Utah Division of Wildlife Resources - Mammoth Creek Hatchery

Influent Treatment System for Exclusion of Whirling Disease

Project Scale:

An Influent Disinfection system designed to treat 1350 gpm of freshwater.

Where:

Hatch, Utah, USA

When:

Piloting started in late 2004. The full scale system was commissioned in early 2006.

Project Description:

Utah's fish stocking program has faced the problems of Whirling Disease head-on, and has undertaken an extensive bio-security upgrade of the Mammoth Creek hatchery. The upgrade included enclosing all raceways, spring collection box improvements, and installation of an influent disinfection system tailored to prevent the ingress of the Whirling Disease's causative parasite.

Services Provided:

PR Aqua provided the design and supplied all equipment for the influent disinfection system. The building design and site infrastructure changes were provided by others.

Project Features:

The treatment system incorporates two main technology components: the solids filtration system, the ultraviolet disinfection system. The solids filtration system removes particles to ensure that UV transmissivity is not impaired. After filtration, the UV disinfection system renders the parasite inactive. PR Aqua microscreen Rotofilters™ were used for solids filtration, and low-pressure, high-output Trojan UVLogic™ units provided the UV disinfection. The system was designed to be fully redundant and each piece of equipment is duplexed for ultimate reliability and flexibility.

Each UV unit has been supplied with an integral Uninterruptible Power Supply (UPS) to ensure that treatment continues through short duration power outages. Should the system experience a long duration power disruption, actuated isolation valves, interlocked with the monitoring and control systems and powered by the UPS, will close to prevent untreated water from passing to the culture systems. These features, combined with an extensive monitoring and alarms system, ensure that the integrity of the whirling disease barrier is maintained, even during emergencies.

More in-depth information is presented in the Nuts & Bolts March 2006 - Safe & Simple Water Disinfection article.

Challenges and Solutions:

The State undertook an extensive, comprehensive, multi-phase selection process to ensure that they got the right supplier offering the right technology. PR Aqua teamed up with Trojan Technologies to provide an effective solution that incorporated aquaculture specific expertise with the cutting edge research and technology. In a head-to-head pilot with alternate technologies, PR Aqua's solution provided full protection from whirling disease at the lowest overall cost.

The Mammoth Creek Hatchery installation is a template for future upgrades to other hatcheries where absolute exclusion of the target parasite is imperative. Accordingly, PR Aqua developed an extensive alarm system and designed the treatment system so that no untreated water would pass unless manual over-rides were executed.

Results:

The Mammoth Creek Hatchery can resume stocking operations with confidence that their product is free of Whirling Disease, and PR Aqua is looking forward to involvement in the State's on-going Whirling Disease prevention program. For more information, visit the State's website at http://wildlife.utah.gov/dwr.