

HYDROELECTRIC

Intake/Trash Rack Inspection



U.S. Bureau of Reclamation

The United States Bureau of Reclamation's Underwater Investigations Dive Team (an agency of the U.S. Department of the Interior) is responsible for all underwater investigation for the Bureau's hydroelectric dams. Under pressure to work faster, safer, and more efficiently, they investigated ROV technology to replace human diving when possible.

Unlike human divers, ROVs can work in hazardous areas without requiring the dam to stop and tag out intakes, and are not subject to diving limits of depth or duration. After investigating available units, the Bureau selected a VideoRay Pro 4 ROV with a BlueView P900-45 2D Multibeam Imaging Sonar.

Training was a critical aspect to successfully deploying this advanced technology. The Bureau of Reclamation employees learned the basics of maneuvering, tether handling and how to get the ROV free from entanglements, and inspected the trash racks at a dam from a vessel – without securing the intakes. The training allowed the team learn what their ROV system was capable of doing, and gave them the confidence to push it to accomplish more than they thought possible when the system was first acquired.



Less than a month after the training the first serious mission came up. There was a difficult problem in a stop log gate at a depth of 175 feet. The ROV pilot flew the VideoRay down through the 2 foot by 8 foot stop log slot and attached a tag line to the pressurizing valve lever arm at 175 feet. The existing 1/8 inch wire rope attached to the lever had rusted or broken off. This operation was critical in pressurizing the stop log chamber in order to remove the stop log. Maintenance crews were able to open the valve, thus removing the ten foot square stop log.

Without VideoRay technology, the solution would require days and dangerous deep diving by humans. However, was able to quickly open that valve with his VideoRay. In a single mission, the VideoRay made a complete return on the Bureau's investment, saving the Bureau of Reclamation more than the entire cost of the ROV system.

