

Fight the Fire with Storm Water

West Texans use a rain runoff capture system to fight fire.

by Steve Byrns

PHOTO BY MATHEW ELLIOTT

Water for fighting range and structure fires in parched West Texas is often as scarce as wildfires are plentiful. Mostly dry conditions following last year's good rains and resulting grass growth have made parts of the state a tinderbox. Far West Texas is no exception, but the problem is often compounded by the distance between ample water sources and the fires, says Logan Boswell, Texas AgriLife Extension Service agricultural agent for Jeff Davis and Brewster counties.

The McDonald Observatory is a good example, Boswell says. The world-famous stargazing structures sit atop Mount Locke, located near historic Fort Davis in the rugged Davis Mountains of far West Texas. At an elevation greater than 6,500 feet (ft.), the mountain is one of the highest points in Texas.

"Most of their water must be pumped from several miles away and then up the mountain," Boswell says. "For years there has been very little water storage available on top of the mountain for firefighting, and wildfires are common in the Davis Mountains."

About two years ago, Mike Mecke, the

recently retired AgriLife Extension water programs specialist at Fort Stockton, set out to remedy that situation by emulating work he had seen in Arizona.

"There, they were paving areas in the mountains in remote locations to create mini-catchments," he says. "The rainfall that hit the paved areas ran into large covered tanks by gravity flow. The stored water was for livestock and desert wildlife. I knew the same thing would work at McDonald Observatory using their parking lot. The water here, though, would be strictly for firefighting."

Mecke says storm water is the term used for rain running off of parking lots or streets. He says the water not only has potential for firefighting, but also for irrigating city parks, playgrounds and other projects in towns where storm water is perceived as a nuisance rather than an asset.

"Capturing this water can also reduce the amount of roadway-polluted water that flows into our streams and rivers or recharge areas," Mecke says. "It can even be run through settling ponds, filtered and used for any purpose. The Kitt Peak Observatory on the Tohono O'odham Indian Reservation in

Arizona has been doing this for 45 years."

Mecke was able to purchase the large covered metal tank through Pioneer Tank, an Australian water system supplier with an outlet in Menard. Dan Fleming, a Pioneer distributor, installed the tank with assistance from the McDonald Observatory staff and Boswell.

The tank's primary purpose is for protection of the complex buildings, structures, the 100-plus people who live there and the large number of visitors who visit the site annually. Mecke was able to fund the project through a partnership involving McDonald Observatory, which is part of the University of Texas system at Austin, and the Texas Water Resources Institute, part of the Texas A&M University System.

"The McDonald Observatory project uses storm-water runoff harvested from a 70,000-square-foot parking lot and entryway to their Visitor Center," Mecke says. "The water naturally drains downhill to a new storm-water drain, which has been altered to serve as a sediment dropping site prior to entering a 12-inch (in.) pipe that goes into the 20,000-gallon (gal.) tank. A small section of the parking lot curb has been cut away to allow the water to drain into a city-type storm-water box with a removable steel grate to catch cups or other large debris before it enters the pipe.

"Every inch of rain falling on that paved area produces 42,000 gallons of runoff," he says. "Any excess is diverted down a dry creek bed."

Mecke says the area has an average annual rainfall of 18 in., which means the parking lot has the potential for yielding 756,000 gal. of water each year.

"That's a lot of potential fire protection," Mecke says. "The Observatory has its own fire department but relies also on the Texas Forest Service and the local Fort Davis Volunteer Fire Department in times of trouble. The new tank, with its connection for a firefighting pump to load fire trucks quickly, should become a real asset during times of prolonged dry weather.

"My dream is to see a number of these placed in strategic spots throughout this area," he says. "Once they are paid for, they could become a low-overhead asset throughout this whole area for years to come, reducing fire danger for local ranchers and towns."

For more information on rainwater harvesting visit <http://rainwaterharvesting.tamu.edu/>.



Editor's Note: This article was provided by the Texas AgriLife Extension Service and AgriLife Research.