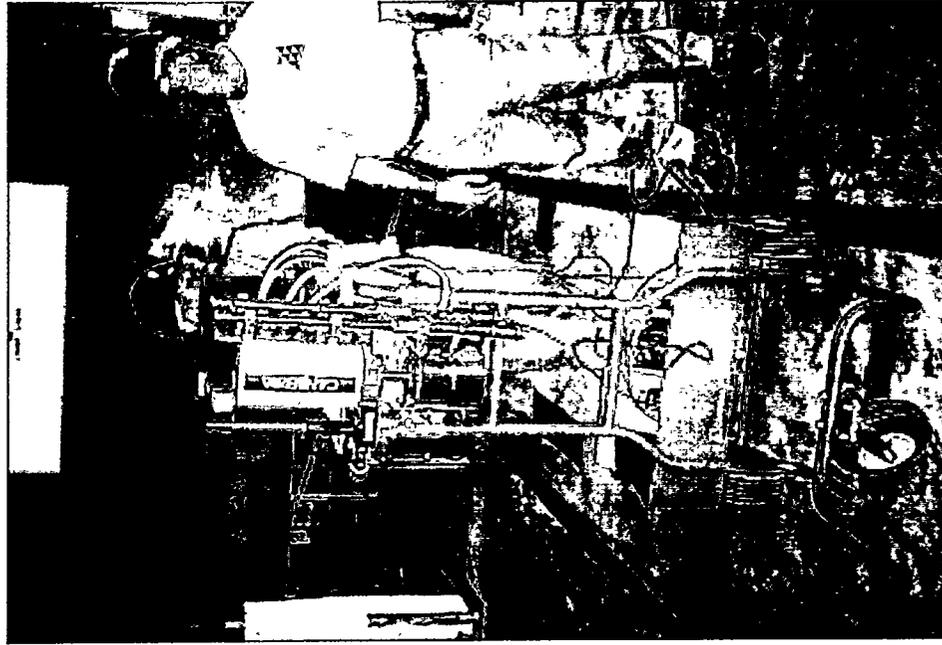
## CP-5 Research Reactor D&D



Additional characterization of the CP-5 facility was performed in FY 1998. The Mobile Automated Characterization System (MACS), developed by Oak Ridge national Laboratory and the Savannah River Technology Center for the U. S. Department of Energy's Robotics Technology Development Program, was used to perform detailed floor surveys on the service floor of the CP-5 reactor facility. MACS had been previously tested at CP-5 as part of the DOE EM-50 CP-5 Large-Scale Demonstration Project (ANL Neg. No. 23660K, Frame 17).

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## CP-5 Research Reactor D&D



Personnel from Canberra performed characterization surveys in the CP-5 reactor building. This instrument, the In-Situ Object Characterization System (ISOCS), had been previously tested at CP-5 as part of the DOE EM-50 CP-5 Large-Scale Demonstration Project (ANL Neg. No. 23755K, Frame 8A).

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## CP-5 Research Reactor D&D



All samples removed during characterization work in the Bldg. 330 yard area were surveyed by ANL Health Physics technicians (ANL Neg. No. 23925K, Frame 8A).

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## CP-5 Research Reactor D&D



During FY 1998, more than thirty four groups visited the CP-5 D&D Project's control room. The project hosted visitors attending training courses (shown here is a group from the Japan Atomic Energy Agency, Fuji Electric, and the Latvian Nuclear Research Center); members of the press (such as Gerard M. Aziakou of Agence France-Presse); and members of student organizations (such as Purdue University's American Nuclear Society Student Branch) (ANL Neg. No. 24663K, Frame 2A).

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# **Future Projects**

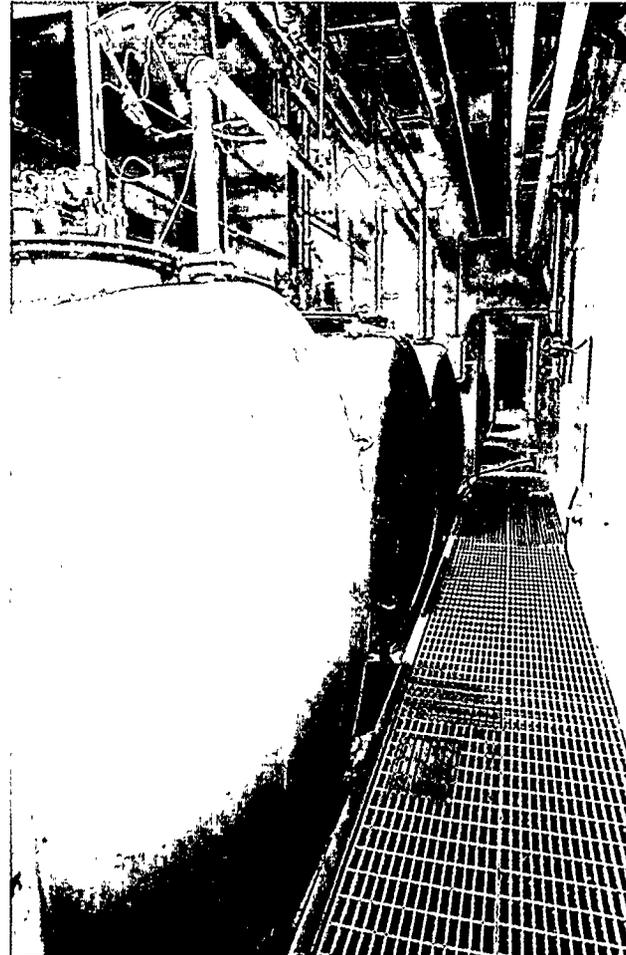
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## Building 310 Retention Tanks D&D Project

The ANL-E Building 310 service floor retention tank facility was originally installed more than 30 years ago. Even though the Building 310 tanks were installed for excess storage capacity for the adjacent Building 306 tanks, they were infrequently used for this purpose. The facility consists of three rooms containing three tanks each, and a larger room containing one tank, for a total of ten tanks. The tanks have not been used since 1975, when it was decided that the excess capacity was no longer required.

Project planning was completed in FY 1997, and D&D activities are scheduled to begin late in FY 2000. D&D activities include the removal of the ten retention tanks and the fixtures and piping leading to the tanks, and decontamination of the retention tank area so that it can be released for unrestricted reuse (ANL Neg. No. 12379, Frame 15).

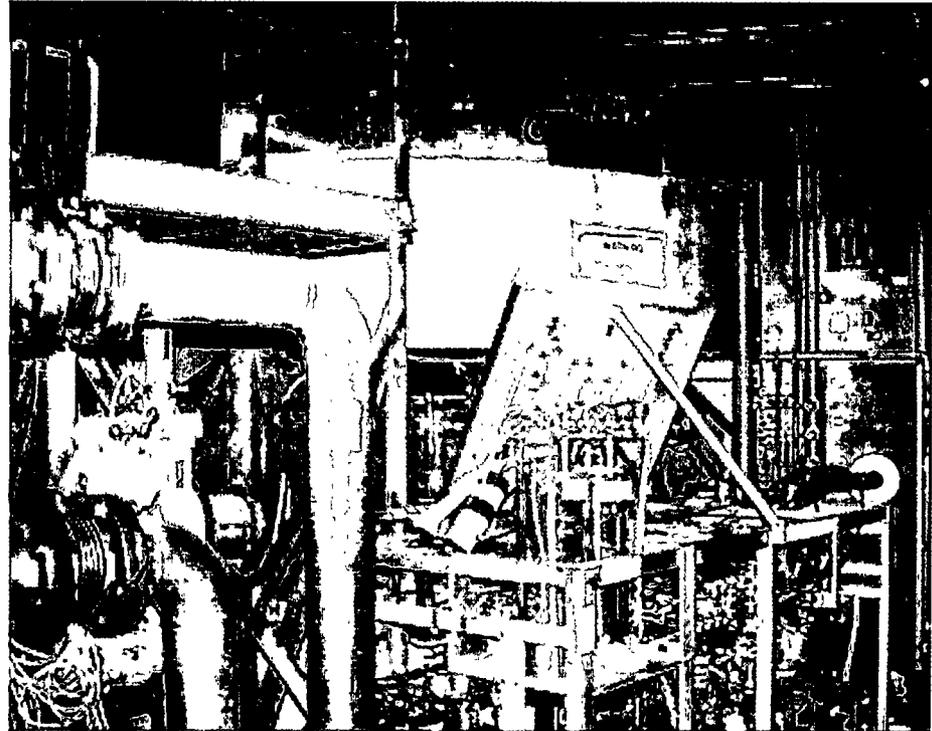


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## 60" Cyclotron D&D Project

Argonne's 60" Cyclotron in Building 211 was a fixed frequency machine built in 1952 to conduct basic research. It has had a rich history, meeting widely diversified operational requirements and producing deflected beams of deuterons, helium ions, singly charged hydrogen molecules, and neutrons of a broad energy spectrum. Early work encompassed fields of heavy element chemistry, nuclear activation studies, nuclear scattering, solid state physics, radiation chemistry, isotope production, and biological studies. Argonne's Nuclear Medicine Group was a significant later user of the facility; other users were the Argonne Physics Division and Oak Ridge National Laboratory. Operations ended in 1992.

The purpose of this project is to decommission the 60" Cyclotron and permit the release of the facility for unrestricted reuse. To accomplish this, the cyclotron will be disassembled, size-reduced and segregated. All radioactive materials associated with the facility will be disposed of at an approved facility. Project planning and documentation were 90% completed during FY 1998. They will be completed in FY 1999, and D&D activities are scheduled to begin in FY 2000 (ANL Neg. No. 25314K, Frame 6).



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## Building 301 Hot Cells D&D Project

The hot-cell facility in Building 301 was placed into use in the early 1950s to perform a variety of radiological research and development experiments for the U.S. Department of Energy on nuclear reactor fuel components and materials. The eight caves contained within the hot cell facility were phased out in 1971 because they were obsolete and deteriorating. The interior of the caves received a preliminary cleanup, but significant levels of fixed contamination within the painted floor, walls, cells, and equipment remains spread throughout the facility. From 1971 until it was taken out of active use in 1992, the hot-cell facility was used for non-radiological experimentation.



The scope of this project includes cleaning or dismantling radioactively contaminated equipment and disposing of it. The hot-cell area and other contaminated areas will be decontaminated and removed to permit the area to be released for unrestricted reuse, and the cave structures, retention tanks, and ventilation systems will be demolished. Project planning and documentation were 90% completed during FY 1998. They will be completed in FY 1999, and D&D activities are scheduled to begin in FY 2003 (ANL Neg. No. 24027K, Frame 12).

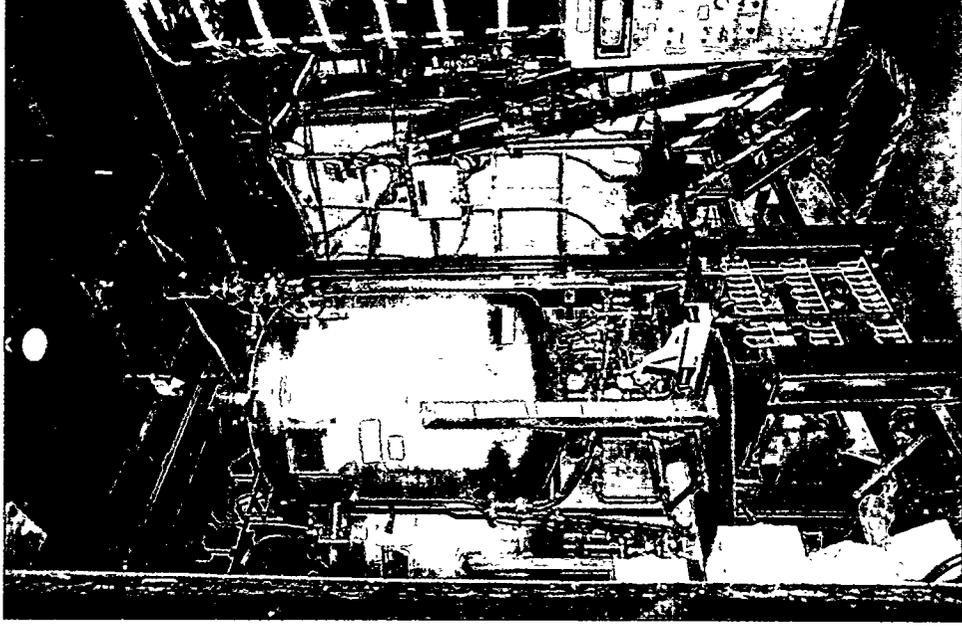
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## ZPR 6 & 9 D&D Project

The Zero Power Reactors (ZPR) 6 and 9 in Building 315 were low-power, experimental reactors utilized for fast reactor physics studies from the early 1960s until 1982. Uranium and plutonium fuels were used to study the neutronic properties of reactor assemblies. Each reactor is in an individual, blast-resistant, concrete cell. Shield walls separate the cells from their control rooms; between the cells is a separate work room used to load fuel drawers. The facility is no longer in use; it is contaminated with low-level radioactivity.

The purpose of this project is to decommission ZPR-6 and ZPR-9 and permit the area's release for unrestricted reuse. To accomplish this, the reactors, process systems and associated equipment will be cleaned or dismantled and disposed of properly. A characterization plan will be prepared in FY 1999. Remaining project planning and documentation will begin in FY 2001, with D&D activities immediately following (ANL Neg. No. 23663K, Frame 2A).



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## Juggernaut Reactor D&D Project

The Juggernaut Reactor in Building 335 was a light-water moderated and cooled, graphite-reflected research reactor with a rated thermal power of 250 kW. It operated from 1962 through 1970. The purpose of the facility was to provide neutron flux levels of medium intensity for research and development experiments for the fast reactor development program. At the time of reactor shutdown, the reactor fuel was removed and all systems were drained.

Only the high bay area of Building 335 housing the Juggernaut Reactor, the pump room, and the pit are covered by this project. The scope of this project includes the disassembly, size-reduction, segregation, packaging, and disposal of all radioactive materials associated with the facility. After the removal of all radioactive materials, the facility will be decontaminated to levels that allow its release for unrestricted reuse.

Project planning and documentation are scheduled to begin in FY 2000, with D&D activities following in FY 2001 (ANL Neg. No. 112-510).

