

**COURSE NUMBER**

FHWA-NHI-130091B

**COURSE TITLE****Underwater Bridge Repair, Rehabilitation, and Countermeasures**

Underwater Bridge Repair, Rehabilitation, and Countermeasures is a two-day course that will provide training to design engineers, construction inspectors, resident engineers and inspection divers in techniques for selecting and executing repairs to below water bridge elements. The primary goal of this course is to enable design engineers to select, design, and specify appropriate and durable repairs to below water bridge elements. A secondary goal of this course is to train staff in effective construction inspection of below water repairs. This course may be presented as a follow-up to NHI Course No. 130091A, Underwater Bridge Inspections.

**OUTCOMES**

Upon completion of the course, participants will be able to:

- Determine whether below water repairs can be completed “in the wet”, or require a cofferdam (or similar).
- Describe typical environmental constraints to performing repairs below water.
- Describe three methods of achieving a dry construction site within a body of water.
- List three attributes of good concrete repair mix designs.
- Describe the differences between flexible and rigid concrete forming systems.
- Describe underwater concrete placement techniques.
- Write installation procedures for pile jackets.
- Describe three methods for repair of pier scour.
- Describe the benefits of cathodic protection for bridge substructures.
- Describe four stages of underwater repair activities for underwater construction inspection.

**TARGET AUDIENCE**

The course is intended for design engineers, construction inspectors, resident engineers and inspection divers who may be engaged in the design, specifications or inspection of repairs to bridge elements located in and below water. The course may be of interest to contract administrators responsible for bridge repair or rehabilitation projects. It is expected that participants will have a working knowledge of bridge terminology, construction materials, and traditional repair techniques. Participants may also have backgrounds in bridge maintenance, repair, or construction. The audience will include persons with a range of education and technical backgrounds.

**TRAINING LEVEL:** Basic

**FEE:** 2021: \$365 Per Person; 2022: N/A

**LENGTH:** 2 DAYS (CEU: 1.4 UNITS)

**CLASS SIZE:** MINIMUM: 20; MAXIMUM: 30

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