

ROCKY MOUNTAIN OILFIELD TESTING CENTER



RMOTC

The Rocky Mountain Oilfield Testing Center (RMOTC), is an operating oil field focusing on environmentally-balanced energy technologies and alternatives, and is the premiere energy testing and demonstration field in the nation.



RMOTC Offers Solutions

Located within the Naval Petroleum Reserve No. 3 (NPR-3) near Casper, Wyoming, RMOTC offers:

- the opportunity to explore environmentally-balanced solutions to the nation's energy issues
- opportunities to develop, demonstrate, and evaluate a variety of energy related technologies
- a chance to collaborate with top professionals in the energy, environmental technology, and engineering fields
- shared industry knowledge through technology transfer via reports, journal articles, and presentations



RMOTC Location

The Administration and Engineering Offices are located in Casper, Wyoming. The Operations and Testing Facilities are approximately 30 miles north of Casper within the NPR-3.



RMOTC Provides

Operations and Testing Facilities provides:

- Drilling & Service Rigs
- Administrative Services, Engineers, Scientists, & Support Staff
- Support Equipment
- Bio-Treatment Facilities
- Soil Remediation Facilities
- Field Laboratory
- Gas Processing Facilities
- Production Facilities
- Tanks & Pipelines
- Aquaculture & Hydroponic Greenhouse Facilities



Unique Location

Additionally, RMOTC's Ideal Location Offers:

- Remote, federally-owned and secure site
- 10,000-acre operating oil field
- Full complement of facilities and equipment on-site
- Approx. 750 well bores
- Nine producing reservoirs



Unique Location (cont.)

Additionally, RMOTC's Ideal Location Offers:

- Depth range of 250 ft.—6,000 ft.
- Producing, non-producing, and new well drilling opportunities
- Industry experienced specialists
- Varied environmental terrain & weather conditions
- Real world, field application testing



RMOTC Opportunities

RMOTC offers Testing, Demonstration, and Research & Development Opportunities in:

- Exploration
- Environmental Technology
- Production Technology
- Drilling Technology
- Renewable Energy Technology
- Western Energy Initiatives
- Energy Assurance



RMOTC Offers

RMOTC can assist you with:

- Exploration
- Reservoir characterization
- Non-invasive reservoir identification
- Seismic
- Geological modeling
- Geosteering
- Environmental mitigation



Focus on Environment

Environmental Technology

- Carbon Management
- CO₂ Sequestration
- Water Management
- Unpaved Road Dust Mitigation
- Investigation of Habitat Fragmentation Effects
- Mitigate Environmental Effects of New Technologies



RMOTC Offers

Drilling

- Smart Wells
- Deepwater drilling techniques
- Underbalanced drilling
- Multi-lateral drilling
- Reentry multi-lateral systems
- Extended-reach drilling
- Micro-hole Drilling Technology Demonstration



RMOTC Offers

Production

- Enhanced Oil Recovery (EOR)
- Improved Oil Recovery (IOR)
- Marginal well recovery
- Downhole pumps
- Non-corrosive materials



Security

Energy Assurance

- Pipeline Security
- Well Control
- Oil Containment
- Remote Sensing or Control Systems
- Performance-Based Training
- Gas Leak Detection



Why Partner With RMOTC?

- Customer driven testing & demonstration center
- Share both risk and cost
- Engage in innovative energy, environmental, and technology based R & D
- Experienced team of Project Engineers and environmental experts
- Field test specifics and Project Proposal assistance
- Utilize extensive infrastructure and experienced workforce
- Collaborate with private industries, universities, and national laboratories



RMOTC Partnership

To become a Testing Partner, RMOTC will assist you with three easy steps:

Step 1 – Develop a **project proposal**

Step 2 – Design a custom **project plan**

Step 3 – Determine which **funding vehicle** is the best fit for your test:

- Cooperative Research & Development Agreement (CRADA)
- Memorandum of Understanding (MOU)
- Letter of Agreement (LOA)
- Funds in Agreement



Contact RMOTC

To Further Explore an Exciting Partnership
with RMOTC Contact Us at:

Rocky Mountain Oilfield Testing Center

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Casper, WY 82601

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Website – www.rmotc.com



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Produced Water Management Program



PWM Focus

RMOTC's Produced Water Management Program (PWMP) focuses on testing, demonstration, and evaluation of:

- Reservoir Management
- Production Innovations
- Water Treatment and Disposal
- Beneficial Reuse



PWM Technologies

RMOTC's PWMP concentrates on developing a broad mix of complementary water technologies.

- Reservoir Management Technologies
- Completion Technologies
- Well production optimization technologies
- Passive Treatment Systems
 - Constructed Wetlands
- Water Re-use Center
 - Aquaculture & Hydroponic Greenhouse



NPR-3 Biotreatment Facility

Experience gained through operation of the biotreatment facility has provided a chance to design a new system in 2004 that will:

- Address the water disposal needs at the NPR-3
- Serve as a research technology and development resource for resolving produced water issues



NPR-3 Biotreatment Facility (cont.)

Some of the possibilities for this one-of-a-kind biotreatment facility include:

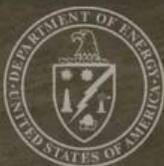
- Effects of produced water on microbial communities
- Water treatment economics
- Filtration issues related to surface discharge of produced water, specifically chlorides
- Produced water effects on wetland plant, arid and high desert, vertebrate, and rangeland communities
- Treatment and release of coal bed methane water



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CO₂ Sequestration/EOR Program



RMOTC Focus

- Geologic CO₂ Sequestration – a near-future option for managing/reducing CO₂ emissions.
- The NPR-3 Project – will be designed to maximize storage while attempting to capitalize on early EOR benefits.
- Many of the required technologies are already well established due to a long history of industrial CO₂ injection for improved oil recovery (IOR).



CO₂ Program Provides

- A chance to harvest a variety of basic and applied research on sequestration
- A site for scaling up carbon technologies previously successful in small tests
- 10,000 acres available for testing the potential for CO₂ sequestration and EOR
- The capability to develop a prototype for large scale sequestration
- Locating and evaluating potential sequestration reservoirs



CO₂ Program Provides (continued)

- Opportunity to collaborate with national and international sequestration experts
- Direct DOE and transparent public experience in the growing domestic and international carbon credits trading market
- Supply pipeline for testing in sequestration and EOR
- Potential to address many scientific questions on carbon storage that commercial EOR projects cannot



CO₂ Sequestration Partners

Project Partners Include:

- Anadarko Petroleum Corp.
- Colorado School of Mines
- iReservoir.com
- Lawrence Livermore National Laboratory
- Idaho National Engineering and Environmental Laboratory
- Los Alamos National Laboratory
- University of Colorado-British Petroleum Center for 3-D Visualization
- University of Texas at Dallas
- Lawrence Berkeley National Laboratory
- University of Wyoming and the Institute of Energy Research



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Production & Drilling Programs



Production & Drilling Programs

RMOTC is the most comprehensive test site in the United States for testing and demonstration of technologies in production and drilling.

RMOTC ...

- offers a center to satisfy a company's need for access to better technology
- is aiding in the testing and development of new tools and techniques



Production & Drilling Programs (cont.)

Production —

- EOR/IOR
- Marginal well recovery
- Non-corrosive materials
- Downhole pumps
- Artificial lifts
- Paraffin mitigation
- Surface control systems



Production & Drilling Programs (cont.)

Drilling —

- Low-impact technologies
- Open hole logging tools
- Smart wells
- Deepwater drilling techniques
- Extended-reach drilling
- Sidetracking tools
- Multilateral systems
- Underbalanced drilling techniques
- Micro-drilling demonstration



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Energy Assurance Program



RMOTC Security

RMOTC is seeking ways to enhance protection of the country's energy infrastructure as key to the nation's security.



Unique Environment

RMOTC Offers —

- Remote location
- 10,000 acre, 14 square-mile of space
- Oil production facilities
- Extensive infrastructure
- Experienced and professional staff



Train-Test-Demonstrate

Performance-Based Training

- Hands-on Training of Military
- Law Enforcement
- Advanced Security Techniques
- Emergency Responders
- Fire Fighting Training



Train-Test-Demonstrate (cont.)

Testing and Demonstration

- Critical Infrastructure Protection
- Pipeline Security
- Well Control
- Oil Containment
- Remote Sensing & Control Systems



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Coal Bed Methane Projects



Focus on Environment

RMOTC is currently collaborating with stakeholders on issues related to the development of Coal Bed Methane

- Coal Bed Methane Drilling and Production Innovations
- Water Production, Treatment, and Disposal
- Air Quality Issues
 - Dust Mitigation



RMOTC Opportunities

RMOTC provides R&D and testing and demonstration opportunities in:

- Resource development and environmental implications issues
- Exploration of technology to determine methane content
- Improved pump technology
- Controls on occurrence and recoverability of coal bed methane
- Development of geologic, geochemical, and engineering technologies



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Western Energy Development Office



Developing Relationships

The Western Energy Development Office at RMOTC is developing relationships and utilizing partnerships in the search for innovative technologies and new opportunities to apply our energy resources by:

- Reviewing a range of energy development issues
- Identifying those in which our assets and expertise may contribute
- Developing problem-solving partnerships



RMOTC Offers

Through the Western Energy Development Office, RMOTC is currently collaborating with stakeholders and making exciting advances in the areas of:

- CO₂ sequestration
- Coal bed methane development
- Unpaved road dust mitigation research
- Management and control of produced water

