Report: Ground Water and Surface Water Management: study to update the Statement of Position for the League of Women Voters of the State of Arkansas

The League of Women Voters of Washington County sponsored a panel discussion about Onsite Water Treatment Systems: Impacts on Water Quality, Land Development, and Health, Safety and Welfare of the Public on December 19th at the Fayetteville Public Library.

The following is a summary of the LWVAR Statement of Position on Ground Water and Surface Water Management and the information gathered at the panel discussion.

Statement of Position

The League adopted a position on ground water in 1985, and in 1989 started working for the establishment of a comprehensive water code for Arkansas. In 1999 the League voted to update the ground water study and expand the LWV position to include surface water. In 2001, the League supported a position on water management. A summary of the current LWVAR statement of position can be found on the League Arkansas State web site at http://www.lwv-arkansas.org/members/Where_We_Stand_2005-2007.pdf . Concerns are protection, conservation, and development of water resources and the need for a comprehensive water plan. Goals include maintaining water quality and preventing contamination of aquifers and surface water. Suggested strategies are use of monitoring systems, creating a comprehensive water agency, and enforcement of standards along with research, education, and requiring financial responsibility by polluters.

Current study: Onsite Water Treatment Systems: Impacts on Water Quality, Land Development, and Health, Safety and Welfare of the Public

Growth of population in small communities and rural areas has led to new technologies of sewage disposal across the United States and the state of Arkansas. Traditionally, sewage disposal has been through (1) home based septic systems and (2) municipal sewer plants. It is estimated that 10 to 20% (some sources say 50%) of home based septic systems have failed without their owners knowing about it. When these systems fail, raw sewage flows through soil, subsoil, and geologic layers into ground water and also leaches into springs, lakes and other water bodies. The only other option has been municipal sewer plants that are miles away from residences in rural areas. Mayors, health departments, environmental quality engineers, state and county agencies, and private developers have been wrestling with developing new types of onsite community maintained systems for small towns and suburban communities. These systems treat sewage and distribute the water directly into the ground through a drip irrigation system that grows grass cover. According to supporters of this system, it allows local recycling of water rather than sewage treatment that allows water to flow outside the community into rivers where it eventually ends up in the ocean.

Northwest Arkansas is an example of an area that has had a number of ‘community sewage system’ permits granted by ADEQ. Benton County has 10 and Washington County has 13. Not all have been constructed.

Local environmental organizations such as The Nature Conservancy are very concerned about the need to keep raw sewage out of the karst limestone geology so that springs, underground streams and the water table are not polluted. Careful water treatment methods will conserve rare species such as the cavefish that are found in Benton County and northern Washington County. A Karst Area Sensitivity Map for Northwest Arkansas has been developed to show areas that are most in need of Best Management Practices. In addition, the Arkansas Field Office of the U.S. Fish and Wildlife Service has published a Community Best Management Practices for Conservation of the Cave Springs Cave Recharge Zone (June 2005). It is recommended for all karst zones. These two documents are available on the Northwest Arkansas Regional Planning Council website, www.nwarpc.com.

The following questions were developed by LWVWC for the panelists:

COMMUNITY/ CLUSTER/ STEP SYSTEMS

- What effect on land planning will these systems have?
- How do these systems work?
- Are they better than individual septic systems and why?
- What kind of maintenance and management is necessary?
- Under what conditions will they fail, and what is the result?
- What permitting and inspection processes are necessary?
- How will we know what is the general level of performance and reliability of these alternative wastewater systems in our area?

What effect on land planning will these systems have?
How do these systems work?

Fred Jack, Mayor of Bethel Heights, pointed out that his community did not believe that they could get a permit for a traditional sewer plant, due to pollution problems in the Illinois River watershed. These problems are potentially going to end up in a court case with the state of Oklahoma. This was why he developed the community water treatment system for his town. Environmentally, he thinks that his system that cleans up the water for 450 connections and puts it back into a drip irrigation system that grows 7 cuttings of hay is good water conservation.

Are they better than individual septic systems and why?
What kind of maintenance and management is necessary?

Tom Bartlett of AquaTech Systems, a company that specializes in decentralized wastewater systems and management, described the difference between residential septic systems and community wastewater systems. He pointed out that the EPA has approved decentralized sewage systems as the next water quality infrastructure. He also noted that community water systems clean water as well as large municipal systems. Also, they are environmentally responsible, with 100% reuse of the water. As an example, the system at Cave Springs irrigates a local golf course with 700,000 gallons a day.

Maintenance and management should be done with qualified operators who are certified. In answer to a question from the audience, Mr. Bartlett said if a housing development is started and homes are not sold, Arkansas Act 832 requires that the developer give financial assurance to ADEQ that the system will continue to function. If the developer or POA ceases to exist, Aquatech takes over the responsibility. It was unclear if this was a legal responsibility, although the state permit is renewed every five years and financial assurance is required at that time.

Under what conditions will they fail, and what is the result?

John Gray, the Mayor of Greenland, discussed the potential problems of this technology. First, he feels that it enables and encourages urban sprawl. This is not a good idea for Northwest Arkansas, since it is already suffering overdevelopment. Second, he thinks that this complex system could have equipment failure. Third, there could be management failure. And fourth, there could be Property Owner Association failure due to lack of funding for maintenance.

In summary, Mr. Gray thinks that there are a lot of things that can go wrong. He is of the opinion that professionals who run the city sewer plants are likely to make less mistakes. He believes that Greenland should stick with the Fayetteville city sewer system for the foreseeable future because it is a known factor.

What permitting and inspection processes are necessary?
How will we know what is the general level of performance and reliability of these alternative wastewater systems in our area?

Henry Insua, ADEQ Engineer from the Permitting Section, described the permit process. This requires a 'Waste Management Plan', a description of the organization/builder (if private), and a financial assurance statement that is good for 5 years. The Permitting Section then issues a public notice for 10 days. If there is no disagreement from the public, then there is a Technical Review report and a draft of a proposed permit. The Permitting Section then issues a second public notice for 30 days. If there are no comments, the ADEQ issues a final permit. If there are objections or comments, the Permitting Section considers them and may call a Public Hearing. Typically, the permit is issued in 90 days, but can take longer if there is disagreement or public concern. The Health Department also processes a permit, although this permit was not covered in the panel discussion.

Alison West, ADEQ Field Inspector, described the inspection process, which includes a check list of working equipment, signage, vegetative cover, and records of inspection of water quality and polluting material that needs to be discarded and transported away from the site.

From this ADEQ description, it was not clear how the performance and reliability of these alternative wastewater systems is successfully working in the region and state. An

audience question raised the issue of avoiding water quality problems, especially in the case of electric power failure. In answer, Fred Jack noted that his system at Bethel Heights has major backup systems for pumps and electric generation. Also, each house has a 500 gallon reserve tank, and Henry Insua noted that ADEQ does review this reserve capacity. However, ADEQ does not require backup for the complete community onsite water system.

Additional information

Washington County has rules and regulations regarding community sewer systems which are required after the Arkansas Health Department and the Arkansas Department of Environmental Quality approves the design. Rhonda Hulse, Public Utility and Assistant Grants Administrator, Washington County, told the audience that many of the requirements are parallel to those of the state agencies.

A question from the audience arose about the permit requirements for composting toilets and grey water systems. This is not permitted, but should be considered, since it is a clean, non-polluting system that supports conservation.

References

NATIONAL

The National Small Flows Clearinghouse (NSFC), West Virginia University. www.nsfc.wvu.edu, also poster: "Onsite Wastewater Treatment for Small Communities and Rural Areas".

US EPA, Office of Water, Decentralized Wastewater Treatment Systems: A Program Strategy. Jan 2005, 832-R-05-002

STATE OF ARKANSAS

ADEQ State of Arkansas, Dept. of Environmental Quality, Water Division, www.adeq.state.ar.us/water. Also, Ellen McNulty, Watershed Outreach and Education

ADEQ State of Arkansas, Dept. of Environmental Quality, Permits Branch, Water Division. Application Procedures for a No-Discharge Water Pollution Control Permit—Subsurface Disposal and/or Leachfield

Arkansas Watershed Advisory Group, www.awag.org. Also, Watershed Watch Newsletter

State of Arkansas 2004 Integrated Water Quality Monitoring and Assessment Report, Prepared pursuant to Section 305 (b) and 303 (d) of the Federal Water Pollution Control Act, Arkansas Dept. of Environmental Quality Water Division, www.adeq.state.ar.us/water/branch_planning

NORTHWEST ARKANSAS REGION

Northwest Arkansas Regional Planning Council, www.nwarpc.com

U.S. Fish and Wildlife Service, Arkansas Field Office, Community Growth Best Management Practices for Conservation of the Cave Springs Cave Recharge Zone, June 2005 (Note: this is available on the nwarpc web site. It is recommended for all karst zones)

The Nature Conservancy, Ozark Highlands Office, Karst Area Sensitivity Map for Northwest Arkansas: Benton County

The Nature Conservancy, Ozark Highlands Office, Karst Area Sensitivity Map for Northest Arkansas: Washington County (Note: this map and the Benton County map are available on the nwarpc web site under 'mapping')

"Protecting Beaver Lake's Water Quality: Part I", Watershed Watch, Summer 2007 (On the awag website)

Beaver Water District

Illinois Watershed Partnership

WASHINGTON COUNTY

Rhonda Hulse, Public Utility and Assistant Grants Administrator, Washington County Courthouse

Washington County Rules and Regulations Regarding Community Sewer Systems

FAYETTEVILLE

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