

ADEQ

ARKANSAS
Department of Environmental Quality

INTEROFFICE MEMORANDUM

TO: Kim Fuller, P.E., Engineer Supervisor

FROM: Shane Byrum, Engineer – NPDES Permits *SB*

DATE: 12/11/2008

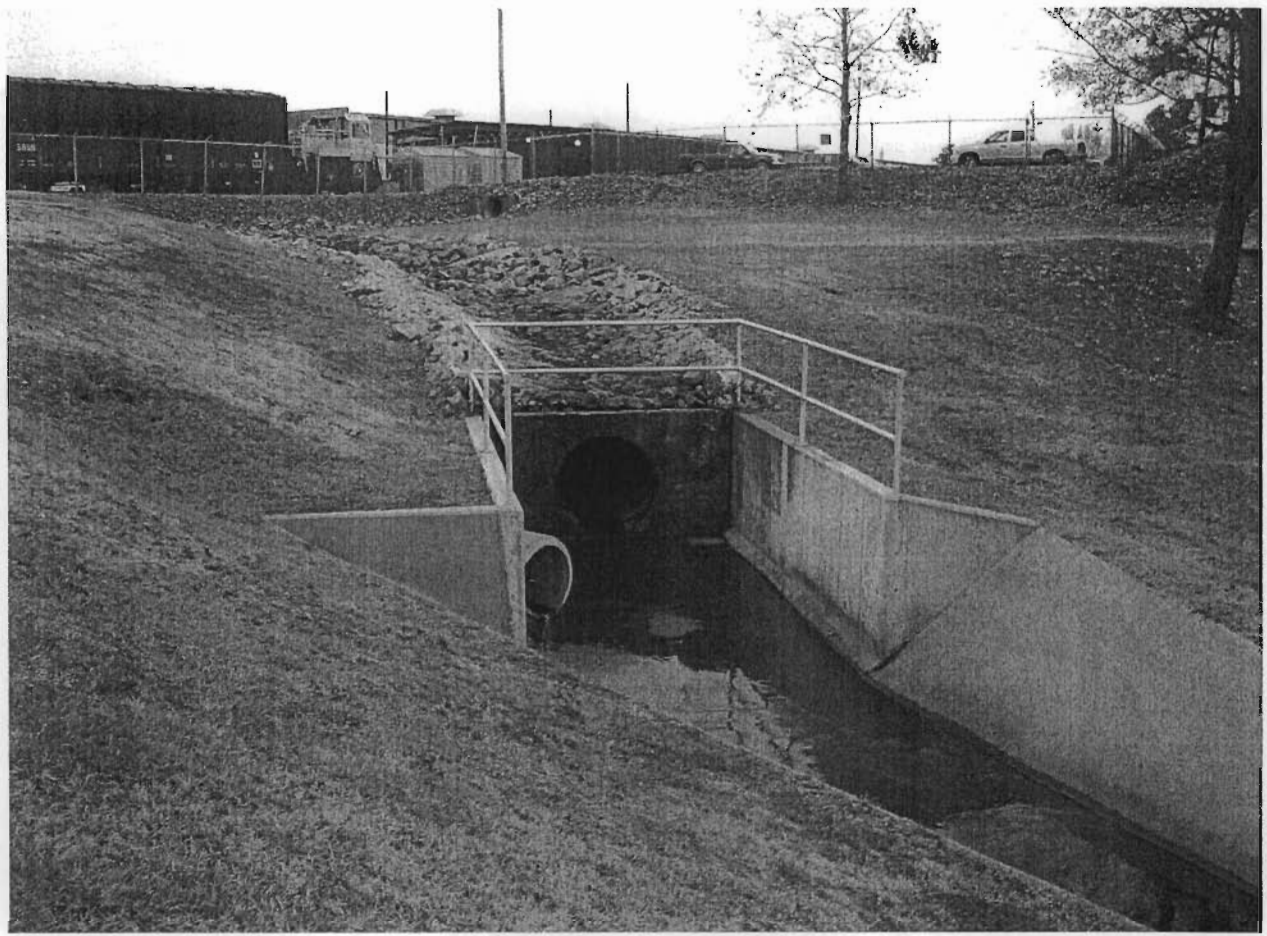
RE: Site visit at Cooper Tire, Permit No. AR0038822

On December 10, 2008, Kim Fuller, Mark Fredricks, and I visited the Cooper Tire facility in Texarkana, AR. We met with the environmental manager, Charles Allen, on the visit. Mr. Allen gave us a general plant tour throughout the entire complex. We also went up on the roof of the building which houses the mixers, where all the ingredients are placed in a mixer and heated to form the stock rubber.

We also looked at the outfall 001, which is permitted under the individual NPDES permit AR0038822. This outfall discharges stormwater from the entire roof of the facility, stormwater from the parking lots, and air conditioner condensate. All the process water from this facility goes to the city POTW. The facility also has two other stormwater outfalls which are permitted under a general stormwater permit.

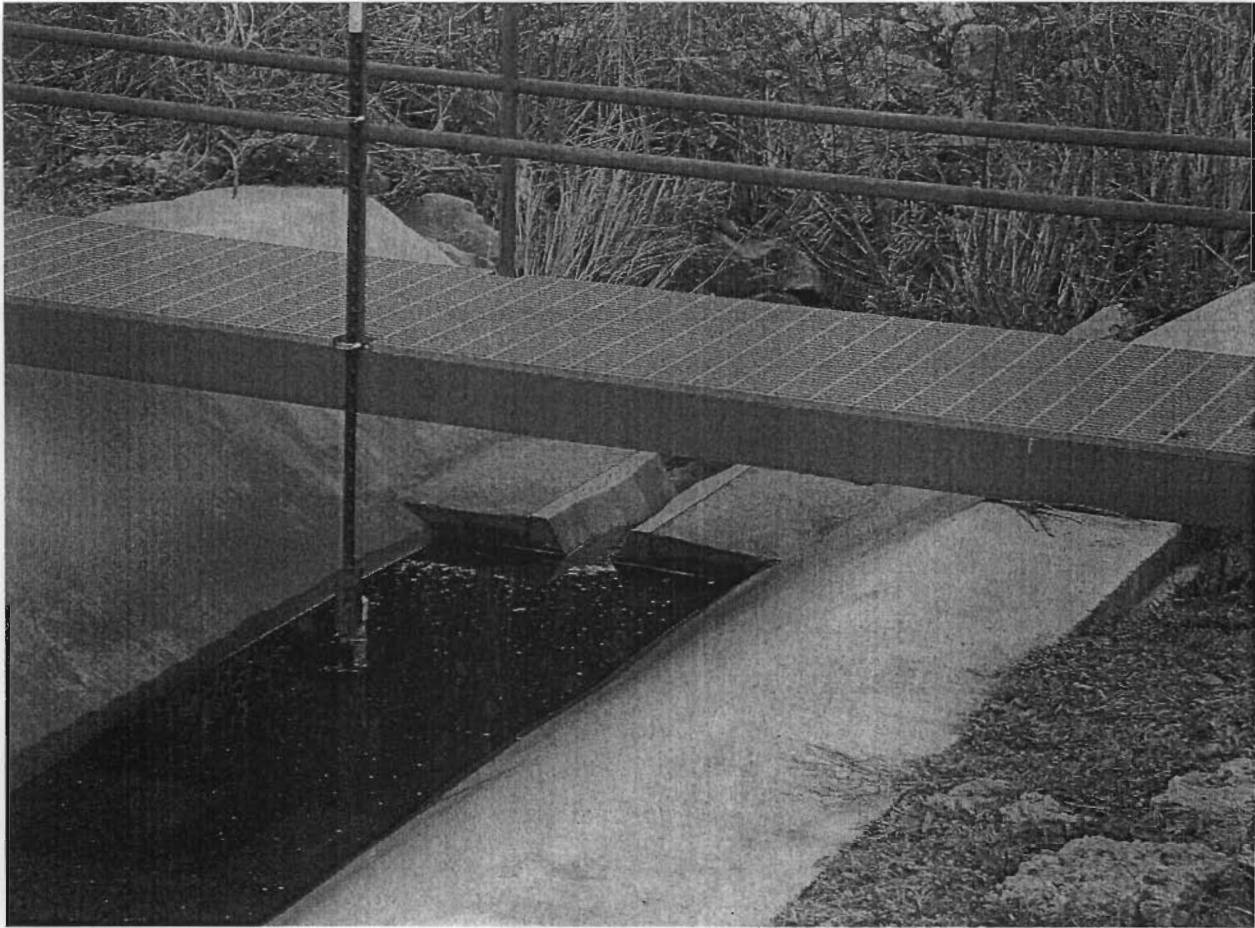
The flow rate at the outfall is determined using a transducer which measures the depth of the water at the midpoint of the open channel. This depth is sent to the totalizer for conversion to a flow rate based on Manning formula for open channel flow using the known geometry, slope, and roughness coefficient of the concrete channel. The depth of the water at the midpoint of the channel was approximately 2 inches on this day, while the depth of water at the end of the channel just prior to the weir was 3.75 inches. This indicates that the weir is causing the depth at the transducer location to be higher, which gives a flow reading that is higher than actual. On this particular day, the totalizer meter was indicating 400 gpm, while the V-notch weir at the end of the channel was indicating a flow rate of 12 gpm.

The flow rate being reported by the totalizer meter seems to be in error. This issue was discussed with Charles Allen at the time of the site visit. Mr. Allen stated that he attempts to make corrections for this difference when determining the flow number that is reported on the DMR. However, I suggested to him that he should look into removing the V-notch weir and relocating it on the upstream end of the open channel, and moving the transducer location to the downstream end of the channel. The total length of the open channel is approximately 60 feet, therefore moving the V-notch weir to the upstream end would still allow accurate low flow measurements and would remove the downstream obstruction currently caused by the weir being installed downstream of the transducer. He stated that they had talked about that solution before, but nothing had been done yet.

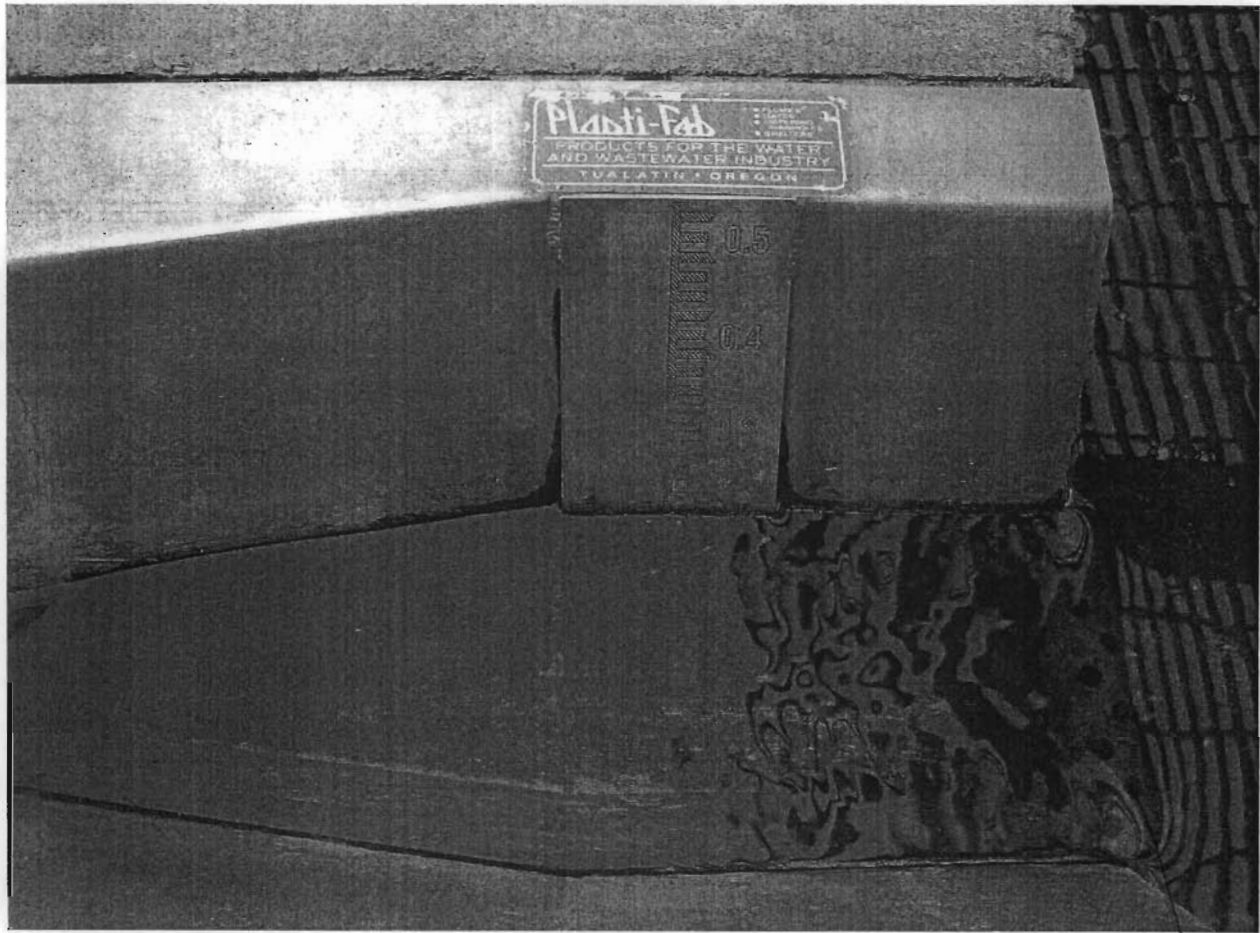


This is the junction upstream of outfall 001 which leads to a trapezoidal concrete open channel.

This shows the 60° v-notch weir which is at the end of the trapezoidal open channel.



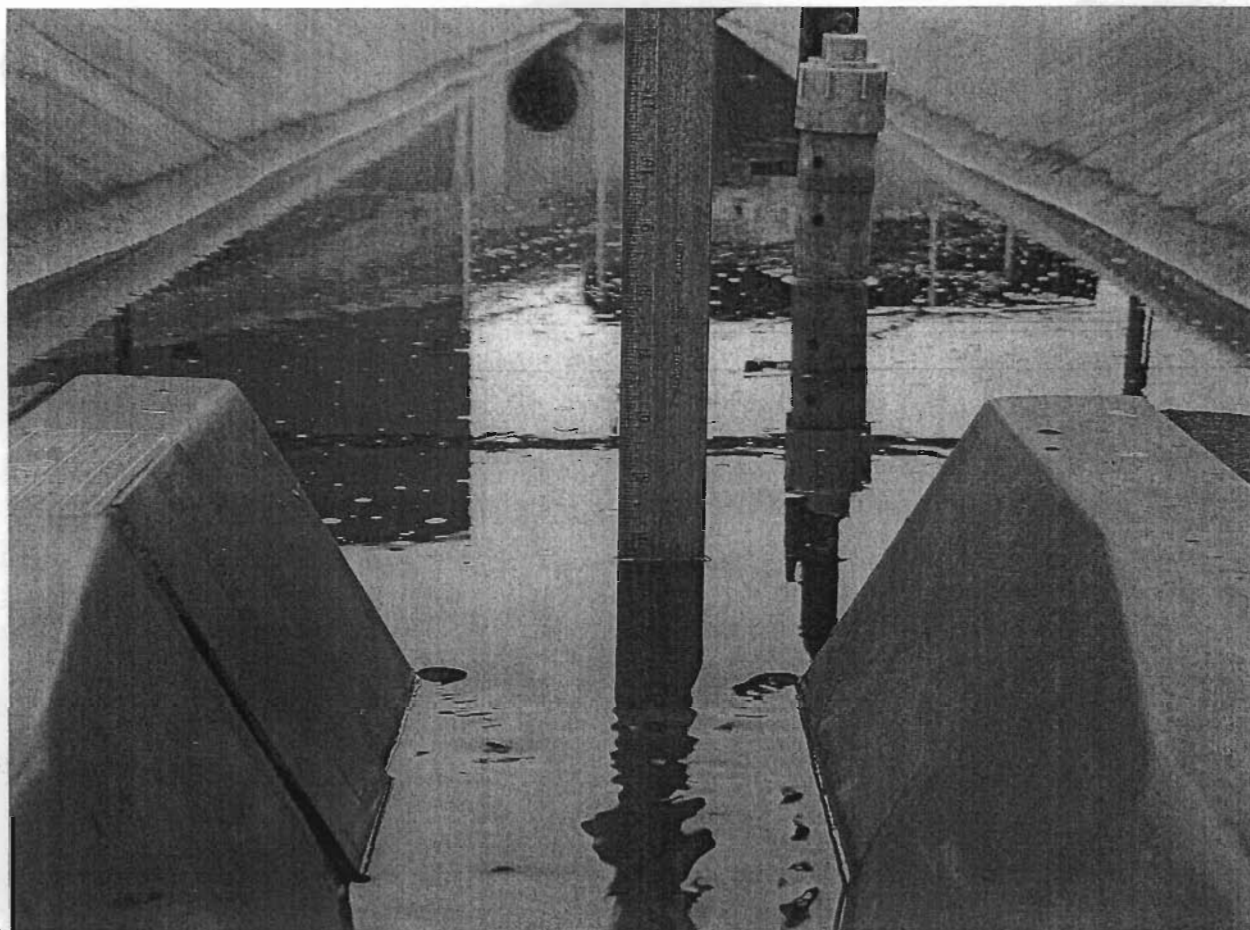
Close up view of V-notch weir. At time of site visit the flow rate indicated by this weir was 12 gpm (0.01728 mgd). The maximum flow this weir can measure is 122.4 gpm (0.17632 mgd). At the inlet of the weir you can see the automated sample collection probe with perforated holes. This is the sample location for all parameters required by the permit.



← Flow

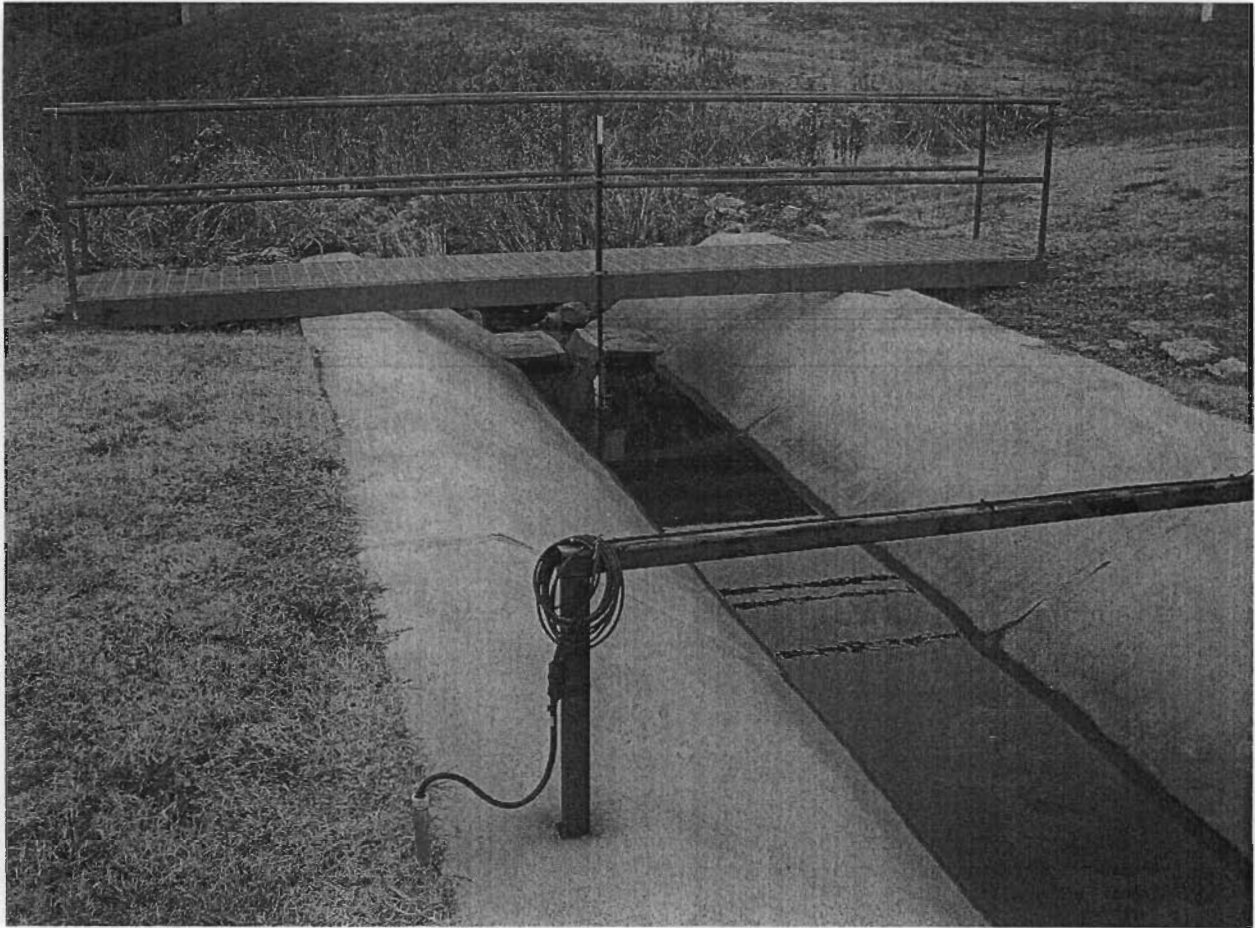
Sample probe

This photo is taken after the weir looking upstream toward the facility.



Water depth @ this location was 3.75 inches

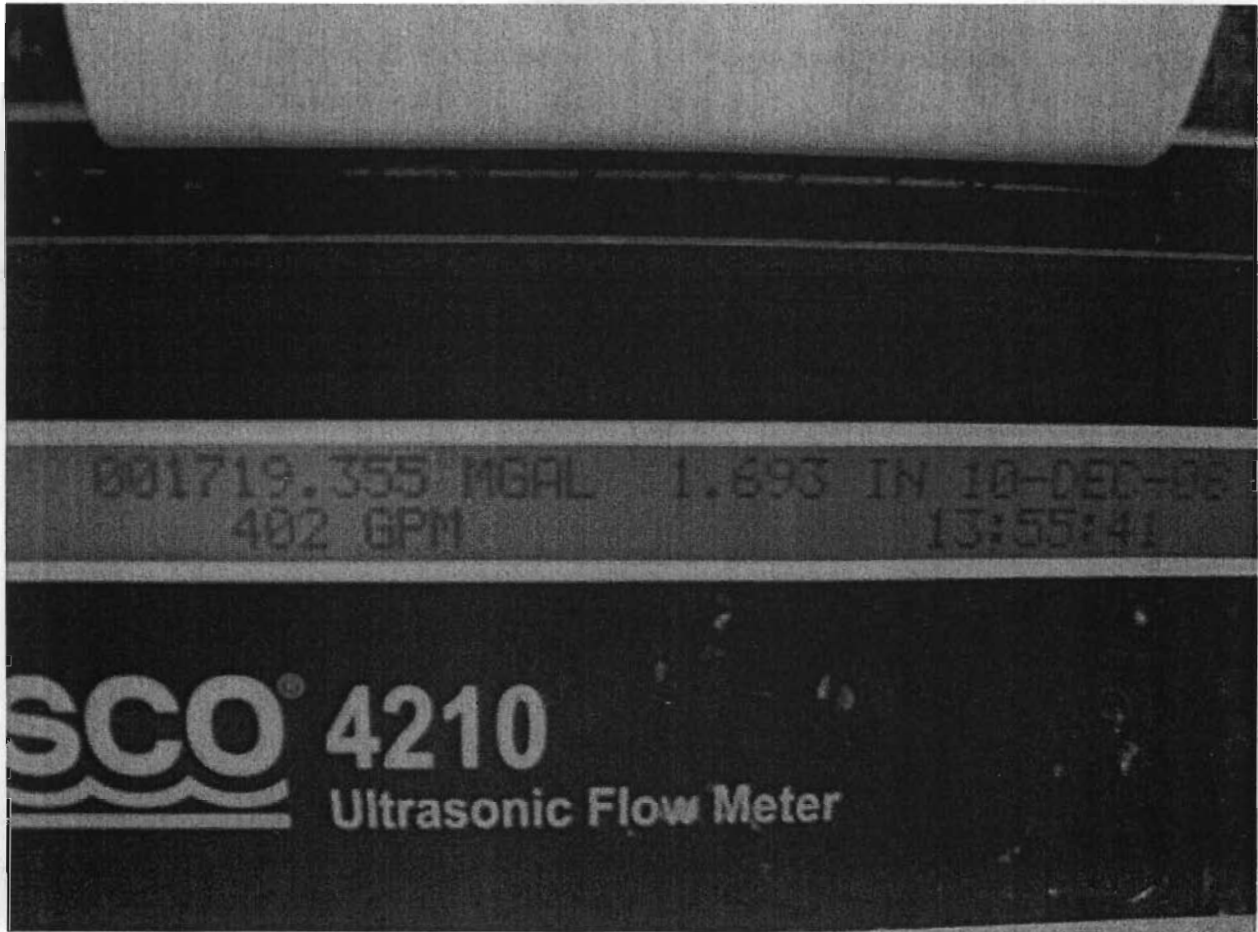
This photo shows the location of the transducer that measures the depth of the water in the open channel



This is the refrigerated automated composite sampler. There are 24 bottles. A sample is pulled every 20 minutes so that each bottle is filled with 3 consecutive samples taken during each hour.



This is the totalizer meter. At the time of visit, it was recording a flow rate of 402 gpm. However, the V-notch weir indicated an actual flow of 12 gpm.



This shows the entire length of the trapezoidal open channel looking in the downstream direction.

