

Tutorial on Electric Utility Water Issues



*28th International
Technical Conference on
Coal Utilization & Fuel
Systems*

*Clearwater, FL
March 10-13, 2003*

Thomas J. Feeley, III
National Energy Technology Laboratory



Tutorial Outline



- **Introduction & Background**
 - Tom Feeley, DOE/NETL
- **Power Plant & Water Issues**
 - Ron Hix, FPL

Water Issues in the News



Three Things Power Plants Require



1) Access to transmission lines



2) Available fuel, e.g., coal or natural gas



3) Water

“Official: Plants Would Use Too Much Water”



Spokane River

- **Two large power plants proposed for Washington-Idaho border**
- **17 million gallons of water/day from Spokane-Rathdrum Prairie Aquifer**
- **Local concerns that withdrawal would impact Spokane River**

Source: Idaho Statesman, July 19, 2002

Power Plant Water Issues in Today's News

- **Duke Power Warns Towns in Charlotte, N.C., Area to Cut Water Use**
 - *The Charlotte Observer, NC, August 2002*
- **Generating Plant to Put Recycled Water to Use**
 - *Inland Valley Daily Bulletin, CA, August 2002*
- **Water at Pueblo, Colorado, Power Plant Slows to Trickle**
 - *The Pueblo Chieftain, CO, August 2002*



Power Plants and Water

- **2nd largest user of freshwater in United States**
- **Use 190 billion gal/day**
- **71% of total withdrawals for fossil-fueled power plants**
- **A 500 MW closed-loop plant consumes about 7,000 gal/min, equivalent to 17 Olympic-sized pools of water each day**



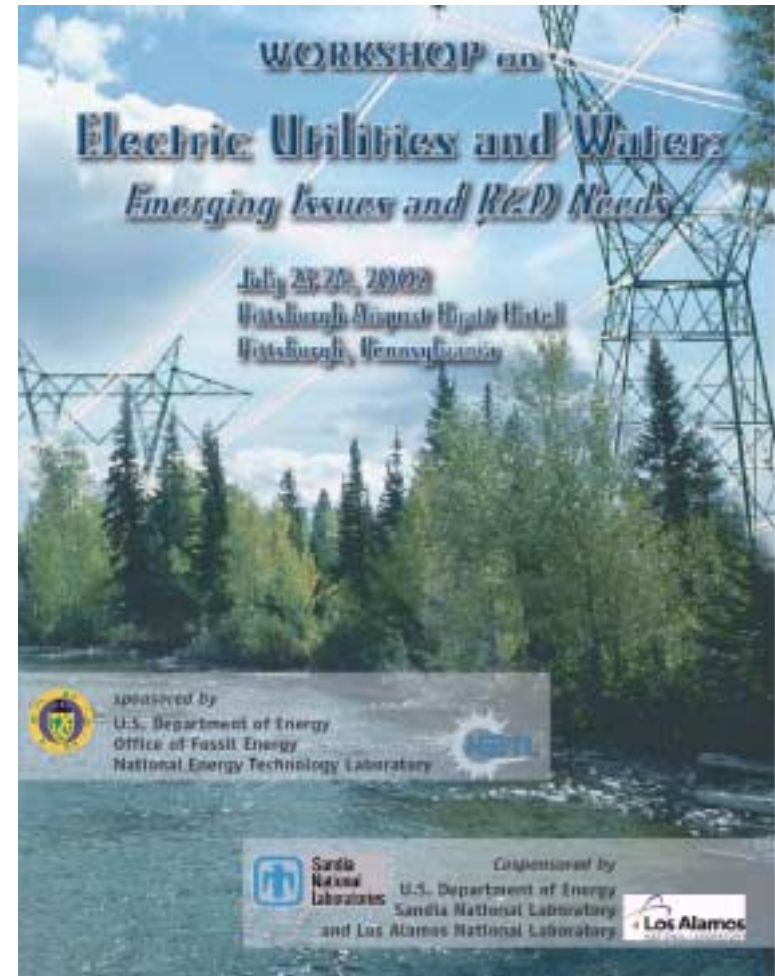
Power Plant Cooling Towers

Source: USGS Circular 1200, 1998



Workshop on Electric Utilities and Water

- July 2002 two-day workshop addressing emerging water/energy R&D needs
- Second in a series of workshops sponsored by NETL, LANL, and Sandia
- Meeting of government, utility industry, academia, and regulatory representatives



“Innovative Water Management Technologies and Concepts for Coal-Fired Electric Utility Boilers”

- **Targeted competitive solicitation closed February 14, 2003**
- **Four topic areas:**
 - Non-Traditional Sources of Process and Cooling Water
 - Innovative Cooling Technology
 - Advanced Cooling Water Intake Technology
 - Advanced Pollutant Measurement/Detection and Treatment Technology



NETL's Water & Electric Utilities R&D Program



- Innovative water management concepts and technologies
- Regulatory and policy analysis
- Atmospheric transport and deposition of pollutants (e.g., mercury)
- Mine land reclamation and water quality improvements (“eco-assets”)
- Water-quality trading



**“Whiskey is for drinking;
water is for fighting.”**

– Mark Twain

*To learn more about NETL’s water-energy
R&D activities, please visit us at:*

WWW.NETL.DOE.GOV/COALPOWER/ENVIRONMENT

