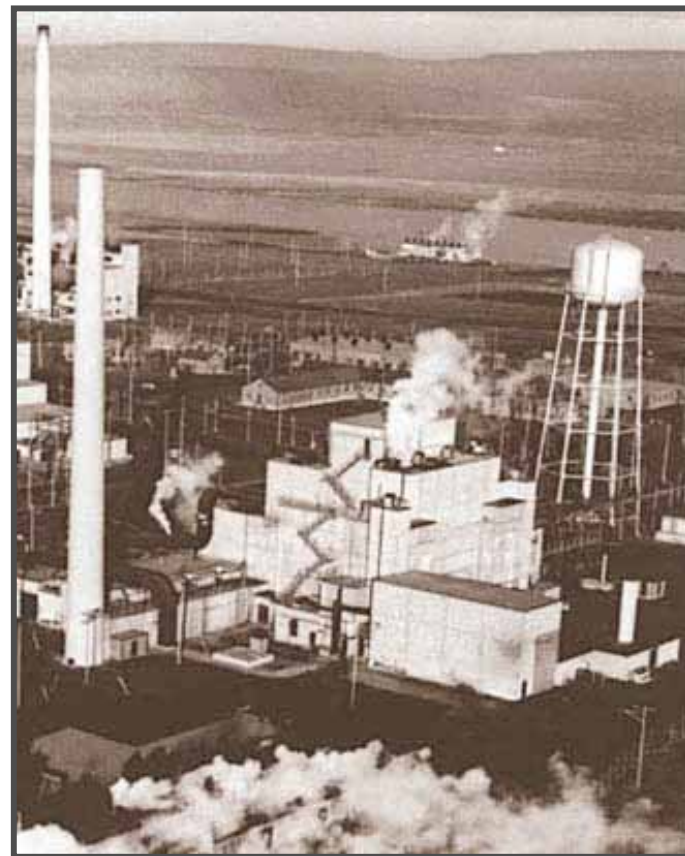

Hanford's Historic **B Reactor**

*An Unprecedented Marvel of Science,
Technology and Engineering*

Designated by DOE as a Manhattan Project Signature Facility

B Reactor... a major contributor to world history, science, technology and engineering

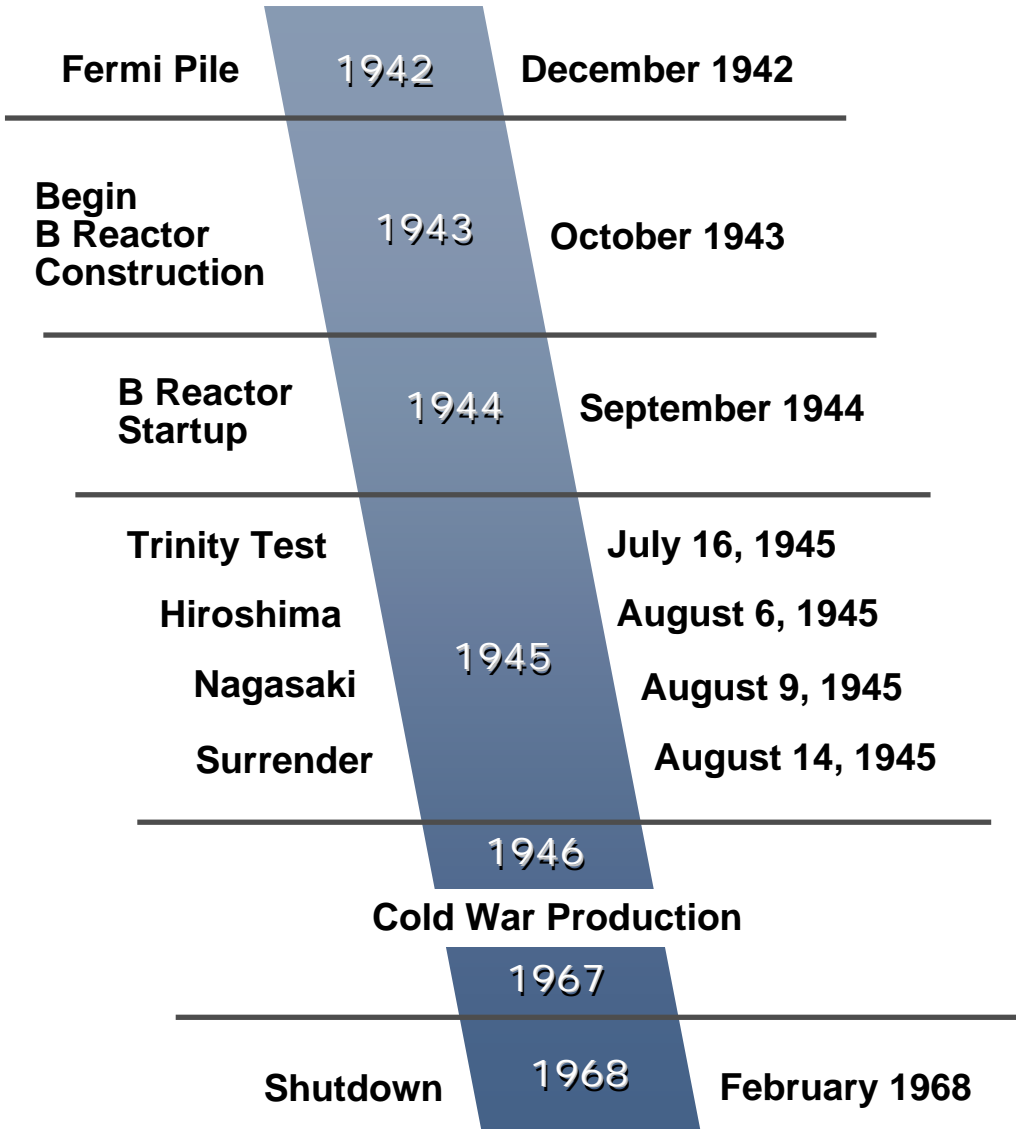
- The world's first large-scale nuclear reactor
- Part of the largest scientific, engineering and construction project ever – *The Manhattan Project*
- Played a key role in ending World War II
- An essential piece of American and world history



B Reactor during operation (January 1945)

A unique educational venue along the Hanford Reach National Monument on the Columbia River

Operations Timeline



B Reactor was a significant part of nuclear history for more than 25 years

What Has Happened Since the Reactor Shutdown?

1989

Included in EPA Superfund listing

1992

**Environmental Impact Statement (EIS)
for decommissioning reactors**

- Demolish 80% of reactor facility followed by long-term storage (cocooning) for up to 75 years
- B Reactor may be an exception

1999

Hanford Comprehensive Land Use EIS

- Recommended B Reactor for recreation but not mandatory

2000

Hanford Reach National Monument established

- B Reactor is adjacent to the northern portion of the National Monument on the Columbia River

2002

Interim Action for B Reactor under CERCLA* (Action Memorandum)

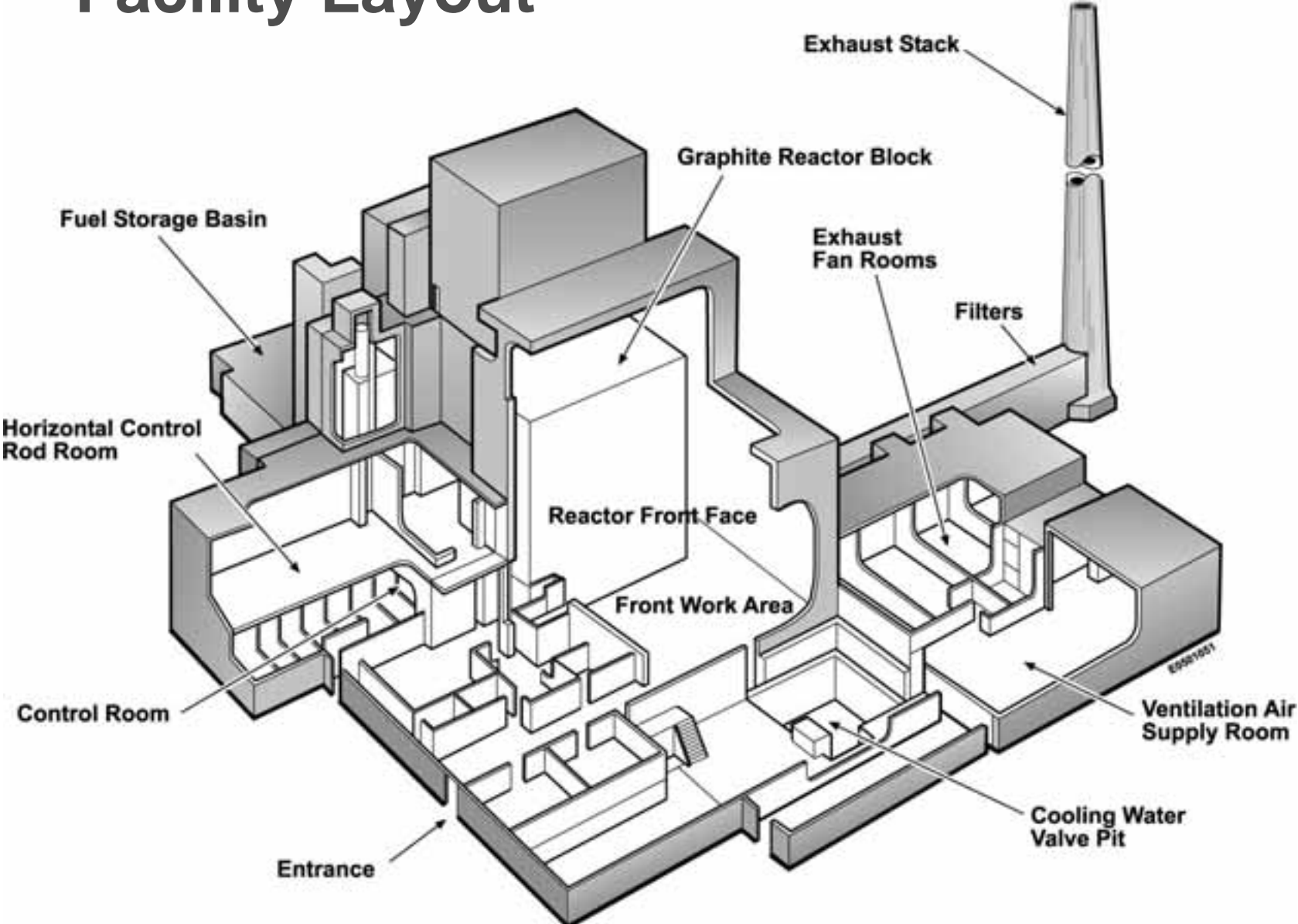
- Mitigate hazards along tour route
- Public access for tours until 2012

2004

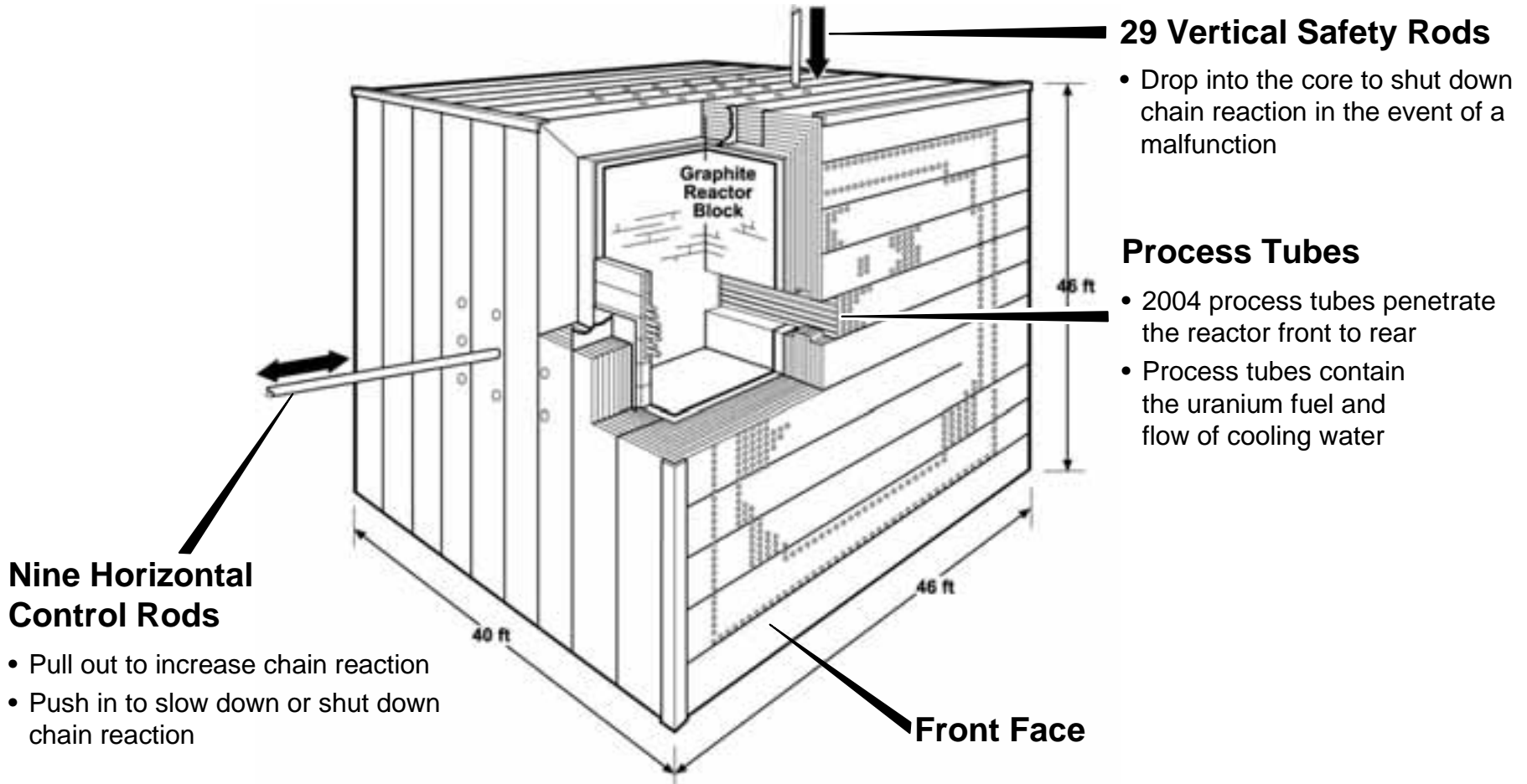
Legislation signed for National Park Service Special Resource Study for Manhattan Project Sites

* Comprehensive Environmental Response, Compensation and Liability Act

Facility Layout

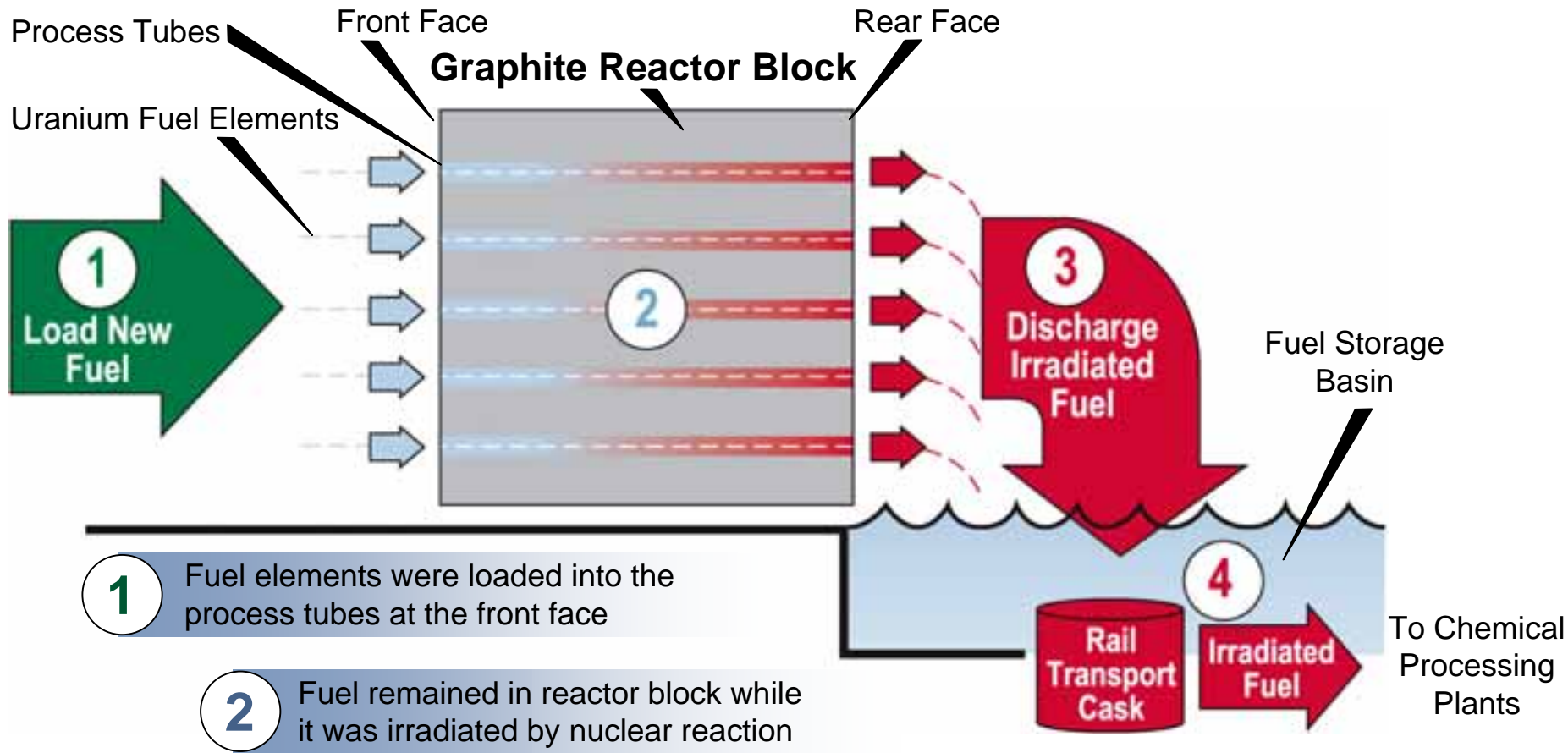


Reactor Block Details



- Reactor block and work area are encased by 3- to 5-foot thick concrete walls
- 32 fuel elements per process tube (200 tons of uranium fuel elements filled the reactor)
- Graphite reactor block consists of 2,200 tons of graphite

Simplified Reactor Operation



1 Fuel elements were loaded into the process tubes at the front face

2 Fuel remained in reactor block while it was irradiated by nuclear reaction

3 Irradiated fuel was discharged from the rear face and stored in a water-filled basin

4 Fuel was transported in shielded casks to chemical processing plants to separate the plutonium

B Reactor Tour Route is Free from Hazards



Since 2002, \$3.3 million has been invested to remove potential hazards

- **Asbestos removed**
- **Electrical system upgraded**
- **Ventilation system enhanced to control radon level**
- **Fire protection improvements provide emergency lighting and egress enhancements**
- **Study confirmed exhaust stack meets seismic standards**
- **Safe radiation levels are ensured through continuous monitoring**

B Reactor is Tour Ready and Tour Proven

Tour Ready

An Unparalleled Educational Opportunity



Experience the excitement and awe of the original structures, piping and equipment!



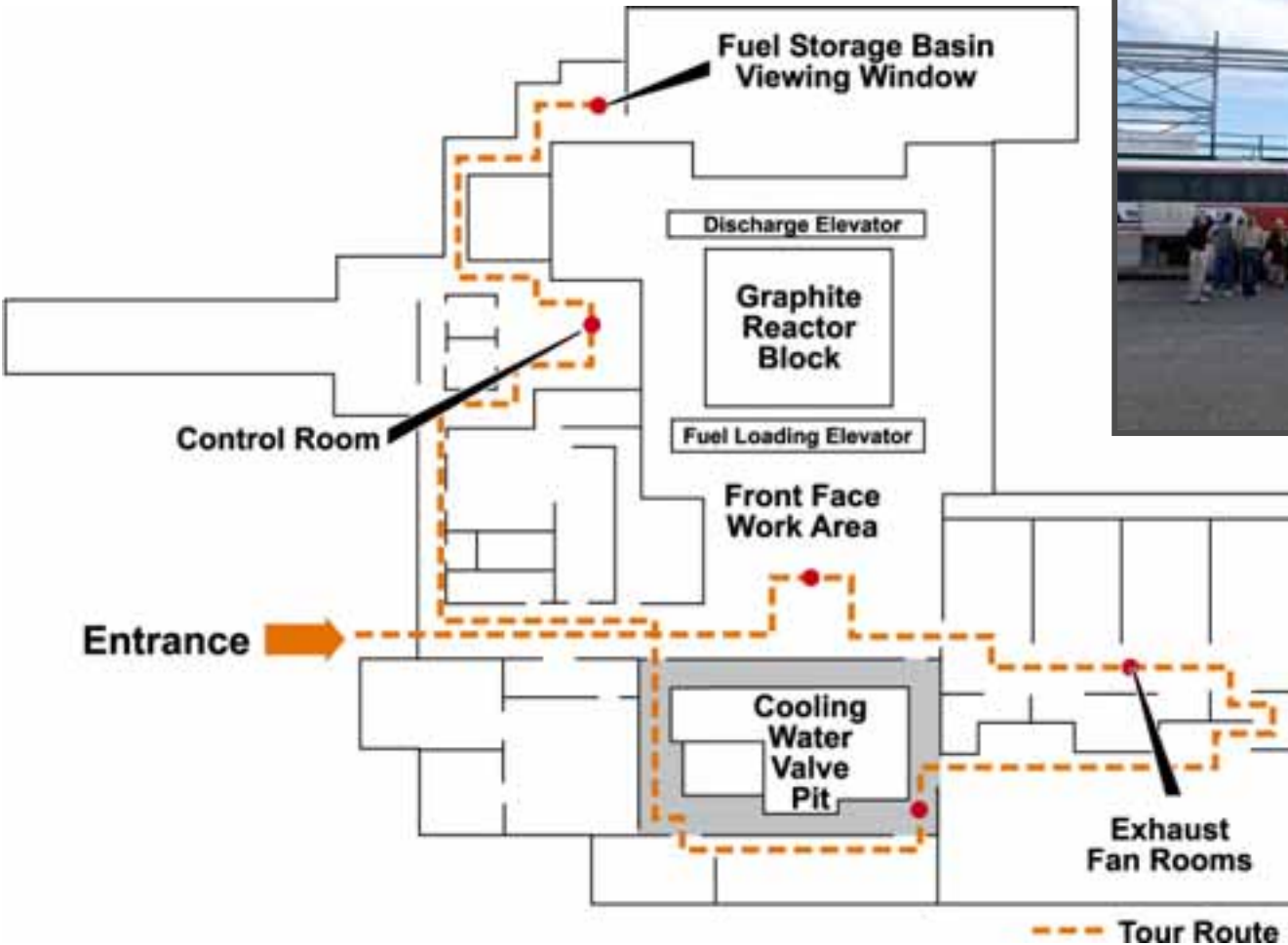
Observe first-of-a-kind equipment, tools and instruments!

An experience that can not be matched using models, pictures, or reproductions!

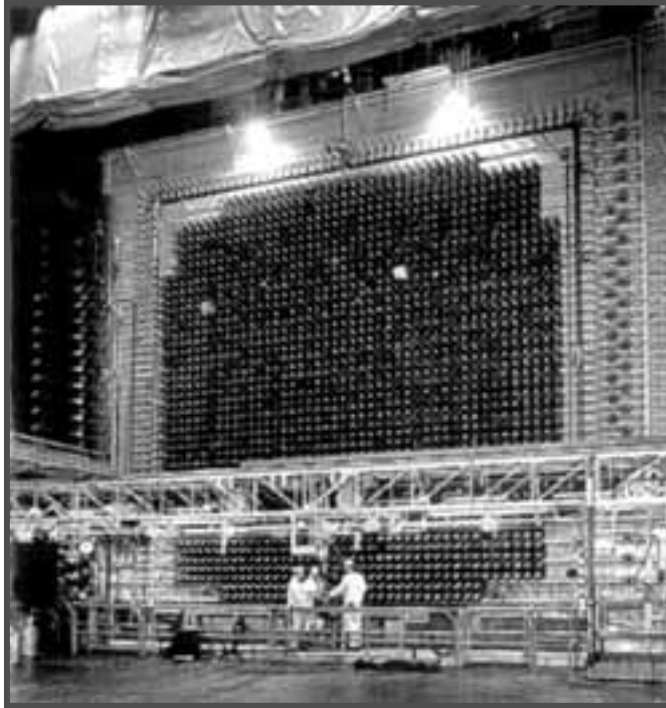
Hanford's Historic B Reactor

Tour Proven

Since the 2002 Action Memorandum, DOE has approved 165 tour groups, with 2700 visitors to B Reactor



Tour Proven - Front Face and Work Area



New fuel was inserted in the front face as irradiated fuel was discharged from the rear

Visitors observe exhibits and displays of reactor equipment, tools and instruments in the work area



Tour Proven - Fan Rooms and Equipment on Display



Original equipment used during reactor operations - these large fans supplied ventilation and allowed controlled air flow



Hands-on experience of equipment, tools and instruments that were developed and used for the first time ever

Tour Proven - Cooling Water Valve Pit



**Main intake piping supplied
30,000 gallons per minute of
reactor cooling water**

**Visitors witness the
size and complexity
of this first-of-a-kind
project**



Tour Proven - Control Room ... A Visitor Favorite!



Initial startup (chain reaction) was achieved under the direction of Dr. Enrico Fermi a few minutes before midnight on September 26, 1944

... Feel the history!





Why Preserve B Reactor?

- To **SAVE** a technical marvel that played a major role in world history, science, technology and engineering
- To **MEMORIALIZE** the men and women who successfully completed one of the world's largest and most complex engineering and construction projects ever achieved!
- To **EDUCATE** and **INTERPRET** for current and future generations the significance and lessons learned from Hanford and the Manhattan Project
- To **AFFIRM** B Reactor's national recognition as an engineering and historic landmark
 - National Historic Mechanical Engineering Landmark (1976)
 - National Register of Historic Places (1992) (National Park Service)
 - Nuclear Historic Landmark (1993)
 - National Civil Engineering Landmark (1994)
- To **PROVIDE** “an interpreted historic exhibit” to support the mission of the new Hanford Reach National Monument (*The Reach*) Heritage and Visitor Center

A cornerstone for Heritage Tourism in the Pacific Northwest

A Cornerstone for Heritage Tourism in the Pacific Northwest

- The premiere science and engineering landmark in the Pacific Northwest
- Strategically located on the Hanford Reach of the Columbia River
- A unique educational venue along the Hanford Reach National Monument
- An opportunity for economic growth for the region through Heritage Tourism by partnering with *The Reach* Heritage and Visitor Center



The Hanford Reach - The last of the free-flowing Columbia River



The Hanford Reach National Monument (*The Reach*) Heritage and Visitor Center - Gateway to the Hanford Reach

But...The Preservation of B Reactor is still in Doubt

Here Today... Here Tomorrow?

B Reactor is on the "Washington Trust's 2004 Most Endangered Properties List"



The Washington Trust of Seattle calls attention to the urgent threat facing B Reactor

The Plan to Preserve B Reactor

- Fund and complete National Park Service (NPS) Special Resource Study
- Delay DOE's decisions on B Reactor until after results of the NPS Study
- Maintain safe tour route and continue public tours in accordance with DOE 2002 Action Memorandum
- Integrate B Reactor with *The Reach* Heritage and Visitor Center as an "interpreted historic exhibit"

B Reactor Preserved



OR

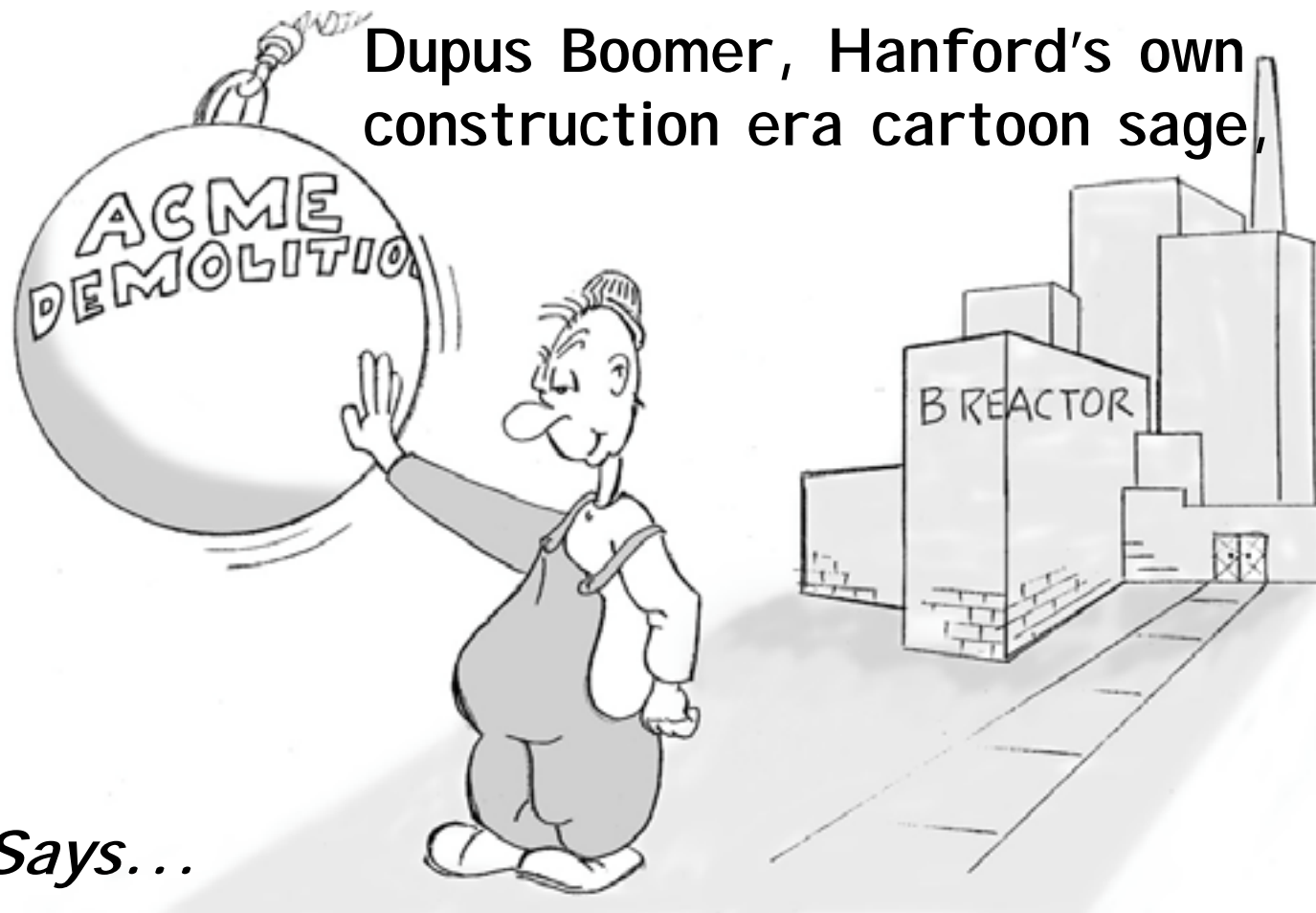
Interim Safe Storage
(Cocooned)



(C Reactor shown cocooned 1998)

Cocooning demolishes
80% of the facility

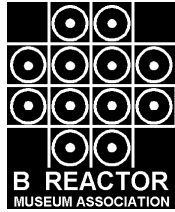
Hanford's Historic B Reactor



Dupus Boomer, Hanford's own construction era cartoon sage,

Says...

"Save B Reactor... Demolition of this historic monument is unacceptable!"



B Reactor Museum Association (BRMA)



To learn more about:

- B Reactor
- BRMA
- How You Can Help Preserve B Reactor

Visit:

www.b-reactor.org

Since 1991, BRMA has been dedicated to the preservation and display of the B Reactor as a museum or interpreted historic site open to the public.