

NMSU College of Engineering Report

*RADIOACTIVE AND HAZARDOUS
MATERIALS COMMITTEE MEETING*

October 15th, 2025



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Carlsbad Environmental Monitoring & Research Center (CEMRC)



Created in 1991 to develop, implement, and sustain an independent health and environmental monitoring program in the vicinity of the Waste Isolation Pilot Plant (WIPP) facility, making results easily accessible to all stakeholders.

Dr. Lambis Papelis, Director

<https://www.cemrc.org/>



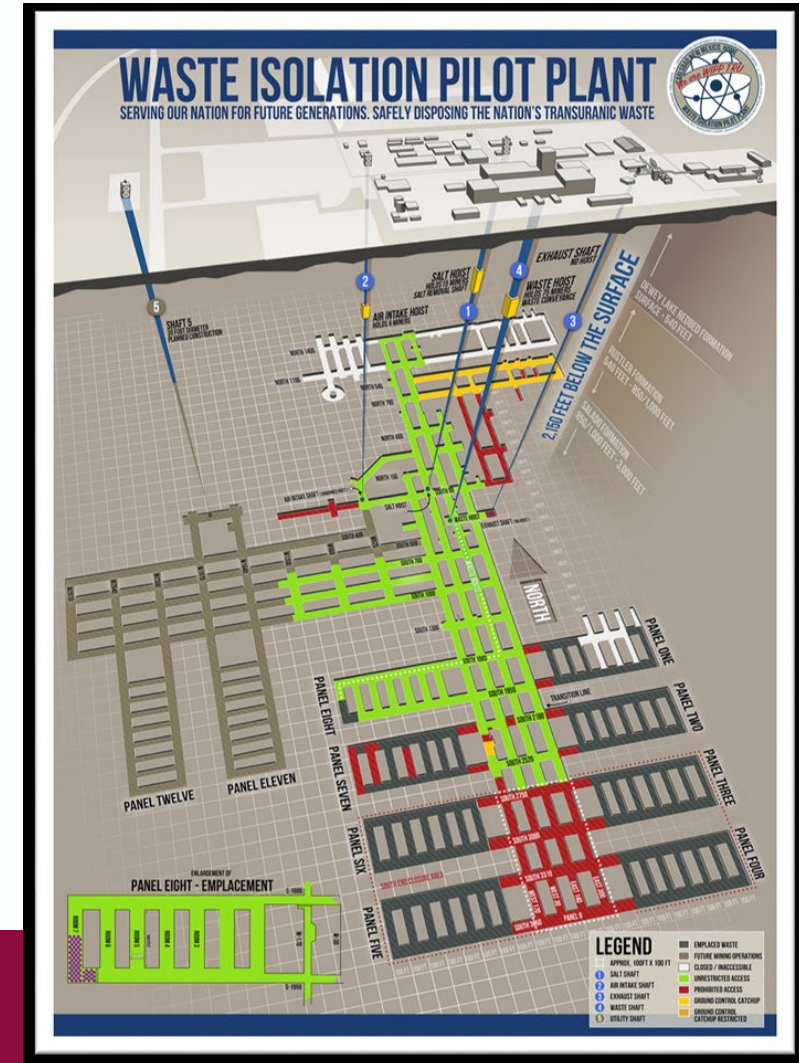
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Waste Isolation Pilot Plant (WIPP)

WIPP facility is the only deep geological repository in the US licensed to store transuranic waste related to the production and testing of nuclear weapons for 10,000.

Located approximately 30 miles east of Carlsbad in the Salado Formation of the Delaware Basin, formed during the Permian period 250 million years ago, at a depth of 2,150 ft below surface. WIPP received the first waste shipment on March 26, 1999.



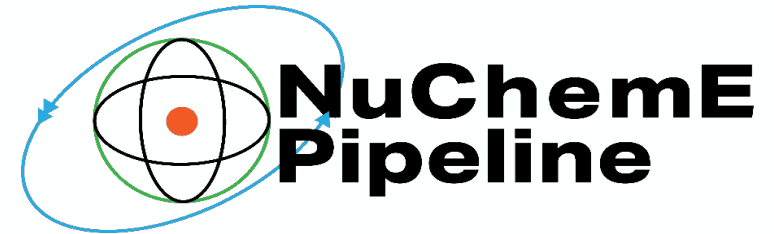
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CEMRC Current Scope of Work

- **WIPP airborne effluent monitoring – Fixed Air Samplers (FAS), Stations F (unfiltered) and G (HEPA-filtered)**
- **Airborne particulate monitoring (6 sites)**
- **Soil sampling (4 sites)**
- **Surface water sampling (6 sites)**
- **Drinking water sampling (6 sites)**
- **Groundwater sampling (6 sites)**
- **Sediment sampling (6 sites)**
- **Vegetation sampling (6 sites)**
- ***In-vivo* monitoring**



Evaluating New Materials and Processes for Radioactive Tank Waste Processing: Workforce Development in *f*-Element Chemistry, Nuclear Chemical Engineering, and Supply Chain Management (NuChemE Pipeline)



Award No: DE-EM0005312

Period of Performance:

April 1, 2024 – March 30, 2027

Amount of the Award:

\$4,827,097

Dr. Catherine Brewer, PI

Dr. Frank Ramos, Co-PI

nuchemepipeline.org



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The NuChemE Pipeline will expand the workforce with skills to manage radioactive tank waste through capacity building, interdisciplinary training, and hands-on experiences.



The long-term goal is to develop a new interdisciplinary graduate certificate that can be completed remotely by students from science, engineering, and business backgrounds to enhance their knowledge and experience in DOE Environmental Management-needed areas.

University Partners:



National Lab Partners:



Project Highlights To Date



38 students participated in mentored research.



Students from non-chemical engineering/chemistry majors enrolled in *f*-element and nuclear-related courses.



NMSU and UTEP acquired ~\$1M in new equipment and began integration into teaching and research.



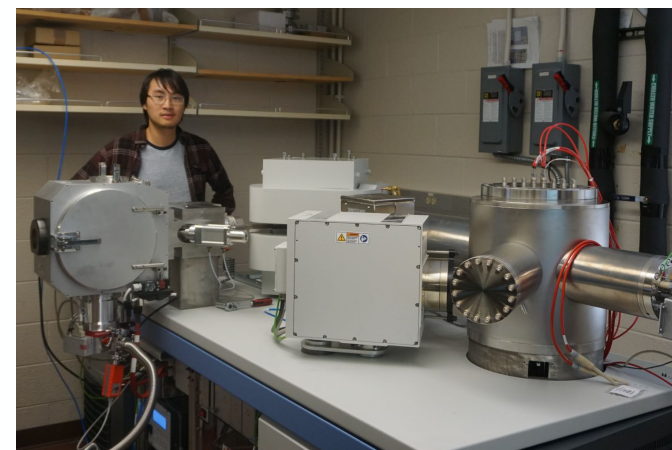
The team's network of *f*-element experts was broadened with 8 seminars and visits to DOE labs.



NMSU expanded the nuclear chemical engineering minor and disseminated program information to other universities.



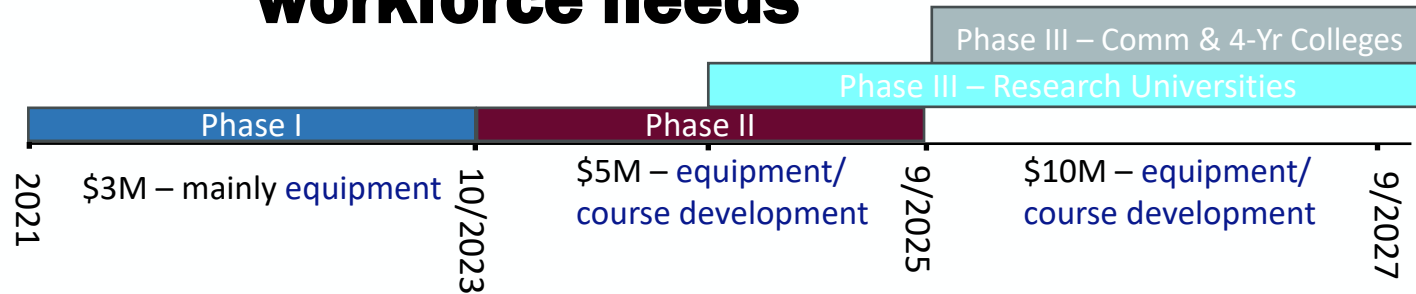
A summer lab and travel experience program is in planning for 2026 for 12 students from around the country.



Plutonium Workforce Development Initiative (PWDI)



What is PWDI?
Congressional funding for workforce development in NM that supports pit manufacturing workforce needs



Dr. Vimal Chaitanya, Program Director (NMSU)

Dr. John Engen, PI (NMC-CEO)



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PWDI Launch and Impacts

Summary of Launch

- National Nuclear Security Agency (NNSA) approached LANL with NM institution involvement – 10 responded
- LANL partners with New Mexico Consortium to administer program
- In collaboration with NNSA (NA-191), LANL establishes Plutonium Workforce Development Initiative (PWDI)

Selected Impacts

- ~\$5M in scientific instrumentation
- Welding enrollment up ~500% in 3 years at Luna CC
- Hires at LANL & SNL through NMSU project (92% project graduates at NNSA sites)
- RCT hires to LANL – Northern New Mexico College
- Machinist hires – Santa Fe Community College
- Graduate students increasing
- Hires increasing (B.S.+), internships up at LANL

Institution	Students Impacted	Focus Areas*
University of New Mexico, Albuquerque	367	NE, B
New Mexico State University, Las Cruces	502	NS, R, NP
New Mexico Tech, Socorro	15	D, MC
Navajo Technical University, Crown Point	7	RP
Northern New Mexico College, Espanola	72	RCT
New Mexico Highlands University, Las Vegas	73	P/CM, SCM
San Juan College, Farmington	75	cybersec
Luna Community College, Las Vegas	20	welding
Central New Mexico Comm College, Albuquerque	50	machining
Santa Fe Community College, Santa Fe	6	machining
Total	1187	

* NE – nuclear engineering, B – business, NS – nuclear sciences, R – radiochemistry, NP – nuclear physics, D – diffraction, MC – materials characterization, RP – radiation physics, RCT – radiological control technician, P/CT – project/contract management, SCM – supply chain management



PWDI Funds and Org

PWDI Funds

[NNSA] funds routed through [NMC] to build [LANL] workforce.

Performance Period: 2022 – Current

Funds Allocated So Far: \$18 Million

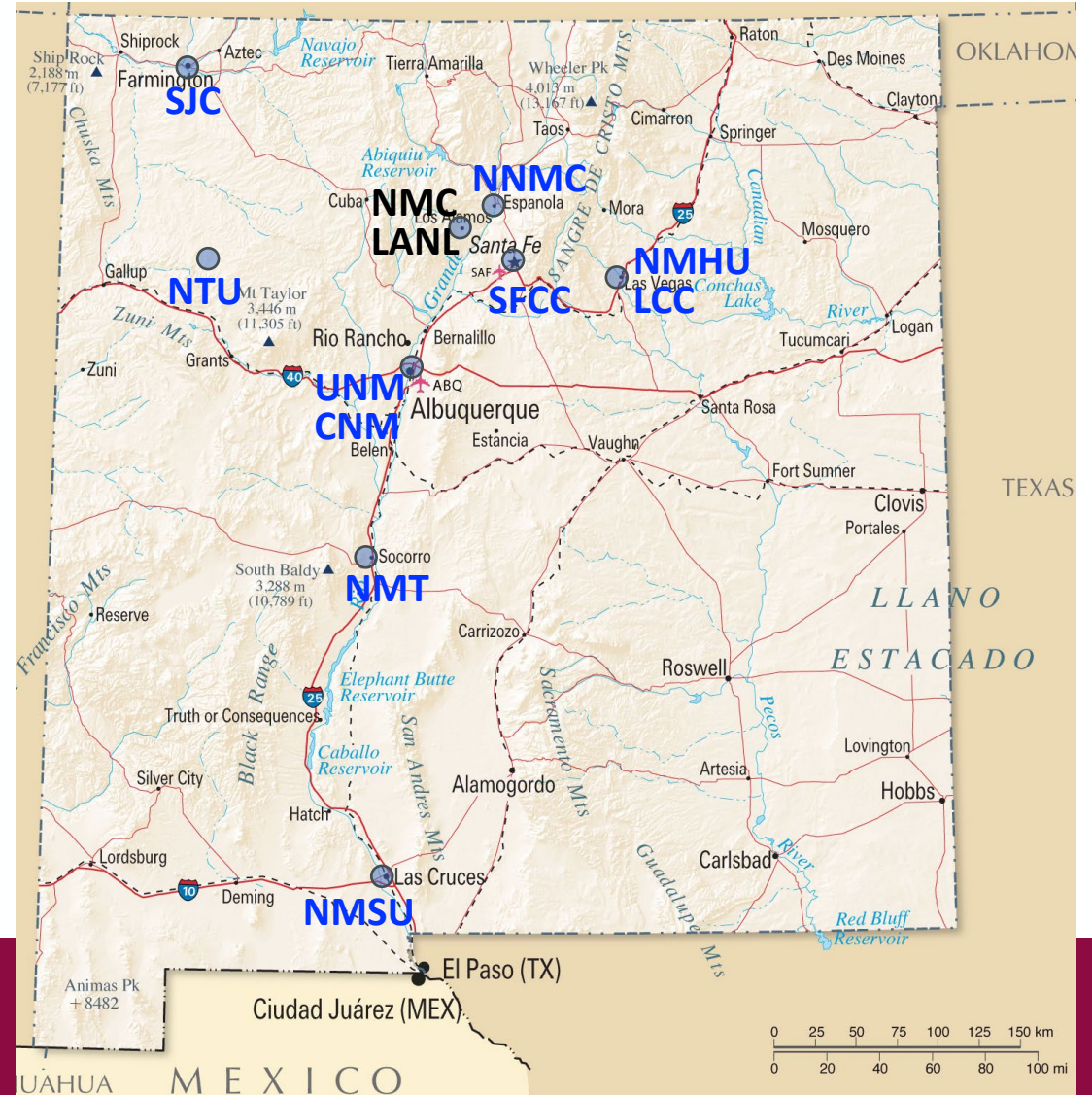
NMSU's Current Share: \$4.8+ Million

Additional Funds Available: \$13 Million

Total PWDI Funds Available: \$31+ Million

Organization

LANL Technical Advisory Committee (TAC) selects projects.



THANK YOU



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