

Decontamination and Decommissioning  
Operations at  
Argonne National Laboratory-East

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CP-5 RESEARCH REACTOR FACILITY



## Completed D&D Projects

Project	End State	Benefit to Laboratory	Final Cost (\$K)	Year Completed
EBWR	Free released for reuse	Converted to transuranic waste storage facility.	\$20,868.3	1996
JANUS	Free released for reuse	High-bay area, shielded underground room, and laboratory space available for reuse.	\$2,122.3	1997
Fast Neutron Generator	Free released for reuse	Being used as PFS office area, storage area, and training facility.	\$5.6	1996
Bldg. 200 Hot Cells	Restricted release	Radon emissions reduced by greater than 95% and cells decontaminated to allow entry.	\$5814.8	1996
Bldg. 212 Plutonium Gloveboxes	Free released for reuse	Laboratory space is currently being used.	\$7,192.0	1996
CP-5	Free released for reuse	Available for reuse.	\$29,614.0	2000
Argonne Thermal Source Reactor	Free released for reuse	Facility converted to a robotics laboratory.	\$576.3	1998
Bldg. 579 Waste Ion Exchange Facility	Building demolished; area graded and seeded	Greenfield space.	\$156.5	1998
60 Inch Cyclotron	Free released for reuse	Large Shielded Vault and Hot Lab with cave available.	\$3626.1	2001

## D&D Waste Production (Cubic Feet)

Completed Projects	LLW	RHLLW	MW	RHMW	HAZ	TRU	Curies
EBWR	8109	349	413	-	27	-	669.8
Bldg. 200	2749	75	24	-	-	-	117.6
Bldg. 212	4050	-	-	-	-	1365	61.9
CP-5	38290	386	2796	100	23	-	1441.4
JANUS	4002	-	538	-	2.1	-	3.3
ATSR	1160	-	96	-	7.5	-	0.1
Bldg. 579	60	-	-	-	-	-	-
Cyclotron	6971	-	115	-	-	-	0.05
<b>TOTAL TO DATE</b>	<b>65,391</b>	<b>810</b>	<b>3,982</b>	<b>100</b>	<b>59.6</b>	<b>1365</b>	<b>2294.15</b>

# Ongoing and Future Projects

- Building 310 Retention Tanks
- Juggernaut Reactor
- ZPR 6 and 9
- Building 301 Hot Cells

# Building 310 Retention Tanks

## Facility Description and History

- Ten tanks in 4 rooms in Bldg. 310
- Tanks used for low level liquid waste excess storage capacity
- 30 year old facility

## D&D Project Description

- Decontaminate tanks, cut up, package and remove
- Cleanup rooms for unrestricted reuse

# Building 310 Retention Tanks

(continued)

## Project Data

- Field Work underway - started Sept. 2000
- Estimated completion - May 2002
- Estimated total cost - \$1470.4K

# Juggernaut Reactor

## Facility Description and History

- Lightwater moderated graphite reflected research reactor - 250 kw
- Part of Bldg. 335
- Operated 1962-1970

# Juggernaut Reactor

## (continued)

### D&D Project Description

- Remove and dispose of system components and piping
- Dismantle and remove biological shield and graphite reflector
- Dismantle and remove reactor vessel and internals
- Remove rod storage area tubes
- Cleanup the reactor and area associated rooms in Bldg. 335 for unrestricted reuse

# Juggernaut Reactor

(continued)

## Project Data

- Planned field work start date - Oct. 2001
- Estimated completion - Aug. 2002
- Estimated total cost - \$2,328.7 K

# ZPR 6 and 9

## Facility Description

- Project located in portion of Bldg. 315
- Zero Power Reactor 6 in Cell 5
- Zero Power Reactor 9 in Cell 4
- Reactors were critical assemblies, low power (zero to 2kw)
- Plutonium and uranium fuel
- Used for reactor physics studies; operated early 1960s to 1982

# ZPR 6 and 9

(continued)

## D&D Project Description

- Remove auxiliary system components
- Remove critical assembly hardware from cells
- Decontaminate cells and supporting rooms

## Project Data

- Planned field work start date - May 2002
- Estimated completion - Sept. 2003
- Estimated total cost - \$4,317.2K

# Building 301 Hot Cells

## Facility Description and History

- Big facility located in portion of Bldg. 301
- Project has a footprint of 120 by 90 feet and two main floors
- Eight caves (Hot Cells) and supporting rooms used for variety of research experiments and for nuclear fuel development from early 1950s to 1992
- Large amounts of plutonium and uranium were handled. A number of spills occurred. Significant contamination, no activation.

# Building 301 Hot Cells

(continued)

## D&D Project Description

- Decontaminate and remove hot cells
- Decontaminate remaining space and auxiliary rooms for unrestricted use

# Building 301 Hot Cells

(continued)

## Project Data

- Project ready to begin field work
- Planned field work start date -  
Summer 2001
- Estimated completion - September 2003
- Estimated total cost - \$6,757.9K

# Ongoing and Future Projects Summary

<b>Project</b>	<b>End State</b>	<b>Benefit to Laboratory</b>	<b>Estimated Completion Cost (\$K)</b>	<b>Estimated Completion Date</b>
<b>Juggernaut Reactor</b>	<b>Make available for unrestricted reuse</b>	<b>High-bay area for reuse</b>	<b>\$2,328.7</b>	<b>2002</b>
<b>Bldg. 310 Retention Tanks</b>	<b>Make available for unrestricted reuse</b>	<b>Removal of surplus tanks in service floor</b>	<b>\$1,470.4</b>	<b>2002</b>
<b>Bldg. 301 Hot Cells</b>	<b>Make available for unrestricted reuse</b>	<b>Available for reuse</b>	<b>\$6,757.9</b>	<b>2003</b>
<b>ZPR 6 and 9 Reactors</b>	<b>Make available for unrestricted reuse</b>	<b>Explosion resistant shielded cells available for reuse</b>	<b>\$4,317.2</b>	<b>2003</b>

## Ongoing and Future Estimated Project Cost (\$K) By Fiscal Year

Project	FY 2001	FY 2002	FY 2003	Total
Juggernaut Reactor	\$ 777.3	\$ 1,453.9	-	\$ 2,231.2
Bldg. 310 Retention Tanks	870.1	596.4	-	1,466.5
Bldg. 301 Hot Cells	2,859.4	1,155.2	\$2,586.7	6,601.3
ZPR 6 and 9 Reactors	325.8	1,575.1	2,384.9	4,285.8
Cyclotron	144.8	-	-	144.8
<b>TOTALS</b>	<b>\$4,977.4</b>	<b>\$4,780.6</b>	<b>\$4,971.6</b>	<b>\$14,729.6</b>