

# City Plans New Technology To Meet Water Standards

## Biofilters Would Add \$3 Million To Cost Of Plant Expansion

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The NW Arkansas Morning News

3/20/05

SILOAM SPRINGS -- Clean, clear water flowing in Sager Creek through Siloam Springs could model cleanup efforts for Arkansas and Oklahoma waterways.

Advanced technology capable of turning wastewater effluent into pristine water is prompting Siloam Springs leaders to spend money to modify the wastewater treatment plant to meet Oklahoma's water quality standards.

The city must limit the phosphorus level of the water the treatment plant discharges into Sager Creek approximately 750 feet from the state line, as required by Arkansas and Oklahoma environmental agencies.

Sager Creek is a tributary of Flint Creek, which feeds the Illinois River in Oklahoma. Oklahoma officials prefer a phosphorus level of 0.037 milligrams per liter of water but agreed to a compromise of 1 milligram per liter after Arkansas officials argued technology could not achieve lower limits.

New technology known as membrane bioreactors beats the compromise limit and even gets lower than the Oklahoma standard, according to manufacturers Zeon, U.S. Filter, Kubota and Mitsubishi.

The advanced treatment plant design marries typical biological processes and membrane technologies, special filters through which water is forced, removing nearly all particles and bacteria to produce nearly potable water.

"Think of it like a screen on the window. We design the membrane pore sizes, and in this case to target phosphorus," said Steve Jones, project engineer with Garver Engineers.

The technology is routinely used in the drinking water industry, mostly in coastal areas where there is limited drinking water, Jones said, and no municipality in Arkansas and Oklahoma uses the membrane technology.

David Cameron, the city administrator, plans to recommend this technology during a Siloam Springs Board of Directors work session at 6:30 p.m. Tuesday in the City Administration Building at 400 N. Broadway.

Siloam Springs would be added to the list of more than 100 places in the country using the advanced technology, Jones said.

City board members first must agree to spend \$3 million more than the expected \$12 million needed to expand the treatment facility.

"We're not going to build a plant to barely squeak by," Cameron said. "We need assurance that we can get way below the (compromise level); otherwise, we're walking on egg shells everyday."

Several Northwest Arkansas cities have until 2009 to comply with the water quality mandate set by both states or face legal action.

Expansion in Siloam Springs must begin in early 2007 when the city will renew its wastewater permit, which currently does not require phosphorus reductions. The Arkansas Department of Environmental Quality will include a phosphorus limit in the 2007 permit and require the city to comply within three years, when Oklahoma environmental officials plan to test water quality and possibly pursue more stringent discharge limits.

"No city can feel confident that it can remain at 1 milligram per liter forever," said Miles Tolbert, Oklahoma secretary of environment. "I can see why Siloam Springs wants to do it," Tolbert added. "They can make this one investment and not have to go back in a few years to do another upgrade. What a wonderful thing not to have to worry about this again."

Cameron hopes the federal or state government will help financially with the upgrade.

"This technology is not normal and warrants attention on a federal level as well because this is an issue being dealt with all over the country," he said.

Garver Engineers of Fayetteville is willing to design the plant expansion and seek federal money.

The Arkansas Department of Environmental Quality might not be in a position to help fund the project, according to its director, Marcus Devine. However, he said, "I think their forethought -- thinking ahead of the curve -- is impressive."

Voluntary efforts to comply with ideal water standards through a new kind of treatment plant provides a model for both states dealing with the phosphorus issue.

"They have looked under every rock to see what technology's out there," said Ed Fite, administrator of the Oklahoma Scenic Rivers Commission, who helped the city select Garver Engineers.

"Siloam Springs realizes to sustain economic activity that's going on and quality of life they have to ... approach wastewater treatment needs on a proactive basis," Fite said.

Fite commended Fayetteville as well for spending \$125 million on treatment facility upgrades to release phosphorus at the compromise limit.

"They are actually discharging less than that, getting close to the number we want," Fite said.

Oklahoma battled Fayetteville in the U.S. Supreme Court and won a 1992 ruling that upstream states can be required to meet the water quality standards of a downstream state.