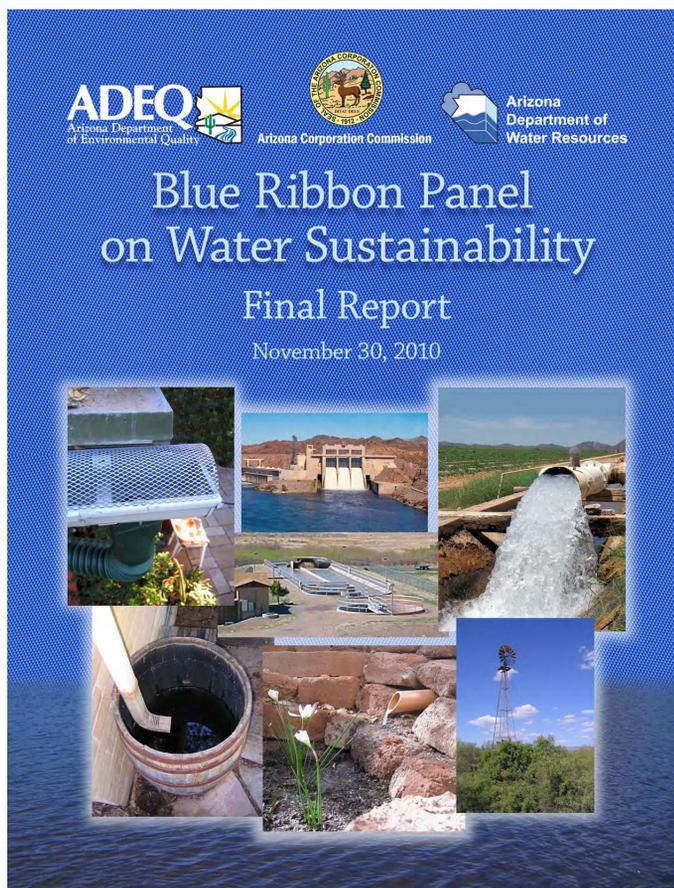


# ARIZONA BLUE RIBBON PANEL ON WATER SUSTAINABILITY

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## Background or Rationale

In response to the twin pressures of population growth and an arid environment, Arizona has conventionally addressed water challenges by increasing supply. The initiative described below demonstrates how decision-makers at a range of levels in the state are reconsidering the other side of the equation – alleviating water demand, especially through conservation, recycling, and reuse. In particular, the expanding practice of water reuse has become the centerpiece of efforts to achieve sustainability. This offers some important lessons for other regions experiencing similar pressures.

## Blue Ribbon Panel on Water Sustainability

In 2009, Arizona Governor Jan Brewer announced the formation of the Blue Ribbon Panel on Water Sustainability (BRP) to focus on water conservation and recycling as strategies for improving water sustainability in Arizona. The BRP was jointly chaired by three officials responsible for the regulation and management of water resources: Ben Grumbles, Director, Arizona Department of Environmental Quality (ADEQ); Herb Guenther, Director, Arizona Department of Water Resources (ADWR); and Kris Mayes, Chairperson, Arizona Corporation Commission (ACC), Arizona's constitutionally established regulatory body for privately owned utilities. An additional 40 members representing diverse water interests in Arizona were appointed to the BRP, including representatives of large and small cities, counties, agriculture, industry, Indian Tribes, environmental interests, Arizona universities, legislative leaders, and other experts. The BRP held its first meeting on January 8th, 2010 and was challenged to identify and overcome obstacles to increased water sustainability. The initial goal of the first few meetings was to agree upon a succinct purpose statement:

*To advance water sustainability statewide by increasing reuse, recycling, and conservation to protect Arizona's water supplies and natural environment while supporting continued economic development and to do so in an effective, efficient and equitable manner.*

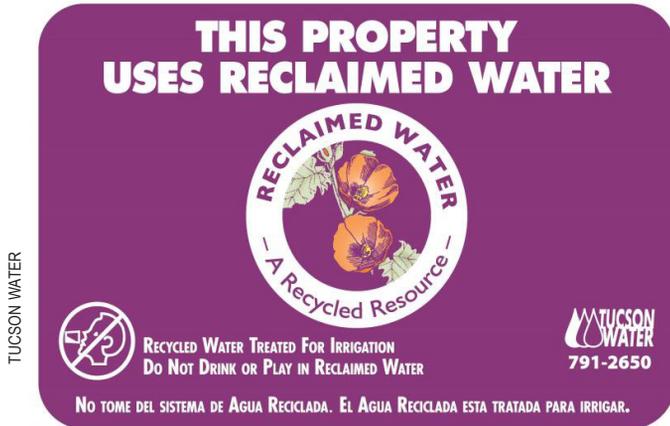
To this end, members agreed to provide recommendations on statute, rule, and policy changes that, by the year 2020 in Arizona, would significantly;

1. Increase the volume of reclaimed/recycled water reused for beneficial purposes in place of raw or potable water,
2. Advance water conservation, increase the efficiency of water use by existing users, and increase the use of reclaimed/recycled water for beneficial purposes in place of raw or potable water,

3. Reduce the amount of energy needed to produce, deliver, treat, reclaim and recycle water by the municipal, industrial, and agricultural sectors,
4. Reduce the amount of water required to produce and provide energy by Arizona power generators, and
5. Increase public awareness and acceptance of reclaimed and recycled water uses and the need to work toward water sustainability.

- Public perceptions related to reclaimed water reuse quality,
- Regulatory and policy changes to further promote reuse and recycling,
- Reclaimed water infrastructure and retrofit best practices,
- Conservation/efficiency and energy/water nexus issues, and
- Economic and funding opportunities, including both public and private mechanisms.

The chairs and working group participants accomplished a substantial amount of work in the intervening months from January through November 2010. Cumulatively, 58 working group meetings were held, involving some 320 individuals. The working groups brought forward 40 separate issues for BRP consideration. The BRP condensed and prioritized these to 26 issues and directed the applicable working groups to write “white papers” analyzing these challenges and provide recommendations based on the analyses. The concerns addressed a diversity of subjects, including public perception, public education, research needs, regulatory impediments, efficient use of existing or future water supplies, expanded use of rainwater and storm water, the interface between water and energy, funding and incentives.



City of Tucson Water Department Reclaimed Water Signage



Reclaimed Water Retention Pond in the City of Maricopa, AZ

## BRP Working Groups

Five working groups were formed, chaired by BRP members and with participation open to the public, to facilitate discussion of issues and involve the broadest spectrum of stakeholders and technical expertise. The five working groups were chaired by Arizona representatives from the following institutions, Pima County Regional Wastewater Reclamation; Arizona WateReuse Association; National WateReuse Association; Arizona Municipal Water Users Association; and Pinal County. The working groups were created to explore:

## BRP White Papers

Each of the subsequent panel meetings were used by the working groups to provide an overview of the 26 issues identified in previous meetings. The BRP reviewed the recommendations from the white papers and consolidated them into 18 sets of recommendations encompassing a total of 64 separate sub-recommendations. These final recommendations were grouped into five different categories: (1) education/outreach, (2) standards, (3) information development and research agenda, (4) regulatory improvements, and (5) incentives.

## BRP Final Report and Recommendations

Although the Final Report contains too many recommendations to summarize here, several recommendations involving data collection and management stand out because they crosscut all three agencies chairing the BRP. Accurate information is essential to promoting a common understanding of Arizona’s water supplies and the extent to which water sustainability is being achieved. Development of rational policies and regulations that encourage use of recycled water, while protecting public health and safety and fostering public confidence, depends on appropriate, timely, and accurate data. The BRP recommendations for data management are summarized below, in addition, a few select recommendations of the Panel relevant to reuse are presented here.

## **Data Management**

Currently, most generators and end users of reclaimed water submit data manually. This process is time consuming and often involves more than one permit or application. Data may be submitted in a report to one agency and the same information or data in a slightly different form may be required in another report or by another agency. The agencies store this information in paper files and multiple electronic databases, which are hard to access and often difficult to compare. This state of affairs creates administrative complexity and added costs for both the regulatory agencies and the regulated community and is not conducive to expanding the use of recycled waters in Arizona.

To address these problems, the BRP recommended that current technology be employed to streamline data submission and management as a means of reducing administrative burden and improving data quality. ADEQ and ADWR would initiate a process to review and revise permit and non-permit data submittal requirements for frequency, consistency, and relevance. Electronic data submittal to the agencies should be the norm, and the agencies should develop an electronic data management system that would be common and available to all regulators, permittees, contractors, and the public. The system also should incorporate the data needs of the ACC in support of their application process and reviews. The BRP recommended that the agencies utilize the expertise of independent information technology professionals as needed and share the cost of developing the data management system(s).

## **Regulatory Programs**

In the end, the BRP recommended no new regulatory programs for reuse and water sustainability or major reconstruction of existing programs. Instead, many less dramatic adjustments to Arizona's existing toolbox of water management, education, and research capabilities are highlighted. The BRP concluded that current programs administered by ADWR, ADEQ, and the ACC constitute a sound framework within which water sustainability and reuse can be pursued.

The lack of a need to recommend any major new programs addressing reuse stems from the success of transformative rule changes adopted by ADEQ in January, 2001. At that time, following more than two years of exhaustive stakeholder involvement, ADEQ adopted rules for reclaimed water permits for end users, reclaimed water conveyances, and reclaimed water quality standards. Simultaneously, ADEQ adopted rules requiring modern, high-performance, tertiary treatment for new or expanding sewage treatment plants under BADCT (Best Available Demonstrated Control Technology) provisions of its Aquifer Protection Permit program. The stringent BADCT requirements ensure that a high-quality treated wastewater is produced, suitable for reuse. This allows the permitting program for reclaimed

water end users to be simple, concentrating on operation, maintenance and reporting matters, since the end users are delivered such high quality wastewater. Thus, Arizona's modern approach to sewage treatment, combined with comprehensive but relatively simple requirements for end users of reclaimed water, has acted to incentivize the use of reclaimed water throughout the state. Together, Arizona's rules governing reclaimed water and prescribing high-performance sewage treatment plants constitute a framework for regulating reclaimed water that can be used as a model for other states developing their own regulatory programs.

## **Reclaimed Water Infrastructure Standards**

As mentioned in the previous paragraph, ADEQ adopted criteria for reclaimed water distribution systems in 2001 for both pipeline and open water conveyances. However, these criteria, which pertain to design and construction, are really quite limited. For example, they do not address retrofit situations, including conversions of drinking water system piping to reclaimed water use or vice versa. They insufficiently address cross connection control and do not address augmentation of the reclaimed water system with other sources of water such as pumped groundwater. In light of these deficiencies, the BRP recommended convening a stakeholder group to compile a matrix of state, regional and local specifications and infrastructure standards to identify similarities, inconsistencies, and gaps and develop recommendations on a suite of standards that would provide a common foundation of safety and good engineering practices for reclaimed water distribution systems. It is believed that this would reduce uncertainties over appropriate standards, reduce costs due to uncertainties, and would be further protective of public health and safety.

## **Indirect Potable Reuse (IPR) Guidelines**

Recognizing recent trends in other states, the BRP believed that there is a need to develop definitions and guidance for IPR to clarify and facilitate drinking water source approval and local and state agency permitting requirements. It is believed that IPR guidance would facilitate a standardized and efficient approach to design, permitting and operation of advanced treatment operations with the intent of IPR. It was therefore suggested that IPR regulations be established to address water quality standards (regulated and unregulated constituents), differing hydro-geological circumstances of recharge and recovery, and multiple/engineered barriers of protection needed to obtain approval. In order to address these issues, the BRP recommended creation of an IPR Multi-Agency Steering Committee comprised of diverse membership with the mission to develop approaches to streamlining agency reviews, incorporating new technologies, and devising a statewide policy on IPR. The policy would define the objectives of IPR; clarify how recharged reclaimed water can become source water acceptable for potable purposes; and outline the process for issuing approvals for IPR facilities.

## Next Steps

Depending on the nature of each BRP recommendation, the opportunity exists for moving it forward by the Arizona Governor, the Legislature, the ACC, ADEQ, and ADWR. However, a large proportion of the recommendations involve implementation by ADEQ and ADWR, which will challenge the two agencies in light of budget cuts that have reduced staff levels and program capabilities. Accordingly, agency efforts have recently focused on recommendations with university involvement as a way to increase collaboration and move forward some of the research issues identified by the BRP, ranging from investigations in public perception to determinations of the linkages, if any, between residual trace organic compounds in treated wastewater effluents and impacts on the environment and human health.

Although implementation will take time because of the sheer number of recommendations provided by the BRP, a clear punch list now exists. As the agencies begin work on the list, resulting progress in water conservation and reuse of recycled water will benefit all the citizens of Arizona and stand as a tribute to the dedication of the participants who contributed long hours to the BRP process.

## References

Arizona Administrative Code, A.A.C. Title 18, Ch. 9, Art. 2, Part B, R18-9-B201 through B206

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ADEQ, Arizona Department of Environmental Quality Annual Report: Water Quality Report, Appendix iii, 1997.

ADHS, Arizona Department of Health Services, Engineering Bulletin No. 11: Minimum Requirements for Design, Submission of Plans and Specifications of Sewage Works, July 1978.

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The Final Report of the Governor's Blue Ribbon Panel on Water Sustainability can be accessed at <http://www.azwater.gov/AzDWR/waterManagement/BlueRibbonPanel.htm>.



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