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 2009.

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.

2009 Summary

The first part of 2009, like the previous year was a very dry year and monitoring results reflect this. Between January and August only 14.2 inches of rain fell, well below normal. As a result there was little or no flow in the creek. The weather patterns appear to be shifting, as a result there was 13.2 inches of rain in September and October alone. Through November 1st only one storm was sampled (on October 26th) but Bull creek is now flowing and additional samples should be collected by through the end of the year. Laboratory analyses on that sample are not complete as of this writing.