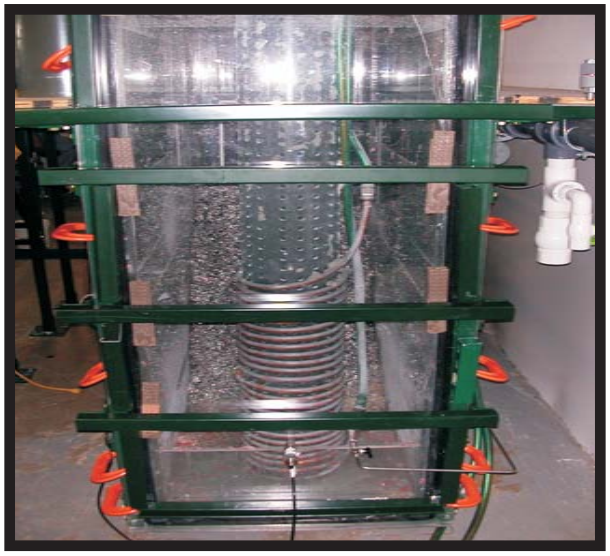
# Flume Testing

***The FAI hydraulics testing laboratory can provide data under a variety of conditions, ranging from small separate effects testing to complete full-sized testing.***

Our Flume facility that was constructed to test fluid suction intake issues including: debris transport, interceptor designs and vortex formation. A flume test loop has been added to FAI's Hydraulic Laboratory to investigate debris transport and erosion. The flume has a 2 ft. x 2 ft. cross-section and overall length of 20 ft. and is operated in a recirculating mode with the water passing through the flume and returning by the piping beneath. Flow straightening and turbulence suppressing components are installed in the flume inlet section. The flume mean water velocity is varied as needed to investigate conditions anticipated in nuclear power plant containment compartments during debris transport to the Emergency Core Cooling Systems (ECCS) suction sumps.



*Discharge side view, which shows the sparger and cooling coil. The cooling coil is used for extended duration test to maintain a constant water temperature.*

*Overview of one of the two Flume test loops*

This test facility has been used to characterize the erosion of fibrous debris types during both short and long term exposures to the flowing water. Additionally, the flume has been used to investigate the performance of several debris interceptor concepts. Debris interceptors can be existing obstacles (curbs, pipes, etc.) to debris transport encountered on the floor of a reactor containment or specifically engineered components intended to reduce the amount of debris relocated to the emergency suction sumps. The transparent walls of the flume allow visual observations and video recording of debris transport, interception, and possible interceptor bypass. A spectrum of debris sizes and insulation types have been investigated and digital movies have been recorded to document their behavior for several debris interceptor configurations.

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