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# Press Release

## Pilot study completed for new water treatment plant technology

*Clearwell on track; test results prove ability to remove materials from water*

ARKANSAS CITY, Kan. (October 23, 2015) — The City of Arkansas City recently completed a pilot study of water treatment technologies to be used at its new Water Treatment Facility.

This pilot study was performed at the request of the Kansas Department of Health and Environment, in order to prove the ability of GreensandPlus filters and reverse osmosis (RO) membranes to meet specific water quality and operational goals. It was conducted from Aug. 5 to Sept. 23.

Ultimately, the pilot study verified that the proposed water treatment process will meet the water quality goals of the City effectively, and provide an economical source of quality drinking water for the citizens and businesses of Arkansas City well into the future.

The pilot study, which tested over a 48-day period the treatment and filtration processes that would be used in a new plant, was approved June 16 by the City Commission of Arkansas City.

Burns & McDonnell, the primary designer of the plant, requested three bids for each of the treatment systems, then came back to the City with the best pricing available.

Hungerford & Terry and H<sub>2</sub>O Innovations are the two companies that provided the two major components of the study for amounts not to exceed \$67,891 and \$32,410, respectively. The study was conducted at the current Water Treatment Facility, 513 W. Washington Ave.

Test samples of raw water, as well as filtered water from different points in the treatment process, were collected by Water Treatment Facility personnel and sent to Accurate Environmental Labs in Stillwater, Okla., which tested the samples to ensure the treatment process was functioning correctly.

The earliest the new plant could come online is July 2017. Unlike the current plant, which treats water with chlorine, lime and a variety of other chemicals, the proposed new plant would have much lower chemical costs. A brand-new, \$1.7 million clearwell with a storage capacity of 1.5 million gallons

**For immediate release**

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remains under construction by Preload, Inc. at the site of the new plant. Despite some weather-related delays, construction still is projected to wrap up by the end of this year and within the budget.

### **GreensandPlus results**

GreensandPlus filtration was chosen by the project team due to its ability to remove iron and manganese from water.

The City has relatively high levels of iron (0.62 milligram of iron in 1 liter of water) and manganese (3.8 milligrams per liter). If left untreated, iron left in the drinking water would cause rusty color, sediment, a metallic taste and reddish-orange staining.

Residual manganese would cause a black or brown color, black staining and a bitter metallic taste.

In addition, high levels of iron and manganese have a propensity to foul RO membranes severely.

The pilot study verified that GreensandPlus filters can reduce iron and manganese to less than the Maximum Contaminant Levels (MCL) recommended by the U.S. Environmental Protection Agency (EPA). (The EPA MCLs are 0.03 milligram per liter for iron and 0.05 milligram per liter for manganese.)

In addition, the pilot study proved that the filters can operate for a significant period of time without requiring excessive backwashing.

### **Reverse osmosis results**

RO membranes were chosen by the team due to their ability to remove hardness, chlorides, total dissolved solids and many other contaminants. The City's well water has high hardness (498 milligrams per liter), chlorides (332 milligrams per liter) and total dissolved solids (1,040 milligrams per liter).

Hardness can cause scaling in piping and on plumbing fixtures. Chlorides impart a salty taste to water and can lead to pipeline corrosion. Total dissolved solids can result in deposits, discolored water and staining.

The pilot study verified that the water produced by the RO membranes is of very high quality, with levels of hardness, chlorides and total dissolved solids well below the levels recommended by EPA.

It is anticipated that the RO membranes effectively will remove approximately 1.1 million pounds of chlorides, 1.4 million pounds of hardness in the form of calcium carbonate and 3.2 million pounds of total dissolved solids from the drinking water on an annual basis, based on the current average water usage.

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The result is high water quality output, without the negative impacts associated with high hardness, chlorides and total dissolved solids. The pilot study also proved that long-term operation of the RO system is sustainable without significant impacts of fouling and scaling on the membranes. That directly relates to a savings for the City associated with chemical costs, labor and maintenance.