

Northern New Mexico Citizen's Advisory Council

Buckman Direct Diversion Project Presentation

May 14, 2009

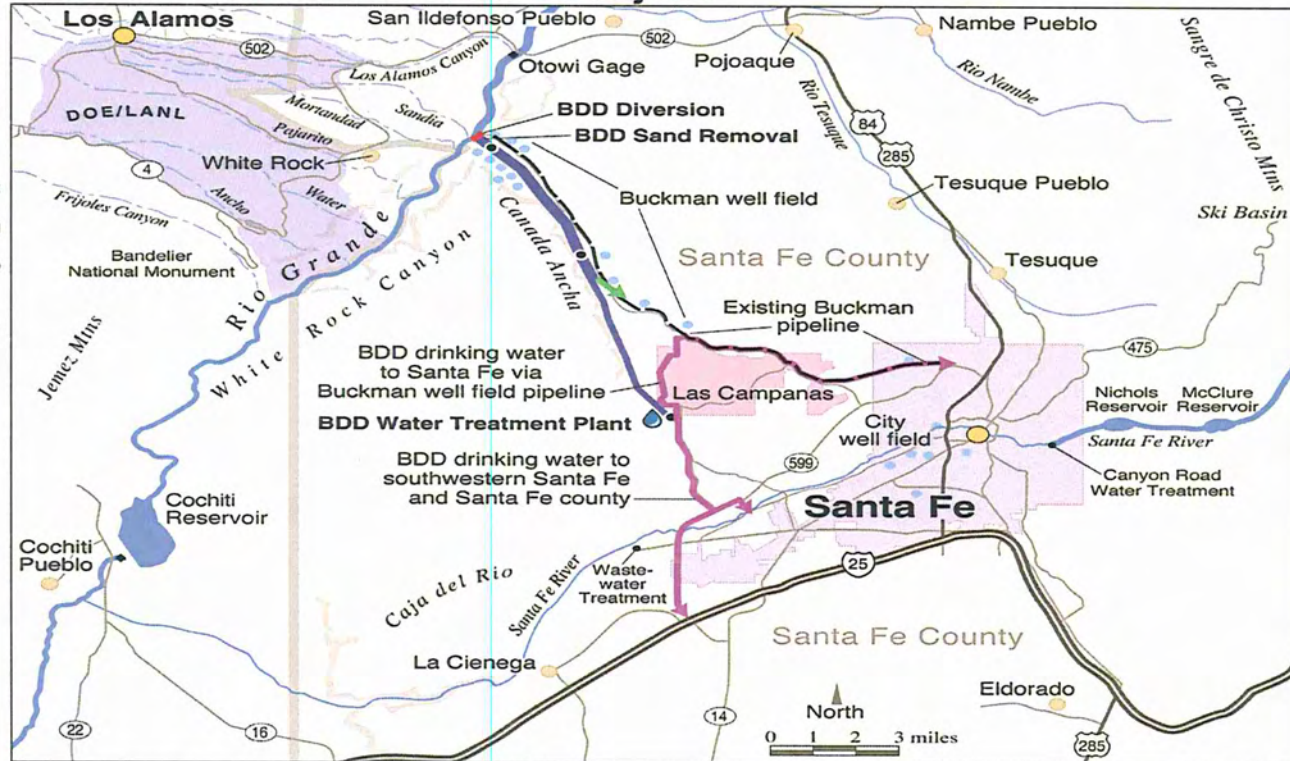


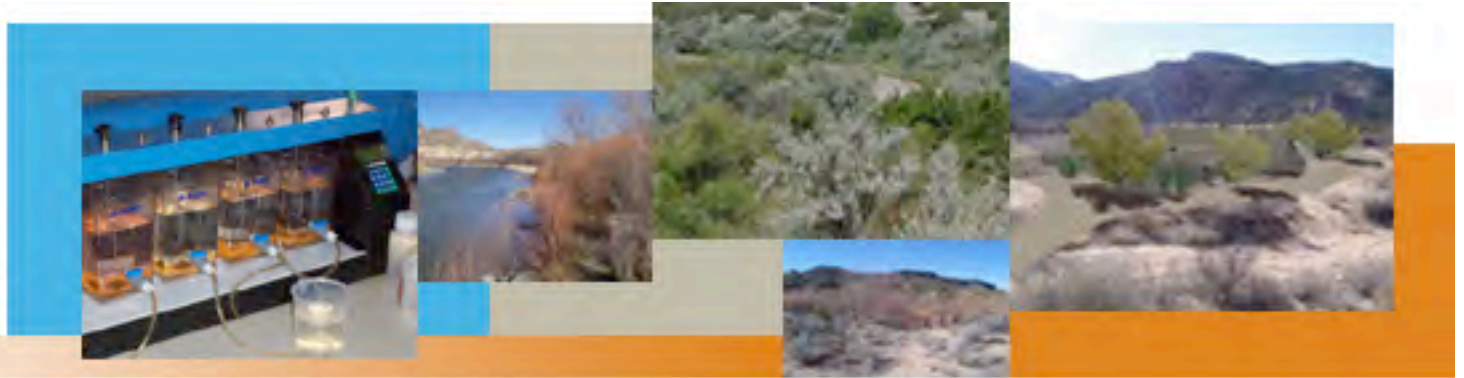
Buckman Direct Diversion Project



Buckman Direct Diversion Project

- BDD Facilities**
- Shared City/County and Las Campanas Raw Water Pipeline
 - City/County Raw Water Pipeline
 - City/County Drinking Water Pipeline
 - Pump Station
 - BDD Water Treatment Plant
 - Entry Point to Drinking Water System
 - Raw Water Delivery to Las Campanas
- Symbols**
- City
 - Town or Pueblo
 - City Well
 - Gage
 - Interstate Highway
 - Federal Highway
 - Other Paved Road
 - County Line
 - Rivers
 - - - Intermittent
 - Existing Pipeline from Buckman to Santa Fe





BDD Will Serve Santa Fe Region

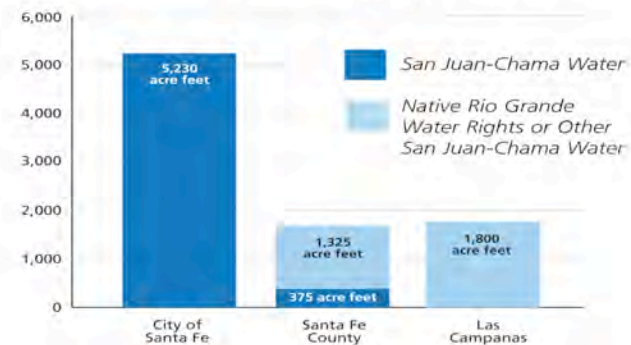
Total permitted capacity:

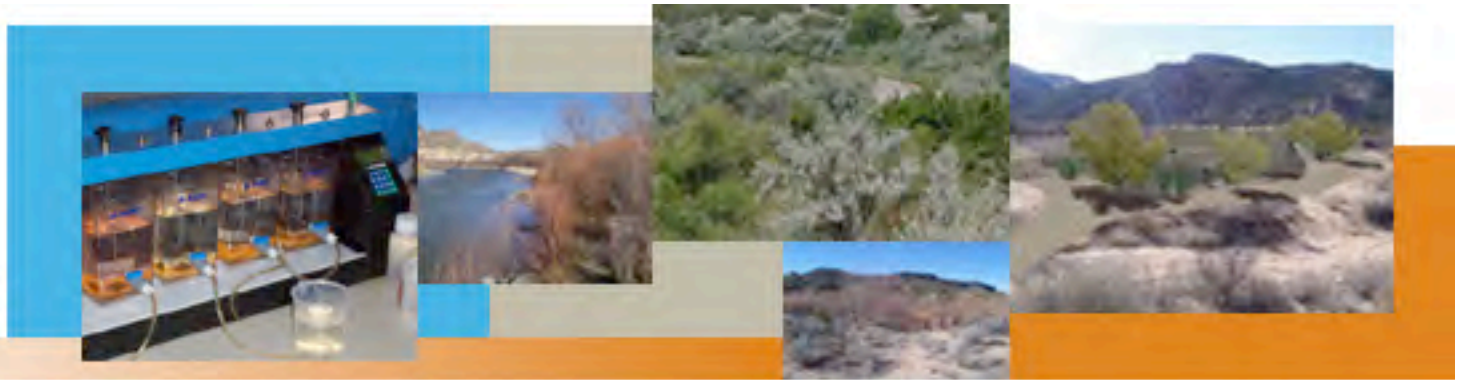
- ♣ **8,730 acre-feet/year (AFY)**
(average 7.8 million gallons/day;
18.3 million gallons/day peak)

Allocations:

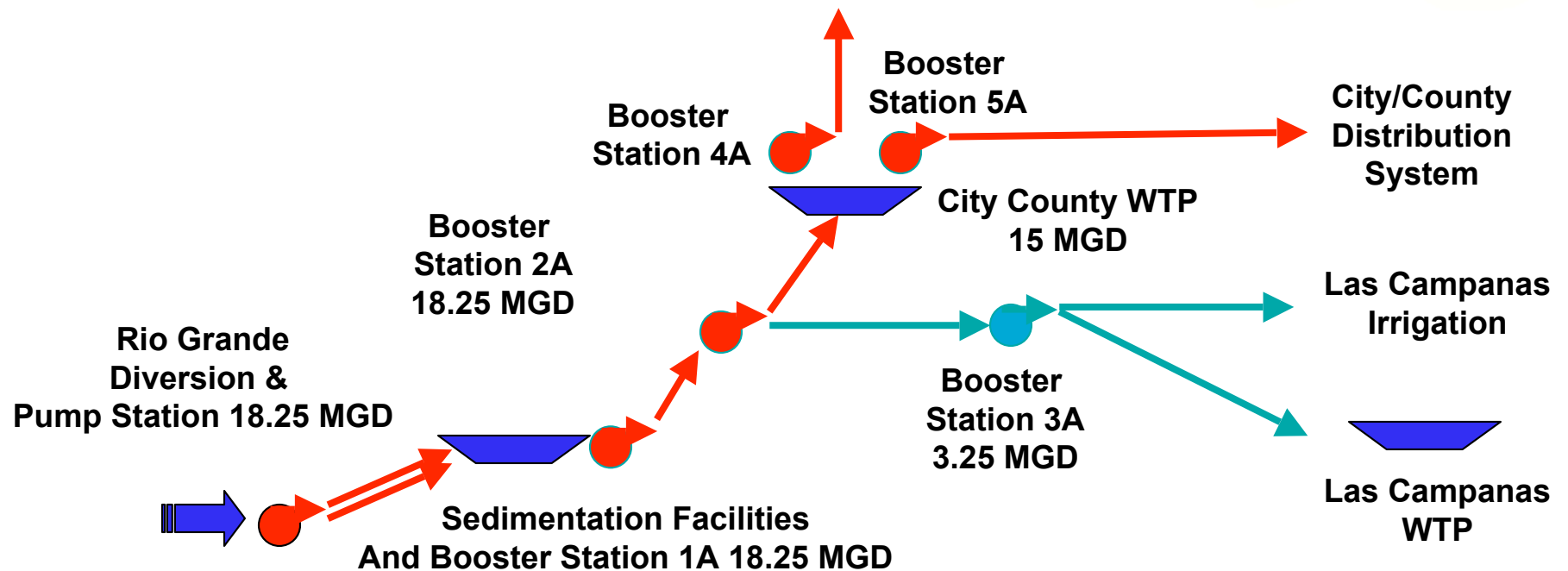
- ♣ **City – 5,230 AFY**
- ♣ **County – 1,700 AFY**
- ♣ **Las Campanas – 1,800 AFY**

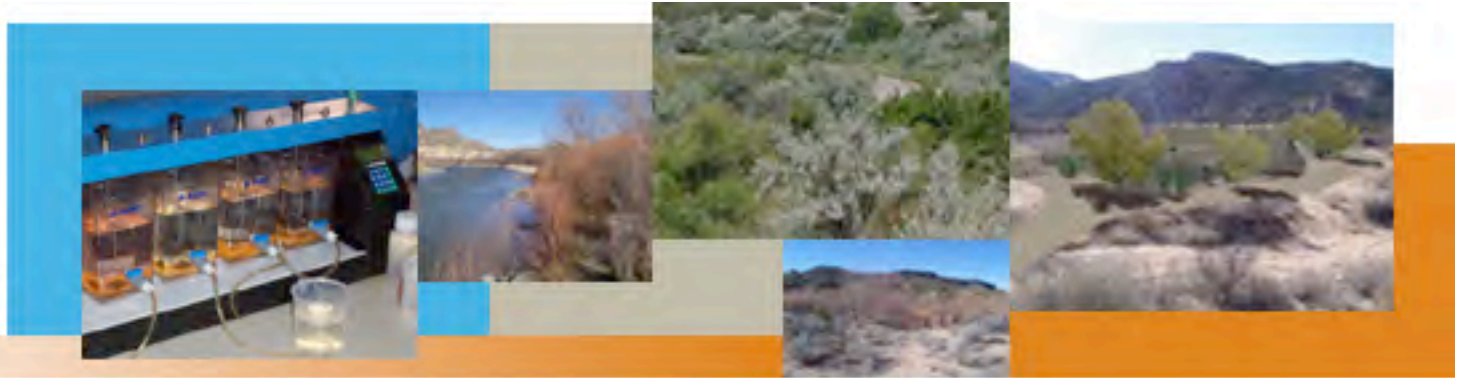
**BDD Project
Water Capacity Per Year**





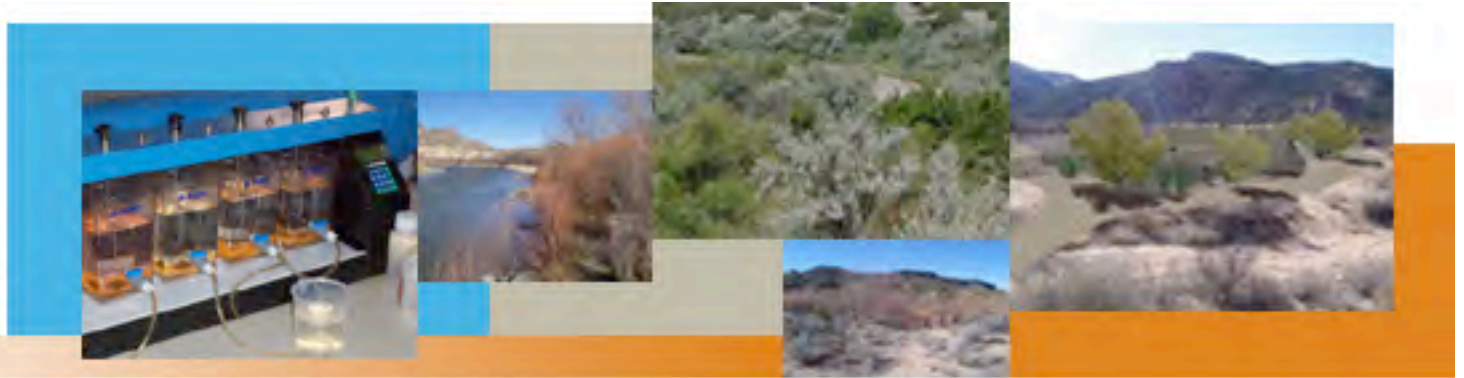
Buckman Direct Diversion Project Schematic





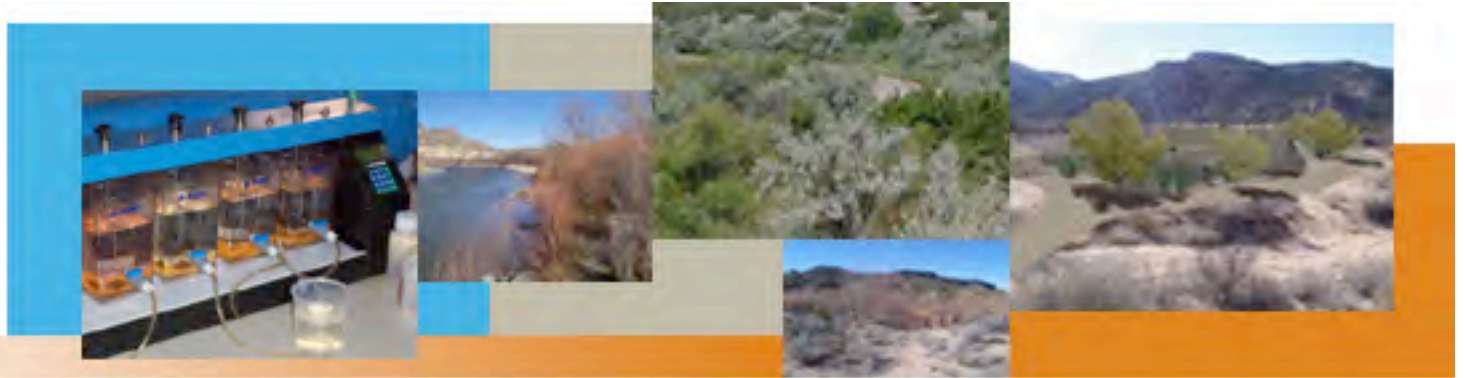
Why We Need the BDD Now

- 1. Helps protect us from running out of water during a drought.**
- 2. Creates the infrastructure we need to access an additional reliable source of water from the San Juan-Chama via the Rio Grande (water available to the City and County under a permanent contract).**
- 3. Provides a sustainable water supply for the BDD's projected 2010 customer population under existing climate conditions (conservation has stretched this date forward by about a decade).**



Why We Need the BDD Now *(continued)*

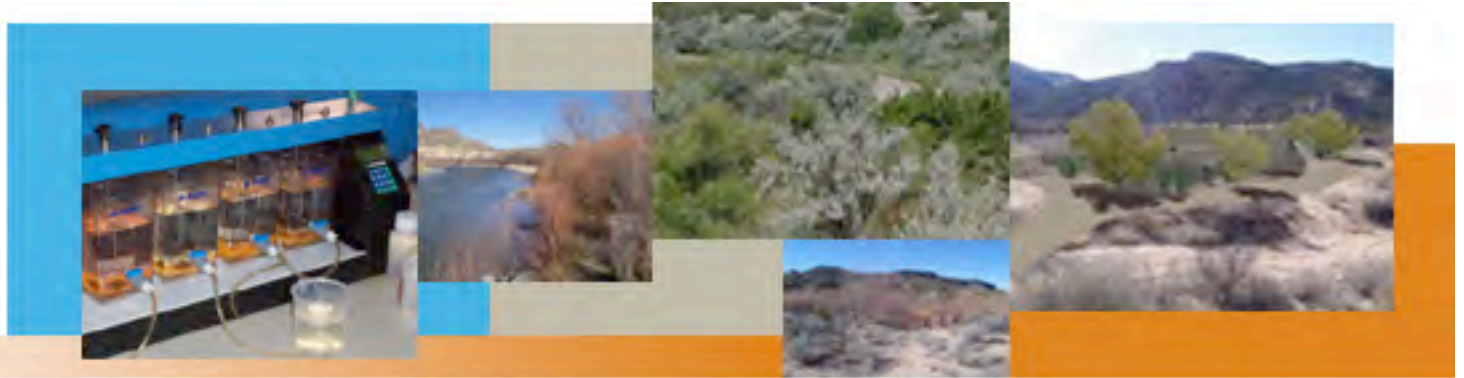
4. **Santa Fe River reservoirs can only supply about half of region's needs in best of years.**
5. **Increases the diversity and flexibility of our water supply sources.**
6. **Reduces groundwater pumping and protects the aquifer from damage due to over pumping.**



BDD Major Components

- ♣ **Surface diversion structure**
- ♣ **Sediment removal facility and sand return**
- ♣ **Pipelines, 5 pump stations, surge facilities**

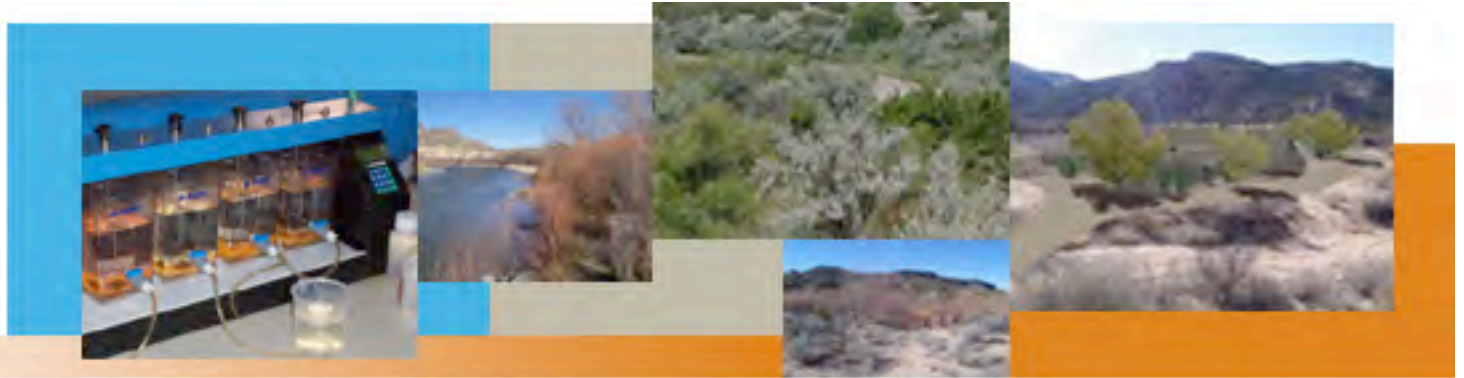




BDD Major Components *(continued)*

- ♣ **11 miles of raw water pipeline,
more than 1,100 feet of lift**
- ♣ **15 million gallon per day WTP
(City/County only)**
- ♣ **26 miles of new “finished”
water pipeline**





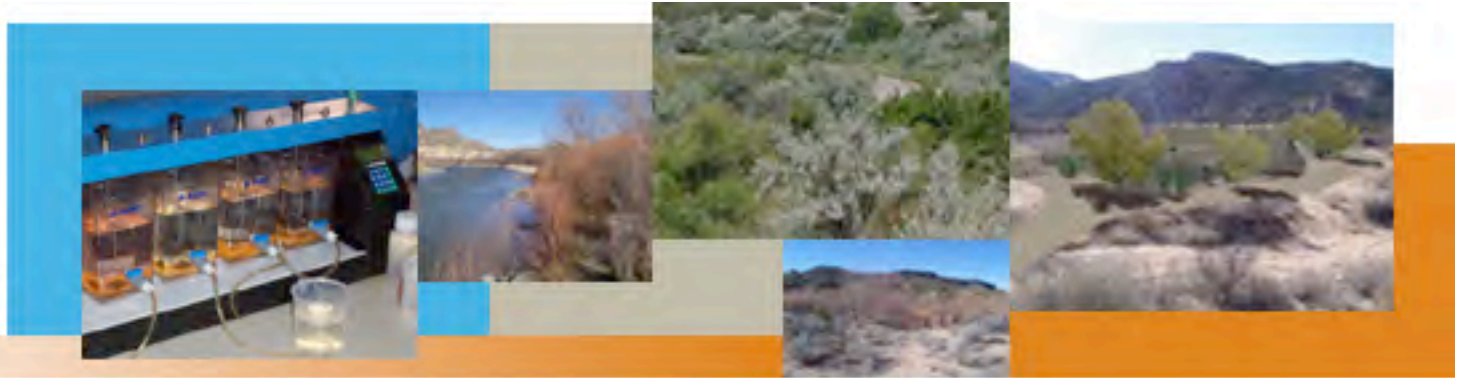
BDD Costs (in millions of dollars)

Board Engineer/Procurement/Contract Oversight	\$ 4.03
Acquisition of Permits & Easements	0.76
PNM & Utilities	3.15
Legal and Other Administration	1.53
Design-Build Construction & Engineering	181.52
Design-Build Taxes	12.28
Other Project Costs	6.34
Contingency Reserves	<u>6.73</u>
TOTAL	\$ 216.34
- Las Campanas' share of construction costs	- 12.34*
- Grants and Low Interest Loans Received	<u>- 13.45**</u>
Total remaining cost	\$ 190.55**

The City and County will continue to seek state and federal funding assistance to help defray BDD Project construction costs.

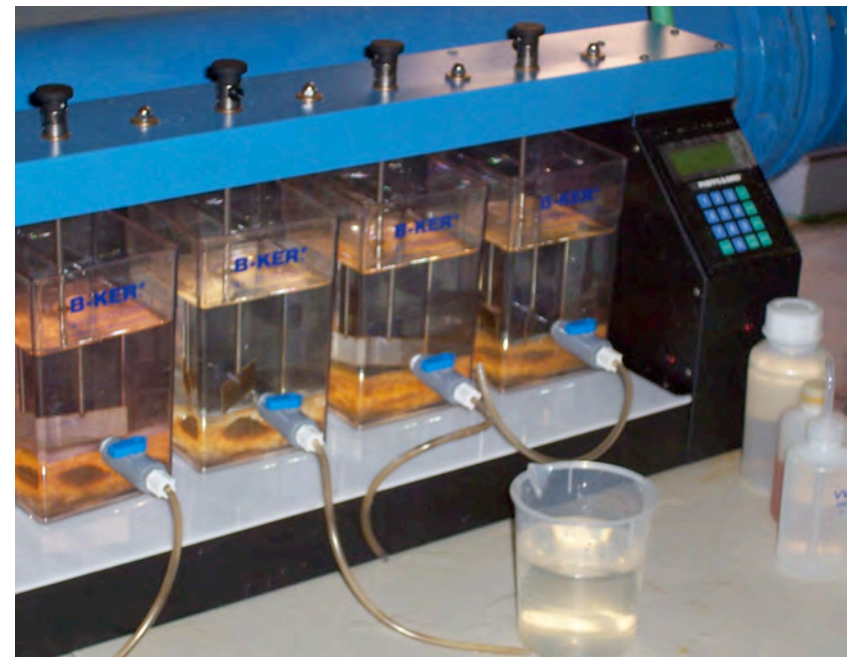
* The City of Santa Fe and Santa Fe County will split project construction costs, minus the share paid by Las Campanas. The City is expected to pay for its share through an increase in water rates, a quarter-cent gross receipts tax, a low-interest loan from the State drinking water revolving fund and possible federal stimulus funding. The County is expected to pay its share of construction costs through an environmental gross receipts tax, bond proceeds and other funding.

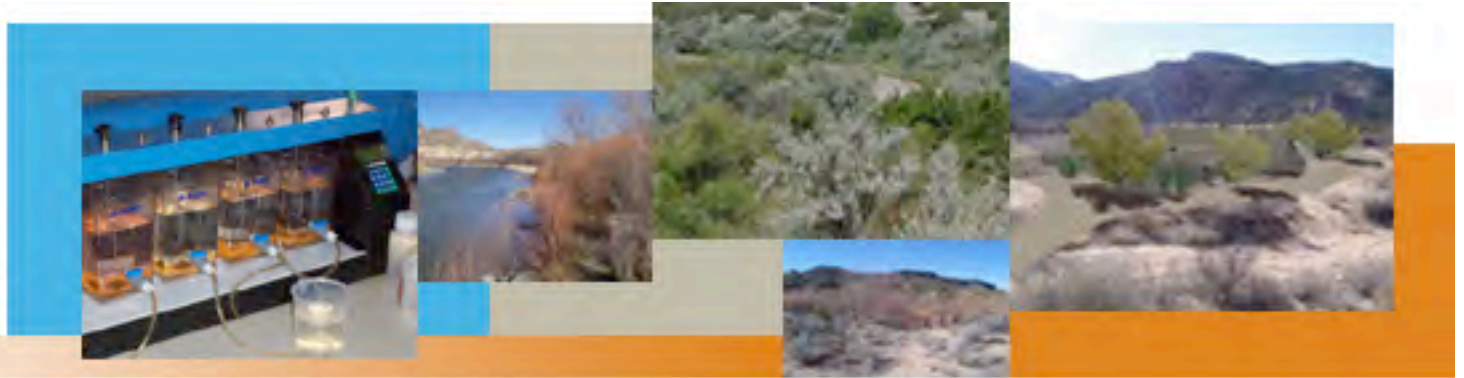
** Las Campanas receives no (\$0) benefit from federal and state grants and is paying for its share of construction of the BDD raw water facilities in cash.



How We Selected Water Treatment Process

- ♣ Preliminary testing in 2004
- ♣ Pilot testing in 2005
- ♣ Tours of other treatment plants
- ♣ Workshops



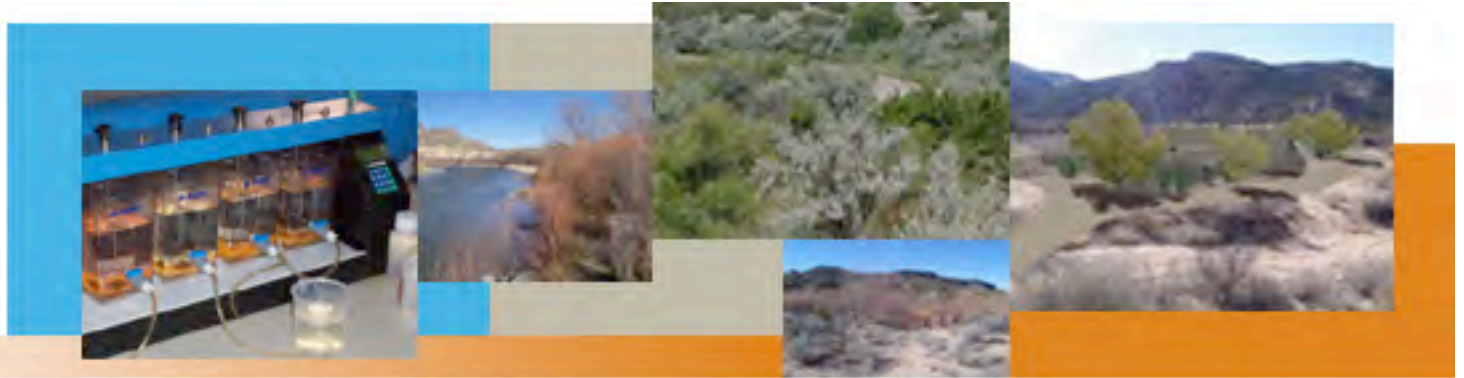


Method Selected

Membrane Filtration System with Ozone and Granular Activated Carbon (GAC) Contractors

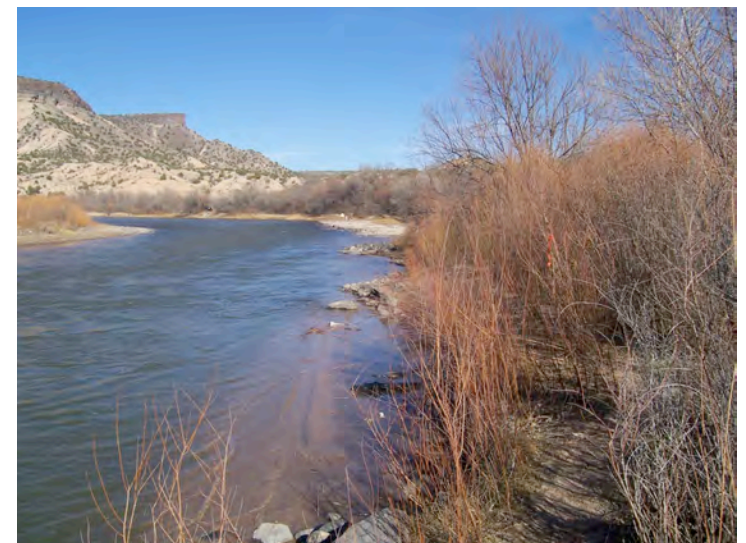
- ♣ Reliable
- ♣ Produces high-quality water
- ♣ Fewer operational concerns
- ♣ Best available technology for removing organics, PPCPs and other contaminants

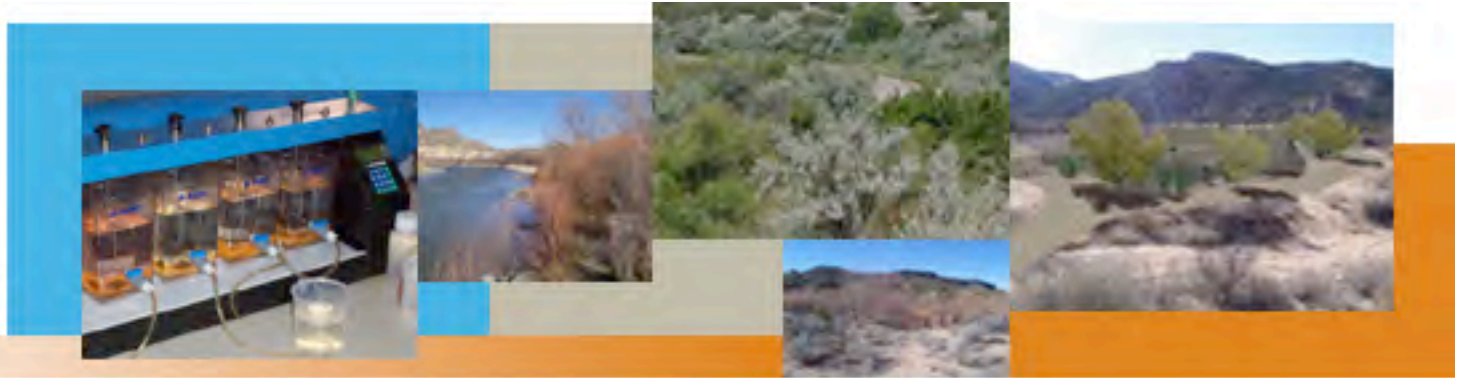




Returning Sediment to River

- ♣ NPDES Permit Required
- ♣ Larger, sand-size particles only
- ♣ Less wear and tear on equipment
- ♣ Less environmental impact – fewer trucks, less material to landfill

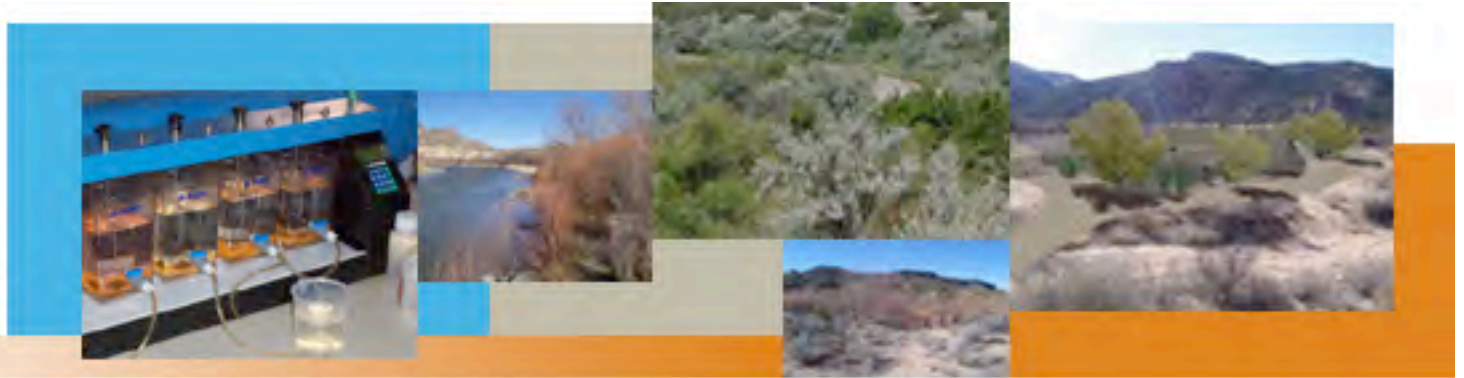




How Do We Know Drinking Water Is Safe?

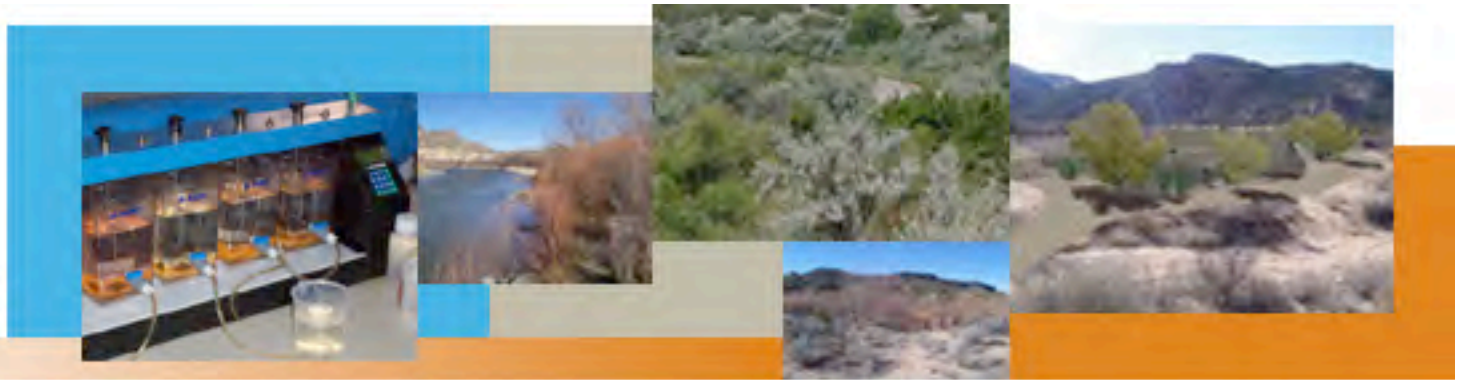
- ♣ **Safe Drinking Water Act – Sets national standards**
- ♣ **Enforced by US EPA**
- ♣ **NMED administers and enforces quality standards here**
- ♣ **BDD is subject to provisions of the Act**





Current Standards

- ♣ **Drinking water quality testing for more than 95 contaminants**
- ♣ **9 microbial**
- ♣ **8 disinfection by-products and residuals**
- ♣ **18 inorganics**
- ♣ **53 organics**
- ♣ **7 radiochemical contaminants**



How Water is Monitored

- ♣ Testing for 95 contaminants required
- ♣ Sampling frequency varies based on parameter
- ♣ Testing can be increased if needed
- ♣ Analyses must be performed at certified laboratories
- ♣ Notification of public
- ♣ Quality Report



City of Santa Fe Water Division
P.O. Box 909, Santa Fe, NM 87504

Customer Service (505) 955-4333
Administration (505) 955-4202

2007 Water Quality Report

The City of Santa Fe's *Sangre De Cristo Water Division* (SDCW) is pleased to provide the 2007 Water Quality Report. A safe and dependable water supply is vital to our community and is the primary mission of SDCW. The report is provided annually and contains information on calendar year 2007 water quality. In 2007, SDCW drinking water met all U.S. Environmental Protection Agency (EPA) and state drinking water quality limits. The report contains additional details about where your water comes from, what it contains, and how it compares to standards set by federal and state regulatory agencies.

Sources of Supply

The SDCW is served by three distinct sources of supply. The 17,000 acre Santa Fe Watershed provides surface runoff to the Santa Fe River where it is stored in the McClure and Nichols Reservoir prior to treatment. Surface water is treated through a conventional treatment process at the Canyon Road Water Treatment Plant. The City Well Field is mostly located in close proximity to the Santa Fe River and consists of 8 active wells located within the City limits of Santa Fe. The Buckman Well Field consists of 13 active wells located near the Rio Grande, approximately 15 miles northwest of Santa Fe. All three sources are treated with chlorine which is used for disinfection and pathogenic microorganism reduction. Fluoride is added to the water supply to benefit the community as recommended by public health professionals.

Do I need to take special precautions?

Some people may be more vulnerable to contaminants in drinking water than the general population. Immuno-compromised persons such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants can be particularly at risk from infections. These people should seek advice about drinking water from their health care providers. EPA/Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Water Drinking Hotline at 800-426-4791.



Map of Water Sources

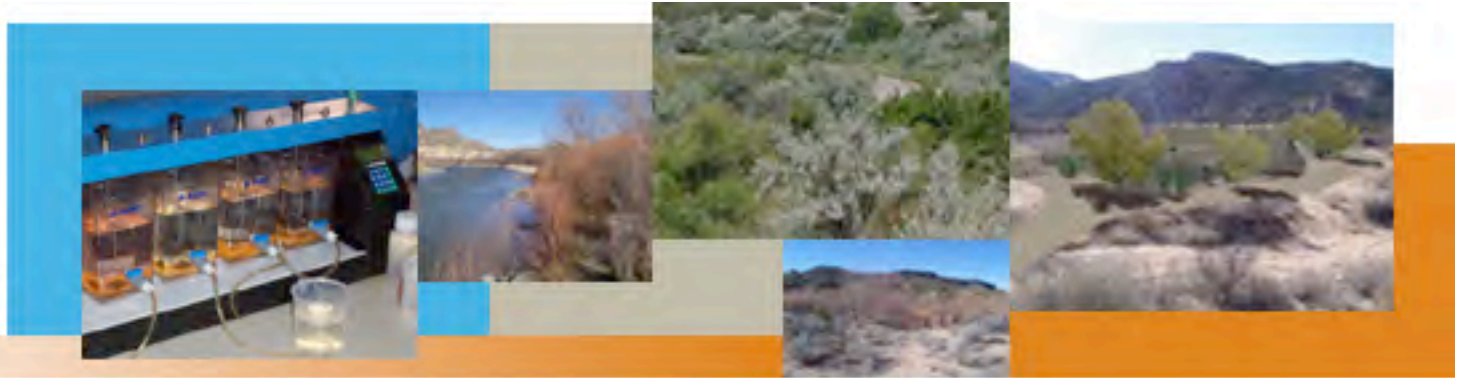
Source Water Assessment and its Availability

The New Mexico Environment Department (NMED) completed a Source Water Assessment for the City of Santa Fe. This assessment includes a determination of source water protection areas and an inventory of pollution sources within the areas of concern. NMED concluded: "The Susceptibility Analysis of the City of Santa Fe water Utility reveals that the utility is well maintained and operated, and the sources of drinking water are generally protected from potential sources of contamination based on an evaluation of the available information. The susceptibility rank of the entire water system is **"moderately low"**. A copy of the Assessment is available by contacting NMED at 505-476-8631.

The Santa Fe City Council built upon the recommendations in the Source Water Assessment and in 2005 adopted the "Safe Drinking Water and Source Water Protection" and the "Stormwater Illicit Discharge Control" ordinances which provide additional controls and protections for the City's ground and surface water supplies. In addition, the City established a Stormwater Program with the goal of reducing pollutants discharged to the Santa Fe River. A hotline has been set up (955-5644) to report illegal dumping in storm drains, streets and emporos.

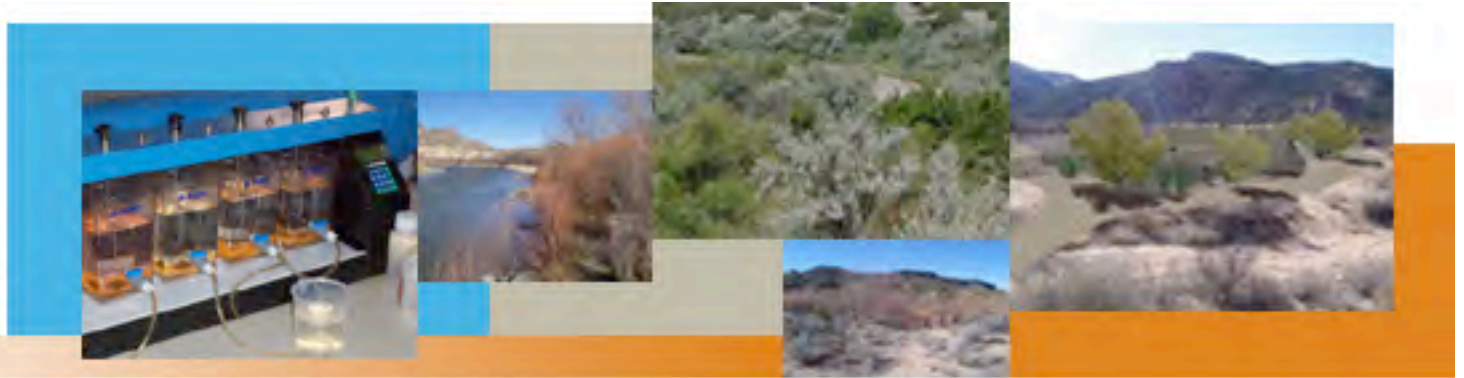
En Español

Este reporte contiene información importante sobre la calidad del agua en Santa Fe. Si tiene alguna pregunta o duda sobre este reporte puede hablarle a Gary Martinez al teléfono 505-955-4801.



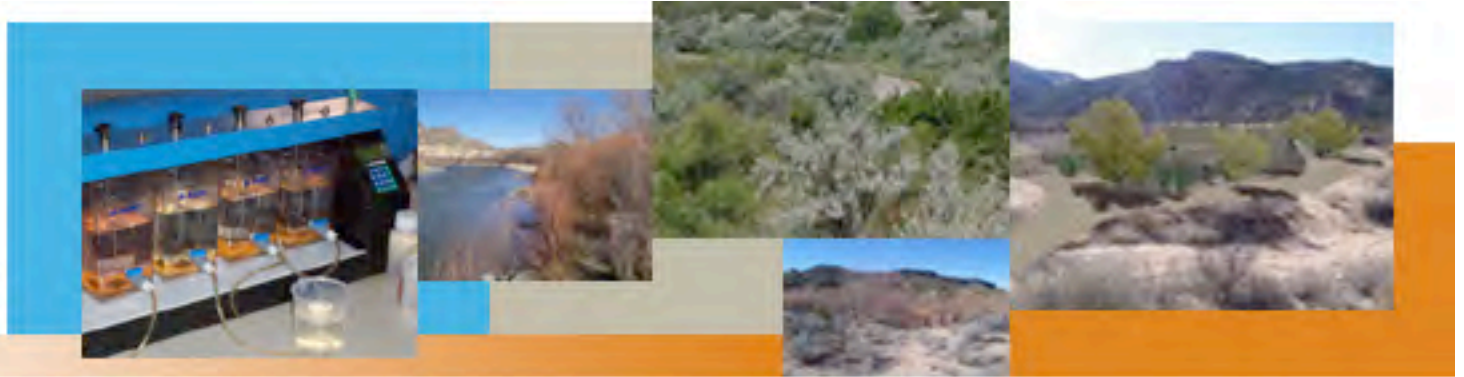
Future Standards

- ♣ **The SDWA directs EPA to identify and list contaminants that may be present in drinking water and require regulation**
- ♣ **EPA listings are prioritized for research and data collection**
- ♣ **The City participates and contributes to data collection efforts**



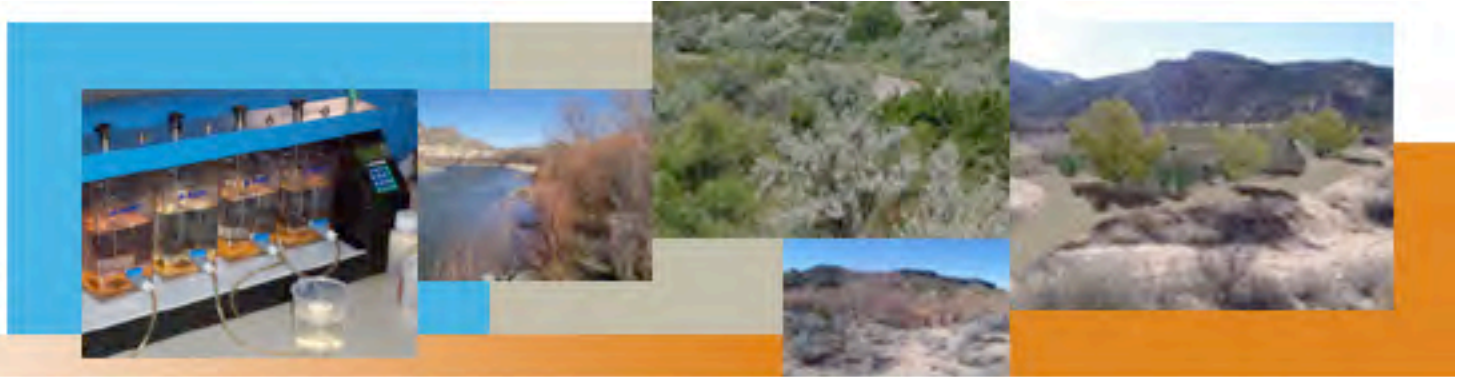
Consideration of LANL-Related Water Quality Issues during EIS

- ♣ Consideration of historical data
- ♣ Review of contemporary studies



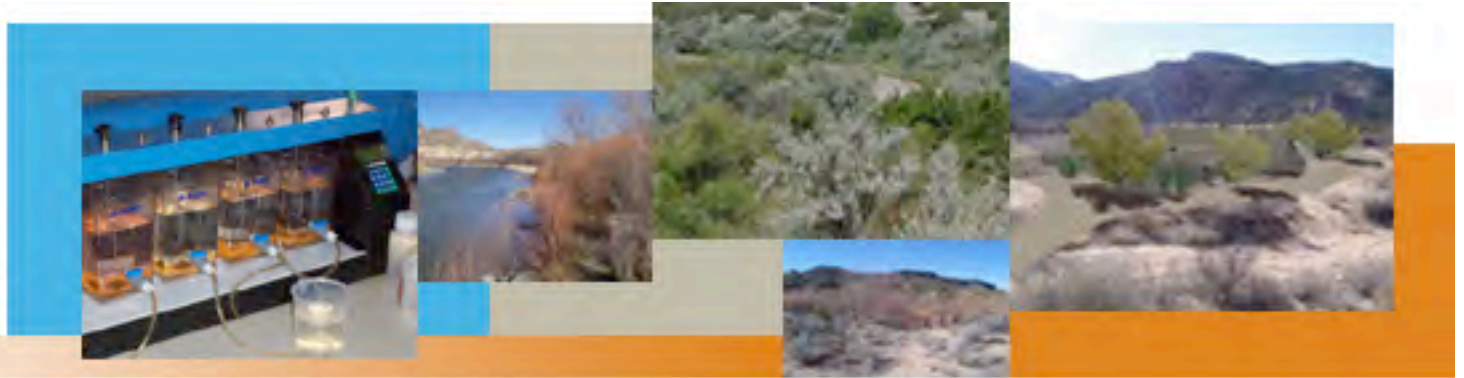
EIS Phases Considering LANL-Origin Contaminants & Water Quality

- 1. 2002 – EIS scoping**
- 2. 2003-2004 – Environmental impact analysis of alternatives and release of draft EIS**
- 3. 2005-2007 – Response to comments in draft EIS & preparation of final EIS**
- 4. 2007 – Response to comments of U.S. Fish and Wildlife Service regarding draft EIS & Corps of Engineers dredge & fill permit application**



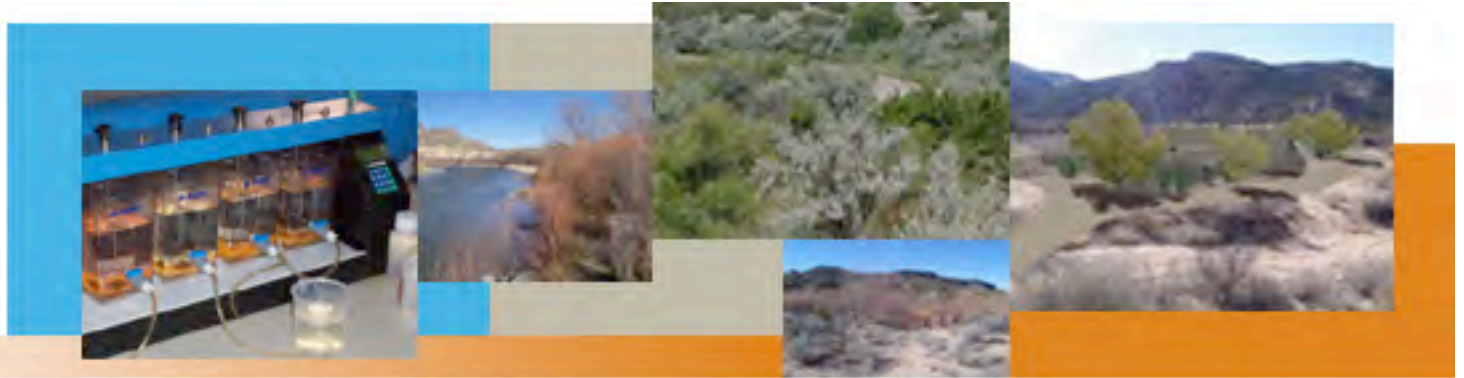
EIS Phases considering LANL-origin contaminants & water quality *(continued)*

- 5. 2007 – Preparation of Record of Decision, including response to comments on Final EIS**
- 6. 2008 – Appeals of Record of Decision to Forest Service Regional Office and Department of the Interior**









Conclusions

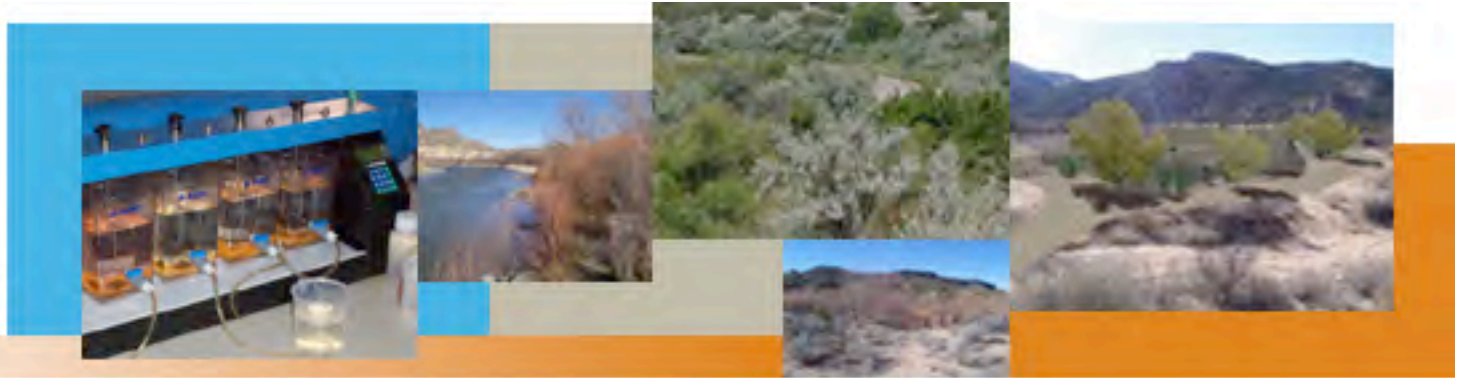
- ♣ Both LANL and those filing appeal referred EIS preparers to NM Environment Department's Dept. of Energy Oversight Bureau
- ♣ EIS preparers obtained substantial NMED reports and data
 - Contamination exists but at very low levels, well below regulated standards
 - Contamination in the vicinity of the BDD diversion site poses no health threat via the BDD
 - Must meet all safe drinking water standards



Action Steps

BDD Board sent letter to LANL in 2007 asking LANL to:

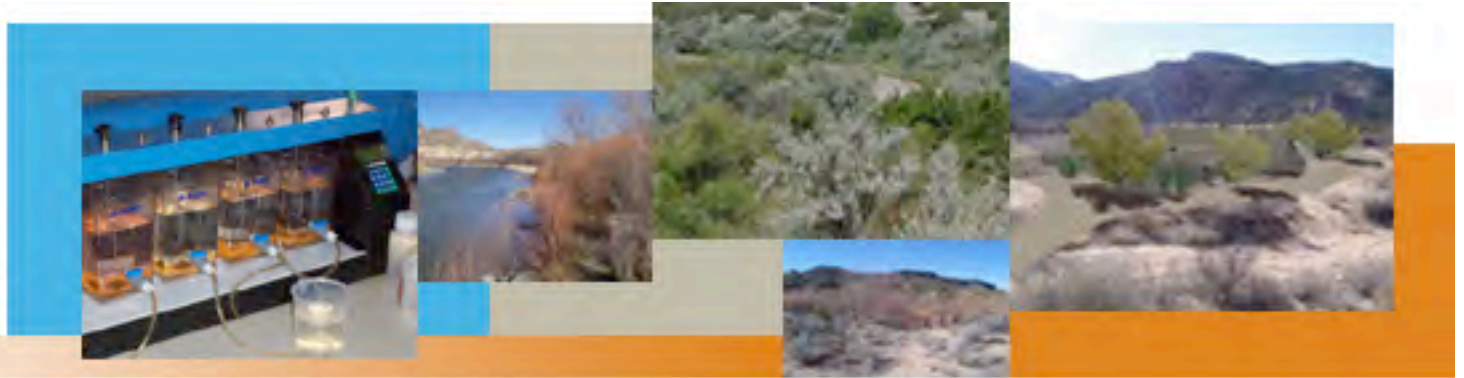
-  1. **Stop migration of LANL contaminants to the Rio Grande & groundwater**
-  2. **Properly monitor transport of legacy contaminants in surface water and groundwater**
-  3. **Measure LANL legacy contaminants in abandoned river channel upstream from BDD site**
-  4. **Provide early notification system for flows from Las Alamos Canyon**
-  5. **Monitor mass of contaminants**
-  6. **Provide funding for BDD Board to hire independent peer reviewer**



Record Of Decision

- ♣ **Forest Service required BDD get support from LANL and NMED to determine if sediments in areas to be disturbed by BDD contained contaminants in excess of applicable exposure standards**

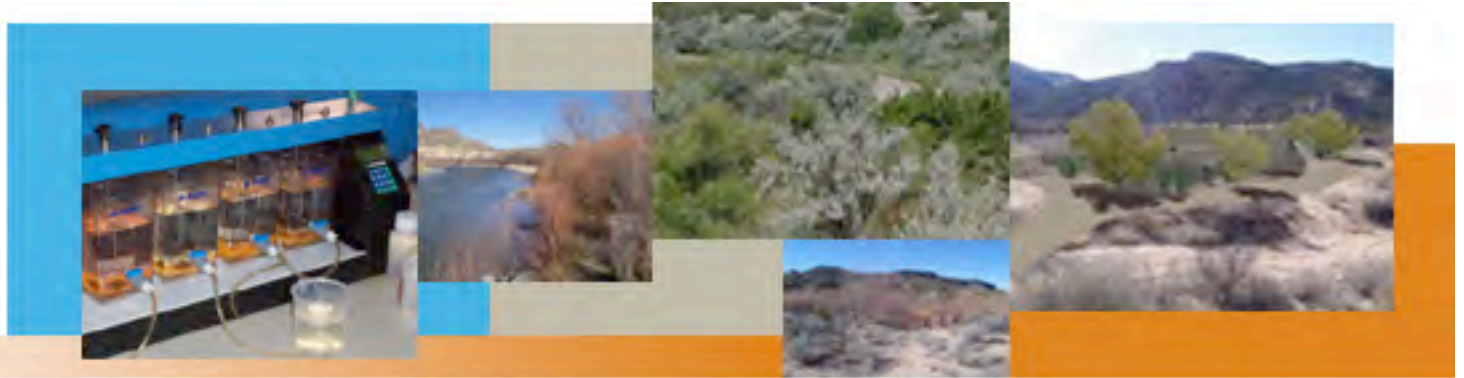




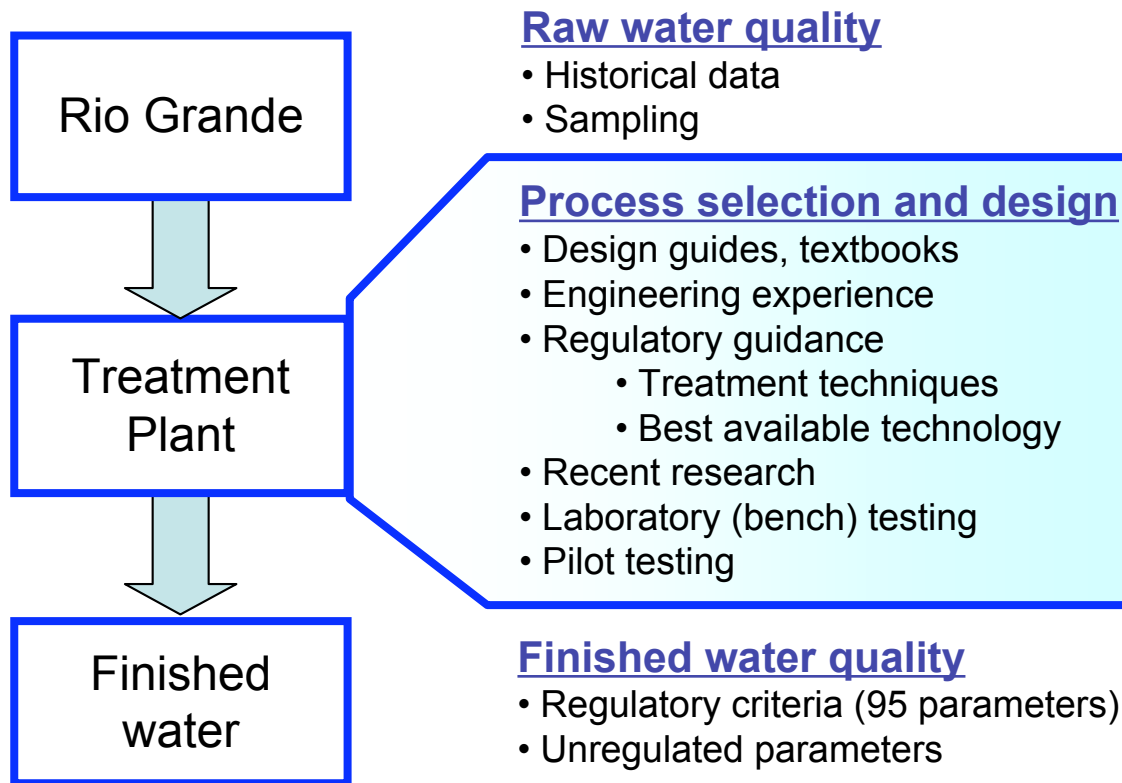
Core Sampling

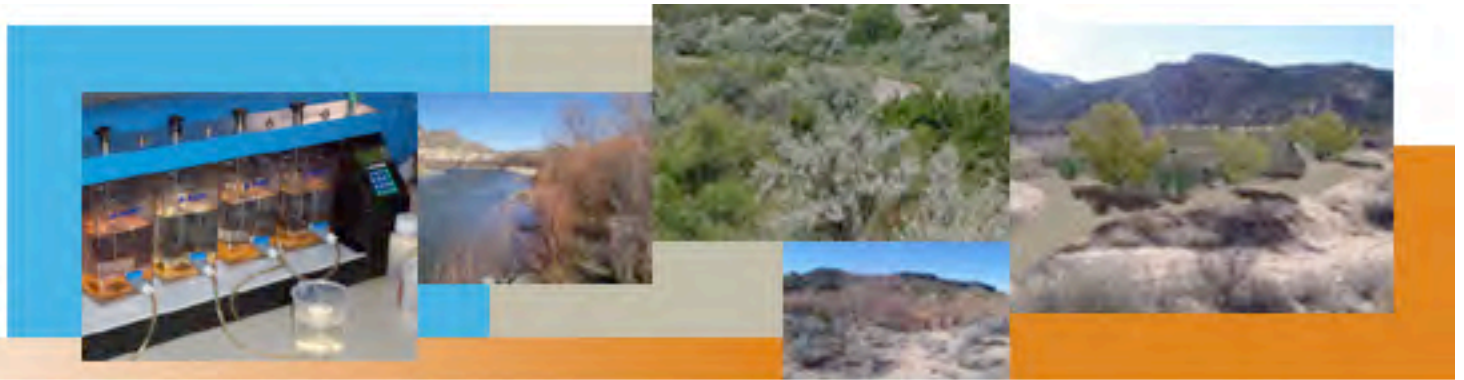
- ♣ Core sampling defined boundaries of contamination
- ♣ BDD construction and operation will not disturb contamination
- ♣ Southern extent of abandoned river channel 500 feet upstream of construction area
- ♣ Construction area has contamination that is less than or is not distinguishable from normal background



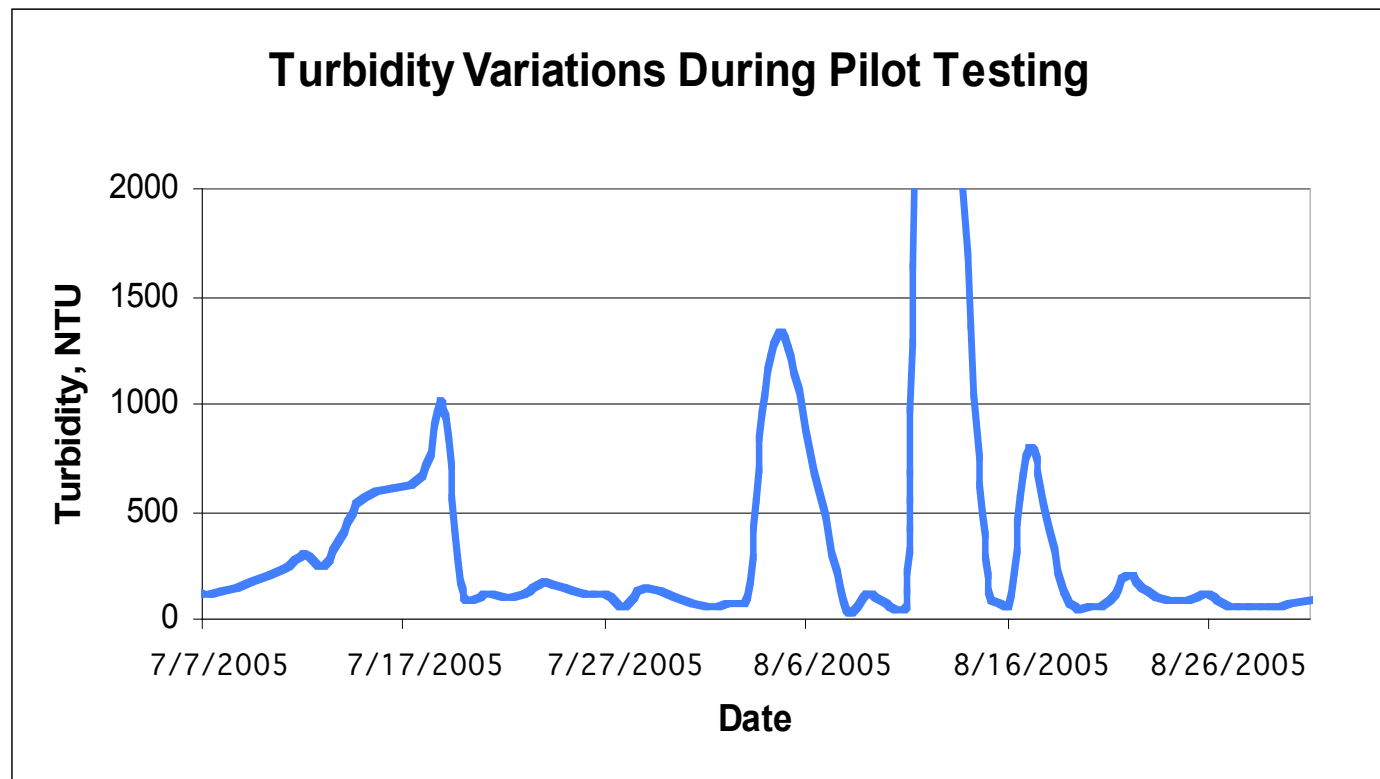


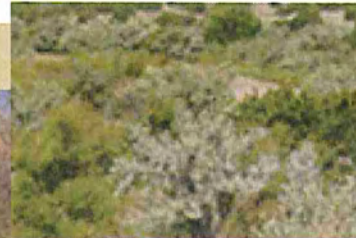
Water Treatment Design Process



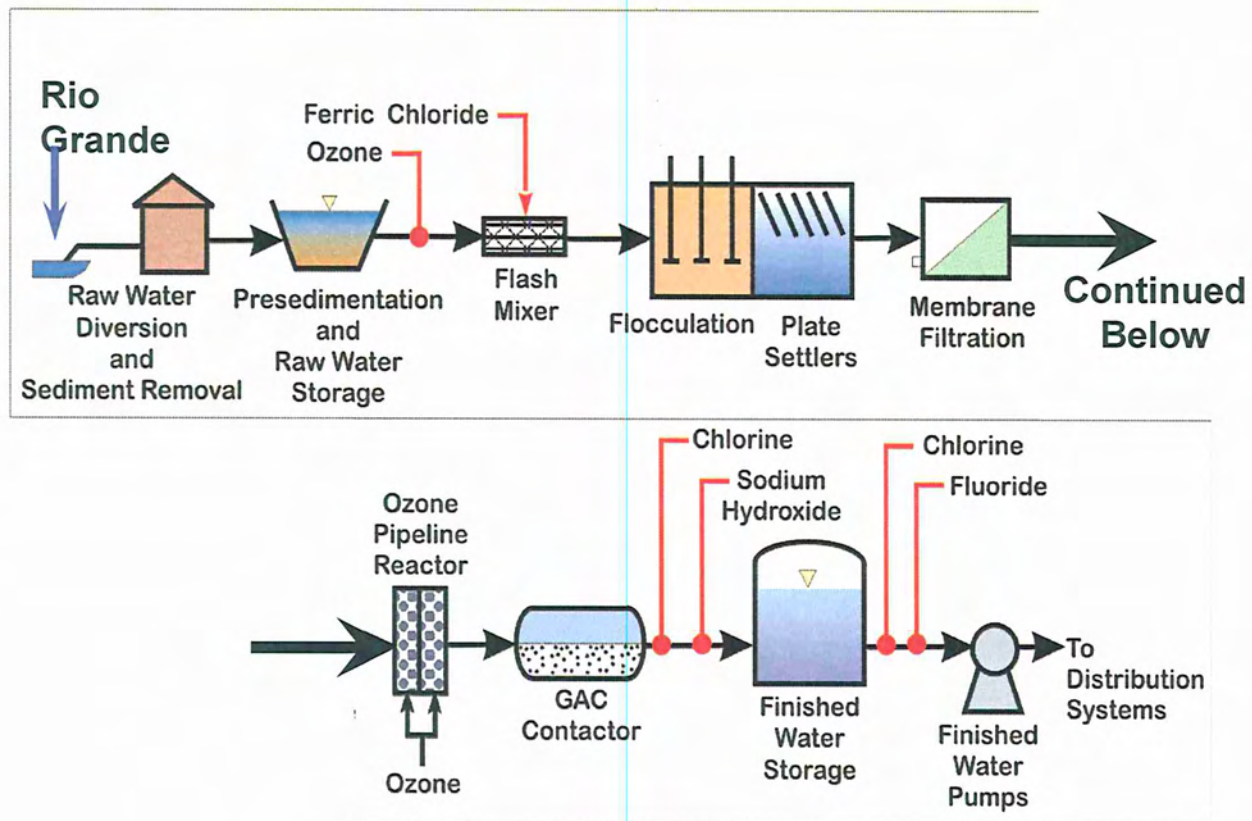


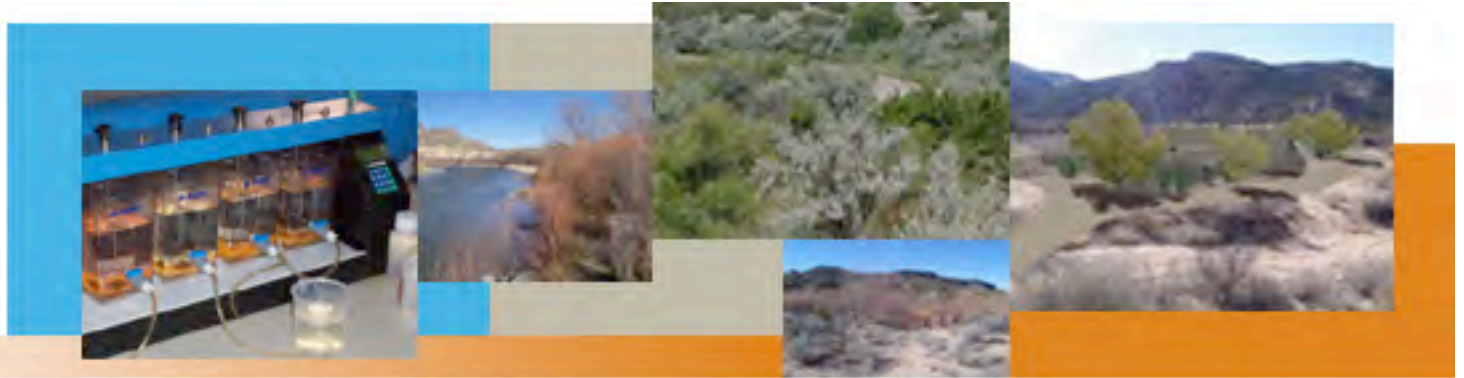
Sediment in the River





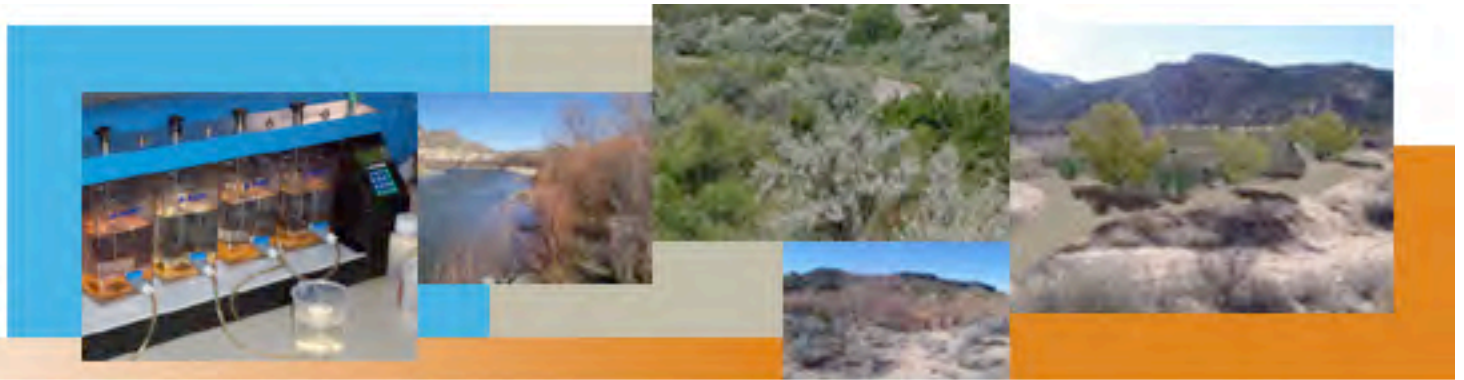
Plant Process Train



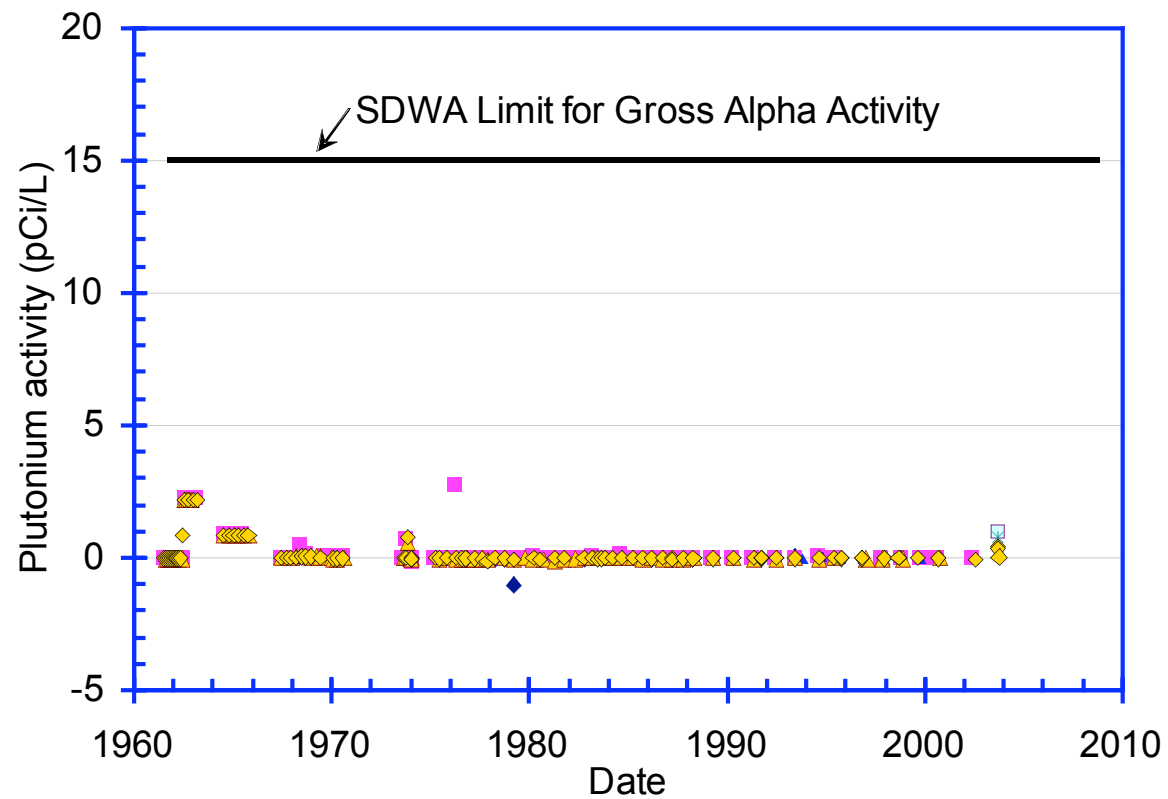


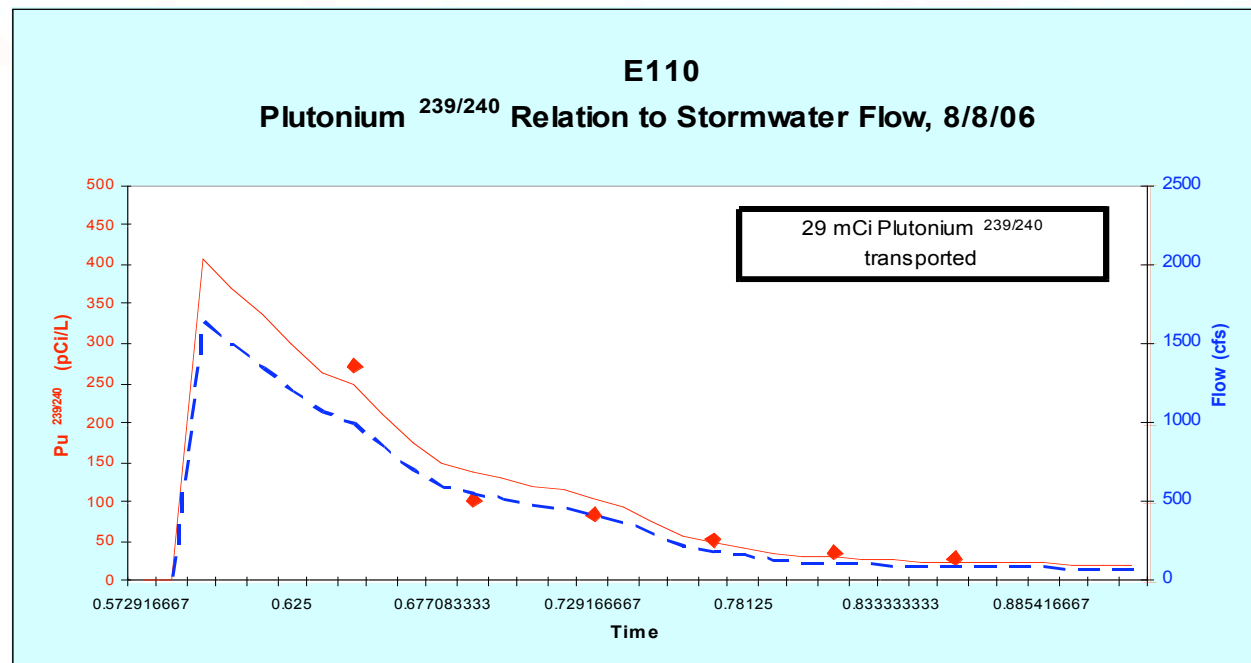
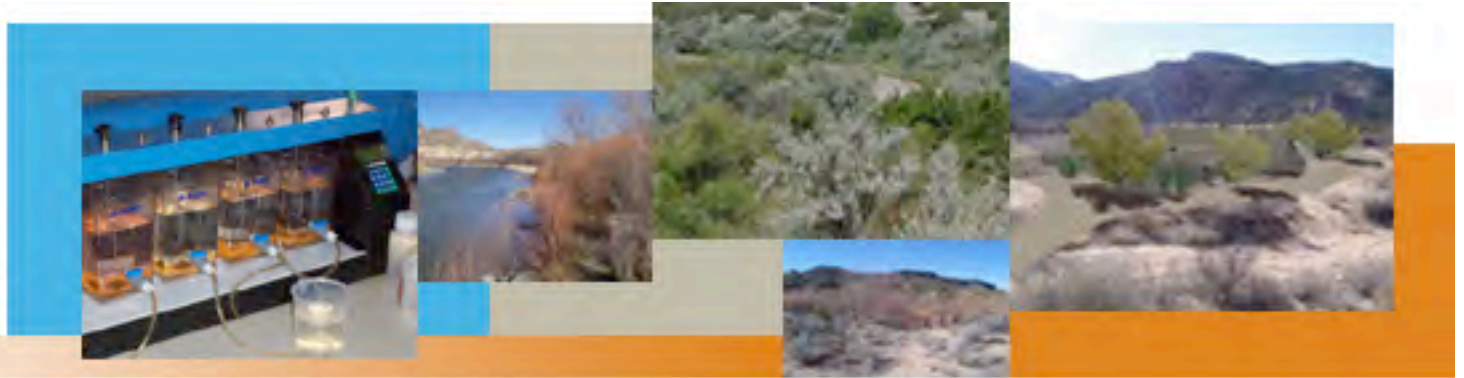
Radionuclide Regulations

Parameter	MCL
• Uranium	30 $\mu\text{g/L}$
• Radium 226/228	5 pCi/L
• Gross alpha activity <ul style="list-style-type: none">– Excludes uranium and radon– Includes plutonium, americium, others	15 pCi/L
• Gross beta and photon emitters <ul style="list-style-type: none">– Includes 126 different isotopes	4 mrem/yr

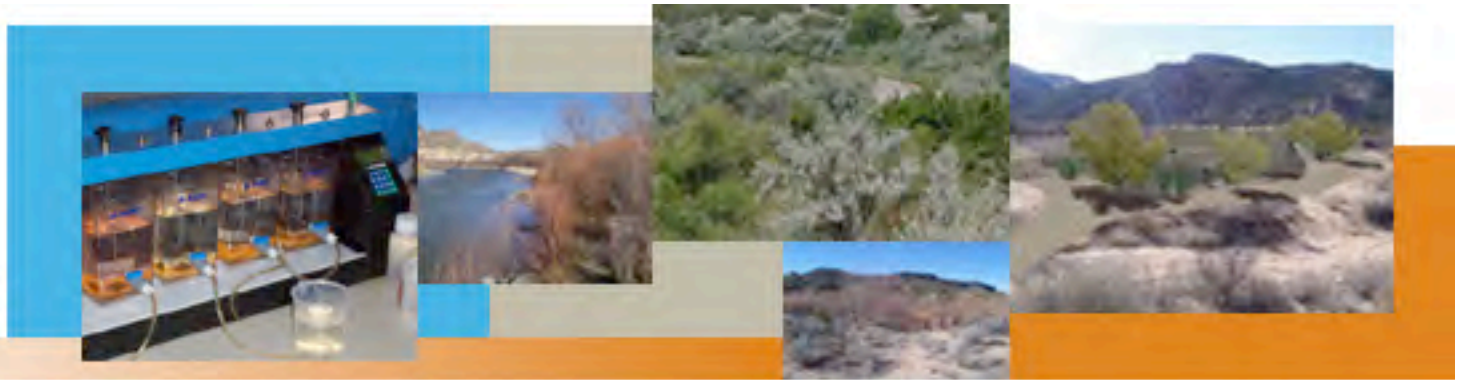


Plutonium in the Rio Grande

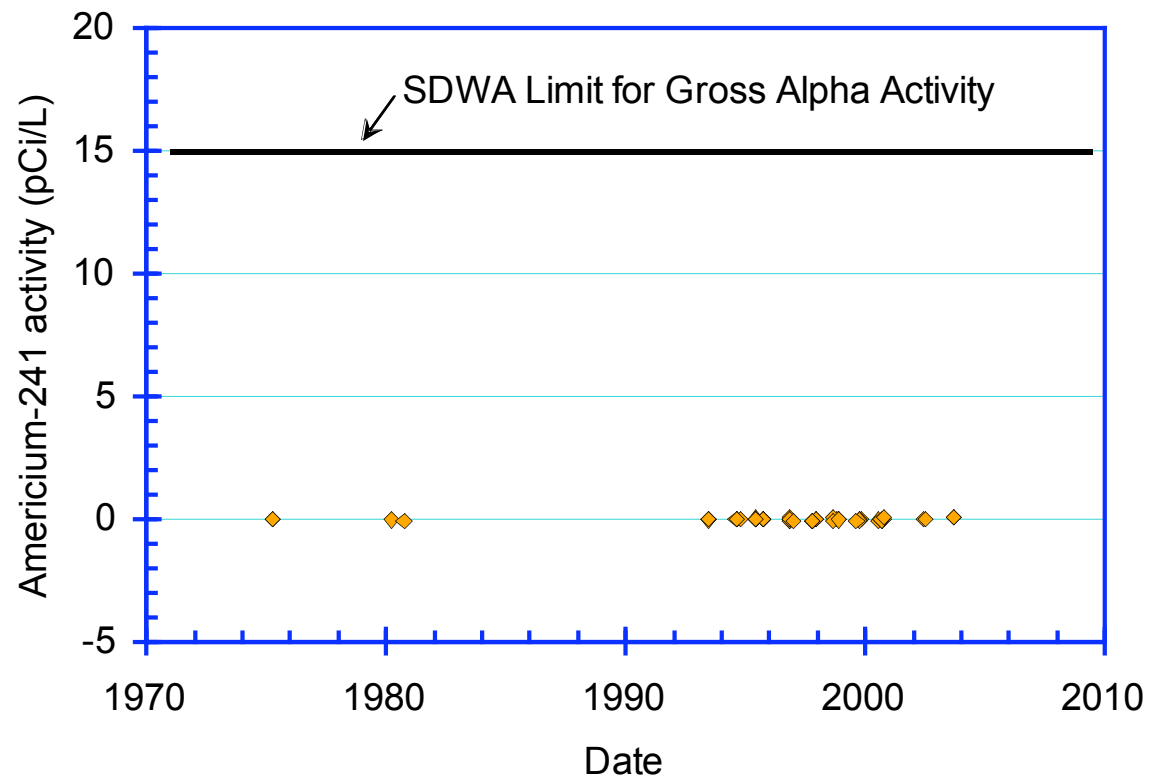


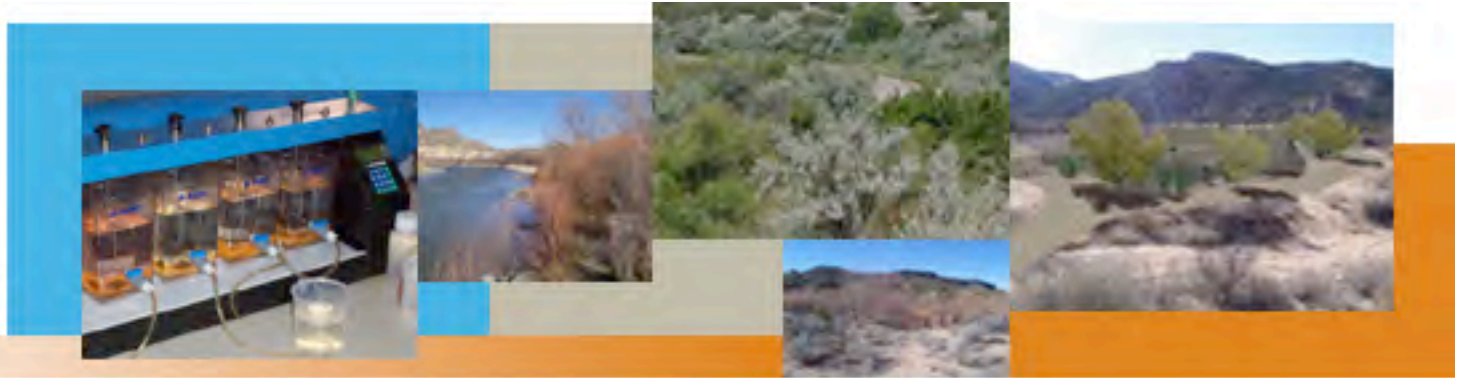


Measured flow represented by blue line, red triangle figures represent storm water samples measured for Pu^{239/240}, red line is calculated concentration during flow duration based on flow/concentration correlations.



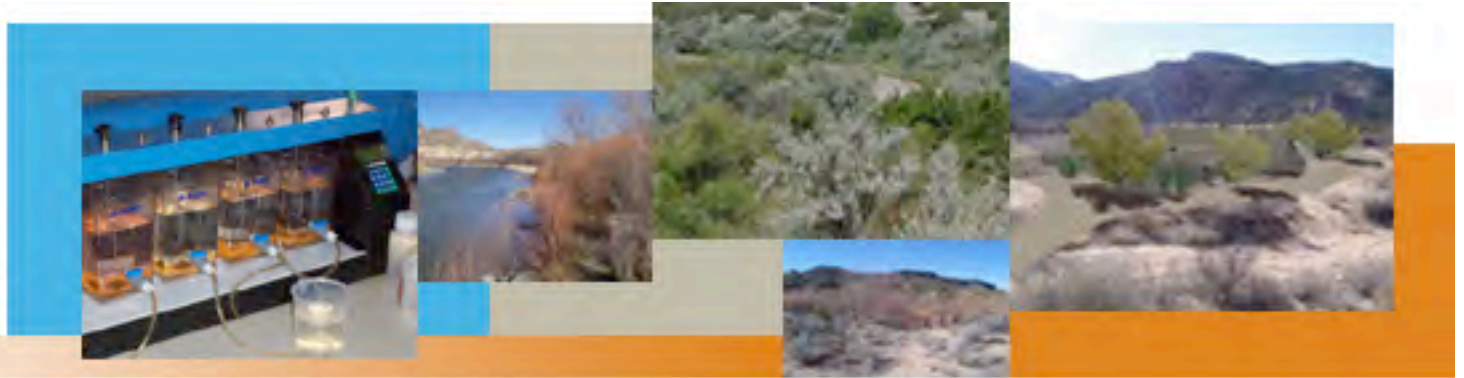
Americium in the Rio Grande



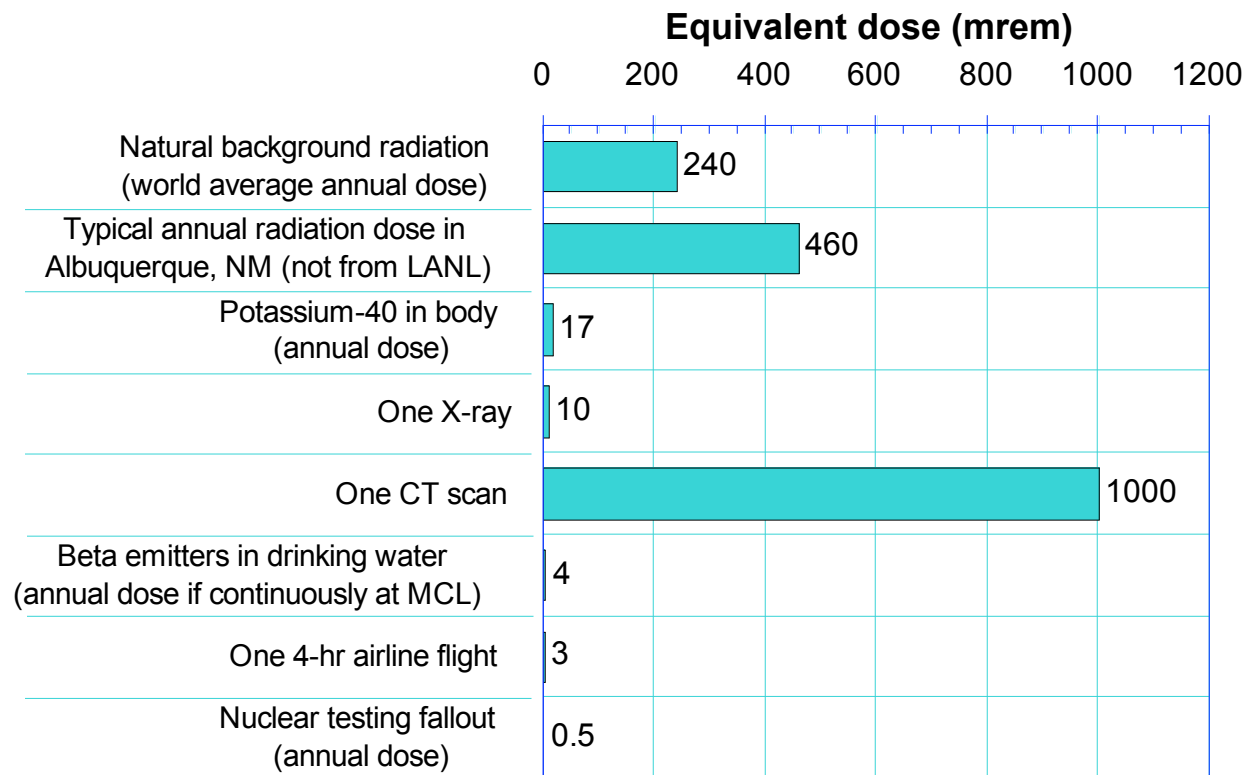


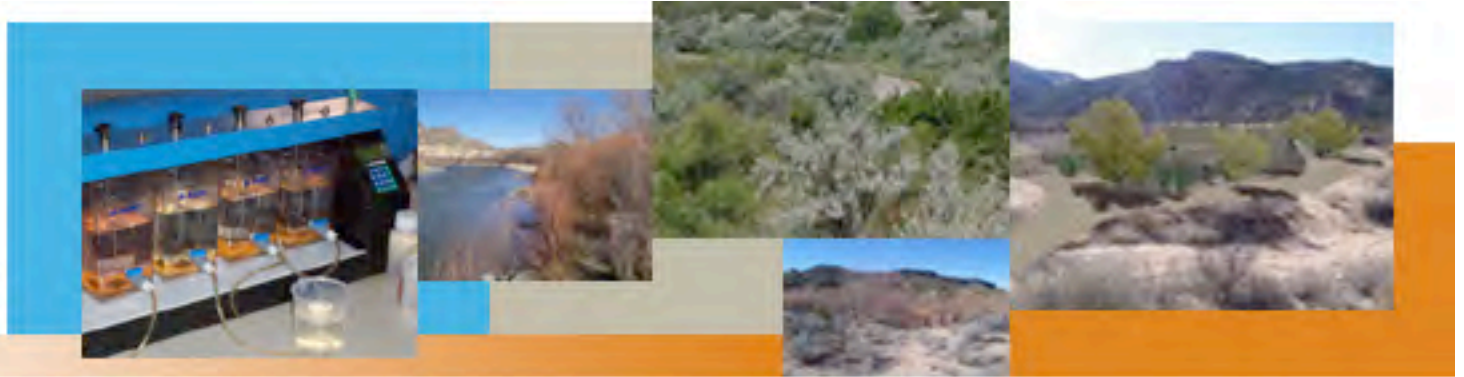
Multibarrier Protection For Santa Fe Water

- ♣ Normally, the Rio Grande at Buckman does not contain measurable LANL-origin contamination.
- ♣ Exceptions can be traced to storm events with high river turbidity.
- ♣ The BDD Water Treatment Plant provides advanced, robust processes that are highly effective in removing most contaminants (plant also contains multiple barriers).
- ♣ The plant design includes the addition of future water treatment processes to remove certain LANL-origin contaminants if needed.



Radiation is Everywhere

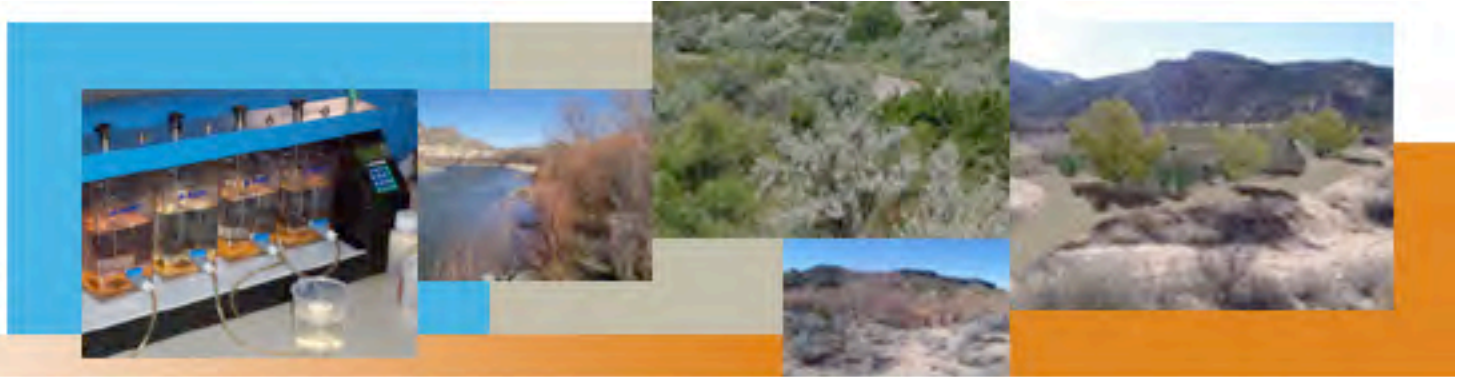




BDD Requests NNM CAB's Assistance

BDD Board and staff are asking NNM CAB for assistance in helping assure the following occurs:

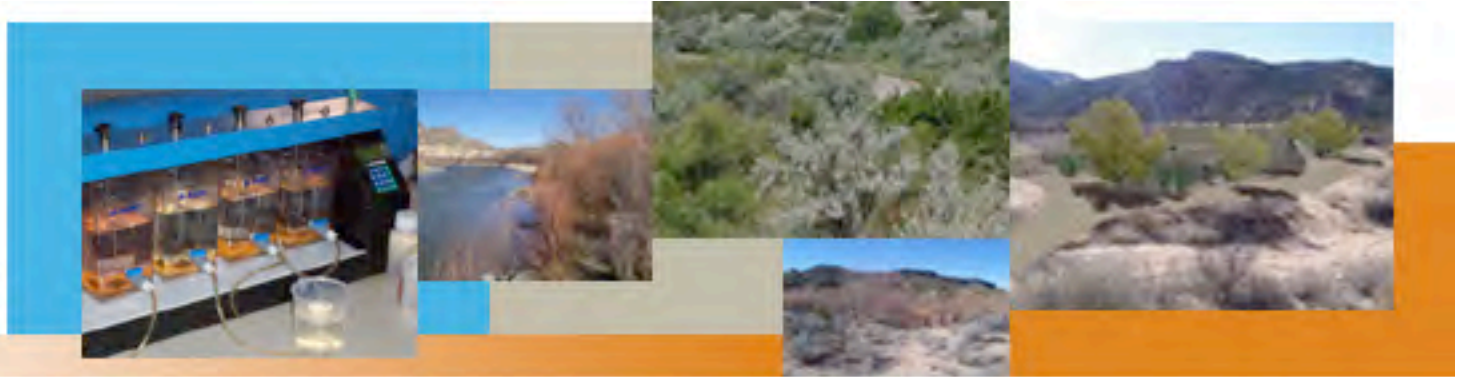
- ♣ Have LANL characterize, monitor and prevent migration of LANL contaminants to the Rio Grande;**
- ♣ Call for and support long-term monitoring and surveillance of LANL legacy contaminants for potential impacts on public water supply systems. Develop a better understanding of the complex surface and groundwater hydrology and potential pathways to public water systems.**



BDD Requests NNM CAB's Assistance

BDD Board and staff are asking NNM CAB for assistance in helping assure the following occurs:

- ♣ Support LANL installation and operation of a flood notification system to provide the BDD with detailed real-time information that flows from Los Alamos Canyon may be or are reaching the Rio Grande;**
- ♣ Prioritize NMED- and EPA-mandated improvements for Los Alamos and Pueblo Canyon Watershed designed to reduce transport of contaminated sediments to the Rio Grande and long-term monitoring requirements; and**
- ♣ Provide an opportunity for BDD input into NNM CAB work plans and priorities.**



Thank You!

For more information:

www.bddproject.org

Rick Carpenter 505-955-4206

rrcarpenter@ci.santa-fe.nm.us