US Army Corps of Engineers®
Engineer Research and Development Center

Improved Non-Destructive Testing for Navigational Structures

Description

Acoustical based field inspection systems for mass concrete are being developed by U. S. Army Engineer Research and Development Center (ERDC) engineers to meet the unique inspection needs of inland navigation structures.

Issue

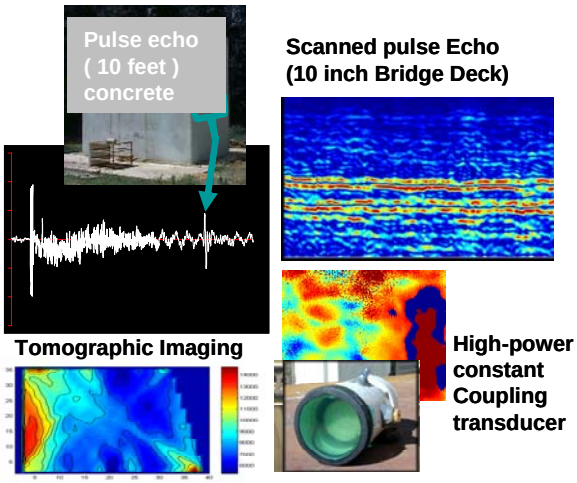
The concrete infrastructure of the U.S. Army Corps of Engineers spans a tremendous range in terms of age, designs, environments, and problems. Improved in-situ based condition inputs are critically needed for both life cycle analysis and maintenance operations. Limited commercially developed equipment exists for concrete and what is available is generally poorly suited to the additional deployment constraints typical for navigation structures.

Users

Corps of Engineers Districts, other Federal Agencies and States.

Products

Specifically, concrete inspection systems will be developed, and specified for deep ultrasonic pulse echo measurements (single side access), long distance pulse transmission measurements, and quantification of attenuation via improved coupling strategies (for better detection of flaws such as honeycombing). Test methods supporting these new systems will also be developed or refined. In the final years demonstration, commercialization, and technology transfer efforts will be pursued toward the objective of end user acceptance and accessibility.



ERDC Concrete NDT systems

Benefits

This research will produce improved material inspection tools for field inspections which will lead to better in-situ condition and performance-estimation for engineering analysis. Critical applications such as survivability, performance analysis, maintenance planning, and life-cycle estimation will directly benefit from improved structural and material characterization capabilities. These tools will further provide objective and quantified measurement which can be analyzed across multiple inspections to detect and quantify deterioration rates, or on new structures in a quality assurance mode.

Corps Program

Navigation System Research Program, Mr. James Clausner, Program Manager.

Point of Contact

Richard Haskins, (601)-634-2931, Engineer Research and Development Center, 3909 Halls Ferry Rd. Building 6000, Vicksburg, MS 39180
Richard.W.Haskins@erdc.usace.army.mil
or James Clausner, (601)-634-2009, James.E.Clausner@erdc.usace.army.mil