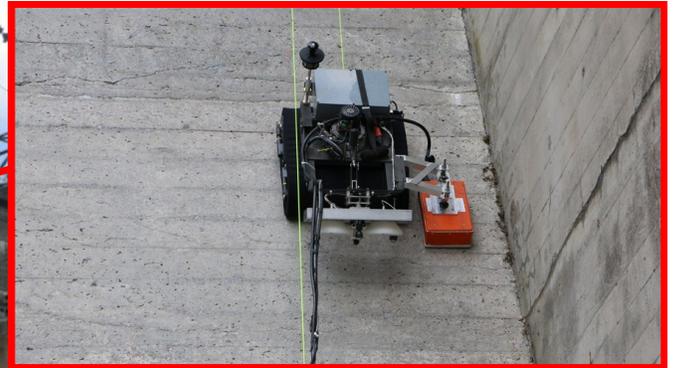
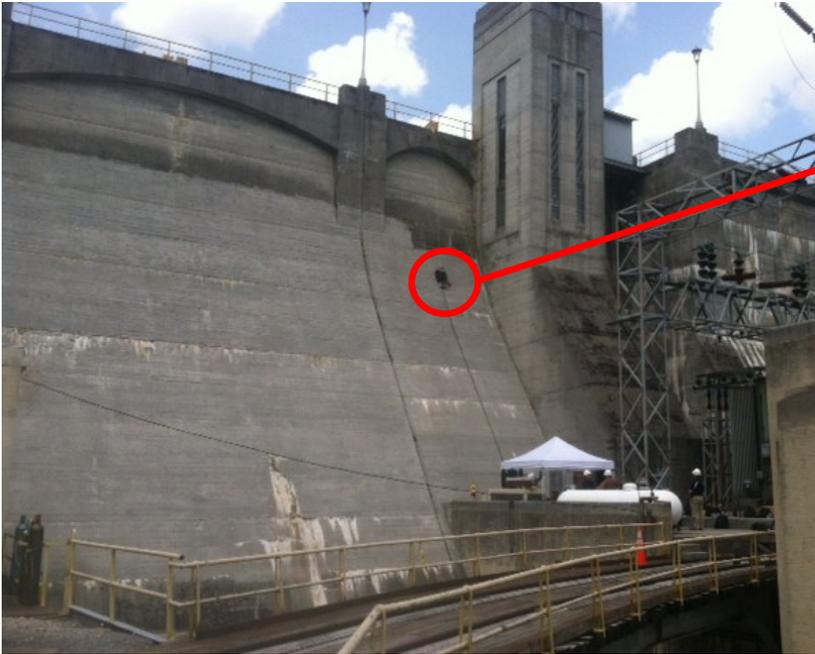
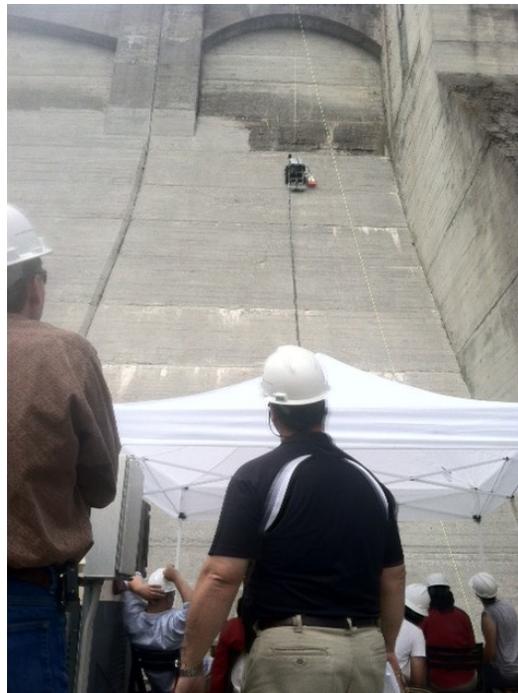


Inspection of Large Concrete Structures with ICM Robots

ICM has performed work to non-destructively test large concrete structures. To date most of the work has been performed on hydro-electric dams, yet, we have also climbed and tested nuclear containment dome, as well.



Working with various teaming partners ICM has deployed its robots to climb on and test large concrete structures. To test and verify various technologies for the testing of concrete structures, ICM either assisted with or performed the technology integrations. Some of the technologies include:



Acoustic Sensors

Ground Penetrating Radar (GPR)

Air-Coupled Echo Technology

Infrared Thermography

Cameras (Visual Inspection)

The testing of large concrete structures with climbing robots is a very exciting new field. ICM is a pioneer and has worked with several technologies to perform "remote non-destructive testing (NDT) of large concrete structures .

Held to the surface by vacuum force, the ICM Climber has been designed to adhere to essentially any hard surface. The patented, highly flexible seal ensures the machine is securely adhered as it moves the machine over surface obstacles such as bolt heads, plates, weld seams, and other surface irregularities. The vacuum chamber is surrounded by a rolling foam seal that guards against leakage and facilitates propulsion.

The Climber, which is essentially a remote-controlled climbing vehicle, now acts as a platform for automated inspection and advanced nondestructive evaluation (NDE) of major concrete structures at power plants. Integrated with onboard systems including simultaneous localization and mapping (SLAM) technology and advanced NDE instrumentation, the Climber can conduct automated, high-precision inspections and capture computer-encoded data and images.

This data supports real-time condition assessment and long-term monitoring of degradation and aging processes to guide maintenance decision-making and risk-informed management of hydro assets.

- Excerpt from "Robotic Inspections," International Water Power & Dam Construction, October 2013



"...This device shows great potential for advancing the industry's concrete inspection process."

Maria Guimaraes
Senior Project Manager
EPRI


INTERNATIONAL CLIMBING MACHINES

630 ELMIRA ROAD
ITHACA, NY 14850 USA
PH: 607 288 4001

www.icm.cc