

Fish Barrier Pulse Generating System

ROTH Ian, HAWKEY Tim, GAUDREAU Marcel, ALLEN Michael, ZOGHBI George, KEMPKE Michael, SIMPSON Rebecca (Diversified Technologies, Inc., United States)

In October, 2020, Diversified Technologies, Inc. (DTI) delivered a high-power, high voltage Pulse Generating System (PGS) for the U.S. Army Corps of Engineers. This system uses short, high voltage pulses to deter fish from crossing electrodes located in a waterway. The major components of the PGS are: a 4.5 MW, +/- 3 kV DC power supply; output capacitor banks, which store energy for the pulses; and pulse switches, which produce pulses at up to 30 kA.

The PGS is part of an integrated system at the Permanent Barrier I Aquatic Nuisance Species Dispersal Barriers (PB1 Barrier or Permanent Barrier I) facility in Romeoville, Illinois, located on the Chicago Sanitary Shipping Canal (CSSC). This system provides an additional barrier to the incursion of invasive fish species (primarily Asian Carp) from the Mississippi river basin via the Canal that could potentially damage the Great Lakes ecosystem. A second PGS is scheduled for construction in 2022.

This paper will describe the design and construction of the PGS, and present results from its operation. This effort was performed under a subcontract from exp Federal.