



• August 15-18, 2010 • Dallas, Texas •
• Dallas Convention Center •

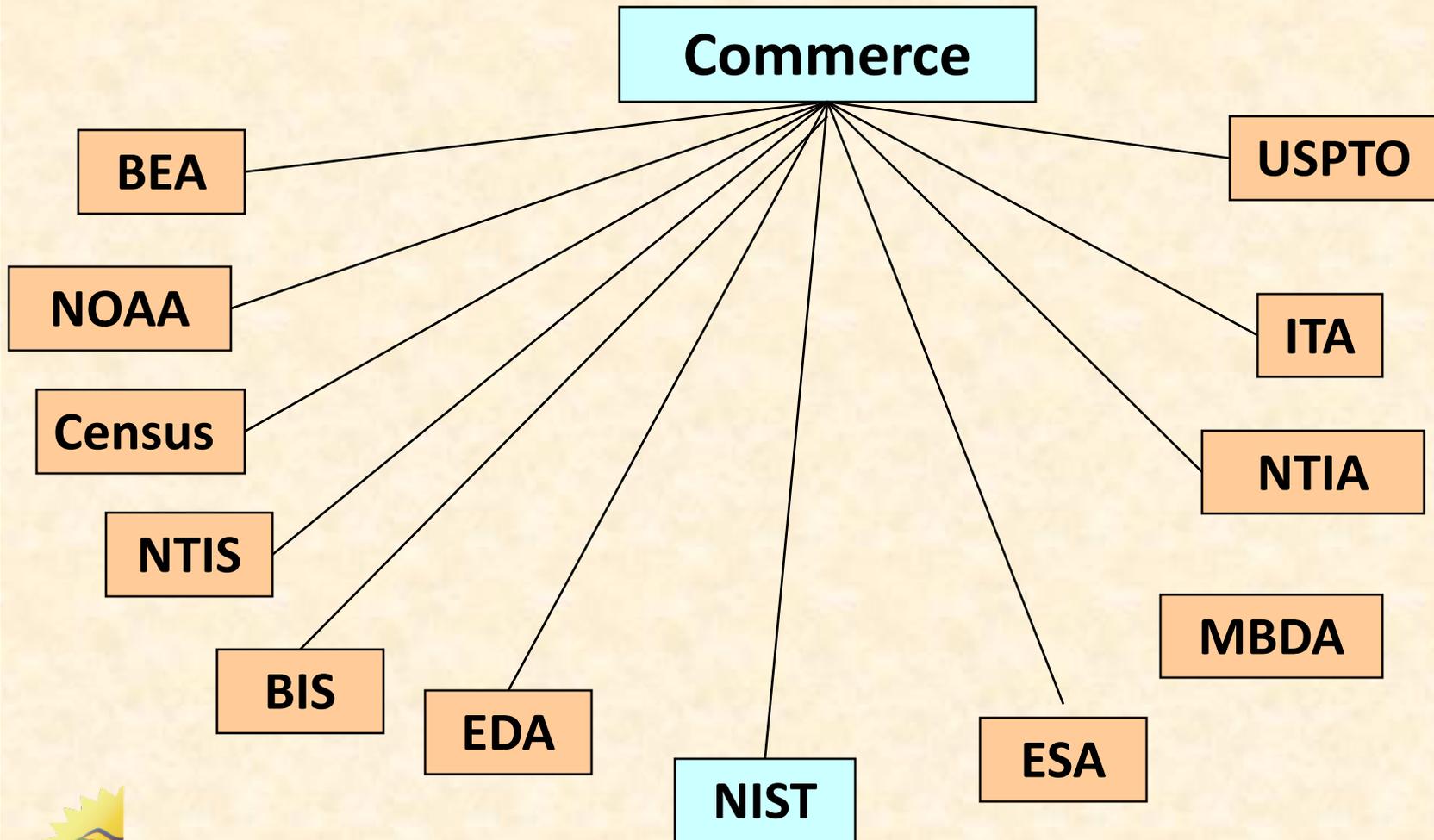


Groundwater Reuse at NIST

Robert Scinta, Energy Program Manager

U.S. Department of Commerce

Department of Commerce Organizational Chart



National Institute of Standards and Technology (NIST)

- Gaithersburg, MD - main campus
- Founded in 1901
- Nation's first physical science and research laboratory
- Mission: To promote U.S. innovation and industrial competitiveness by advancing measurement science, standards, and technology in ways that enhance economic technology and improve our quality of life.

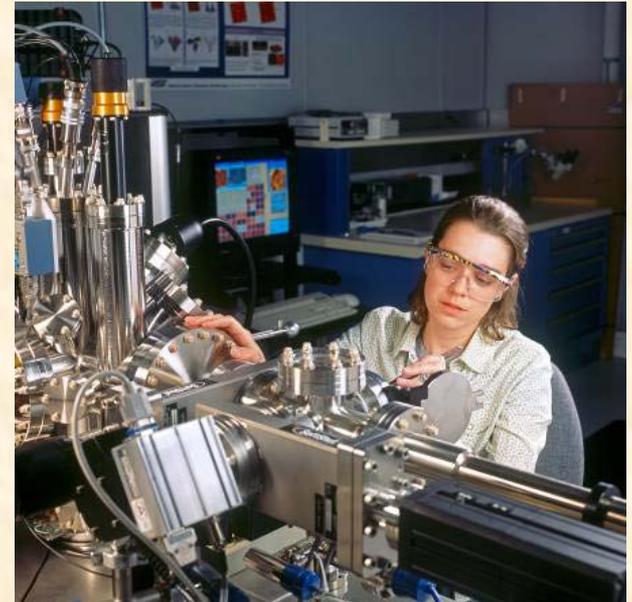


Photo by Beamie Young

The Concept

- Advanced Measurement Laboratory (AML) constructed in 2004
- 2 bldgs w/ basements below the water table
- Sump pump removes excess water (***90,000 gallons per day***)

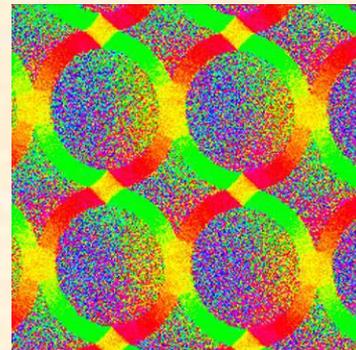


Photo:
J. Unguris, NIST

The Concept

- Steam and Chilled Water Generation Plant's cooling tower uses city water
- Why not re-route the sump water to the cooling tower?
- Feasibility study found potential savings of ***\$128,000*** annually & payback period of ***6.7 yrs***

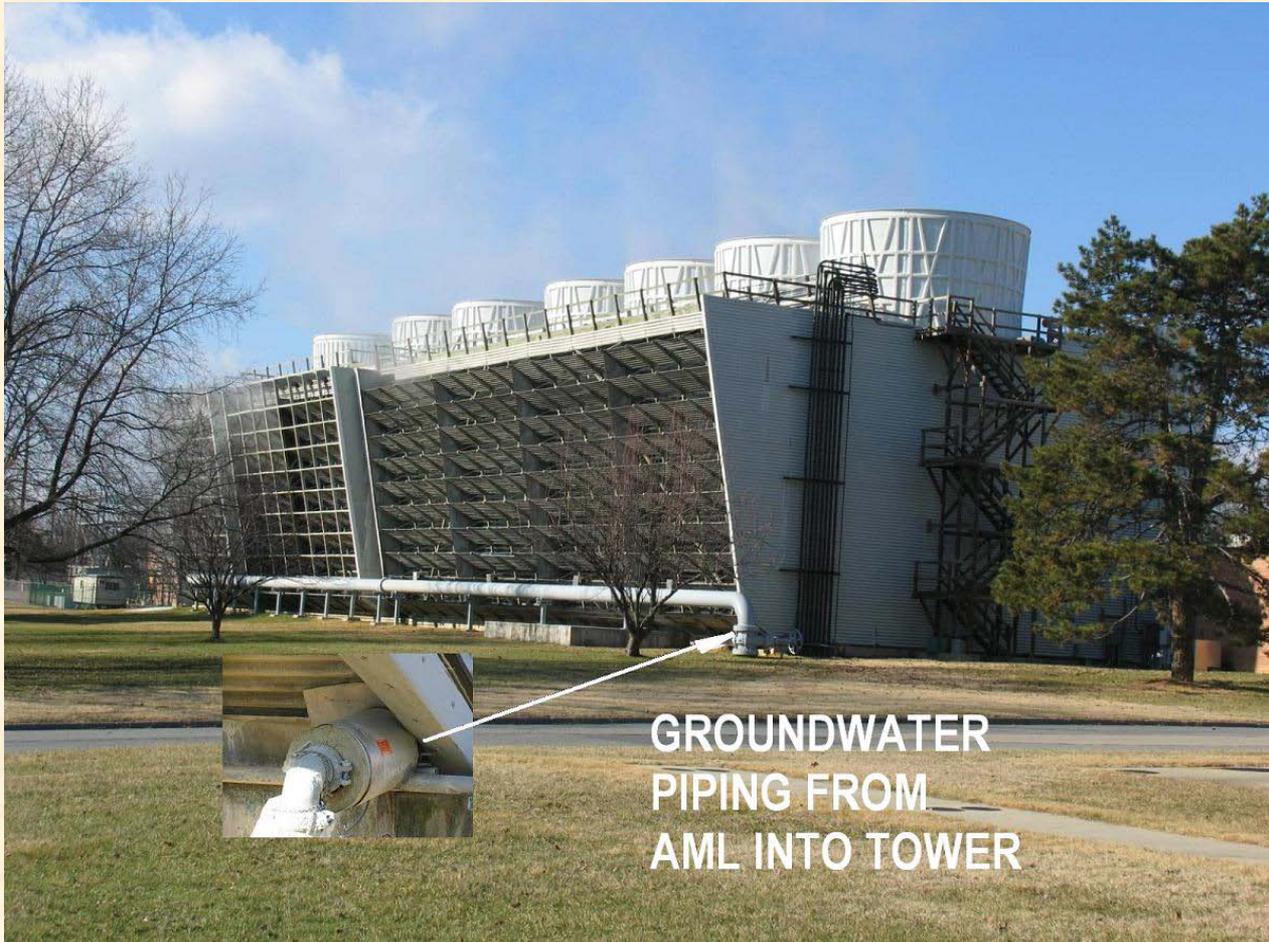


Construction

- Construction began early 2007
- Installed
 - 2 Underground transfer tanks with pumps (2100 gal and 720 gal)
 - Underground piping
- No filtration necessary
- Excavation coordinated with another excavation project, saving \$93,000



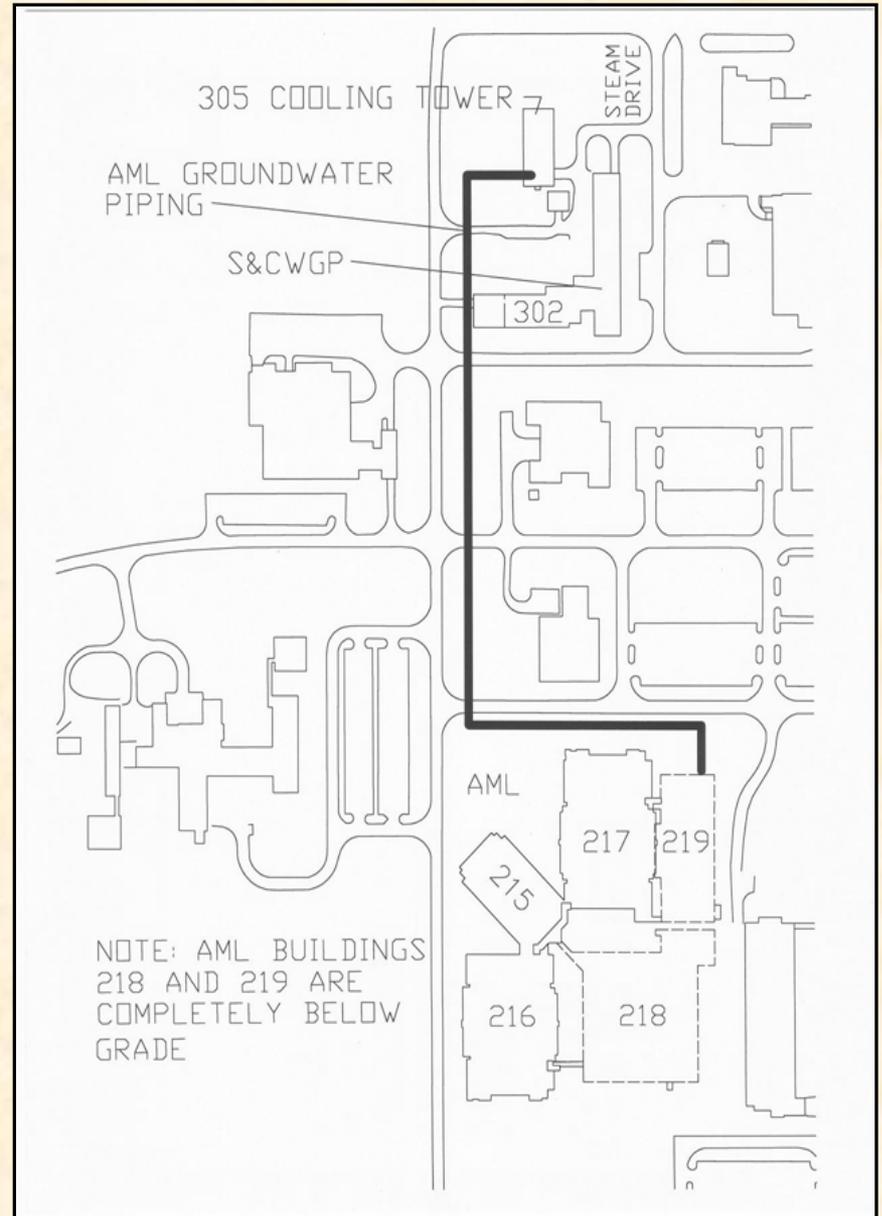
Cooling Tower



GROUNDWATER
PIPING FROM
AML INTO TOWER

Groundwater meets:

- 20% of cooling tower's water needs in summer
- 40% in cooler weather



Savings



- **FY2009:**
 - **13.8 million gal/6 months** \approx 70,725 gal/day \approx 33,000,000 gal/yr
 - **\$67,000/6 months** (exceeded initial \$64,000 estimate)
- **FY2010:**
 - System was de-energized for the winter
 - 3.5 million gal \approx \$18 K savings through April
 - Savings expected to increase over warm summer months

Other Benefits

- Great PR
 - Won 2009 Federal Energy and Water Mgmt Award
 - Won 2009 DOC Environmental Stewardship Award
- Satisfies Department-wide EO 13423 & 13514 water savings goal through 2015!

Future Plans

- Capture water from another building with underground levels
 - Current groundwater pumping system meets:
 - 20% of cooling tower's water needs in summer
 - 40% in cooler weather



Acknowledgements

- Jennifer Brundage, Analytical Services, Inc.
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More AML photos

- http://www.nist.gov/public_affairs/factsheet/aml_graphics_gallery.cfm
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