A Midwestern Power Utility Controls Zebra Mussels In Its Service Water System with Chlorine Dioxide

Challenge

This facility located on the Mississippi River had a serious zebra mussel infestation in its service water system. Previous chemical treatments of the system were largely unsuccessful and had provided only marginal relief from the problem. Several valves in the system had become completely plugged and were non-functional. A new and effective approach was required to resolve this costly problem.

Solution

A recommendation to apply chlorine dioxide continuously to the service water system for several days in a turnkey operation was made to the customer. A 6,000 pounds per day capacity, three-chemical chlorine dioxide generator was installed for treatment of the intake bays. An additional small mobile 500 pounds per day generator was installed to treat the service water system. Chemical tracing was used to reposition the chlorine dioxide injection points to the most effective location in the service water system during the 48-hour treatment period. The mobility of the equipment was critical to the success of the program. The water chemistry and zebra mussel boxes placed in the lines, and plugged valves were monitored during the treatment to determine treatment success.

Results

A mortality rate greater than 95% of the adult zebra mussels was observed in the both the bio-boxes and by visual inspection. The treatment time for each service water injection point was 10-20 hours. Large quantities of dead mussels were observed in the filters upstream of the main service water pumps. The biofilm in the system was removed and several lines and valves that had not been operation for years now functioned properly and were returned to service. The customer was extremely satisfied with the results of the treatment.

Courtsey by : Siemens