Storm Water Monitoring in Upper Bull Creek

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The City of Austin Water Quality Monitoring (WQM) Section of the Watershed Protection and Development Review Department has operated a full range flow monitoring station with an automatic sampler since March 2007. The station is located on the upper portion of the main stem of Bull Creek. This report summarizes the activities associated with this station for 2010.

The equipment installed at this monitoring station includes two ISCO 4230 bubbler meters to records water depth, two ISCO 3700 automatic samplers, two cell phone modems for remote communications, a tipping-bucket rain gauge and a solar panels and batteries as a power supply.

Depth of water and rainfall are continuously recorded and are downloaded, via cell modems, to a central WQM computer for further processing and storage. When the probability of rainfall is high, WQM staff prepares the samplers to collect water quality samples. The samplers are actuated automatically by the meters at a predetermined depth and subsequent samples are collected based on preconfigured program using either time or cumulative flow. WQM staff may remotely change the program, both actuation depth or sample spacing, based on experience and changing weather condition.

Water quality samples are analyzed at the LCRA laboratory for chemical oxygen demand, total organic carbon, ammonia, total Kjeldahl nitrogen, nitrate plus nitrite, total and dissolved phosphorus, total suspended solids, volatile suspended solids, and total metals (Cd, Cu, Pb, Zn). Discrete samples are mathematically combined to generate an event mean concentration (EMC) for the runoff event.

2010 Summary

Rainfall patterns in the area were normal though most of the year with the exception of Tropical Storm Hermine which dropped nearly 10 inches of rain in the watershed in 24 hours. There was good flow in the creek through most of the year but this portion of Bull Creek was essentially dry from early August until Hermine arrived. The rain from Hermine resulted in the highest levels in this portion of Bull Creek since monitoring began and the creek leaving its banks.

Water quality samples were collected for five runoff events through though October. Since relatively few samples have been collected at this station, no trends have been detected nor have more detailed analyses been attempted.