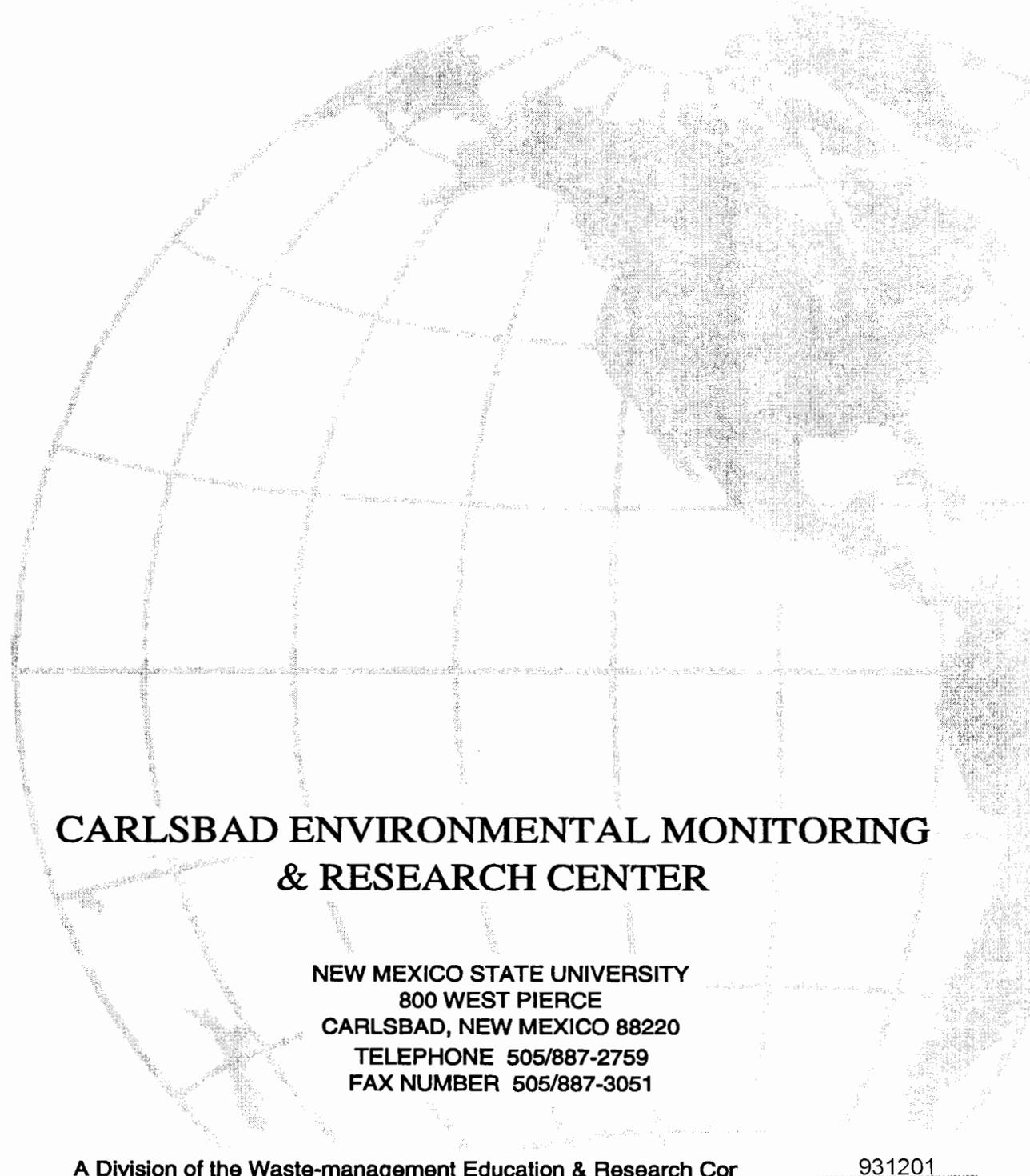


**NEW MEXICO RADIOACTIVE  
WASTE TASK FORCE**



**SANTA FE, NEW MEXICO**

**DECEMBER 8, 1993**



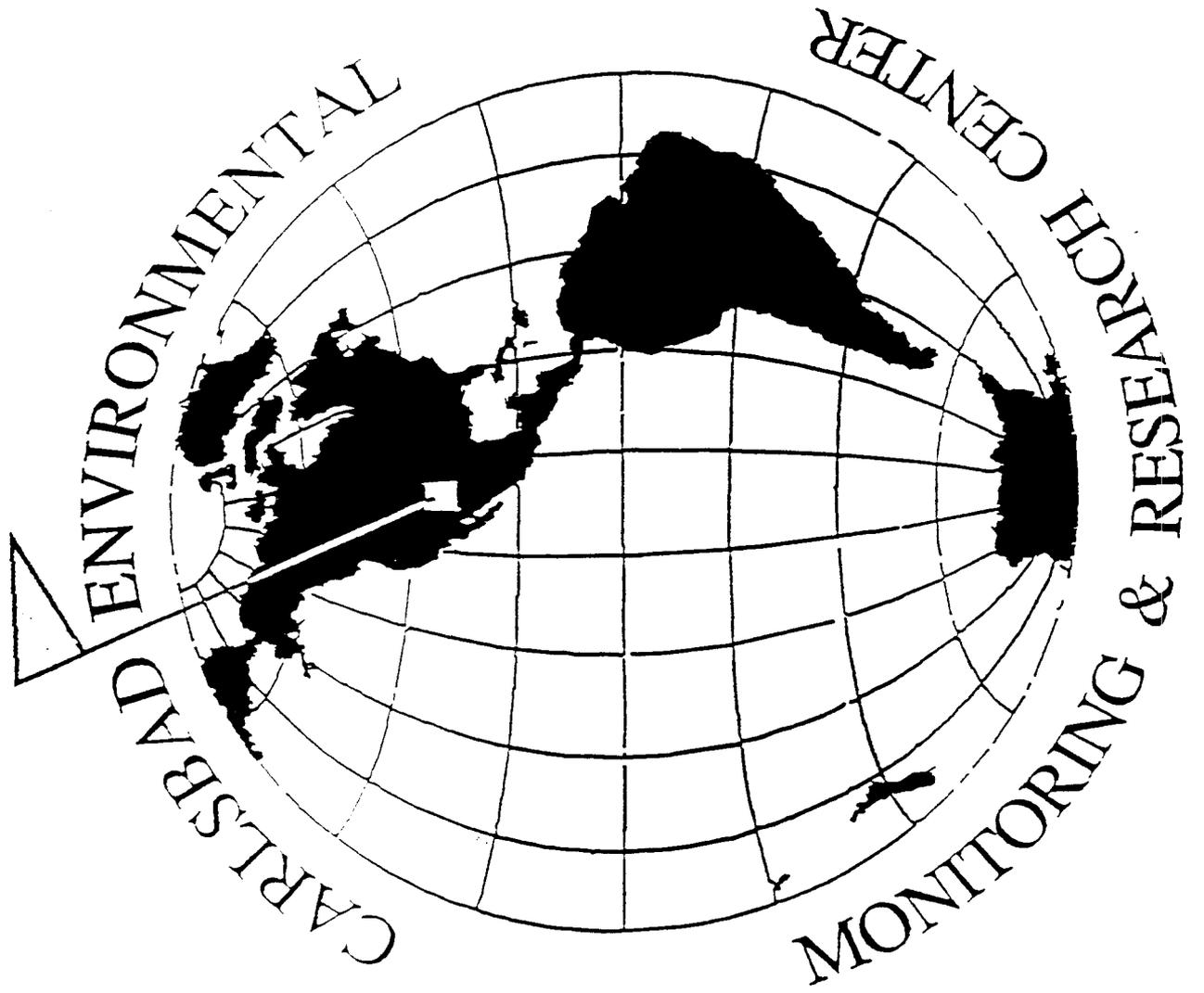
**CARLSBAD ENVIRONMENTAL MONITORING  
& RESEARCH CENTER**

**NEW MEXICO STATE UNIVERSITY  
800 WEST PIERCE  
CARLSBAD, NEW MEXICO 88220  
TELEPHONE 505/887-2759  
FAX NUMBER 505/887-3051**

**A Division of the Waste-management Education & Research Cor**

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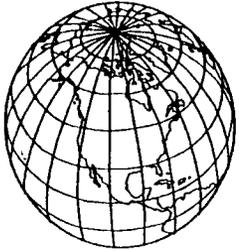






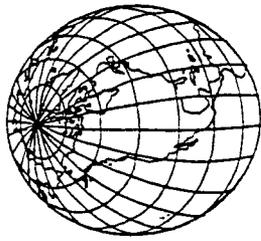
## THE PURPOSE OF THIS INFORMATION PACKET IS THREEFOLD

- Describe the WIPP Environmental Monitoring Program
- Present an overview of the progress
- Discuss future plans



# THE WIPP ENVIRONMENTAL MONITORING PROGRAM IS THE FIRST MAJOR ACTIVITY MANAGED BY THE CENTER

The Program's mission is to initiate and maintain an independent, state-of-the-art, environmental monitoring and research program in the vicinity of the WIPP and make the results easily accessible to all interested parties.



## THE WIPP-EM PROGRAM CONSISTS OF TWO MAJOR ELEMENTS



- Environmental monitoring and research
- Bioassay





## ENVIRONMENTAL MONITORING AND RESEARCH IS THE FOUNDATION OF THE WIPP-EM PROGRAM

- Atmosphere
- Soil
- Surface water and sediments
- Groundwater
- Biota
- Development of improved measurement methods, procedures, and sensors



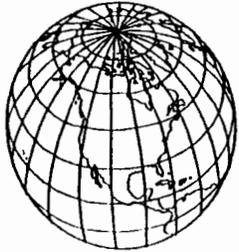
## THE ATMOSPHERIC SCIENCE PROGRAM HAS MULTIPLE OBJECTIVES

- Establish baseline, size-specific mass distribution and elemental composition of atmospheric aerosols
- Characterize the spatial and temporal variability of the aerosols
- Identify the nature of the contributing sources
- Estimate contribution from each source
- Develop monitoring network
- Characterize the area's micrometeorology



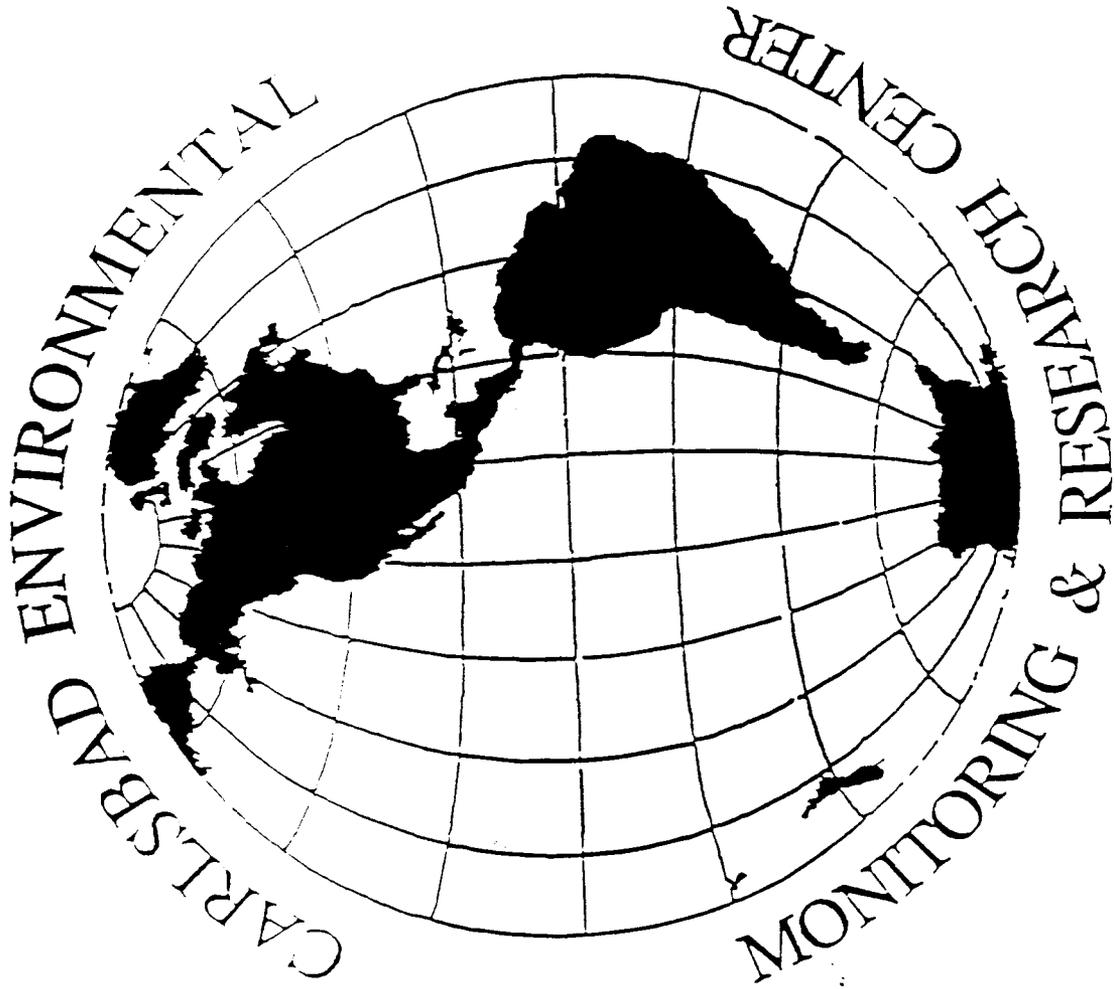
## ATMOSPHERIC SCIENCE PILOT STUDIES ARE CONDUCTED PRIOR TO ESTABLISHING COMPREHENSIVE MONITORING NETWORK

- Equipment evaluation
- Initial characterization of the aerosol size distribution of actinides and trace elements in the vicinity of the WIPP site
- Initial characterization of trace element size distribution in the underground
- Identification of a unique set of elemental tracers in effluent from the WIPP exhaust



## ANOTHER IMPORTANT ELEMENT OF THE CENTER IS ITS BIOASSAY PROGRAM

- Determination of the kinds and amounts of radioactive substances which have accumulated in the body
- Contract services for DOE/Westinghouse
- General population monitoring
- Video documentation and briefing



**DIRECTOR'S BRIEFING**



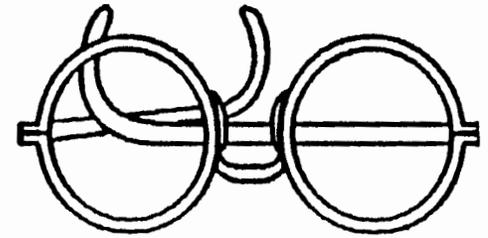
## THE PURPOSE OF THIS PRESENTATION IS FOURFOLD

---

- Introduce the Carlsbad Environmental Monitoring & Research Center
  - Present the Center's view and mission
  - Describe the Center's first major program
  - Present an overview of the progress
-



**THE CENTER'S VISION  
ENCOMPASSES GLOBAL NEEDS**



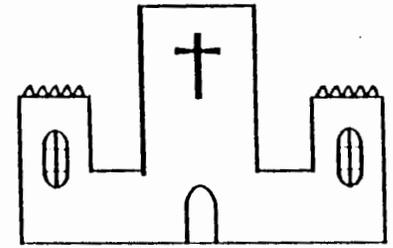
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**Establishment of a World Class Research  
Center to Study Health and Environmental  
Impacts Associated with Technological  
Development.**

---



## THE CENTER'S MISSION IS TO ANTICIPATE AND RESPOND TO EMERGING ENVIRONMENTAL NEEDS



- Identify and assess current and future environmental problems
- Develop improved measurement methods, procedures, and sensors
- Provide for independent environmental characterization
- Provide capabilities to all sectors
- Help insure that the public, workers, and the environment are adequately protected from exposure to contaminants in the environment



## THE ESTABLISHMENT OF THE CENTER RESULTED FROM THE CONCERTED EFFORTS OF MANY INDIVIDUALS AND ORGANIZATIONS

---

- City of Carlsbad
  - Carlsbad Department of Development
  - Waste-management Education and Research Consortium (WERC)
  - Waste Isolation Pilot Plant (WIPP)
  - New Mexico Congressional delegation
  - New Mexico Radioactive and Hazardous Materials Committee
-



# MANAGER S MUST HAVE GOOD QUALITY, REPRESENTATIVE DATA TO SUPPORT COSTLY ENVIRONMENTAL DECISIONS

## DIMENSION

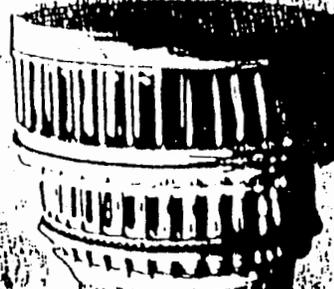
Sunday, September 27, 1992

Albuquerque Journal

Page 1, Section B

### WHAT'S HOLDUP?

While a Democratic Congress and a Republican president bicker and bargain, Americans are tuning over the nation's unsolved problems.



### Environment Policy Based On Bad Data

By Ted Huhelich

THE SOURCE

The years Marvin and Anita Ruddle were key players in the government's efforts to make environmental decisions wisely.

The San Juan basin Dry Area sample provided 54 million worth of bottles used to collect air and water samples at the nation's most hazardous waste sites.

The bottles were supposed to be checked for contamination that could generate false readings in laboratory tests. But, according to a federal investigation, the Ruddes never performed the checks and for two years did not even own the necessary equipment.

The case casts doubt on the accuracy of thousands of lab tests and highlights a problem now coming into focus after two decades of massive testing required by environmental laws.

Each year the government spends an estimated \$200 million on testing, while companies that discharge chemicals into the ocean, air, soil and waterways spend \$5 billion more. But many test results are questionable, and many are wrong.

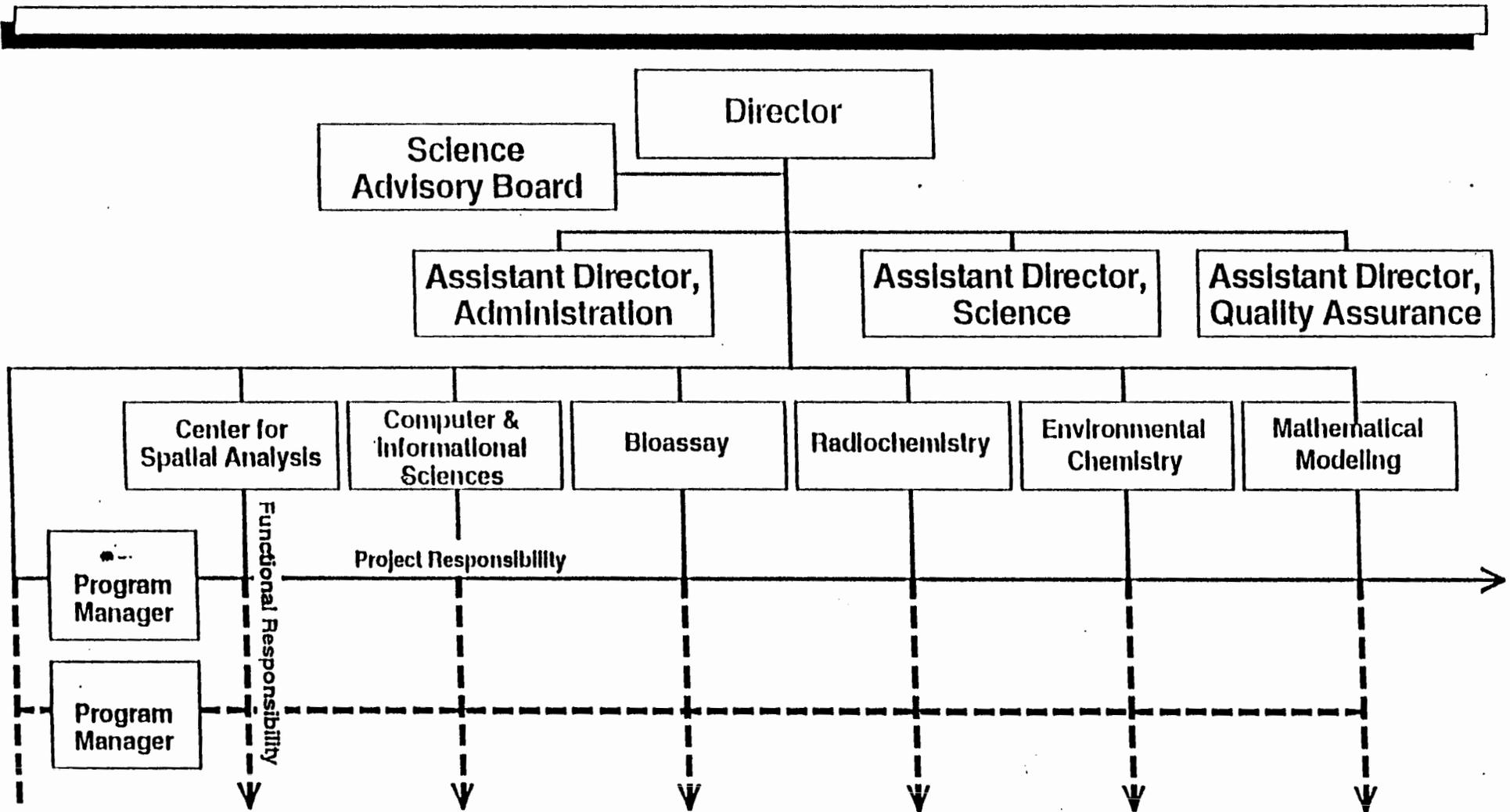
The result: scientists and government officials see a billion-dollar pile of painstakingly gathered misinformation.

#### Wide-ranging impact

The consequences are far-reaching. Test results are used to make important environmental decisions such as: How much pollution should be allowed in a



# THE CENTER IS ORGANIZED IN SIX FUNCTIONAL SCIENTIFIC GROUPS





## **AN ESSENTIAL COMPONENT OF THE CENTER IS ITS TOTAL INDEPENDENCE**

---

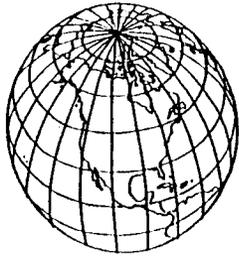
- Funded through research grants
  - Operation periodically reviewed by a SAB
  - Academic unit within New Mexico State University
  - Senior scientists hold faculty appointments
-



## CONTINUED SUCCESS OF THE CENTER IS DEPENDENT ON SOLID FINANCIAL SUPPORT

---

- Long-term commitment for substantial support from U.S. DOE
  - Long-term need to provide contract services to the WIPP
  - Ability to provide government, industrial, and private sector parties with unique capabilities
  - Technology transfer through joint venture relationships with the private sector
-



# THE WIPP ENVIRONMENTAL MONITORING PROGRAM IS THE FIRST MAJOR ACTIVITY MANAGED BY THE CENTER

The Program's mission is to initiate and maintain an independent, state-of-the-art, environmental monitoring and research program in the vicinity of the WIPP and make the results easily accessible to all interested parties.



## TO ACCOMPLISH THE WIPP-EM MISSION, MULTIPLE OBJECTIVES HAVE BEEN IDENTIFIED

- Develop implementation plan
- Initiate environmental monitoring program
- Initiate bioassay program
- Establish computer center
- Disseminate information



## AN INTEGRATED PROGRAM PLAN IS AN IMPORTANT STEP IN ENVIRONMENTAL CHARACTERIZATION AND MONITORING STUDIES

- Guides implementation of the Program
- Establishes administrative infrastructure
- Leads to efficient use of limited resources
- Ensures collection of good quality, representative data

---

# WASTE ISOLATION PILOT PLANT ENVIRONMENTAL MONITORING PROGRAM

## IMPLEMENTATION PLAN

REV. 1.1

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CARLSBAD ENVIRONMENTAL MONITORING &  
RESEARCH CENTER

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800 WEST PIERCE, CARLSBAD, NEW MEXICO 88220

TELEPHONE 505/887-2759  
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A Division of the Waste-management Education & Research Consortium (WERC)



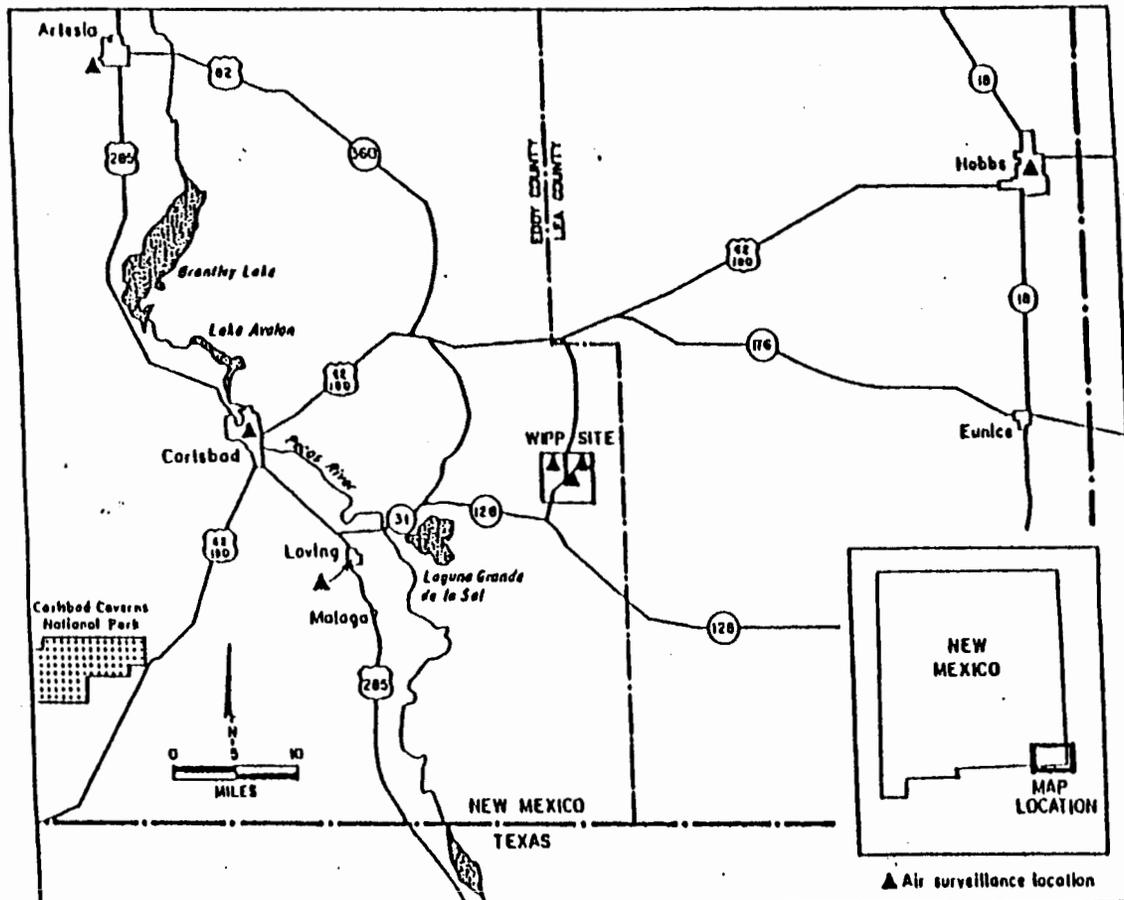
## **AN IMPORTANT ELEMENT OF THE CENTER IS ITS BIOASSAY PROGRAM**

---

- Determination of the kinds and amounts of radioactive substances which have accumulated in the body
  - Contract services for DOE/Westinghouse
  - General population monitoring
  - Initiated September 10, 1992 at ITRI
  - Video documentation and briefing
  - Center sponsored bioassay workshop
-

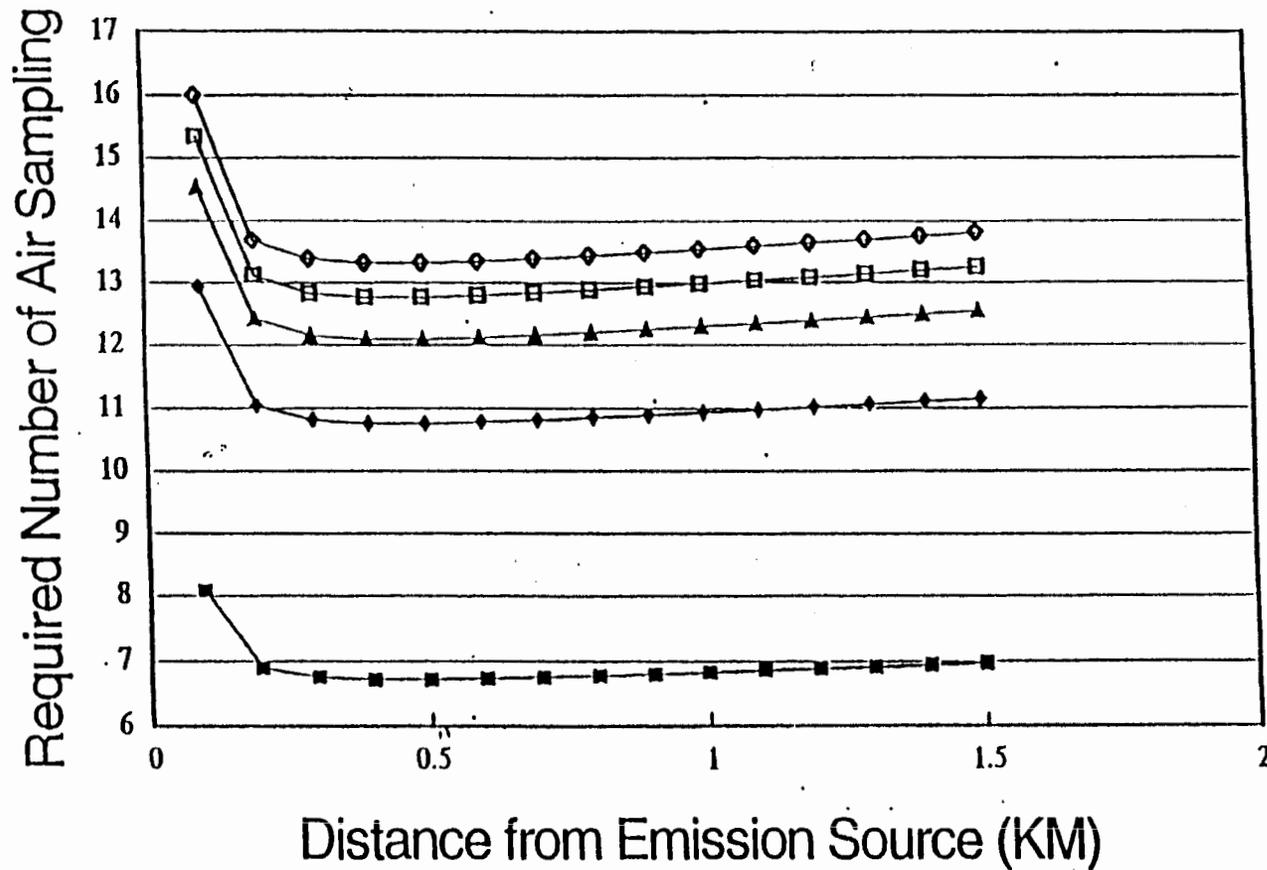


# DESIGN OF A COST-EFFECTIVE ENVIRONMENTAL MONITORING NETWORK REQUIRES DETAILED PLANNING AND ANALYSIS





# HISTORICAL DATA AND COMPUTER MODELING SUPPORTS AIR MONITORING NETWORK DESIGN





## FULFILLMENT OF THE CENTER'S MISSION AND OBJECTIVES REQUIRES SPECIALIZED LABORATORY FACILITIES

---

- Bioassay
  - Radiochemistry
  - Environmental chemistry
  - Computer sciences
  - Spatial analysis
  - Environmental modeling
-



## IN-HOUSE LABORATORY CAPABILITIES ARE ESSENTIAL TO ENSURE GOOD QUALITY DATA, INDEPENDENCE, AND SUSTAINABILITY

---

- Quality assurance and quality control are at the Center's foundation and managed internally
  - In-house laboratories are cost-effective
  - Control of sample analysis schedules
  - Capability to conduct non-routine analysis as needed
  - Contract laboratories are difficult to manage and assure quality
-



## FACILITY SPECIFICATIONS DEVELOPED BY EXPERTS AT A CENTER SPONSORED WORKSHOP

---

- Center
  - Architects
    - Flatow Moore Bryan Shaffer McCabe
    - Research Facilities Design
    - New Mexico State University
  - National Laboratories
    - Argonne
    - Los Alamos
    - Sandia
  - Universities
    - Clemson University
    - Harvard University
    - New Mexico State University
    - University of New Mexico
  - Research Group
    - Environmental Evaluation Group
-



## PROGRAM COSTS ARE ESTIMATED AT \$20 MILLION FOR THE 53,000 FT<sup>2</sup> LABORATORY AND OFFICE COMPLEX

---

- Bioassay (~2,400 ft<sup>2</sup>)
  - Radiochemistry (~4,000 ft<sup>2</sup>)
  - Environmental chemistry (~5,900 ft<sup>2</sup>)
  - Computing center and spatial analysis (~2,500 ft<sup>2</sup>)
  - Scientific and associated staff offices (~5,800 ft<sup>2</sup>)
  - Administrative offices, library, and conference rooms (~11,400 ft<sup>2</sup>)
  - Building support (~22,900 ft<sup>2</sup>)
-



## ***IN VIVO/IN VITRO* BIOASSAY LABORATORIES PROVIDE MEANS TO ASSESS RADIONUCLIDE BODY BURDENS**

---

- Contract services for DOE\Westinghouse
  - General population monitoring
  - Large domestic animal monitoring
  - Methods development
  - Instrument research
  - Model development
-



## **IN VIVO BIOASSAY LABORATORY HAS SPECIAL REQUIREMENTS**

---

- Large walk-in room (100 ft<sup>2</sup>) constructed of 8-in thick low-background steel with graded-z liner
  - Radon free air supply
  - Specially designed chair for patient
  - High resolution radiation detectors and associated electronics
  - Ultrasound and MRI equipment
  - Locker rooms
  - Cryogenic storage facilities
-



## ANALYTICAL LABORATORIES DETECT AND MONITOR ENVIRONMENTAL LEVELS OF RADIOLOGICAL AND NON-RADIOLOGICAL CONSTITUENTS

---

- Human body fluids and tissues for *in vitro* bioassay program
  - Environmental media (e.g., air, soil, water)
  - Biota (e.g., plants, animals)
  - Estimation of committed effective radiation dose
  - Comparisons made with background levels
-



## RADIOCHEMISTRY LABORATORY HAS SEVERAL FUNCTIONAL AREAS

---

- Sample receiving, archiving, and storage
  - Sample preparation
  - Sample dissolution and separations
    - environmental media and blota
    - bioassay
  - Hot chemistry
  - Analytical Instrumentation
  - Standards preparation
-



## ENVIRONMENTAL CHEMISTRY LABORATORY ALSO IS ARRANGED FUNCTIONALLY

---

- Sample receiving, archiving, and storage
  - Inorganic sample preparation
  - Inorganic instrumentation
  - Organic sample preparation
  - Organic extraction and separations
  - Organic instrumentation
  - Biochemistry
-



## COMPUTING CENTER TO MANAGE, ANALYZE, AND DISSEMINATE CENTER DATA AND INFORMATION

---

- Maintain environmental data bases
  - Provide data analysis capabilities
  - Keep business and administrative records
  - Make data readily available to all interested parties
-



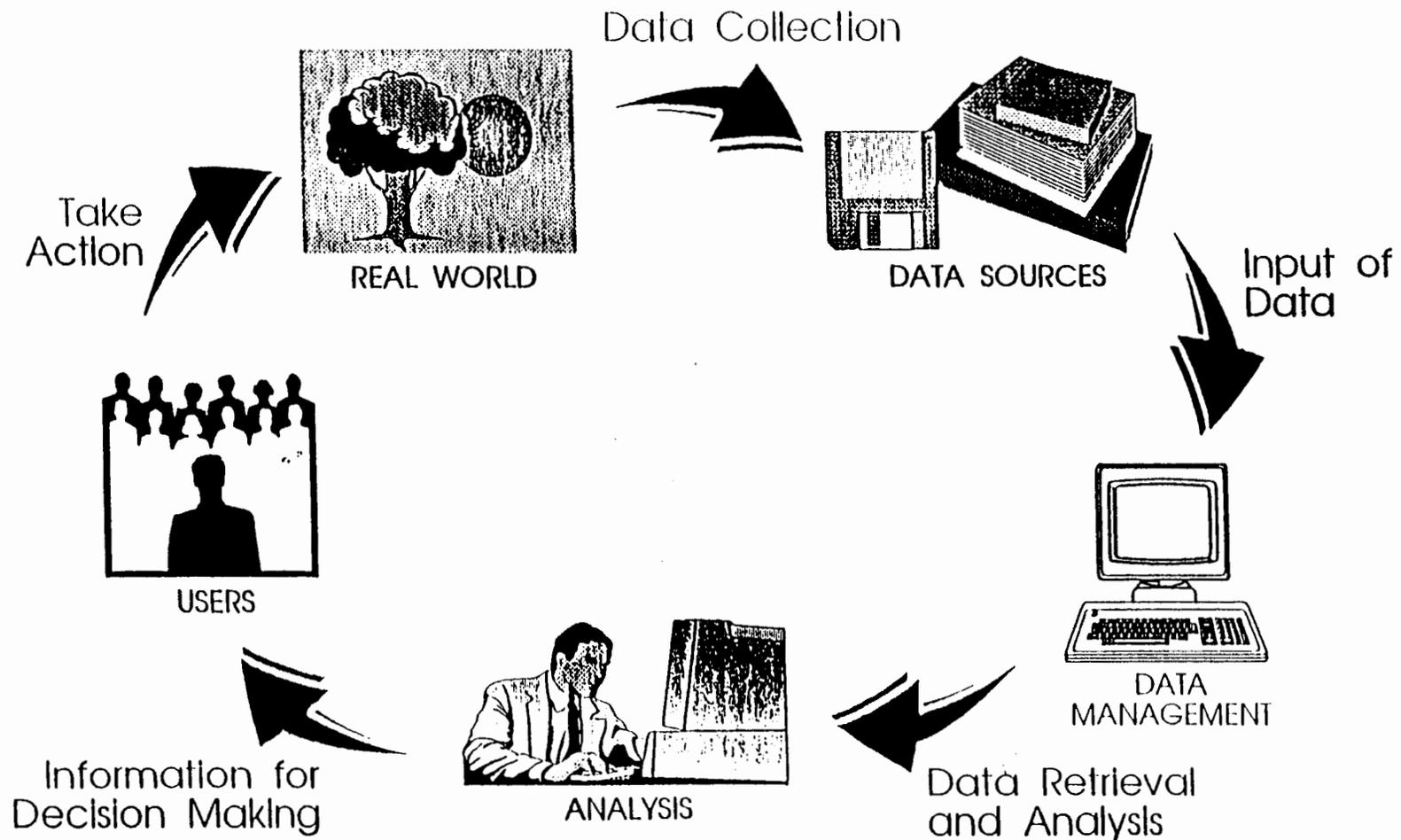
## CENTER FOR SPATIAL ANALYSIS PROVIDES NEW TECHNIQUES FOR ANALYZING AND VISUALIZING DATA

---

- Computer intensive techniques
  - Analyze spatial associations between varied data
  - Application of multi-attribute modeling methods
  - View both spatial and temporal variations in data
  - Generation of informative graphics for the public
-

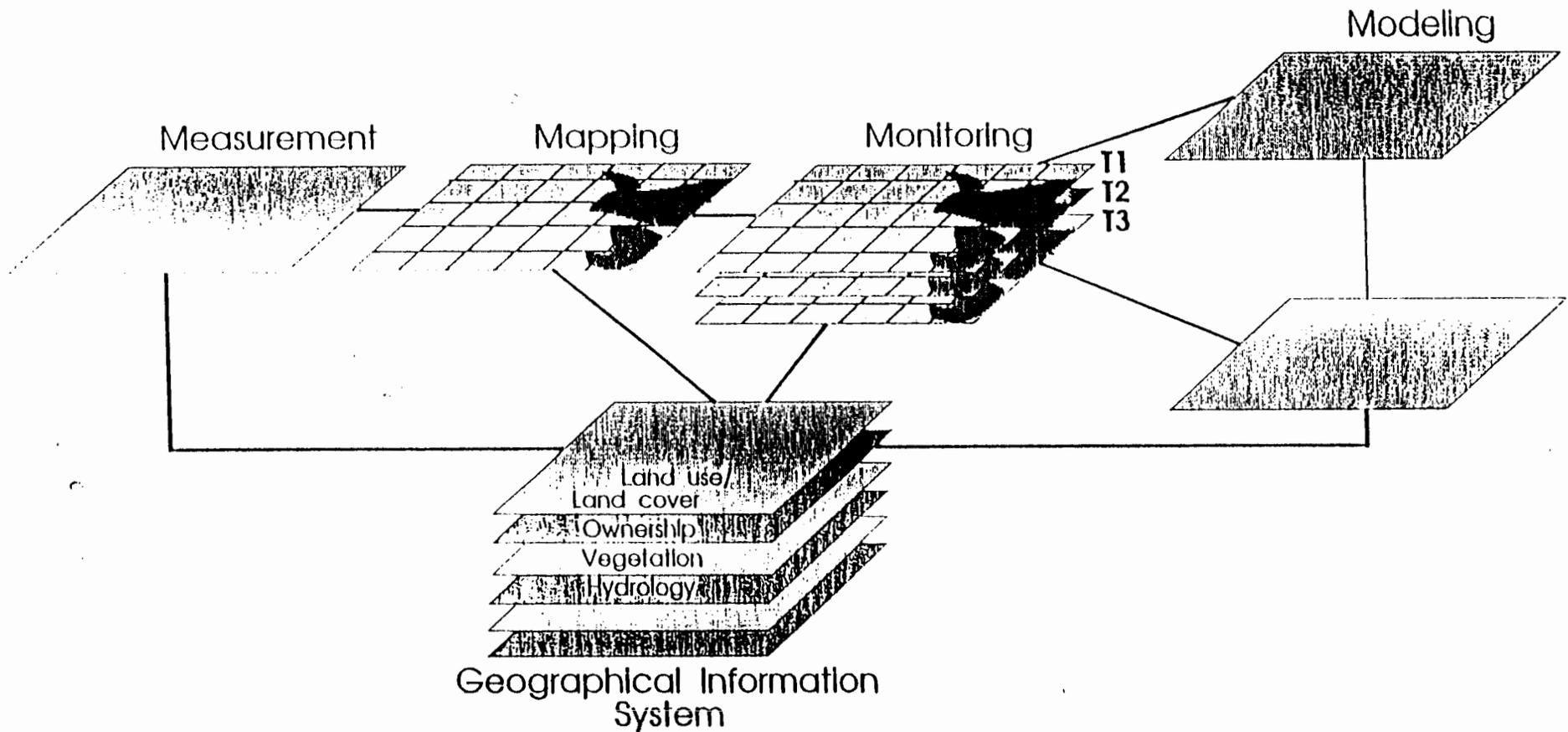


# GIS CAN BE USED TO SUPPORT DECISION-MAKING UNDER UNCERTAINTY





# MEASUREMENT, MAPPING, MONITORING, AND MODELING OF ENVIRONMENTAL FEATURES AND PROCESSES CAN BE ENHANCED THROUGH THE USE OF A GEOGRAPHIC INFORMATION SYSTEM





## ENVIRONMENTAL MODELING SUPPORTS COLLECTION OF REPRESENTATIVE DATA

---

- Computer intensive techniques
  - Helps identify proper sampling locations and frequencies
  - Potential data users define data quality objectives
  - Evaluate current sampling strategies
  - Data used to develop, verify, and validate models
-



## DURING FY92 THE CENTER HAD MANY ACCOMPLISHMENTS

- Hired administrative and scientific staff and developed administrative infrastructure
- Established Science Advisory Board (SAB)
- Published WIPP-EM Implementation Plan
- Initiated bioassay program and produced an informative video
- Began development of sampling protocols for bioassay program



## FY92 ACCOMPLISHMENTS CONTINUED...

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- Hosted bioassay workshop
  - Analyzed historical air monitoring data technical document
  - Completed conceptual design specifications for permanent facility
  - Acquired temporary, off-campus, office facility
  - Promoted Center, its programs, and research through publications and presentations
-



## FY93 PROMISES TO BE A BUSY AND PRODUCTIVE YEAR

---

- Senior scientists will join staff
  - Acquire *in vivo* bioassay equipment
  - Provide *in vivo* bioassay services for the WIPP
  - Continue *in vivo* bioassay program for the general population
  - Initiate field sampling program
  - Establish computing center
  - Publish research results, make data available for all interested parties
-



## THE CENTER IS WELL ON ITS WAY TO FULFILLING ITS MISSION

---

- Multi-year, multi-million dollar environmental monitoring and research program
    - monitor population, biota, and environment surrounding the WIPP site
    - develop improved monitoring and analytical methods
    - establish a health and environmental database
  - Senior staff recruitment
  - Building in design phase
  - Equipment procurement
-



## THE POTENTIAL FOR THE CENTER SEEMS ALMOST LIMITLESS

- Industrial sector
- Environmental remediation
- Mixed waste characterization
- Emergency response
- NORM
- Education
- Mercury contamination
- Indian nation issues
- Technology transfer

# Center director excited over environmental 'think tank'

By TONI WALKER  
Current-Argus staff writer

Don Fingleton envisions Carlsbad as being home to an environmental think tank unmatched by any existing agency, he said.

Fingleton, who holds a doctorate in environmental chemistry, is director of the Carlsbad Environmental Monitoring and Research Center currently housed at New Mexico State University in Carlsbad.

He was hired to the position in September and hopes to have the facility fully operational in three to four years, he said.

Original plans were to have the lab built and a fully-staffed about a year from now. But, he said, lab design, bid advertisement, facility construction and installation of state-of-the-art equipment is a lengthy process.

There are currently three architectural firms on board with specialties in designing scientific labs.

The facility will be located south of the local NMSU branch on land donated by Rep. Bob Light, D-Carlsbad.

The U.S. Department of Energy, in an unprecedented move, approved a \$20 million grant — submitted through the Waste-management Education Research Consortium — to build the facility.

The center will have total independence from the DOE and subsequent operations are to be supported, in part, on a services-for-fee basis and through contract research

funding, Fingleton said.

"The quality of the data and the motives of the center's administration and scientific staff must be of the highest caliber and above reproach. Thus, an essential component of the center is its total independence," Fingleton said in a report he will present at the Waste Management 1992 Symposium to be held March 1-5 in Tucson, Ariz.

The DOE grant has no constraints with respect to the research and development agenda, he said.

"Thus, the center is insulated from the fear of losing DOE funding because it may have to publish data and results that are not favorable to the WIPP project," the report said.

Please see FACILITY on A-4



## Facility ready to provide a local 'think tank'

Continued from page A-3

"In addition, the center's senior scientists will hold tenured faculty positions at various New Mexico universities which provides the job security and the academic freedom necessary to conduct proper research and publish the results without fear of retribution ..." the report said.

Fingleton stressed that although the lab will inspect any environmental changes linked to WIPP, he has higher expectations.

"My vision is much broader than WIPP monitoring.

"Almost everyday, you pick up the newspaper and see an environmental problem in New Mexico, the United States, the world," he said.

He sees the lab as being instrumental in handling local, national and international environ-

mental problems, and in helping other areas collect and analyze data while they set up their own facilities, he said.

"The potential for the center seems almost limitless since there are a multitude of environmental and health issues that the center will be in a unique position to address," he said.

Some of the issues he mentioned were industrial waste management and disposal, environmental remediation, mixed waste characterization, emergency preparedness and response, education and standards preparation.

Fingleton is already looking at resumes and intends to hire some staff to begin working before the facility is complete.

At full capacity, the lab could employ 50-60 people, of which 60 to 70 percent will be scientists.

"My vision is that this is a world-thinking organization," he said.

"There will not be a research lab I try ... with the mandate to be a state facility and do this kind of research this mission," he said.

He said the Carlsbad community bile for bringing the site in.

"I have the greatest respect for the world. Not only for having the foreize the importance of the organization, the capability to bring it about," he said.

"This is really a nice jewel for C New Mexico," he said.

Among his many goals, he plans facility open for the public to come questions, plus, build a data base wh the public and other agencies will us

## Independent Research Center Created To Gather, Analyze Data at WIPP

A coalition of federal, state and local officials have established a research institution with the goal of providing an independent assessment of possible health and environmental effects of the Department of Energy's Waste Isolation Pilot Plant near Carlsbad, N.M.

Proposed about two years ago by Carlsbad residents, the Carlsbad Environmental Monitoring & Research Center is the result of a cooperative effort involving Carlsbad, New Mexico State University, the Department of Energy and others.

The center is temporarily located at the Carlsbad campus of NMSU and funded with a \$25 million, seven-year grant from DOE. The center will eventually move to a permanent location in a facility now under design and expected to be completed in about three years, said director Don Fingleton.

The center's primary objectives are to develop better methods and instruments for gathering and assessing environmental data and to provide independent characterization of the WIPP site. Initial activities include in vivo and in vitro bioassay analysis of WIPP employees and Carlsbad residents; radiological and chemical analysis of the environment and biota; and the creation of a health and environmental data base.

### New Instruments Sought

DOE's WIPP-related activities are monitored by some 30 watchdog groups, but "for the most part nobody's doing any analytical research and monitoring, and that's what makes us very different," Fingleton said. A major aim will be to design instruments capable of detecting very low levels of contaminants and to adapt sensitive lab instruments for use in the field.

The center is organized into six major divisions: internal dosimetry and bioassay; radiochemistry; environmental chemistry; information sciences; fate and transport modeling; and spatial analysis and geographical information systems.

The divisions will be headed by senior scientists with tenured faculty positions at various universities, Fingleton said, adding that this "gives us the academic freedom to publish our results without fear of retribution from DOE" or elsewhere.

Although conceived as a WIPP-monitoring institution, Fingleton said the center has potential to be involved in activities far beyond New Mexico. In particular, "I see us being a very strong force in supporting the [Environmental Restoration] program" throughout DOE, he said.

Discussions are also being held with several NMSU departments about using the center for joint programs in remote sensing, crop and range management and mapping. In addition, the University of New Mexico has expressed an interest in establishing a graduate program at the center in environmental toxicology, Fingleton said.

For more information, contact Fingleton at 505/887-2759.

## Scientists Plan to Test Solutions To Hanford's 'Burping' Waste Tank

In an effort to end the periodic releases of hydrogen gas from a radioactive waste storage tank at the Energy Department's Hanford facility, scientists plan to begin testing possible solutions to the problem in October, Westinghouse-Hanford spokesman Eric Campbell told NWN.

Following its next venting, expected at the end of this month, scientists will use the 20-day "window of opportunity" to prepare the million-gallon vessel for installation of a large pump to mix the waste, Campbell said. The theory is that by stirring the waste continuously, bubbles of hydrogen gas will not have a chance to collect (NWN, Oct. 3, 1991, p. 386).

The pump will be the first of several possible solutions to be tested, and should be installed after a venting expected in October. After a subsequent release in January, scientists will try mixing the waste with ultrasonic vibration, and also will try simply diluting the waste with water to prevent gas buildup, Campbell said.

The releases occur about every 100 days in the tank containing radioactively contaminated chemicals from spent fuel reprocessing. Scientists have been studying samples of the waste for nearly a year to determine what causes the gas to accumulate and be released suddenly, instead of gradually as with the other Hanford tanks.

Campbell said the tank "remains our number one safety concern," but that all tests so far have supported the scientists' belief that there is little risk of a gas explosion.

# BUSINESS

D

Sunday, October 25, 1992

Carlsbad Current-Argus—D-1

## WERC radioactive 'body count' testing begins

By JOSH MARGOLIN  
Current Argus staff writer

While the Waste Isolation Pilot Plant has yet to open for testing, a major phase of research detailing its environmental implications is about to begin.

Officials at the Carlsbad Environmental Monitoring & Research Center said they are preparing to gather data on local human radioactivity levels in order to determine if there are significant increases once WIPP opens.

"We will determine what each person's normal level is," said center director Don Fingleton. "Then we will monitor these people over time."

The non-invasive program places people in a specially designed chair where a radioactivity scanner figures out their current radiation levels over a 40-minute period.

Currently, the only such chair in New Mexico is located in Albuquerque. And Fingleton and his assistant, Andrea Goodbar, were the first to subject themselves to the test.

Within the next year, he said, another chair will be

moved to his Carlsbad facility.

While the main part of the testing will be done with residents randomly selected, the center will be starting its non-random analysis within a month or two.

This part of the research includes determining the radiation levels and relative changes of those who work or live within a very close proximity to the WIPP site 26 miles southeast of Carlsbad.

Environmental Monitoring — part of the Waste-management Education & Research Consortium — must first get approval to test humans from the New Mexico State University internal review board. The center is part of NMSU.

The random part, to follow the biased stage, will start with the center selecting a sampling of residents of Eddy and Lea counties and then testing them.

The sampling will be chosen by random telephone interviews and will include only those 18 years or older because the machinery is not set for child levels.

It is important to get the initial levels first, said Fingleton, because "there is an awful lot of variation particularly in New Mexico because of the long nuclear history. Some of these folks may have had exposure

from 20-30 years ago. So, there are people that have unusually high body burdens."

Body weight, he said, can affect relative body burdens, too.

The Carlsbad area, Fingleton said, is to be the second region in the country to have independent civilian population radiation monitoring. The first, he said, is in the Nevada Test Site vicinity.

WIPP performs this monitoring for its own employees.

Fingleton said there are several goals for this study.

"The research center really is to be a world-class environmental monitoring and research center," he said. "And I expect us to be dealing with a wide variety of environmental issues."

And, he said, "The public, in general, has an uneasy feeling that they (nuclear authorities) are not telling them the whole truth. A lot of people are concerned about what goes on. But an organization like this can go in and collect check samples independently."

WIPP is the U.S. Energy Department project designed to bury plutonium-contaminated trash from the nation's military complex in ancient salt beds 2,150 feet beneath the Permian Basin.

# LOCAL & STATE

Sunday, January 10, 1993

Carlsbad Current-Argus—A-3

## *Environmental business continues growth*

### At open house, chemist talks about another move

By TONI WALKER  
Current Argus staff writer

Having expanded from an office at the local college, to a larger building in town, environmental chemist Don Fingleton hopes his next move is to a \$20 million environmental science building and laboratory, he said.

He's grateful to have a bigger space at 800 W. Pierce St. to conduct research, but expects diligent efforts to obtain funding for the more elaborate facility, to be located on 20 acres near New Mexico State University-Carlsbad.

Fingleton, at an open house celebration of the Carlsbad Environmental Monitoring and Research Center, said funding to build a proposed 50,000-square-foot facility was nixed from the land withdrawal bill President Bush signed in October.

The land withdrawal bill, transferring the Waste Isolation Pilot Plant from the U.S. Interior Department to the U.S. Energy Department, paves the way to opening the WIPP site.

The center's first major project involves monitoring resources at the WIPP site.

But that's just a small portion of the research scientists will conduct.

In the future, he hopes to have 30 senior scientists on board working on local and global environmental issues. The center, as planned, also will employ about 20 people in support positions, such as lab technicians.

Fingleton, the center's director, has received more than 300 resumes from scientists around the world, he said.

The center, funded through a seven-year grant from the U.S. Department of Energy and through research grants, guarantees independent research. Funding guidelines guarantee the center "total independence" from influence on its research and findings, which will be made available to the public, Fingleton said.



Plans for the Carlsbad Environmental Monitoring & Research Center include construction of a \$20 million science facility near New Mexico State University.

One of the WIPP-related studies consists of conducting "whole body counts" to determine radiation levels of WIPP employees and local residents.

The tests will help determine the impact of radioactive waste stored at the WIPP.

Scientists also will conduct the non-invasive body counts on large animals, deer, dogs, fish and cattle, he said.

Studies also include tests at the Gnome site, near Carlsbad, where a nuclear bomb was detonated underground 20 years ago.

"The opportunities are almost limitless," Fingleton said about addressing today's environmental issues.

Scientists will study affect of oil and gas operations on the environment, and in turn, provide operators with information about how to meet more stringent environ-

mental regulations.

Fingleton displayed scenes of people using the same river water for sewage and drinking, of people in Bangkok who live on top of a landfill and burn insulation to keep warm. Scientists are anxious to study the affects of these kind of activities, he said.

Natural Occurring Radioactive Material, volcanic gases released into the atmosphere, a northern New Mexican Indian tribe's concerns about its proximity to Los Alamos National Laboratory and mercury-contaminated fish are a sample of environmental issues scientists are studying, Fingleton said.

Fingleton said he is confident the center will obtain the funding to expand into the \$20 million building.

"We're at the pot of gold at the end of a rainbow," Fingleton said. "This is a fantastic opportunity."

# Carlsbad Current-Argus

35

Thursday, April 8, 1993

Carlsbad, New Mexico

Vol. 114 No. 158

## O'Leary releases research funds

By TONI WALKER  
Current Argus staff writer

The Carlsbad Environmental Monitoring and Research Center should finally receive the \$2 million it expected last November, said Carlsbad Department of Development director Chuck Bernhard.

Local officials met with U.S. Energy Secretary Hazel O'Leary Wednesday in Albuquerque to discuss the research center's funding, the dramatic reduction in waste proposed for testing at the Waste Isolation Pilot Plant and the WIPP Integration Office's out-of-town location.

O'Leary promised the money by Friday and said she would visit the WIPP site the next time she is in the region.

The research center has been promised a total of \$25.8 million over five years beginning in 1991, according to the center's director Don Fingleton.

Former Assistant Secretary of Energy Leo Duffy had promised the center would receive \$2 million in November, Bernhard said.

O'Leary agreed to release \$2 million for the facility Friday, and an additional \$4.3 million in the near future, Bernhard said.

Please see MONEY on A-2

## Money to provide research equipment

Continued from page 1

Fingleton said the money will enable the center to buy equipment needed to study radiation levels in the bodies of WIPP workers and other local residents. The center will establish baseline radiation levels and test whether they change over time as WIPP begins storing radioactive waste.

"In addition, it will start us moving forward on some of the other sampling programs," Fingleton said.

During their meeting with O'Leary, Carlsbad officials criticized the Energy Department's decision to cut the amount of waste to be tested at WIPP from .5 to .13 percent of the 6.2 million cubic feet ultimately to be stored there. At one time, the energy department planned to store 15 percent of the total capacity during the test phase.

Local officials also expressed fear the site won't be used for testing waste at all. "She didn't respond directly to that question," Bernhard said. The Energy Department is recommending that at least a part of the waste be stored at WIPP during the test phase. The U.S. Environmental Protection Agency will ultimately decide whether waste should be tested at WIPP or elsewhere.

Bernhard said O'Leary accepted responsibility for the decision to reduce the amount of waste to be tested, based on National Academy of Sciences recommendations to decrease the amount of waste to be tested.

"She puts a great deal of stock in NAS recommendations. Their recommendations were that there's not that

much waste needed to prove WIPP's long term integrity," Bernhard said.

One of the Carlsbad delegation's main concerns, Bernhard said, is the location of the WIPP Integration Office. The office originally existed in Carlsbad and moved to Albuquerque in October, 1991.

Officials here feel the office would better serve the project and the community if it existed in Carlsbad.

The WIPP project director John Arthur works in the Albuquerque office.

According to the 1992 WIPP Annual Report, Arthur receives program and technical guidance from the Energy Department's Washington, D.C., headquarters. He has overall responsibility for the WIPP project.

## LOCAL



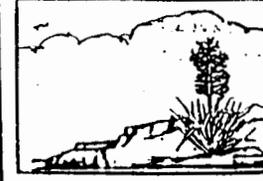
The seventh annual Mescal Roast activities end at noon today at Living Desert State Park. Page A-3.

## SPORTS



The Carlsbad Cave-girl softball team grabs blue trophy in Albuquerque Saturday. Page B-1.

## WEATHER



Partly cloudy with thunderstorms possible through Monday. High in the low 90s, low near 60.



# Carlsbad Current-Argus

Sunday, May 16, 1993

Carlsbad, New Mexico

Vol. 114 No. 190

## Two join research center

Dr. Shan Lee and Dr. Thomas Tissue have been selected to fill top scientific positions at the Carlsbad Environmental Monitoring and Research Center.

Lee and Tissue are to serve on the staff for the center, in charge of monitoring the environment in southeastern New Mexico.

Lee will be the senior scientist for radiochemistry at the center. He previously served as special projects manager and quality assurance manager for Sciencetech, Inc. From 1988-1991 he was the senior radiochemist and technical director for Science Applications International Corp., and has worked with the U.S. Department of Energy, Environmental Protection Agency, and National Institute of Standards and Technology.

He earned his bachelor's degree

in chemistry from the National Cheng-Kong University in Taiwan and gained his master's degree in chemistry from Wichita State University in 1983. He received his Ph.D. in nuclear chemistry from the University of Arkansas in 1986.

Tissue is the senior scientist for environmental chemistry at the center. For the past 10 years he has served as a professor of chemistry at Clemson University and is currently on a sabbatical from Clemson to assist in research at the center.

Tissue earned his bachelor's degree in chemistry from Beloit College in 1961 and received his Ph.D. in physical organic chemistry from Yale University in 1966.

He served as a postdoctoral fellow for the National Institutes of Health at the University of Freiberg in Germany from 1966-1967.

## DOE funds advance environmental studies

By DONIA DUNLAP  
Current-Argus staff writer

Secretary of Energy Hazel O'Leary was true to her word when she told Sen. Jeff Bingaman, D-N.M., she would attempt to speed the process of funding for the Carlsbad Environmental Monitoring and Research Center.

During her April visit to Albuquerque, she and Bingaman discussed the delay in receiving money for the program, and how it was hindering the program's projects where timing is crucial.

The Center, a division of WERC, received \$4.4 million in May, bringing them up to date on the money allocated to them by the Department of Energy in August 1991.

It was the first time the money released was the total amount approved. The Center is used to receiving about half of the money expected.

The program has received \$7,549,285 in the last three fiscal years. By spring of 1998, the project expects to receive a total of \$20,888,000.

The Center is a division of the Waste-management Education and Research Consortium.

"The money is funneled through WERC, but is for the Center," said Dr. Donald Fingleton, director of the Center, a division of WERC.

He said receiving the money on time is so important because the Center is trying to establish a base-line — or control — to compare current environmental data to the information collected after the Waste Isolation Pilot Plant receives low-level radioactive waste.

The Center employs four scientists, including three with PhDs, a support staff, computer science specialists, and administrative personnel.

"We are up to 10 (employees) now, and we look to add five or six more by late summer or early fall," Fingleton said.

Although the Center is an independent facility, it is affiliated with New Mexico State University.

"The Center was originally founded as an independent state-of-the-art research institution to conduct studies to evaluate health and environmental impacts associated with technological development," he said.

"What we see as our mission is to anticipate and re-



Current-Argus/Donia Dunlap

Research Assistant Lindy Sparks, left, and Dr. Tom Tisue demonstrate the use of the Conductivity, Temperature and Depth Recorder — by adding a bag of ice to water in a trash barrel — to NMSU students visiting the center from Las Cruces.

spond to the environmental needs of the community," he said, "and to address environmental issues raised by the public.

"We conduct environmental studies to address these needs," he said.

Some of those studies involve water, soil, humans and animals.

The Center's employees demonstrated some of the research equipment to a group of American Indian students from Dona Ana Community College in Las Cruces, a branch of NMSU, Friday.

One piece of equipment, a Conductivity, Temperature and Depth Recorder, analyzes bodies of water in the area.

Another device, the high-volume air sampler, uses filters to separate particles from the air for analysis.

Human volunteers are also to be used for studies at the Center.

The Center's bioassay program helps the analysts determine the amounts and types of radioactive substances in the body. A sensitive radiation detection instrument painlessly measures the substances which have accumulated in the body from natural sources, man-made fallout or tracer isotopes given for medical purposes.

Some of the DOE money is intended to develop laboratories in the Center for complex analysis of the environment and living organisms.

## LOCAL & STATE



Some residents told the State Corporation Commission they're content with phone service. Page A-3.

## SPORTS



The American League drilled the National League, 9-3, in Tuesday's All-Star Game. Page B-1.

## WEATHER



Mostly cloudy tonight and Thursday, scattered thunderstorms. Low near 70, high, upper 90s.

# Carlsbad Current-Argus

Wednesday, July 14, 1993

Carlsbad, New Mexico

Vol. 114 No. 239

35

## Road trip rough for sake of science

By THOMAS BARTLETT  
Current-Argus staff writer

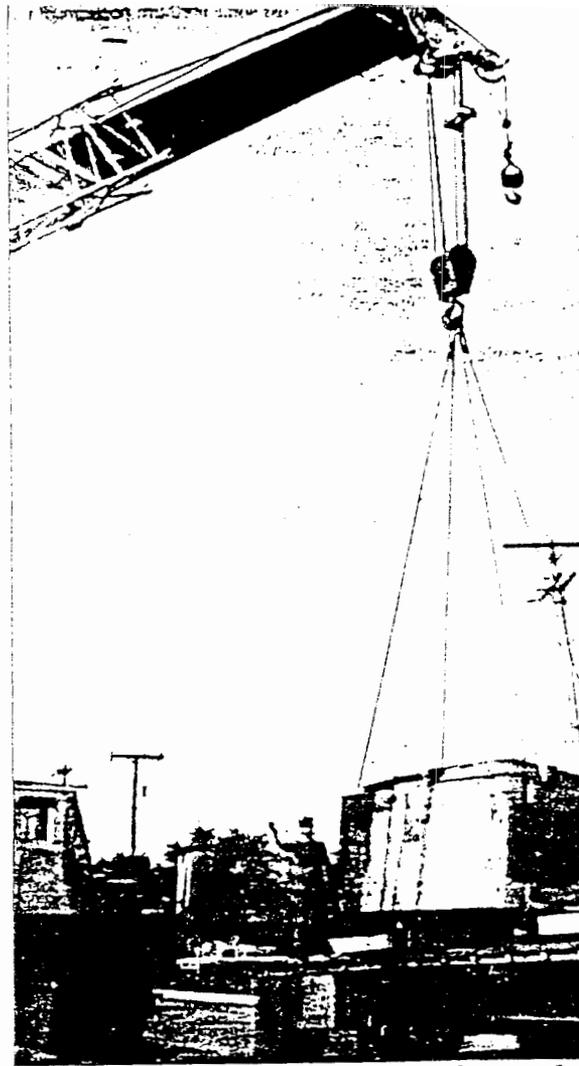
At 1 a.m. Monday morning, a truck traveling from the University of Florida to Carlsbad was run off the road by a drunk driver in Louisiana.

The truck driver was able to regain control, but his cargo, a 25-ton shielded steel room used in the measurement of low-level radionuclides, was tossed off the truck causing a five-foot deep crater in the side of the road. The shield then bounced another 60 feet and created a four-foot deep crater on its second bounce.

The shield was donated by the University of Florida to the Carlsbad Environmental Monitoring & Research Center. The director of the center, Don Fingleton, who flew to Louisiana to inspect the wreckage, said the westbound lanes of Interstate 20 had to be temporarily shut down because of the accident.

The shield, which is worth about \$250,000, had three of its doors fly off in the accident and pieces were spread out over 200 feet. A crane was able to reload the equipment and it arrived in Carlsbad this morning at around 9 a.m.

Fingleton said it will cost about \$50,000 to repair the damaged equipment — which is insured. The driver of the truck, Troy L. Ealy, was not hurt. The truck, owned by



A crane hoists up a 25-ton shielded room to be used at the Carlsbad Environmental Monitoring and Research Center.

Please see SHIELD on A-2

## Shield damaged

Continued from page 1

Roadmasters Inc. was not damaged.

The shielded room is seven feet by four feet with six-inch thick steel walls. It is to be used to identify types and amounts of radiation on

WTPP radiation workers, according to a press release by the group.

The center, established in 1991, is an independent facility for the study of health and environmental impacts associated with technological development. It is affiliated with New Mexico State University in Las Cruces.

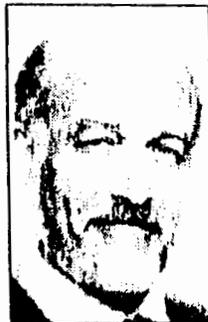
## Tissue to train Filipino scientists

The Carlsbad Environmental Monitoring & Research Center has announced the selection of Dr. Thomas Tissue by the International Atomic Energy Agency (IAEA) for an assignment as a visiting expert to the Philippines.

"It's my first trip to Asia," Tissue said. "And, as you can imagine, I'm quite pleased to be selected for this prestigious assignment."

Tissue, who has been with the Center since March, will be training the senior scientific staff at the Philippine Nuclear Research Institute in Quezon City, Philippines, in the use of total reflection X-ray fluorescence spectrometry (TRXRF). TRXRF is a highly sensitive technique for analyzing the elemental composition of the surfaces of solids.

The mission will begin in Vienna this month at the Atom Institute with two days of briefing. Tissue will then travel to the Philippines to set up the TRXRF device and train his counterparts in its use. The high-tech equipment will be used to study impurities in computer chip silicon wafers. Manufacturing electronic chips is



an important growth industry in the Philippines, and strict quality control is essential in the process.

The IAEA, a United Nations agency headquartered in Vienna, provides technical assistance and training in all aspects of nuclear science. In partnership with the U.S. State Department and its counterparts from other industrialized countries, the IAEA provides equipment, holds workshops, publishes training and reference materials, and sends technical experts to assist industrialized countries in expanding their technical capabilities and manpower.

Tissue has extensive experience with the IAEA, having served as one of their visiting experts since 1984. He has been sent to Bolivia three times, Uruguay twice, Nigeria, and El Salvador. He was also scheduled to go to Cameroon in 1991, but the mission was canceled three weeks before it started due to severe political unrest there.

He will conclude his work in November, at which time he will return to work at the Center in Carlsbad. The Center, a division of the Waste-management Education & Research Consortium, will be using similar techniques in the analyses of air samples collected in the vicinity of the Waste Isolation Pilot Plant.

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# LOCAL & STATE

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Tuesday, November 2, 1993

Carlsbad Current-Argus—A-3

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## Light donating land for research facility

The Carlsbad Environmental Monitoring and Research Center got a boost from Rep. Robert Light, who donated land to NMSU for the facility.

The New Mexico State University Board of Regents intends to discuss the donation at a meeting that begins at 8:30 a.m. Saturday at NMSU-C, room 153. The agenda also includes updates on the Carlsbad branch, the NMSU Weekend College and main-campus housing, as well as proposed land transactions.

Regents are to tour the Waste Isolation Pilot Plant site Friday morning, then are to attend an afternoon executive session and an evening reception.

The reception is to be held from 7-8:30 p.m. at the Living Desert State Park.

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# LOCAL & STATE

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Friday, November 5, 1993

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Carlsbad Current-Argus—A-3

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## Light donates land for center

By **TERESA LAMBRIGHT**  
Current-Argus staff writer

In 1977, he donated the land that made the university branch possible. Ten years later, he gave them room to expand. Now, he's at it again.

Rep. Bob Light is donating 22 acres of land adjacent to the New Mexico State University at Carlsbad on which to build the Carlsbad Environmental Monitoring and Research Center. The center is currently located on West Pierce Street in a building that they lease from Light.

The center is a division of the Waste-Management Education and Research Consortium which is located at NMSU-C. Currently, its major project is the Waste Isolation Pilot Plant Environmental Monitoring Program, according to Michael Antiporda, assistant to the director.



Light

In that capacity, they are monitoring the air, soil and water in this area to establish a baseline assessment of the environment. That will give them a normal pattern to compare with in future study when the WIPP project brings waste to its storage facility south of Carlsbad.

Although the WIPP project is its primary program at this time, the center plans to expand into other areas of study later, he said.

The first land donation Light made to the university branch was the original 40 acres upon which it was built. In 1987, he added 31 acres to that plot to allow the university to expand.



# Carlsbad Current-Argus

\$1.25

Sunday, November 7, 1993

Carlsbad, New Mexico

Vol. 115 No. 30

## Board approves land donation

By **TERESA LAMBRIGHT**

Current-Argus staff writer

The highlight for locals at Saturday's NMSU Board of Regents meeting was the approval of Rep. Bob Light's land donation to the branch campus.

Light donated 22 acres of land south of and adjacent to the New Mexico State University at Carlsbad campus for the construction of the new Carlsbad Environmental Monitoring and Research Center.

After the donation was approved, and Light was awarded a large artist's rendition of the proposed center, he said, "I hope to see the community see this to fruition and it looks like we're moving in that direction."

In a statement released after the meeting, Don Fingleton, director of the center, said, "I am extremely grateful to Rep. Light for his generous donation. We are fortunate to have such strong support from such a leader in the community."

He said Light's "vision will mean a lot for the citizens of Carlsbad, the state of New Mexico and the world in years to come."

"Today's donation marks a major milestone in our ability to achieve our mission and goals," he said of the center. Those goals are to provide the public with independent research and environmental monitoring in the vicinity of the Waste Isolation Pilot Plant.

Monitoring will include air, soil, water and plant sam-

pling and will measure current levels of radioactivity in the vicinity before anything is moved to or stored at the WIPP site. The measurements are to provide a norm by which to measure any future radioactivity.

The center is a division of the Waste-Management Education and Research Consortium which is headquartered at NMSU's Las Cruces campus.

The approval of the donation also involved approving a letter to Rep. Light agreeing to his terms regarding the land donated: that the campus provide street access to the land via Chama Road and that it maintain architectural consistency in construction of the center.

Other issues discussed at the regents meeting included:

- President James Halligan's "Good News" report showed things on the up-swing throughout the NMSU campuses.

- The Camino Real Corridor Initiative Resolution that called for the regents to approve involvement in the economic plan to set up trade from Mexico through to Las Cruces. University involvement was approved.

- An update on NMSU-Carlsbad showed the branch as a growing entity of NMSU.

- The Weekend College Report dealt with the success of classes held on Saturdays.

- Potential involvement in the Federal Direct Student Loan Program was discussed after such an application was made. Involvement is not yet approved.

In the area

## Land gift to help NMSU radiation monitoring

By Todd G. Dickson

Of the Sun News

CARLSBAD — Twenty-two acres of donated land will house an environmental monitoring center conceived by New Mexico State University and the U.S. Department of Energy to address concerns about a nuclear waste disposal site.

NMSU regents meeting here Saturday accepted the property donated by state Rep. Robert Light, D Carlsbad. The 22 acres are next to land Light donated previously for NMSU's branch college.

The Carlsbad Environmental Monitoring Research Center was planned to answer concerns about the Waste Isolation Pilot Plant site.

The center will monitor the environment and people for exposure to radiation and other contaminants. Officials promise its operations would be independent and that its test findings would always be public.

Director Don Fingleton said besides handling WIPP-related testing, the organization could become an international resource for this kind of complete environmental monitoring and research.

The center's WIPP Environmental Monitoring Program will measure current levels of radioactivity in the vicinity through air, soil, water and plant sampling and will use different techniques to test human exposure to radiation.

All this will be done before any radioactive waste is shipped to WIPP, Fingleton said. This series of test results will be compared with future measurements to determine if the operational WIPP site has affected the environment or local residents' health.

Basic plans have been drawn up for \$20 million, 530,000-square-foot permanent center at the donated land. The center is now housed in a Carls-



This artist's rendition of the proposed Carlsbad Environmental Monitoring and Research Center was conceived by NMSU faculty and the Department of Energy.

bad office building.

Fingleton praised Light's donation: "We are fortunate to have such strong support from such a leader in the community. His

vision will mean a lot for the citizens of Carlsbad, the state of New Mexico and the world in years to come."

He called the land donation "a

major milestone in our ability to achieve our mission and goals."

At a reception for Light on Friday, NMSU President James Halligan said the university,

through the Waste management Education Research Consortium and environmental monitoring center, is accepting the fact that WIPP will open someday.

Earlier that day, Halligan and regents toured the WIPP site, 26 miles east of Carlsbad. The NMSU president said he's convinced the site is safe and that its opening should not be delayed further.

Only waste contaminated with low-level radioactive materials is planned for burial at WIPP in tunnels in an underground salt bed 2,150 feet below the surface.

The WIPP site has been controversial since it was proposed in the late 1970s and has yet to receive any waste.

In other business at the NMSU regents meeting:

- Halligan told regents about an experiment this year to set aside three NMSU dorms as alcohol-free areas.

L A S C R U C E S

# Sun-News

## WIPPed before you start Monitoring center director preserves its independence

By Todd G. Dickson  
Of the Sun-News

CARLSBAD — If Don Fingleton does his job as director of the Carlsbad Environmental Monitoring Center, no one will be appy.

Not those city leaders who see the Waste Isolation Pilot Plant as a major economic development for Carlsbad. Not environmental groups distrustful of the Department of Energy, which has paid for starting the center as well as WIPP.

But total independence is what New Mexico State University officials publicly promised when they announced the center's creation through the DOE-funded Waste-management Education Research Consortium.

The center mission then was to monitor the health and environment around the proposed low-level radioactive waste underground depository to ensure its safety.

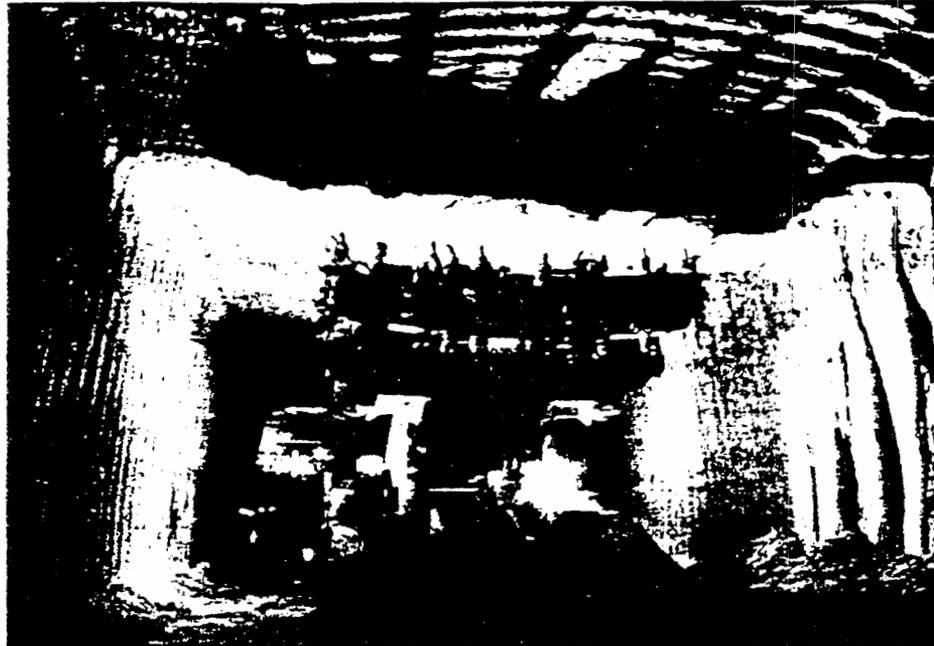
Fingleton says he is determined to keep that promise, but he knows there are skeptics.

During one of his first appearances before a legislative committee in Santa Fe, a member of the group against the waste project came up to him and said, "So you're the ickey the DOE hired."

While Fingleton laughs about the exchange, he admits that there's been pressure from both sides of the issue.

But Fingleton — who worked for Argonne National Laboratory on environmental contaminants before being hired for the center — said his vision for the center would make WIPP a small part of the kind of research he wants done.

Please see Monitoring, Page A-3



A mining machine chews out a storage tunnel at the Waste Isolation Pilot Plant near

## Testing program finds the

By Todd G. Dickson  
Of the Sun-News

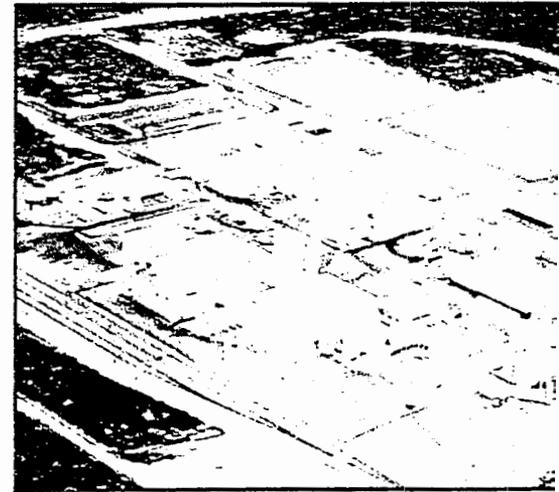
CARLSBAD — Inside a cavernous room in the underground bowels of the Waste Isolation Pilot Plant, electrical cords are splayed about.

The room's disorder is the result of late October changes that have moved the plant's testing above ground, said Craig Suggs, manager of public information programs, during a tour of the site early this month.

Since Oct. 21 when an announcement from the Department of Energy was made that testing would be above ground, workers have been removing wiring and a computer center from the underground test site and preparing for tests. Tests hadn't been scheduled by last week.

The underground lab was to be used for some tests to determine how much gas pressure decomposing barrels of low-level radioactive waste would cause while entombed in a salt bed 2,150 feet underground, Suggs said.

But no one working at the Department of Energy's pilot plant site is complaining. Arland Hunt,



Aerial view of WIPP

DOE program manager, said scientists advised pilot plant officials that conducting the tests in a lab would speed up the process and perhaps get the site operational by the turn of the century.

The new testing method also will be cheaper, according to DOE officials. New tests will cost \$20 mil-

lion to \$30 million, the \$200 million the underground officials said.

After \$1.4 billion study, Hunt is poised to demonstrate away barrels of

Please see Te

# Testing

From Page A-1

Underground will work as permanent storage solution. The waste that would be stored has radiation that can't penetrate skin, but contains small amounts of plutonium that are deadly if inhaled, Hunt said.

The vision of the project is to leave barrels of waste in underground storage rooms that would be refilled with mined salt and then sealed, Suggs said.

Eventually, pressure from above the room would cause its walls and ceiling to collapse and entomb the waste, he said.

But Don Hancock of the Southwest Research and Information Center in Albuquerque, thinks the idea is merely an expensive distraction to finding real solutions to disposing of nuclear waste.

The pilot plant in Carlsbad is designed to store 6.2 million cubic feet of the radioactive materials called transuranic waste.

That's only 15 percent of all the transuranic waste in the United States, Hancock said. "It's less than one-one hundredth of a percent of all waste," he said. "But WIPP is often portrayed as the solution."

Hancock said the nuclear industry didn't begin to deal with the question of waste disposal until massive amounts of radioactive waste built up.

Pilot plant officials said their idea can help.

"We're ready to operate as a nuclear and hazardous waste depository," Hunt said. "There's a lot of waste out there and WIPP is only one solution."

That solution has been well

researched, officials said.

Jay Lees, media coordinator for the pilot plant, notes that there are 23 oversight groups for the plant. It has been able to meet all the oversight groups' often divergent and conflicting requirements, Lees said.

"That's a lot of cost for an extra amount of safety," he said. "But there are no secrets. Everybody knows everything we do."

Suggs said tests conducted by Sandia National Laboratories on concerns such as whether brine water movement will spread contamination have come out in favor of the approach.

Pressurized brine water in a test wall migrated very little because of the compressed plastic-like nature of the underground salt bed, he said.

Nevertheless, many questions remain, said Margaret Carde of the Concerned Citizens for Nu-

clear Safety in Santa Fe.

The site also is a poor idea, Carde said, because mining and oil drilling done in the Carlsbad area makes it likely there will be human intrusion during the next 100,000 years.

"There are so many questions in this area," she added. "All have uncertainties."

Sunday, Nov. 14, 1993, Las Cruces, N.M., SUN-NEWS

# Monitoring

From Page A-1

"I have a good reputation in the scientific community," Fingleton said. "I like living in an urban community like Boston. There's no way I'm going to come to Carlsbad to sell out my credibility."

Fingleton said he accepted the job to create an approach to environmental research in which air, water and soil scientists integrate their expertise rather than working independently.

Fingleton said he realized the approach was needed when he was doing ocean pollution research — he didn't know enough about how soil and air influenced pollution in the water because his expertise at the time was with water pollution.

Eventually, Fingleton said, he wants the center to be known as a world-class research facility with contracts all over the globe, which is what he chose as the center's emblem.

He's starting that vision with four environmental and computer scientists who have some equipment in place and some being developed, he said.

Meanwhile, the center has begun taking early air tests and soon will begin testing people so a data base will exist before any radioactive waste will be stored at the plant.

When the pilot plant begins storing waste, measurements can be compared to findings made public — good or bad, he said.

Though the environmental monitoring center is the most visible evidence of the Waste Management Education Research Consortium's connection to the pilot plant, the radioactive waste depository is the site of summer intern training for university students interested in the field of waste management, said Cathy Mikel, manager of education programs for the consortium's pilot operations.

Mikel also lectures to community groups and gives presentations on the pilot plant to school students, often matching interested students with mentors who are workers at the plant.

Mikel defends the pilot plant as needed research for a national problem of nuclear waste disposal.

"If our nation as a whole doesn't start handling each other we're going to be in big trouble," she said. "As a nation we need to be sharing. We've been open to the public and media since the beginning. We're trying to find an answer to the disposal of waste that's out there."

## Bound for repairs



Current-Argus/Chris Temoe

A crane lifts part of a 25-ton shielded steel room onto the bed of an Oklahoma-bound truck Monday. The room, used in the measurement of low-level radionuclides, sustained about \$100,000 of damage in a July accident in Louisiana while on its way to the Carlsbad Environmental Monitoring and Research Center.