

Denver Water Treatment Engineering Lab

Denver Federal Center, Denver, Colorado

Introduction

The Denver Water Treatment Engineering Research (WaTER) Lab researches and designs desalination, water treatment, and wastewater treatment systems. This is a federal facility under the United States Department of the Interior, Bureau of Reclamation (Reclamation) in Denver, Colorado.

Mission

The WaTER Lab's mission is to develop systems that remediate water containing contaminants and compounds to meet current local, state and/or federal requirements, including the Safe Drinking Water Act, Clean Water Act, and quality requirements for water reuse or discharge. This includes researching pretreatment techniques, developing chlorine resistant membranes, concentrate management techniques, renewable energy related to treatment, methods for reducing fouling, reducing operation and maintenance costs, and identifying and resolving environmental issues. The WaTER Lab fulfills its mission by working with a wide variety of organizations to expand water treatment options.



Clients

Reclamation's WaTER Team has worked with several clients through Service Agreements and Facility Use Agreements. The WaTER Lab's clients include government agencies, non-government organizations, local universities, and rural or municipal partners interested in advanced water treatment research as a means to expand potable water supplies. Below are a few of our clients:

- Reclamation's Research and Development Office
- Reclamation's Regional and Area offices, such as, Phoenix Area Office (PXA0) and Yuma Area Office (YAO)
- Office of Naval Research
- Colorado School of Mines
- University of Colorado Boulder

The Facility

The WaTER lab is located in Building 56 on the Denver Federal Center complex. The WaTER lab includes a chemistry lab, and an open space for bench and pilot scale testing which includes a 40 inch wide drain that runs along the length of the room. The lab is equipped with dedicated power data ports and source water serviced by the Denver Water Utility. Clients from external government organizations would need an escort and complete a safety briefing. Clients from internal government organizations need only a safety briefing.

Services and Supplies

The Reclamation Water Treatment Research and Engineering (WaTER) Team consists of scientists, chemical and environmental engineers with extensive experience in process development, design, construction and testing. Services from the WaTER Team, available for a fee, include::

- Desalination and water purification systems, including design and installation
- Membrane evaluation
- Advanced treatment workshops on desalination, reuse, concentrate management
- Research and pilot studies, laboratory and demonstration testing
- Membrane autopsy
- Testing and demonstrations of treatment for brackish water, seawater, irrigation return flows, produced water, and reclaimed water
- Standards setting
- Technology transfer
- Process equipment design, construction, and evaluation
- Test plan development and implementation
- Quality control, monitoring, data acquisition and analysis, and report preparation
- Process and equipment troubleshooting
- Environmental Technology Validation (ETV) Testing in conjunction with NSF International

The lab is equipped with a variety of instrumentation to facilitate data acquisition, including:

- HACH 2100P Portable Turbidimeter
- Spectronic GENESYS 5 UV-Vis Spectrophotometer
- Thermo Scientific GENESYS 20 Visible Spectrophotometer
- Anatel A-2000 Wide Range TOC analyzer
- Myron L Company Ultrameter II 6P (Conductivity, Resistivity, TDS, Temperature, and pH)
- Myron L Company Ultrameter II 6Pfc (Conductivity, Resistivity, TDS, ORP, Free Chlorine, pH, Temperature)
- HACH DR/890 Portable Colorimeter

Disclosure and Confidentiality

Disclosure and data confidentiality are at the discretion of the clients of the lab. Several types of confidentiality agreements are available. For more information please contact Samantha Zhang, at (303) 445-2126 (szhang@usbr.gov).

Fees

The current fee schedule is below. Staff time cost is set by the Reclamation's Technical Service Center. It covers salary, benefits, and overhead. Research and Development and demonstration activities directly using or benefiting from the mobile plant, pilot plant lab, bench scale lab, wet lab, or chemistry lab have a premium rate of an additional \$5/hr.



Skill Level	Grades	Hourly Rate	Daily Rate
1	1-10	\$69	\$552
2	11-12	\$95	\$760
3	13-15	\$117	\$936

Getting Started

Please contact Michelle Chapman, at (303) 445-2264 (mchapman@usbr.gov) to develop a facility use agreement that fits your needs.

Location and Lodging

The WaTER lab is approximately 40 minutes southwest of Denver International Airport (DIA), 50 minutes southeast of Boulder Municipal Airport (BDU), and 1.5 hours north of Colorado Springs Airport (COS). Recommended lodging within one mile of the lab are the Denver Sheraton West Hotel, Homewood Suites-Denver West, Fairfield Inn, and Hampton Inn-West. For maps and more information on the area see the Technical Service Center's website:

http://www.usbr.gov/pmts/tech_services/about/location.html.

