



US Army Corps
of Engineers
Waterways Experiment
Station

Zebra Mussel Research

Technical Notes

Section 3 — Control Strategies

Technical Note ZMR-3-12

August 1993

Use of Hot-Dip Zinc to Protect a Steel Pipe

Background The U.S. Army Engineer District, Nashville, operates a system of in situ water quality monitors at critical locations in the Cumberland River system. These monitors provide hourly information for several parameters (temperature, dissolved oxygen, pH, conductivity). The data these monitors provide are used for real-time water quality management in the highly regulated Cumberland River Basin.

These monitoring systems could be susceptible to zebra mussel fouling, which could cause improper functioning of the sensors and result in faulty data. Scattered populations of zebra mussels now exist at various locations in the Cumberland River main stem. The zebra mussel population is expected to expand and possibly reach nuisance levels in the Cumberland River within a few years.

Additional information This technical note was written by Mr. Richard Tippit, U.S. Army Engineer District, Nashville. For more information, contact Mr. Tippit, (615) 736-2020. Dr. Ed A. Theriot, U.S. Army Engineer Waterways Experiment Station (WES), (601) 634-2678, is Manager of the Zebra Mussel Research Program.

Pipe protection strategy Recognizing the potential for zebra mussel fouling of the water quality monitors (Figure 1), the Nashville District is attempting to protect these systems. At the newest monitoring site, on the Cumberland River just downstream from Nashville, TN, all surfaces of the monitor housing (6-in. internal diameter steel pipe) have been treated with a hot-dip zinc metal coating (Figure 2). Since zinc has been reported to discourage mussel attachment, this coating will inhibit zebra mussel fouling and ensure the uninterrupted flow of water past the encased water quality probes. The probes can be pulled from the monitor housing and cleaned on a regular basis by a technician.

Personnel of the Nashville District will observe and report on the efficacy of using zinc coatings for this application. If this strategy is successful, existing structures could be protected in a similar way, and new installations could take advantage of this application.

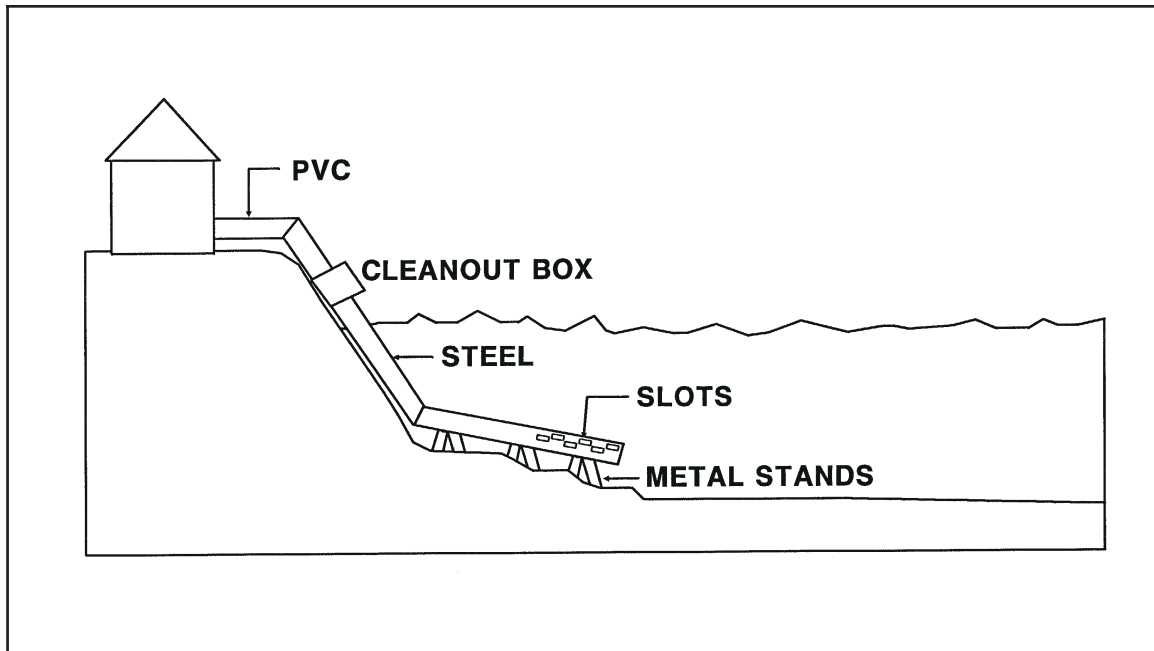


Figure 1. Water quality system



Figure 2. Treated pipe