The Aquifer Mapping Program addresses the critical need for information on the state’s groundwater resources. “Aquifer mapping” is a scientific method that applies hydrogeologic techniques to assess the quantity, quality, and distribution of groundwater in aquifers. No other program in the state integrates the variety of scientific information (geologic, hydrologic, geophysical, and geochemical) with the objectivity and knowledge that the Aquifer Mapping Program possesses. New Mexico Tech’s Bureau of Geology and Mineral Resources is the only non-regulatory state agency engaged in this specialized, multi-disciplinary science and research.

STAFF AND FUNDING

- Current annual budget of $200,000
- Five staff positions partially funded
- Full program funding (10 staff positions fully funded): $980,000

GOOD RESOURCE MANAGEMENT REQUIRES GOOD SCIENCE AND COLLABORATION

- Geohydrologic mapping of aquifer materials
- Geophysical surveys
- Hydrologic and well databases
- Deep drill holes and 3-D geologic models
- Water-level measurements and groundwater flow conditions
- Aquifer hydraulic properties
- Geochemical characterization
- Hydrologic modeling

PRODUCTS

1) STATE-OF-THE-ART MAPS OF SURFACE & SUBSURFACE

- Geologic maps
- Geophysical maps
- Geochemical maps

2) HYDROGEOLOGIC MODELS OF REGIONAL AQUIFERS

- Depth-to-water
- Groundwater elevation changes over time
- Water quality assessments
- Groundwater flow pathways, recharge, discharge

3) SCIENTIFICALLY DEFENSIBLE PLANNING TOOLS

- Publicly available data, reports, and maps
- Water quality and availability
- Baseline geologic and hydrologic information
- Drought planning and water management
- Identification of new water resources – saline aquifers and deep resources
COMPLETED STUDIES

- **Albuquerque Basin**—geologic map and subsurface geologic model
- **Estancia Basin**—water budget
- **Lower Pecos Valley**—geologic map and subsurface geologic model
- **Española Basin**—hydrogeologic models and water quality study, Santa Fe
- **Placitas area**—geologic map and aquifer delineation
- **Pueblo of Picuris**—water resource assessment
- **Roswell Artesian Basin**—water-level monitoring
- **Taos County**—hydrogeology of Arroyo Seco, Arroyo Hondo, and Taos Plateau and springs of the Rio Grande Gorge
- **Southern Sacramento Mountains**—mountain-block hydrogeology and recharge study

CURRENT STUDIES

- **Sacramento Mountains**—watershed, ecohydrology and vegetation studies
- **Tularosa Basin**—mountain-front geologic map, water table, depth to water, recharge
- **White Sands National Monument**—dune hydrology, shallow-deep aquifer connection
- **Union County**—mapping deep bedrock aquifers underlying the Ogallala
- **La Cienega and La Cieneguilla, Santa Fe County**—spring and wetlands hydrogeology
- **Plains of San Agustin and Alamosa Creek**—basin hydrogeology and water quality
- **Southern Taos Valley**—map and characterize mountain front aquifers connected to Rio Grande

WHO BENEFITS?

- **NEW MEXICO STATE AGENCIES**—Office of State Engineer/Interstate Stream Commission, Environment Department, Energy, Minerals & Natural Resources, State Lands Office
- **STATE AND LOCAL WATER AND LAND MANAGERS**—Counties, municipalities, Pueblos, irrigation districts, water utilities, Soil and Water Conservation Districts
- **FEDERAL AGENCIES**—Bureau of Indian Affairs, Fish and Wildlife Service, National Park Service, Forest Service, Bureau of Land Management, Geological Survey
- **INDIVIDUALS AND REGIONAL STAKEHOLDERS**—Home owners, rural water users, developers, realtors

NEW MEXICO BUREAU OF GEOLOGY AND MINERAL RESOURCES
geoinfo.nmt.edu/resources/water