

Public Policy Center Works With Communities For Development and Safe Drinking Water

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By Steve Ress

More than one small Nebraska community is wondering how to meet new federal regulations on arsenic in drinking water that went into effect earlier this year, along with ways to improve their local economies.

Several have gotten help from the University of Nebraska Public Policy Center through a joint water task group that looked at public water quality and also at getting neighboring towns to cooperate on community development.

Project partners were University of Nebraska Extension, Rural Initiative, Institute of Agriculture and Natural Resources, Water Resources Research Initiative, Public Policy Center and School of Natural Resources, Biology and

Political Science Departments at the University of Nebraska at Kearney, The Groundwater Foundation, Midwest Assistance Program, local schools, Nebraska Departments of Environmental Quality and Health and Human Services System, Southeast Development District, Great Plains RC&D, Upper Big Blue Natural Resources District and USDA Rural Development.

The project had its roots in a U.S. Environmental Protection Agency change in the amount of arsenic allowed in drinking water that took effect earlier this year. The change lowered the 1975 Safe Drinking Water Act standard of 50 parts per billion of arsenic to 10 parts per billion due to growing evidence that long-term exposure to arsenic can result in increased

risks of certain types of cancer and other potential health problems.

“More than 82 public water systems in Nebraska, 59 of them in small communities, are impacted by the new arsenic standard and with multi-million dollar cost estimates for them to meet the new standard, we felt there was an opportunity to engage the University through its rural sustainability agenda to help in a larger way than just sharing information,” said project coordinator and Public Policy Center research specialist Linda Kleinschmit.

Researchers at UNL’s School of Natural Resources

began testing wells for arsenic in 2002. Those tests identified many communities needing help meeting the new EPA standard.

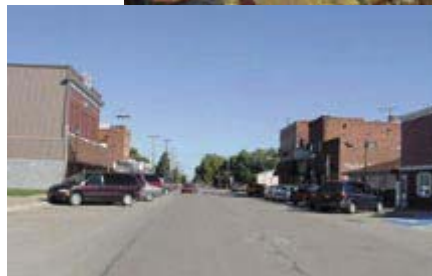
Public Policy Center director Alan Tomkins said an immediate project goal was to help smaller

communities look at what options were available and economically feasible to help them decrease arsenic levels in their drinking water and to find funds to deal with the problem.

Involving and educating the communities to make their own informed decisions on how best to meet the new federal arsenic standard was at the forefront of the project.

“The objective was to join with several communities in working through the process of resolving compliance with the new arsenic standard while considering their individual and collective development needs and opportunities,” Tomkins said. Creating alliances among neighboring communities to work toward the same health and economic goals was part of the thinking.

“A partnership between the University and communities focusing on the challenges of arsenic reduction can result in more comprehensive and better informed decision-making and can provide



information useful for other rural communities that must also reduce arsenic levels in their drinking water," Tomkins said.

The first two communities to take advantage of the joint project, in early 2004, were Stromsburg and Shelby in Polk County, both of which wanted to be proactive in meeting the new arsenic standard along with exploring mutually beneficial economic growth possibilities, Kleinschmit said.

Citizen meetings began in both communities in the spring of 2004 involving Lynne Klawer from the UNL School of Natural Resource Science's Arsenic Information System and Carrie Wiese of The Groundwater Foundation leading a water task group, Randy Cantrell and Dennis Kahl from NU's Rural Initiative leading the community development task group and facilitator Larry Scherer from the Mediation Center.

The water task group worked to identify options for compliance with the new arsenic standard in a way that costs and regional collaboration would be taken into account. They also wanted to increase community knowledge of drinking water standards, testing procedures and options for water treatment

Both projects rely heavily on seasonal plant growth information gathered by satellite to build the land cover maps.

Crops targeted for the mapping studies include irrigated and dryland corn, soybeans, sorghum, dry edible beans, alfalfa and other irrigated and dryland crops, as well as range and urban land, wetlands, open water, riparian forests, roads, farmsteads and feedlots and other land features and uses.

Additional information to build the maps will come from other collection mediums, as well as data from USDA's Farm Service Agency, National Wetlands Inventory and other sources, Merchant said.

Part of the information that will be delivered to the state will be a statewide inventory of center pivot irrigation locations, information on surface irrigation coverage, summary statistics on how many acres are being used for different cropping and other land uses and a Web site on land use classifications.

The project yielding land-use information specific to the Platte River Basin upstream of Columbus should be finished by the end of 2006, while the statewide project will likely conclude in summer 2007.

Another project underway for DNR is the compiling of a detailed electronic database of information on water well test holes drilled across Nebraska by UNL's Conservation and Survey Division and others.

The resulting Windows-based database will contain test hole log reports on a county, natural resources district or regional basis, as well as lithologic, stratigraphic and geophysical log illustrations for any given set of test holes.

UNL groundwater geologist Jerry Ayers and GIS specialist Les Howard are conducting the project, which will conclude in summer 2006.

Ayers and Howard are also working on a Niobrara regional and Box Butte County hydrologic model that will review an earlier Box Butte County model Ayers developed to determine its suitability for assessing groundwater pumping impacts on the Niobrara River within the Upper Niobrara White Natural Resources District.

The model will be expanded to the north of the river and incorporate new information so that groundwater well pumping impacts to the Niobrara can be more accurately determined.

Their model could be used as a template for analyzing groundwater pumping impacts on other specific segments, or stretches, of the Niobrara River.

Another Ayers' project for DNR is looking at groundwater aquifer-stream interaction on the upper reaches of the Niobrara River.

"We will establish a number of data-collection stations along the Upper Niobrara to determine stream-bed characteristics, including lithology, stratigraphy, sediment features and hydraulic conductivity," Ayers said.

The collected data, in addition to stream flow information, will form the basis for determining the hydraulic connection between the Niobrara River and the underlying aquifer, he said.

The work is planned for completion by the end of 2006.

A recently completed project used existing UNL water well test hole data to develop detailed large-scale maps of hydraulic conductivity, yield and flow of the principal aquifers for the Niobrara River east of the fully appropriated area in the Upper Niobrara White NRD; the Missouri River and its tributaries on the Nebraska side of the river; the Nemaha basin; Blue River basin; Little Blue River basin; Elkhorn River basin and Loup River basin.

The project was completed earlier this year by groundwater hydrogeologist Scott Summerside, groundwater geologists Jim Goeke and Sue Lackey and Ayers.