



Desalination

- OPERATIONS
- MAINTENANCE
- ENGINEERING
- CONSTRUCTION
- PROJECT MANAGEMENT

Desalination

OVER 40 YEARS EXPERIENCE IN SEAWATER DESALINATION PLANTS

THE BURNS AND ROE ADVANTAGE

- ✓ ONLY U.S. COMPANY WITH SEAWATER R.O. DESIGN/O&M
- ✓ 40 YEARS EXPERIENCE IN SEAWATER DESALINATION PLANTS
- ✓ EXPERIENCED IN BOTH R.O AND DISTILLATION PROCESSES
- ✓ EXPERTISE IN PRIVATE PROJECT DEVELOPMENT
- ✓ AMONG THE ENR TOP RANKED DESALINATION ENGINEERS

RESPONSIVE

DESIGN, ENGINEERING, CONSTRUCTION,
MAINTENANCE AND OPERATION SERVICES....

Burns and Roe is prepared to undertake the complete job of water desalination, from pretreatment and plant design, to operations and maintenance.

- Site survey and selection
- Detailed engineering and design of the plant including specifications, bidders selection, bids evaluation, negotiation, review vendors' drawings and final drawings
- Construction supervision
- Equipment testing
- Plant operator training
- Plant startup
- Operation and maintenance
- Water resources planning

Burns and Roe is also prepared to make desalination studies. These services would include:

- Site survey
- Analysis of current water requirements and future demands
- Computer programs for optimized seawater conversion costs
- Conceptual design, including estimates of capital and operating costs
- Recommendations for pilot plant or large scale module tests
- Analysis of materials of construction
- Analysis of waste heat from existing source to operate a desalination plant
- Proposal analysis
- Water pre- and post-treatment
- Environmental impact analysis and assessments
- Technical and economic trade-off analysis
- Financial analysis





EXPERIENCED

OVER SEVENTY YEARS OF UNMATCHED,
HANDS-ON EXPERIENCE...

Since its inception in 1932, Burns and Roe has been involved with the design and engineering of supply and treatment systems for high-purity boiler feedwater - including evaporation - in support of steam-electric power generating stations. This led to a commitment and involvement in the early 1960's in desalination as a means of obtaining quality drinking water, as well as high-purity water for power and industrial use.

As a result of our continuous activities and client assignments, we have maintained an engineering group of specialists dedicated to desalination. This, coupled with numerous desalination plant operation and maintenance contracts, has given Burns and Roe the essential feedback necessary to incorporate the most practical, up-to-date, and proven technology in our engineering and design efforts. In addition, previous operations and maintenance contracts for desalination plant test facilities have provided Burns and Roe with hands-on experience in all desalination processes.

Few engineering consulting firms in the U.S. can match Burns and Roe's proven, overall capability in the desalination field.



DIVERSIFIED

SPECIALISTS FULLY QUALIFIED ON THE LATEST
DESALTING TECHNOLOGIES...

Burns and Roe believes the key to a high quality desalination facility involves using a staff of specialized professionals to design and engineer the project. Our staff includes specialists in seawater intake structures, heat transfer analysis, hydraulic flow analysis, and water treatment processes. As a result of this work, Burns and Roe has submitted patents on a number of desalination processes.

One of these processes is the controlled flash evaporator (CFE), which has shown promise in the reduction of the large, non-equilibrium temperature losses experienced in the low temperature stages of multi-stage flash desalination plants.

Burns and Roe has been involved in the engineering, development, operation, and maintenance of membrane desalination systems since the early 1960's and has the unique capability of providing comprehensive analysis in this expanding field. Other projects also include solar ponds and geothermal resources as a source of energy for desalination.

Burns and Roe's specialists are experienced in virtually all known technologies in the desalination field, from conventional approaches to concepts developed by our firm. Our engineers have designed and constructed desalination plants of the following types:

- Reverse osmosis, nanofiltration, ultrafiltration, and microfiltration
- Multistage flash, multi-effect vertical and horizontal tube evaporators
- Dual-purpose electric power and seawater conversion plants
- Electrodialysis
- Controlled flash evaporation
- Universal desalination plants
- Lime-magnesium seawater treatment plants
- Mobile test units and pilot plant equipment



COMMITMENT TO OUR CUSTOMERS



“KUDOS ARE IN ORDER FOR WHAT HAS BEEN AN OUTSTANDING SUCCESS STORY ACHIEVED IN ASSEMBLING THE SAUDI MOBILE PILOT PLANT! MANY THANKS.”

– INTERNATIONAL AFFAIRS CHIEF
APRIL 27, 2000

“I WOULD LIKE TO THANK YOU FOR THE HELP THAT YOUR OPERATIONS PEOPLE GAVE US LAST SATURDAY AND THIS TUESDAY IN OUR STUDY OF THE R.O. UNIT...JERRY THOMAS AND BOBBY NORTHRUP WENT OUT OF THEIR WAY TO HELP ME FIND BRINE SEALS, O-RINGS, END CAPS AND OTHER MATERIALS...THANKS AGAIN.”

– INSTRUCTOR FOR THE ADVANCED WATER TREATMENT COURSES
BUREAU OF RECLAMATION
OCTOBER 11, 2000



“ I WANT TO TELL YOU HOW MUCH I APPRECIATE THE HARD WORK DONE BY YOUR STAFF DEVELOPING THE REVERSE OSMOSIS MEMBRANE ELEMENT DISPLAY AND THE REVERSE OSMOSIS DEMONSTRATION UNIT...THE QUALITY OF WHAT THEY PRODUCED IS EXTREMELY HIGH.”

– BUREAU OF RECLAMATION
MARCH 22, 1999



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