



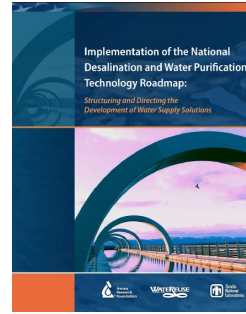
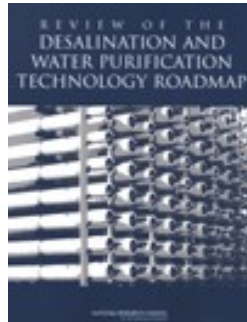
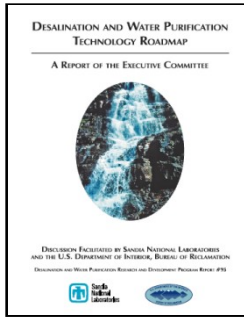
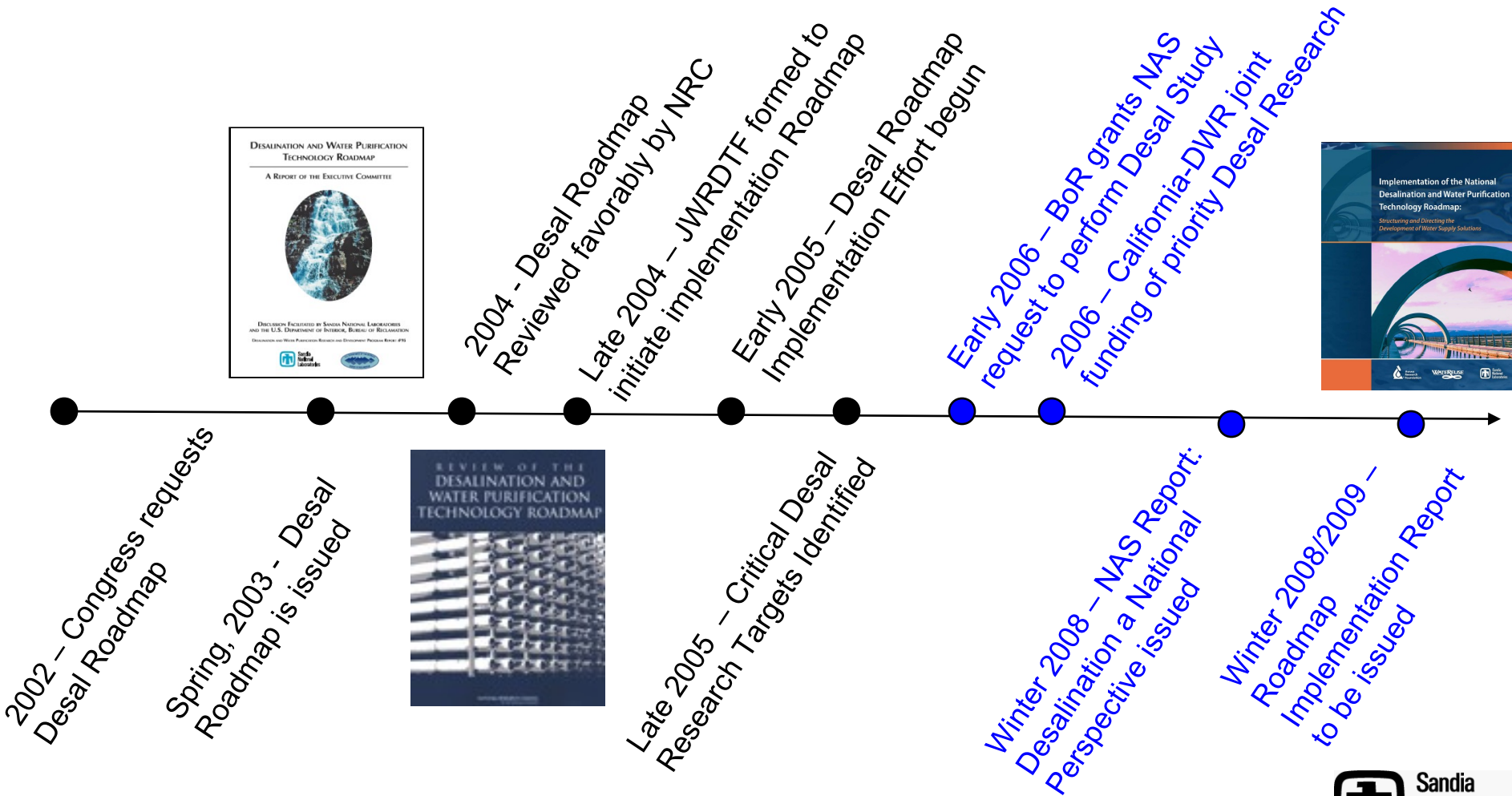
Update on the National Desalination Research Roadmapping Effort

Multistate Salinity Coalition Summit
Las Vegas, NV
January 16th, 2009

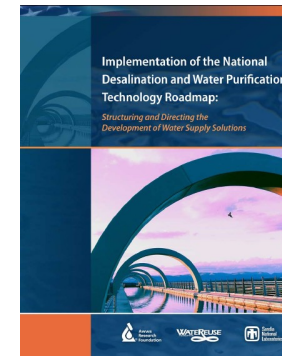
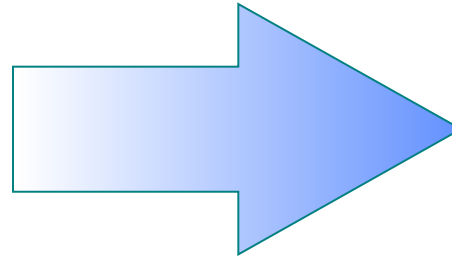
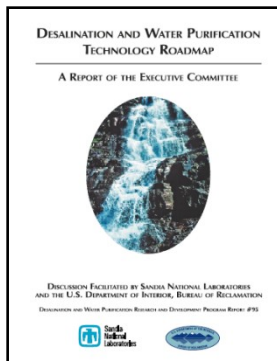
Mark J. Rigali
Manager, Geochemistry Department
Sandia National Laboratories

mjrigal@sandia.gov

National Desalination Research Roadmapping Effort



Implementation of the National Desalination and Water Purification Technology Roadmap



- Summarizes water challenges facing US and charts the course of R&D to meet these challenges
- Defines critical objectives to reduce cost and increase performance and energy efficiency
- Quantifies needs and defines five broad technology areas to meet these needs
 - Membrane Technologies
 - Alternative Technologies
 - Thermal Technologies
 - Concentrate Management Technologies
 - Reuse/Recycling Technologies

- Objectives
 - Hasten the Rate of Technological Advance
 - Reduce the cost of desalination technologies
- Organized into 4 broad National Research Areas with a total of 25 Research Agendas and 58 Research Projects
 - Membrane Technologies
 - Alternative Technologies
 - Concentrate Management Technologies
 - Institutional Issues

JWRD Task Force Helps Magnify California Reuse/Desalination Effort

1M\$ match from Joint Water Reuse & Desalination Task Force (Sandia + Water Research Foundation + WaterReuse + Reclamation) doubles the impact of California Prop 50 Desalination Funds and funds National Desalination Roadmap targets critical to California and ultimately national water needs.

California
Prop. 50
Funds

Task Force Research Targets (2M\$)

Reclamation

250K

Sandia

250K

Water
Research
Foundation

250K

250K

WaterReuse

+

1.0M

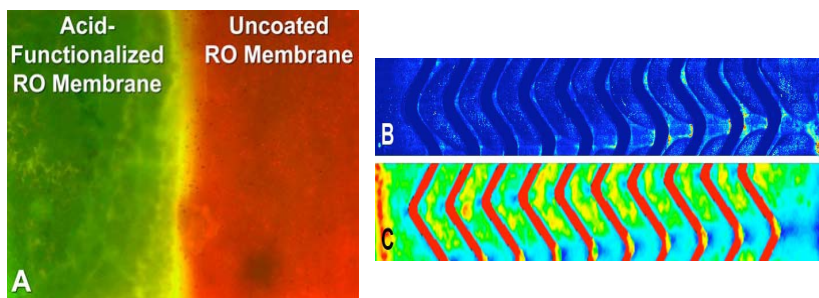


- SOTS Nano-structured Membranes
- SOTS Membrane Fouling
- Next Generation Membrane Systems
- Co-siting of Desal Facilities
- Precipitation Processes for RO Concentrate Salts
- Summary of Studies re. Coastal Alt. Intake Methods
- Post-treatment Stabilization of Water
- Intakes to Offshore Desal Plants
- Guidelines for Desalination
- Guidelines for Assessing Impact of Salt Disposal
- 4 Unsolicited Proposals

Water Research Foundation is formerly AwwaRF (American Water Works Research Foundation)

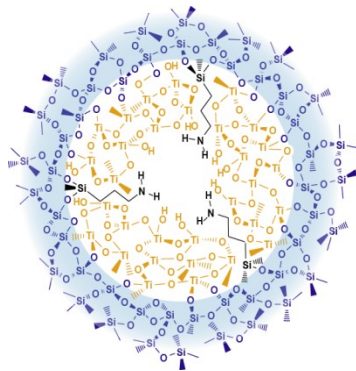
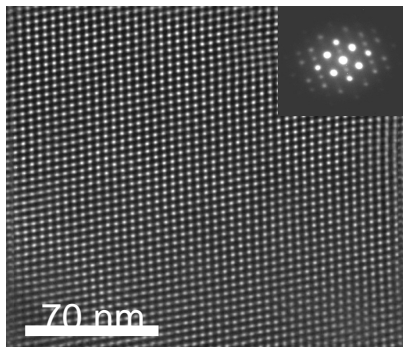
Update on Sandia Desalination/Water Treatment Activities

Membrane Biofilm Control

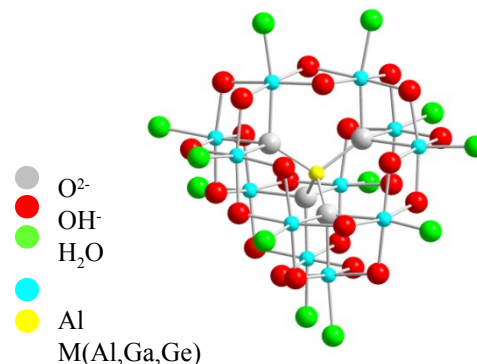


Functionalized coatings and physical modifications for membranes.

Biomimetic Membranes

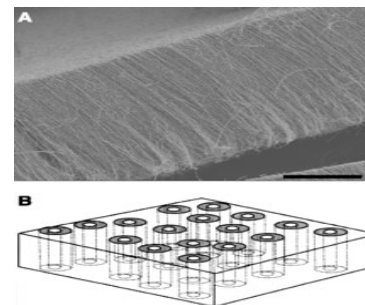


Removal of microbials



Ga-substituted alumina Keggin ion removes of anionic contaminants.

State-of-the-Science Review of Nano-structured Membranes



Hinds, et al, Science 303, 62 (2004)

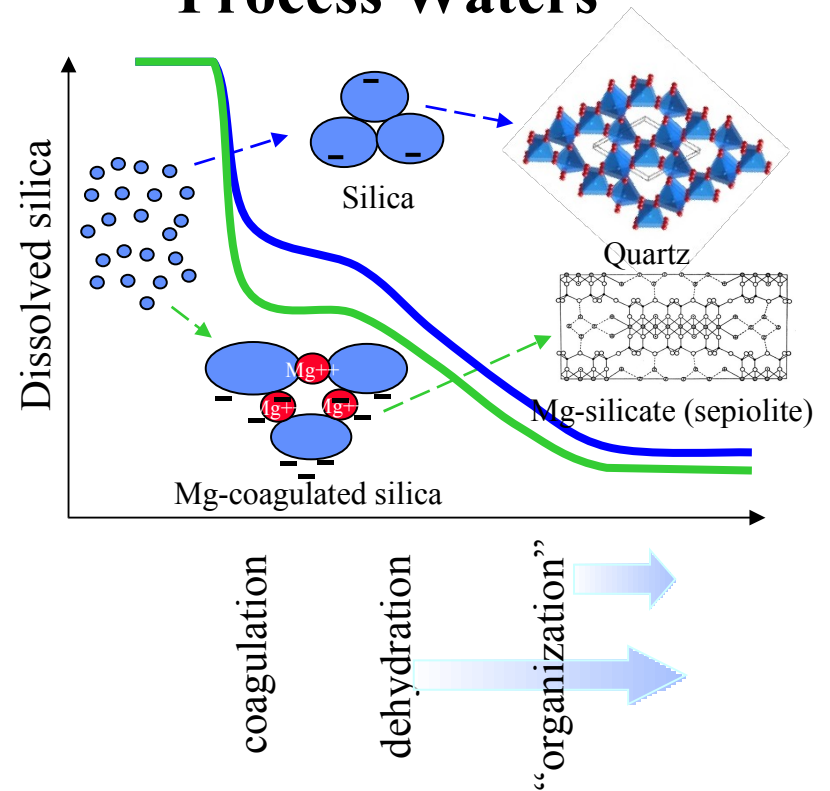
Update on Sandia Desalination/Water Treatment Activities



**Water Treatment Pilots
Bloomfield, NM
Alamogordo, NM**



Silica Removal from Process Waters



Nanofiltration Technologies for Power Plant Cooling Water

