

# Overview of CMRR

## Chemistry and Metallurgy Research Facility

### Replacement Project



December 2, 2010



UNCLASSIFIED

Operated by Los Alamos National Security, LLC for NNSA

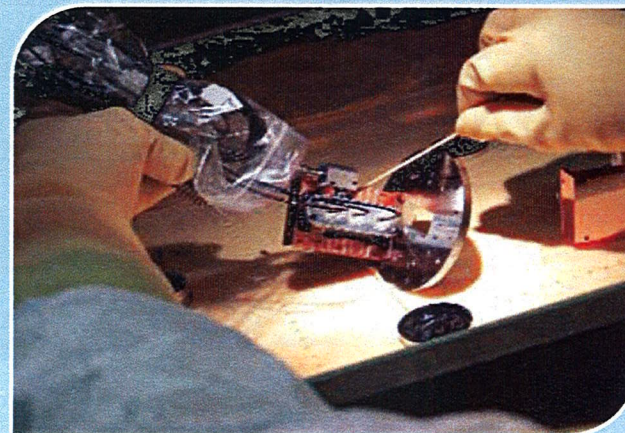
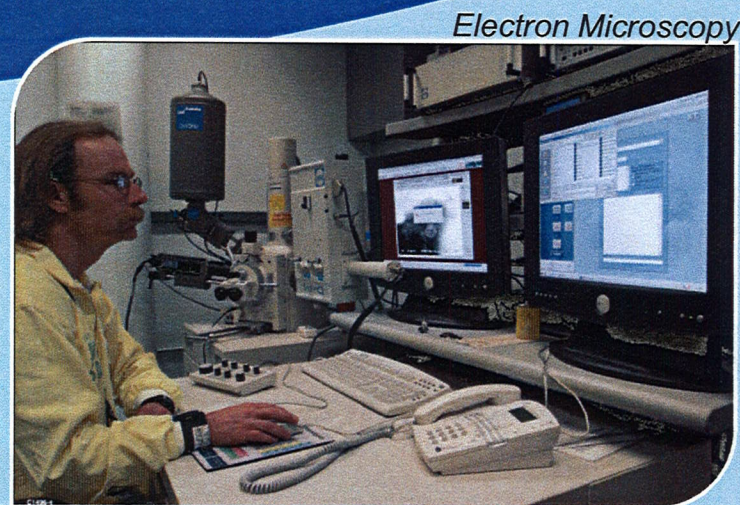




# What is CMRR?

- Multi-phased, two-building project
- Office and training space
- Nuclear materials storage
- Laboratory capabilities to house highly sophisticated equipment and instruments for chemical analysis and characterization of radioactive elements, such as plutonium.

CMRR is essentially a chemistry laboratory where scientists will analyze the origin and purity of materials and understand the chemical and mechanical properties of special nuclear materials. This capability is key to perform the national security mission assigned to LANL.



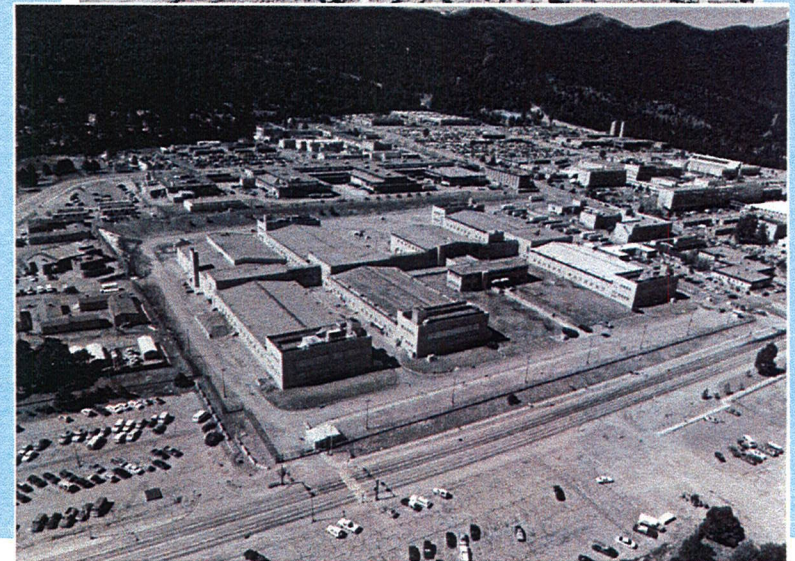
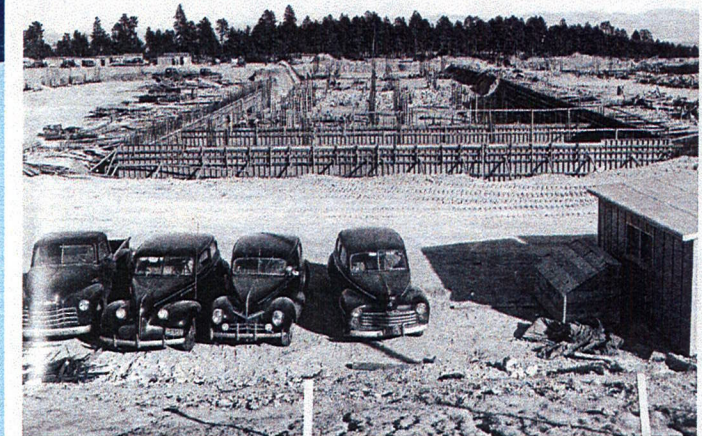
*Pu Sample Loading for Z-machine Experiments*



# CMRR replaces a nearly 60-year old facility

- The original CMR building dates back to the early 1950s
- It is becoming ever more expensive and inefficient to maintain and it demands more resources to operate safely
- No other facility or site in the U.S. can fulfill its mission
- External safety oversight board has reported to Congress the critical need to replace

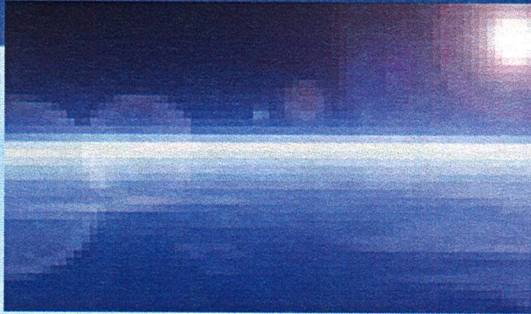
CMR construction in 1948



CMR Today



# Essential national security capabilities



*The Lab's satellite nuclear instruments detect nuclear threats and the Lab's ASPECT plane detects chemical and radiological dangers.*



- Provides monitoring and assurance of stockpile
- Supports nonproliferation and counter terrorism needs of the country
- Provides science for treaty verification
- Helps maintain a credible deterrent without testing
- Improves ability to respond to emerging threats through modernized technical capabilities
- Provides power sources for space flight and has other diverse applications, including energy, environment, and homeland security



# CMRR design offers flexibility and efficiency



## Benefits

- Segregation of risk with two structures
- Greater flexibility to adapt and change over time to meet national security needs of nation
- Higher operational efficiency
- Vastly improved operational security
- Lower environmental impact

**The Nuclear Facility**  
*(in design)*

**RLUOB**  
*(completed;  
opening in 2011)*



# Dramatic improvements to safety and security

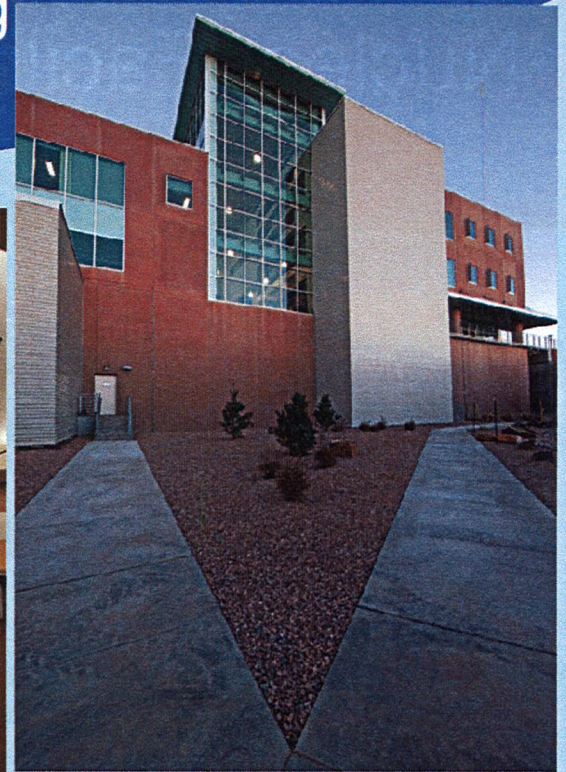


- Nuclear materials better protected
- Nuclear materials consolidated
- Meets 21<sup>st</sup> century health, safety, and environmental standards
- State-of-the-art worker safety
- Replaces over 500,000 square feet of antiquated facility space
- Design of Nuclear Facility certified by independent safety board



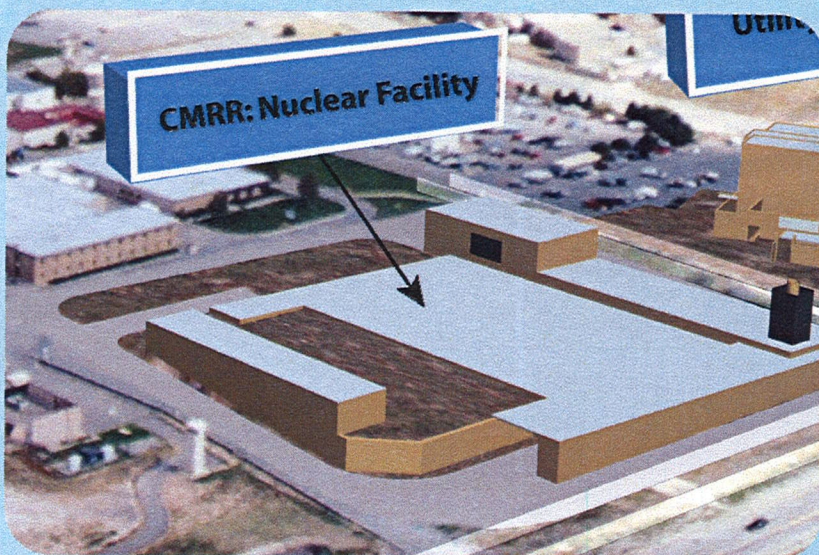
# CMRR - First Replacement Component: Radiological Laboratory Utility Office Building (RLUOB)

- RLUOB will provide office space for 350 workers and 19,500 square feet of radiological laboratory space
- Operations at radiological level (less than 8.4 grams of Pu- 239 equivalent)
- State-of-the-art laboratory space and scientific instrumentation





# CMRR – Second Replacement Component: Nuclear Facility (NF)



- In design\*
- 406,000 total square feet  
(comparable in size to Intel's new "Clean Room" chip manufacturing facility in Rio Rancho, NM)
- 22,500 square feet of laboratory space
- Building size is driven by required ventilation, fire protection, seismic safety, and electrical needs, etc.
- Serves radiological research and analysis needs for material quantities at levels needed to maintain assigned LANL mission

\*Supplemental Environmental Impact Study underway with decision expected Summer 2011



# Environmental & Energy Considerations

Sustainable architecture attempts to reduce the collective environmental impacts during the selection of building components, during the construction process, as well as during the lifecycle of the building (heating, electricity use, cooling, etc.)

Sustainability considerations were integrated early in CMRR project planning and design phases.



A strong commitment to environmental stewardship throughout procurement and construction will help CMRR to meet sustainable building standards.

LEED certification has been an important consideration in the design of both phases of CMRR.

DOE gave RLUOB the 2010 EStar Award for exemplary environmental sustainability practices.



# Bi-partisan support for CMRR

- **Vice President Joseph Biden:**

“This investment is not only consistent with our nonproliferation agenda; it is essential to it.”

- ***America’s Strategic Posture Report (2009 bi-partisan Congressional Commission on the Strategic Posture of the United States):***

CMRR... “makes a direct contribution to maintaining intellectual infrastructure that is in immediate danger of attrition...” and “is required independent of stockpile size.”

- **Nuclear Posture Review (April 2010):**

“Increased funding is needed for the Chemistry and Metallurgy Research Replacement Project at Los Alamos National Laboratory to replace the existing 50-year old facility...”

“Funding for CMRR identified as one of several key investments “required to sustain a safe, secure, and effective nuclear arsenal”