

Water for 2060 Advisory Council

Meeting Minutes – 1:00 P.M., August 19, 2014

OWRB Board Room, 3800 N. Classen Blvd., Oklahoma City, Oklahoma

ATTENDEES:

Advisory Council Members and Representation:

Bob Drake, Agriculture (Davis)

Charlette Hearne, Oklahomans for Responsible
Water Policy (ORWP) (Broken Bow)

Mark Helm, Dolese (Oklahoma City)

Trent Smith, Small Business (Choctaw)

Kevin Smith, Ward Petroleum (Enid)

Lauren Brookey, Tulsa Municipal Utility
Authority

J. D. Strong, Chair, Oklahoma Water Resources
Board (Oklahoma City)

Joe Taron, Pottawatomie County Development
Authority (Shawnee)

Jerry Wiebe, Oklahoma Panhandle Agriculture
& Irrigation (OPAI) (Hooker)

Nathan Kuhnert, Devon Energy (Oklahoma City)

Dan Galloway, City of Stillwater

OWRB and USACE Staff and Consultants:

Cole Perryman, OWRB

Jennifer Wasinger, OWRB

Jerri Hargis, OWRB

Derek Smithee, OWRB

Julie Cunningham, OWRB

Lindy Clay, OWRB

Darla Whitley, OWRB

Mary Schooley, OWRB

Lauren Sturgeon, OWRB

Terri Sparks, OWRB

John Rehring, Carollo Engineers

Anna Childers, CH2M Hill

Bryan Mitchell, CH2M Hill

Other Attendees:

Michael Taylor, ODEQ

Kent Fletcher, Western Farmers Electric Coop

Betsy Craytor, ORWP

Mike Mathis, Continental Resources

Bud Ground, Public Service Company of
Oklahoma

Russ Doughty, ORWP

Introductions and Goals for Today

Mr. J.D. Strong, OWRB Executive Director and Advisory Council Chairman, opened the meeting by welcoming the attendees and asking audience/observers to introduce themselves. Mr. Strong thanked Council Member Jerry Wiebe and the Oklahoma Panhandle Agriculture and Irrigation Association for sponsoring the recent tour of conservation initiatives in the Panhandle region. He reminded the members that their charge was to prepare a final report to the Legislature next year, and that the goal of this meeting is to look at water user groups other than Municipal and Industrial (M&I) and Crop Irrigation. He introduced the Industry Panelists, noting that Mr. Roger Griffin was unable to attend due to prior commitments: Mark Helm, Dolese; Kevin Smith, Ward Petroleum; Nathan Kuhnert, Devon; Kent Fletcher, Western Farmers Electric Coop; and Bud Ground, Public Service Company of Oklahoma.

Mr. John Rehring, meeting facilitator from Carollo Engineers, noted that the process for exploring industrial water use conservation would be a little different from that followed for the Advisory

Council's previous M&I and Crop Irrigation workshops. Instead of the Panelists giving presentations and then answering questions, the entire panel discussion would be in a question and answer format.

Industrial Panel Discussion: Existing Practices in Conservation and Reuse

Characteristics of Industrial Water Use

- Some facility-specific issues, needs, and approaches to efficiencies in water use
- Once-through cooling systems used in power plants have lower consumptive use – 85-90% returned to stream and about 15% evaporates
- Closed-loop power plants use cooling towers and evaporate more than once-through cooling systems
- Some power generation facilities produce their own potable water
- Steam turbines for power generation require water of a quality greater than potable quality
- Oil and gas (O&G) operations use water for drilling and fracking, but not daily operations
- Shift toward oil-based muds for drilling in the O&G industry; horizontal fracking uses a greater amount of water
- Woodford Shale flowback water quality is often better than that from traditional wells —best suited for reuse after treatment; frack fluid technology has allowed use of higher TDS water

What's Working Now?

- Older generation power plants used 60 thousand gallons of water per megawatt of electricity produced (kgal/mw)—newer plants use 20 kgal/mw with advancements in technology
- Coal units use more water than gas-fired; industry is moving toward gas-fired plants
- Environmental regulations have been driving these changes, rather than water use
- PSO plant at Lawton is re-using Lawton effluent from their treatment plant; similar at OG&E facilities using treated effluent from Oklahoma City
- O&G reuse of flowback/produced water can be limited by proximity of next well
- Industry is significantly increasing its reuse of O&G flowback water
- Corporation Commission enacted new rules allowing operators to store large amounts of flowback water in pits (Flowback Pit Rule)
- Some concrete batch plants are implementing total retention of stormwater; driven by discharge requirements
- Shifted to dry cleanup systems at some concrete plants; increasing onsite reuse
- Shift toward using MgCl for dust suppression instead of water
- Quarry mine planners use onsite water balance to minimize fresh water use

Industrial Panel Discussion: Additional Conservation and Reuse

Potential Impediments

- Ability to discharge water sourced from municipal effluent; if the municipal effluent has poor water quality, the industry reusing that water may be in a situation where they cannot discharge it after using it
- Economic drivers
- Large O&G companies design storage pits to only meet their needs, so cannot accommodate smaller O&G drilling operations
- Proximity of wells to one another for potential O&G reuse of produced/flowback water
- Alternative frack fluids bring tradeoffs in cost and performance
- Some O&G leases specify use of fresh water supplies first

- More piping to accommodate water conveyance may increase security concerns (e.g. vandalism)
- Inconsistency from county-to-county on granting rights-of-way
- Managing high waste loads of salt
- Redundancy and reliability of water disposal and management
- Discharge limits may be limiting factor for efficient water reuse
- Concrete specifications mandate potable water even if non-potable would suffice
- Often is quicker and easier to develop fresh water for fracking
- When water is plentiful, there is no incentive to save
- Maximum number of cooling tower “cycles” (internal reuse within the cooling tower) is driven by TDS, etc. in discharge permit; treatment would be very expensive
- Reliability of municipal effluent supply and quality
- Disclosure of competitive/sensitive industry information; maybe address via third-party collector of information

Industrial Panel Discussion: Incentives and Outreach Programs

Potential Opportunities

- Shared water resources between O&G operators was recently made easier by Oklahoma Corporation Commission rule change avoiding classification as “commercial” operation
- Oklahoma Secretary of Energy and Environment is facilitating collaboration between water users
- Alternatives to water for fracking or lower-water fluids: support more brackish water mapping and research on its use
- Identify best practices for onsite water management at concrete and aggregate facilities to employ elsewhere; get Leadership in Energy and Environmental Design (LEED) type points for sustainable site development
- Evolving treatment technology for flowback
- Make the process for approving site-specific stream standards easier
- Improve municipal effluent water quality reliability; consider partnerships between power generators and municipalities to improve treatment; use OWRB Financial Assistance Programs?
- Model the economics of alternative water sources for power generation; would also apply to large industrial users
- Inventory and mapping of sources of municipal effluent in relation to large industry demand
- Need flexible approaches because there is no “one size fits all” for our diverse uses and supplies across Oklahoma
- Develop recognition programs for water-efficient industries
- Create intra-state and inter-state forums for water efficiency best practices info-sharing
- Regulatory reform to address disincentives for O&G water sharing
- Identify true water quality requirements for concrete (not just “potable”) and get engineering industry to change specifications
- Identify opportunities for aggregate sites to be used for recharge purposes as plants are in place long-term

Next Steps and Group Resources

Mr. Rehring noted that he would send out information he put together on potential public water supply efficiency savings and costs, which were primarily based on a review of the 2012 Oklahoma Comprehensive Water Plan reports. Based on input received from the Council, draft recommendations

for the PWS, Crop Irrigation, and other water use sectors will be developed for the Council to consider prior to the next meeting, scheduled for 1:00 p.m., November 18, 2014 at the OWRB's offices.