

Hoover Dam Operators Monitor Processes Using Dynamic Mapboard with Red Lion PAX Meters

Approximately a million paid visitors—and many a passerby—visit the Hoover Dam each year to take photos or tour the area to learn more about the dam’s operation and appreciate its incredible engineering. Its primary purpose, however, is to provide flood control on the lower Colorado River as well as deliver water and power to residents and businesses in the region.

“The reservoir impounded by the dam, Lake Mead, stores Colorado River water for delivery to users in southern Nevada, California, Arizona and northern Mexico,” said Bob Walsh, Regional External Affairs Officer, Bureau of Reclamation, Lower Colorado Region. “As this water is released from the Hoover Dam, hydroelectric power is generated; this power is distributed to southern Nevada, southern California and Arizona.”



The Bureau of Reclamation completed the Hoover Dam in 1935—with power generation beginning the following year—and now operates and maintains it. This includes coordinating water and power operations, as well as managing water releases to protect two endangered fish species in Lake Mohave, immediately downstream of Hoover Dam.

With the dam operating around-the-clock, it is important to continuously monitor many pieces of equipment. This had proven challenging to perform cost-effectively with the previously installed video projection system.

That video system utilized 12 projectors, each with a 42-day defined bulb life. These bulbs needed to be replaced frequently, at a cost of several hundred dollars each—and if a bulb failed while in a projector, the projector was damaged. Plus, the video system did not focus clearly when translated onto the screens in the dam’s control room, making them somewhat difficult to read.

To address this issue, Reclamation decided to replace the video monitoring system. Following a request for bids, a contract for a dynamic mapboard was awarded to Monitor Mapboard Systems based in Dayton, Ohio. This mapboard provides a dynamic representation of the system in use—from power generation to water levels—in real time, allowing operators in the control room to view system status information at a glance. Combined with more than 75 PAX meters by Red Lion, it delivers a reliable monitoring solution in a cost-effective, simple-to-use design.

The mapboard displays all standard operating indications—megawatts of power being produced by each unit, as well as VARS and voltage. It shows whether a unit’s breaker is open or closed, how much power is being requested from the system and how much

power is produced. This information is displayed for the 17 commercial generators, as well as for the two power plant station service units and the station service distributional breakers and switchgear.

Gene Hosler, Production Operations Manager for Monitor Mapboard Systems, said the mapboard has delivered dependable results with little maintenance needed.

“Managing the Hoover Dam is an amazing job, with operations running 24 hours a day—and since video has a shorter operational life, it was costing Reclamation thousands of dollars a year to maintain and replace equipment,” Hosler said. “A mapboard gives you more than what you can observe on a video screen. It provides crisp images, LED indicators, and real-time status readouts of all collected information using Red Lion’s easy-to-read PAX meters with a half-inch digital display.”



The integrated PAX meters connect simply to SCADA systems and use RS232 communications to deliver real-time readouts of all collected system data. The combination of the dynamic mapboard and PAX meters has offered operators at the Hoover Dam “system at a glance” information with less upkeep and replacements, facilitating simple monitoring and allowing them to easily perform preventative maintenance on the mapboard when required.

“The mapboard’s enhanced readability assists the operators in monitoring all equipment,” said Vince Blaeser, Vice President of Sales and Marketing for Monitor Mapboard Systems. “The reliability and low maintenance cost, combined with the graphics, dynamic indicators and readouts supplied by Red Lion’s PAX meters, makes this dynamic mapboard an awesome operational tool.”

To learn more about the Hoover Dam and the Bureau of Reclamation, visit www.usbr.gov/lc/hooverdam. For more information on Monitor Mapboard Systems, LLC, visit www.mapboard.com.

Red Lion Controls, Inc. is a leading manufacturer of industrial control solutions worldwide. Products include digital/analog control, monitoring and panel meters, PID control, human-machine interface panels, and signal conditioning. For more information, or to find the Red Lion distributor nearest you, go to www.redlion.net or contact: Red Lion Controls, Inc., 20 Willow Springs Circle, York, PA 17406; (717) 767-6511.