

PHELPS COUNTY, MISSOURI

PROBLEM

In 1995, Missouri adopted more stringent public health regulations for individual systems on lots of three acres or less. To comply with those regulations, property owners in Phelps County needed to upgrade their individual systems. The need to upgrade systems was underscored by the fact that local lenders would not make loans on houses that were not in compliance with state rules.

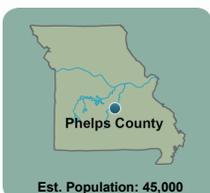
SOLUTION

County leaders and the local water supply district expanded services to allow the water district to own and operate decentralized systems that provide affordable and sustainable wastewater treatment.

Public Water Supply District #2
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OVERVIEW

Public Water Supply District #2 (PWSD2) provides wastewater management service for residences within its jurisdiction. The

program consists of:

- **Discharge authority under an individual National Pollutant Discharge Elimination System (NPDES) permit**
- **District holds bonding authority to fund program**
- **Routine inspection requirement**
- **Financial incentive and low-interest loan opportunities**

NPDES PERMITS FOR CLUSTERED SYSTEM

In PWSD2's first decentralized wastewater project, a developer agreed to donate land and finance a treatment facility if PWSD2 would own, design, construct, and operate the treatment facility. The system consists of a septic tank effluent pump (STEP) collection system and recirculating sand filter (RSF) wastewater treatment system. The system operates under a surface water

discharge (NPDES) permit issued by the state of Missouri. The STEP/RSF system serves the new subdivision and other homes in a nearby community. For subsequent projects, the district modified the approach, partnering with developers to construct new RSFs so that both new and existing homes could be served. In return, the district agreed to own and manage the systems.

USER AGREEMENTS AND UTILITY EASEMENTS

Residents in new developments must sign a user agreement, connect to the system, and grant a utility easement to the water district. Owners of existing homes with malfunctioning individual systems may voluntarily connect to the decentralized system at the homeowner's expense. PWSD2 offers incentives (e.g., connection fee waivers) in order for homeowners to connect to the system.

FUNDING SOURCES

PWSD2 issued revenue bonds and borrowed money to finance the start of the decentralized wastewater management program. PWSD2 charges a flat rate of \$46.50 per month to fund the program. The district has the power to terminate potable water service for nonpayment of fees.

RESULTS

The county now manages eight clustered systems with septic tank effluent pumps that serve 415 residential units, rather than 450 individual septic systems. The clustered systems serve as upgraded systems for the homes that previously had malfunctioning systems. Actual effluent quality for the clustered systems ranges from 4 to 9 mg/L for biochemical oxygen demand and 1 to 8 mg/L for total suspended solids. Fecal coliform levels have been in the range of 10 colony-forming units per 100 milliliters of effluent.

In addition, local officials believe that the elimination of hundreds of old septic system leachfields has improved groundwater quality, based on the higher quality effluent being discharged from the new systems.

References and Resources

Dietzmann, E.M., and Gross, M.A. 2003. Phelps County Update: Case Study of a Public Water Supply District Providing Centralized Management of Decentralized Wastewater. *Small Flows Quarterly* 4(3):25–34. http://www.nesc.wvu.edu/old_website/nsfc/sfq_sum03/p25.html. Accessed March 31, 2010.

Population data—Census Bureau, State and County QuickFacts, Phelps County, 2011. <http://quickfacts.census.gov/qfd/states/29/29161.html>