

Oil and Gas Industry Upstream Sector Experience



RTI International is your premier source for turning knowledge into practice.

Our scientists and engineers help clients achieve their goals by identifying, developing, applying, and transferring cutting-edge technologies.

RTI's experts can be immediately leveraged to create new technologies and solve pressing problems for the oil and gas industry:

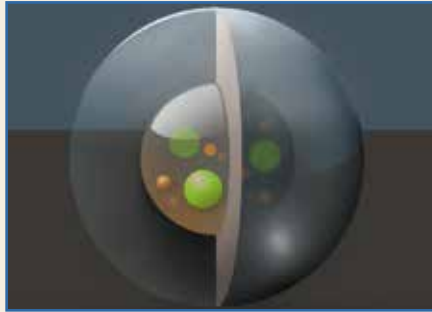
- Upstream activities such as exploration and production
- Downstream activities such as refining and processing
- Extensions into the petrochemical sector.

Materials for Well Construction & Integrity



Novel materials designed for the annulus enable long-term barrier performance while promoting sustainable practices. Specific expertise includes cement slurry design, additives for cement and drilling fluids and innovative test methodologies.

Encapsulation of Oilfield Chemicals



Nanoparticle-controlled release systems navigate tight pores, releasing oil field chemistries (e.g., surfactants, breakers, scale inhibitors) deep within the reservoir. Colloid properties are tailored to optimize release kinetics, adhesion, and flow.

Advanced Structural Materials



Nanomaterials, thin film alloys, and polymer composites enable increased strength-to-weight ratio, protection against corrosion and fatigue, and tailored responses to specific downhole conditions.

Industrial Water Treatment



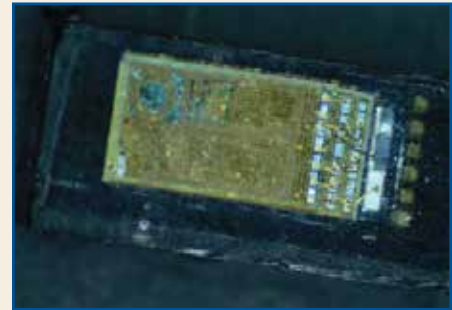
RTI is building on emerging technologies, such as membrane distillation and forward osmosis, to develop process solutions for water treatment of high-salinity water streams as they occur (e.g., in shale gas production).

Microfabricated Sensors



RTI develops downhole electronics and passive systems able to withstand extreme environments while fitting into a compact space. Expertise includes electromagnetic sensors and geophysical sensors, including seismic, infrasonic, acoustic, and ultrasonic platforms.

Sensor Deployment



Rugged material technologies for high-temperature, high-pressure and chemically challenging environments are used for the protection of sensitive electronics while maintaining sensor functionality.

Experience in Midstream and Downstream Sector Technologies



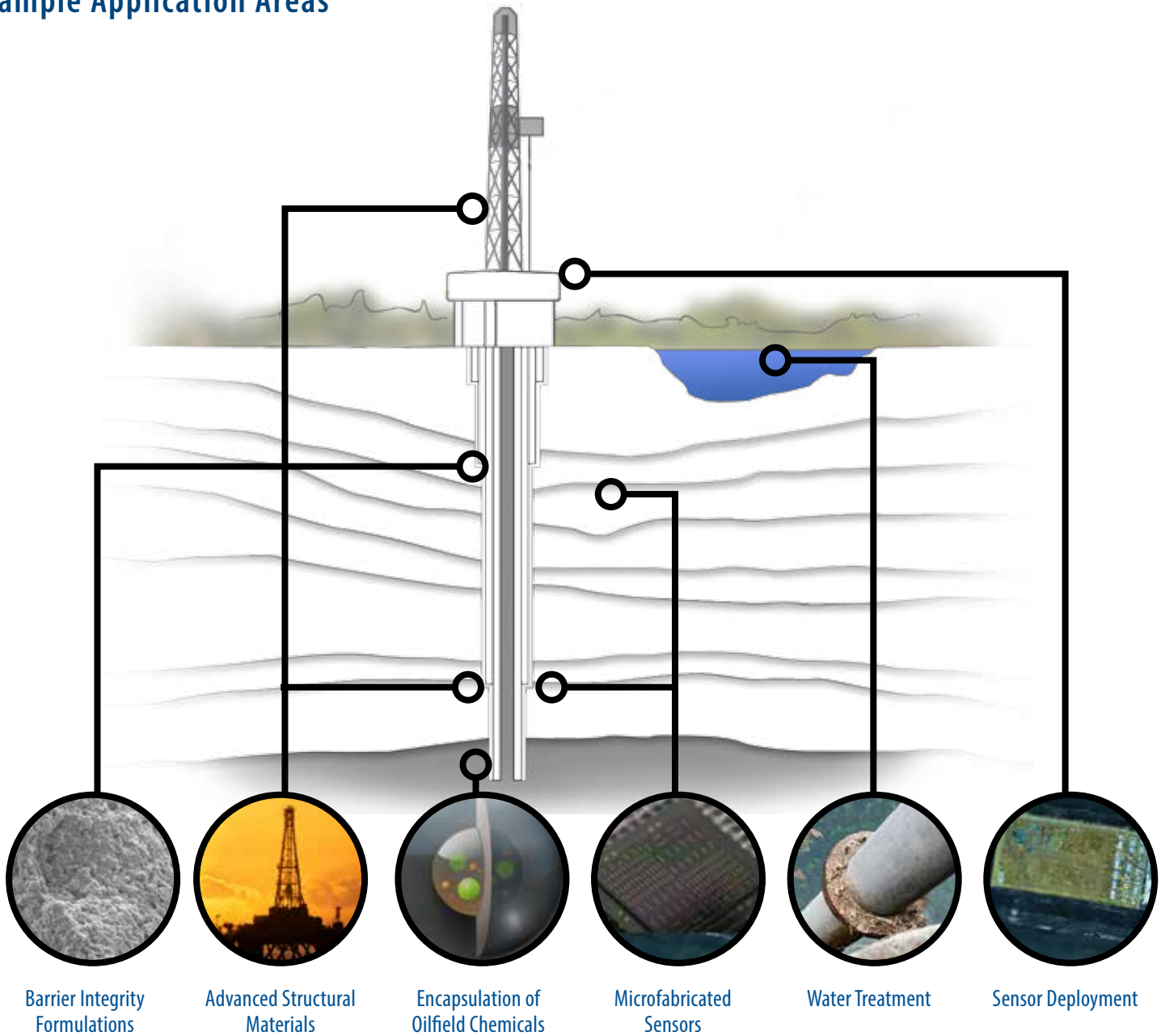
RTI also provides technology development services for the midstream and downstream sectors, specifically:

- New process development, scale-up, and demonstration
- Catalyst, sorbents, and membrane development
- Gas processing (separations, contaminant removal, and conversion)

- Biomass conversion
- CO₂ capture and utilization
- Industrial water treatment
- Natural gas

RTI's development and testing capabilities range from lab-scale process units up to the pre-commercial demonstration scale.

Example Application Areas



Our scientists and engineers enable clients in the exploration and production sector to achieve their goals by identifying, developing, applying, and translating cutting-edge technology solutions. RTI's well integrity technologies include novel cementing and other barrier formulations, advanced structural materials, microfabricated sensors, and communication platforms. Our expertise in encapsulation and nanotechnology for challenging environments is utilized for delivery of chemical EOR, sensors, and anti-scaling agents deep within the reservoir.



Corporate Headquarters

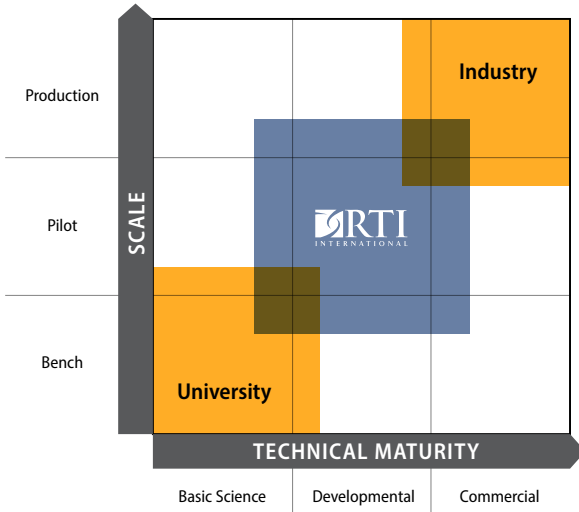
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Our expertise is in moving high-impact technologies from concept to commercial practice.

RTI fills an important gap—bridging university-type basic science and industry-driven commercial activities.

Example Clients and Partners

Private Sector

3M
Archer Daniels Midland
Arkema
BASF
CEMEX
Chevron Corporation
Cisco Systems
Clariant (previously Süd-Chemie)
The Dow Chemical Company
DuPont
Eastman Chemical Company
Foster Wheeler
Haldor Topsøe
Heidelberg Cement Company
Johnson Matthey
KBR
Lockheed Martin
Masdar – A Mubadala Company
Northrup Grumman
Owens Corning
Phillips 66 (previously ConocoPhillips)
PPG Industries
Shaw Group, Inc.
Shell
Tampa Electric Company
United Technologies
Veolia

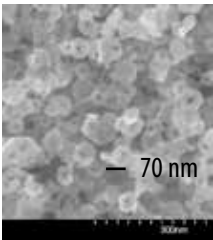
U.S. Government Clients

US Department of Energy
US Department of Defense
US Department of Commerce
US Department of Homeland Security
National Aeronautics and Space Administration
National Institute of Standards and Technology
National Science Foundation

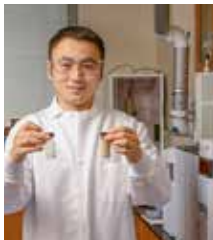
Other Clients

Abu Dhabi Executive Affairs Authority
ASHRAE
Bill & Melinda Gates Foundation
Ford Foundation
The World Bank

Scope of RTI's Technical Reach



Nano Scale



Lab Scale



Pilot Scale



Commercial Deployment

RTI's experience base and current projects span the entire scope of technology development activities: from nanoscale modification of advanced materials to full-scale commercial deployment of innovative technologies.