

Desalination Workshop
Fess Parker's Double Tree Resort
Santa Barbara, Ca
April 16, 2004

**Desalination: The Challenges and Opportunities
for a New Water Supply**

Remarks by Bernie Rhinerson
Chair, San Diego County Water Authority and
Chairman, U.S. Desalination Coalition

Thank you for having me here today in beautiful Santa Barbara, a location that in water circles at least, is often equated with seawater desalination. Santa Barbara, the birthplace of seawater desalination as a municipal water supply in California some 12 years ago, is a fitting location to have the wide-ranging discussion you will have today on the current state of seawater desalination in California. The fact that all of you are here today representing a variety of interests and positions is reflective of the rapid emergence of seawater desalination as a viable water resource opportunity for this state and the critical need we all share to secure reliable water supplies for the future. The fact that I am here speaking to you today on behalf of the San Diego County Water Authority, a regional agency that serves 2.6 million people, is testimony to the importance that I, as a policy maker, and our organization place on desalination as a major component of municipal water supplies for the future.

I am also pleased to be a part of this seminar because meetings like this are important to facilitating constructive dialogue between the various stakeholders interested in assuring that seawater desalination is done right in California. We are at the beginning of determining the potential of desalinated seawater as a part of a reliable and diverse water supply for this state, and determining both the business and public policy aspects of how the ocean should be developed as a new water supply for California.

California's increasing population, coupled with projected water shortages, underscore the importance of developing new, reliable and drought-proof water supplies. Our state's population is projected to increase by 600,000 people per

year, and most of this growth will come from natural increase. The California State Water Plan – Bulletin 160-98 – forecasts water shortages by 2020 of 2.4 million acre-feet in an *average* year, and 6.2 million acre-feet in *drought* years.

California’s \$1.3 trillion economy – the fifth largest economy in the world -- and the quality of life of more than 37 million residents depend upon a reliable water supply. Seawater desalination offers a new water supply for California that is both cost-competitive with other resource options, and -very importantly - drought proof. It will help relieve pressure on California’s environmentally sensitive surface water resources, including the Sacramento-San Joaquin Bay-Delta. We’ve known all along that desalination would be part of California’s water supply future, we just didn’t know when that future would arrive.

A little more than 13 years ago, the agency that I serve, the San Diego County Water Authority, and the rest of California went through a severe, prolonged six-year drought. The sixth year of that drought subjected San Diego County -- then dependent upon imported water for 95% of its supplies -- to devastating water shortages -- we were already suffering from supply cutbacks of nearly one-third and were facing cutbacks of 50 percent that would have decimated our local economy. We were spared the deeper cutbacks only by the “Miracle March” rains.

Through this terrible experience, however, we all learned a very critical lesson. The Board of Directors of the Water Authority, like water agencies throughout Southern California embarked on efforts to diversify our water supplies, improve our reliability and reduce our dependence on hydrologically influenced supplies. The focus was primarily on developing reliable local supplies. Many agencies chose to place their emphasis on water recycling and brackish groundwater desalination, while some, like the Water Authority, emphasized both the long-term development of local supplies such as water recycling and conservation as well as diversification of our imported supplies through the development of long-term core water transfers with agriculture.

It was during this time, back in the early 1990s, that the first wave of seawater desalination crashed against the shores of California. Santa Barbara successfully put a seawater desalination plant into operation for a short period, but subsequently decommissioned it due to ample rainfall and cheaper surface water supplies.

A few years later the Water Authority dropped its pursuit of a seawater desalination project at the South Bay Power Plant in Chula Vista. The reason: desalinated seawater was too expensive and there were less costly supply alternatives that were available to municipal water suppliers. From a policy maker's perspective, it was just too difficult at that time for boards of directors to invest ratepayer dollars in what was then *the* most expensive source of supply available. Conventional wisdom was that simply *considering* desalinated seawater as a serious part of our water supply was, perhaps, decades away.

I am pleased to report to you today that less than 10 years later we are now riding the second wave of seawater desalination in California. Large regional agencies such as the Water Authority as well as smaller jurisdictions, from San Diego to Northern California are seriously planning seawater desalination on a wide scale and are prepared to make the financial investments necessary to finally bring about realization of the potential of this new water supply for California. The seriousness with which seawater desalination is under discussion is due primarily to technology advances and manufacturing efficiencies that have taken place over the last decade.

As a policy maker, I can now accept that the technology has advanced to the point where desalting ocean water is no longer beyond the cost of other new water supplies and that seawater desalination is now competitive with the cost of other supplies like water recycling. I expect that it will only get better and less costly from here. I can point to the high quality water produced using current desalination technology. I can also point to other projects around the world, and know that the technology has been successfully implemented and proven. I also

do not want to understate the importance of the Tampa Bay project and its experience for Board members and decision makers in other parts of the country.

The foresight and courage of the Board and staff at Tampa to be the pioneers of seawater desalination in this country has made it easier for those of us that will follow and will give us all more comfort that it can be brought in for the costs being cited. I commend them for all their hard work and their desire to openly share their experiences with the rest of us, and we all know that even with the difficulties they have experienced they will persevere and the Tampa project will ultimately be held up as a very successful project.

Agencies throughout California are planning to make seawater desalination a part of a diversified water supply portfolio that also includes cost-effective water conservation and many cases, water recycling. My agency, the San Diego County Water Authority, which sells about 600,000 acre-feet of water each year, has been working on a 2030 Regional Water Facilities Master Plan that has as its preferred supply alternative, seawater desalination. We are planning for between 50,000 acre-feet per year to as much as 140,000 acre-feet per year coming from desalinated seawater by 2020. While that sounds like a huge number, that range would equate to somewhere between 6 and 15 percent of our water supply in 2020.

We are currently conducting engineering and environmental studies for regional projects in Carlsbad, in South San Diego County in conjunction with the Republic of Mexico and the State of Baja California. We are also engaged in a feasibility study at the San Onofre Nuclear Generating Station on U.S. Marine Corps Base Camp Pendleton in partnership with the Municipal Water District of Orange County. Plans are also being made by other public water agencies for projects in Los Angeles and Orange counties. Taken together, plans for seawater desalination projects in coastal southern California amount to at most 3-4% of our water supply in 2020. Only a small part of the total but an important contributor to water supply reliability.

As this new chapter in the storied history of California water begins to unfold, there are many positive indicators that seawater desalination will be successful in California. There is broad-based public support for desalination. Recently, the Schwarzenegger Administration came out with a strong statement in support of seawater desalination.

However, as part of doing seawater desalination right, there are a number of challenges and policy issues facing the implementation of this new water supply.

First of all, developing a water supply project on the coast is new territory for most water supply agencies. Traditionally, our drinking water has come from inland rivers and reservoirs, supported by conveyance systems that move water to the coastal areas. Conversely, siting and operating an ocean water desalination plant puts a new water source on the coast that requires conveyance facilities to move water inland, in many instances up hill, and that costs money. In addition, desalting ocean water presents an entirely different set of environmental issues than traditional surface water supply and conveyance facilities.

Also, a desalination project is no different than any other new water supply project. A significant capital outlay will be required. While water agencies and their rate payers are preparing to make these investments, funding partnerships are critical to getting desalination “off the ground” in California.

I have the privilege of serving as Chairman of a newly formed association called the United States Desalination Coalition. Our coalition was formed just over a year ago to provide a means for municipal water suppliers from across the nation, interested in desalination, to work together on making brackish and seawater desalination a significant part of our nation’s future water supply and to involve the federal government in promoting the technology and long-term potential of this important water resource. Seawater desalination is in the forefront of water supply planning not just here in California, but also in Florida,

Texas and even Georgia. The US Desalination Coalition, which consists of 12 voting members and represents project proponents in three states has been promoting the potential of federal funding support for desalination as a necessary ingredient to foster the successful implementation of this future supply.

As a direct result of the efforts of the Coalition, H.R. 3834, the Desalination Energy Assistance Act of 2004, was recently introduced by a bipartisan group of 22 members of Congress from Hawaii, California, Texas and Florida. This bill would authorize the U.S. Department of Energy to provide energy assistance payments to qualified desalination projects based on actual production.

Closer to home, the Metropolitan Water District of Southern California has proposed a \$250-per-acre-foot incentive program to financially assist projects in its service area. Securing funding will be a challenge, and like other supplies, the formula for success, I believe, is through funding partnerships between local agencies, regional and state entities and the federal government working in cooperation with the competitive forces of private industry.

Reverse osmosis, a proven technology with widespread application will most likely be the desalination process of choice for California seawater desalination plants. This technology requires high pressure that is provided by electrically driven pumps. As such, power costs make up about 30 percent of the total cost of desalting ocean water. The cost of power also represents the greatest uncertainty in the desalination cost equation. Continued advances in membrane system energy efficiency are a necessity. Also, municipal water suppliers will need greater certainty over power prices in order to make the long-term financial commitment to desalinated seawater as a supply.

There are important regulatory issues that must be addressed. Key among them are the conditions that the California Coastal Commission may seek to impose on new desalination project permit applications. All projects will need to proceed in an environmentally responsible manner consistent with California

and federal environmental laws. Of course, each project will have to assess the impacts to the marine environment, address concerns over growth inducement and power plant collocation and mitigate impacts along the coastal corridor. But California will also have to determine and define the proper role of the Coastal Commission in the project approval process, balancing the need for future reliable water supplies with coastal stewardship and the Commission's responsibility for managing the ocean as a public resource.

All the interest in seawater desalination, spurred on by the specific project proposals being considered up and down the state, has touched off a serious discussion, and a healthy discussion I might add, on the public policy issues surrounding the development of desalination projects along the coast. Some of these issues include:

- The context for considering the environmental impacts of seawater desalination. While the site-specific environmental impacts of seawater desalination should certainly be identified and mitigated, shouldn't desalination and its impacts also be viewed in the broader statewide context of the impacts that would be caused by the need to develop additional fresh water supplies inland?
- The question of public versus private ownership of seawater desalination facilities. How is the public interest best served in terms of stewardship of the ocean as a natural resource and as a water supply, coordination with local land use planning and policies, assurance that ratepayers pay a fair price for desalinated water and that there is appropriate public oversight and long-term public control over this critical public resource? What is the role of private companies in developing desalination? Private investor owned utilities regulated by the state Public Utilities Commission have been a part of delivering water to retail customers for decades and owning water supply infrastructure is part of their business. Is this any different? I personally believe that properly structured

public/private partnerships can ensure that the ratepayers get a good deal and the public sector ensures good stewardship of the resource through ownership and control over the long-term.

- For those projects that want the benefits of collocating with coastal power plants, the long-term viability of those power stations is a question as is the proper role of the power plant owners, which are mostly unregulated power generators, How do public agencies partner with them in developing a municipal water supply that millions of Californian's will depend on.
- Finally, in my county we are having a discussion over who is the proper entity to implement seawater desalination, a regional wholesale provider like the Water Authority or one or more of our local member agencies.

We may have differences of opinions on the right way to bring the supply to our County, the best way to structure a public-private partnership, but we all agree there is a need for seawater desalination and it is necessary and positive to have a dialogue over these issues in our County and throughout the state.

These are a few of the exciting challenges we will face over the next few years as we begin to implement these projects. I, for one, am confident we will meet those challenges and that unlike that first wave I spoke of earlier, the potential for desalinated seawater as a reliable water supply for California will finally be realized.

Thank you.

###