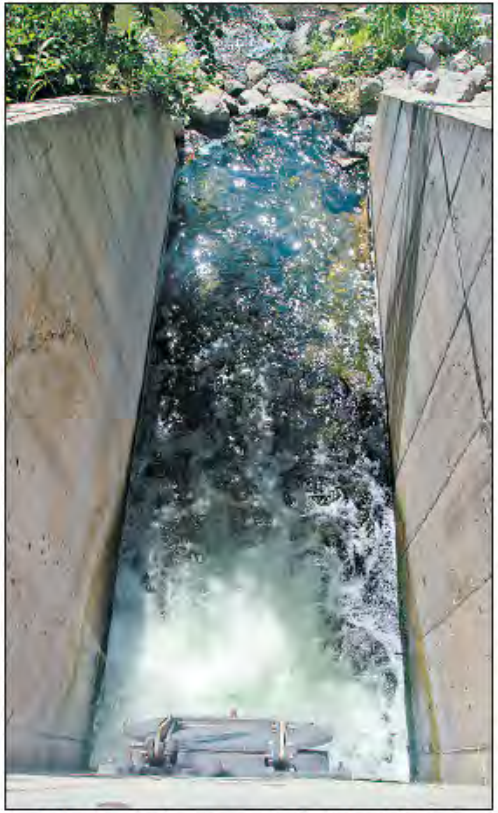

Treated water, also known as effluent, flushes into Cache Creek on the training side of Fort Sill. Chris Brown, Directorate of Public Works energy manager, said he and American Water Enterprises are working to use effluent for other purposes on post, such as heating and air conditioning, and to irrigate Polo Field and the post cemetery.

Sill seeks to treat, reuse water

Story, photo
By Marie Berberea

The state of Oklahoma remains in extreme drought conditions despite recent rains. Fort Sill leaders are aware of the situation and are working toward using available water more efficiently by recycling it.

"If the lakes go dry around here we can't buy more water. So, unless you have a way of filling up that lake, which rainfall is the only way, once we're out of water — we're out of water," said Chris Brown, Directorate of Public Works energy manager.

Brown is working with American Water Enterprises (AWE) to use effluent, or discharge from the sewer plant, treat it and reuse it to water the grass and keep buildings climate controlled.

"The big picture is you've got Lake Lawtonka that's where our drinking water comes from. So, we pull the water out of Lawtonka, and it's fed through a series of pipes to Fort Sill. Fort Sill uses it, sends it down the sewer to the treatment plant, we treat it and then discharge it into the creek. We want to take a portion of that discharge that would go to the creek and reuse it on post," said Brown.

> **"It's not potable, but it's good quality water. It's cleaner than the creek water; cleaner than the lake water; cleaner than what Lawtonka starts with before they treat."**
>
> Chris Brown
> Directorate of Public Works energy manager

AWE owns the first treated effluent permit issued in Oklahoma.

As part of a pilot project, the effluent is currently used two different ways to heat and cool Building 5900 on the training side of post. Once that water passes through, it's poured into Cache Creek.

"It's not potable, but it's good quality water," said Brown. "It's cleaner than the creek water; cleaner than the lake water; cleaner than what Lawtonka starts with before they treat," said Brown.

There are two diffent ways DPW uses water to control building temperatures. One is through a cooling tower. The tower works similarly to how an air conditioner uses coils and a fan. The fan draws in heated air from the room and that air flows over a chilled coil. The fan then blows the cooler air back into the room.

In the cooling tower, it simply replaces air with water. A pipeline goes from the building to the tower. The tower sends the water to a chiller to cool it off and sends it back to the building.

The other system DPW puts in place is a geothermal system or heat pumps. It consists of vertical wells underground, and the earth heats and cools the water. Brown said while this system works, he wants to change it to fit this new efficient pipeline system which will take up less land and have less of impact on the area. He said it will run like any other water main, but will use effluent instead of extra water.

"In a nutshell that one project over there we're getting an energy savings and a water savings out of it — on water that we've already bought and used once," said Brown.

Currently, the Basic Combat Training starships alone use 7 million gallons of potable water a year to control the heat and air. Once the new system is in place, that water will be saved by using treated effluent instead.

"We have another project which hasn't started construction yet, but we have the funds for it. It's in design now to continue that same pipeline going from Building 5900, taking it across the highway to the Polo Field and then up to the cemetery.

We're going to use that water to irrigate those areas-just to water the grass. We use regular water to do that right now," said Brown.

He said even in drought conditions that irrigation system won't draw down the lake or use extra water.

"If we can use the same water two or three times with the drought going on; to me it's just the right thing to do."

(Editor's note: American Water Enterprises contracts with Fort Sill to manage its water treatment and sewer systems.)