



**US Army Corps  
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# **ENGINEERING AND CONSTRUCTION BULLETIN**

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**Subject:** National ID/IQ Contract for Testing of Trunnion Girder Anchor Rods

**Applicability:** Information

1. Purpose: The purpose of this ECB is to provide information on the establishment of an Indefinite Delivery/Indefinite Quantity (IDIQ) A/E contract that will be available to all USACE Districts for the acquisition of testing services to determine the amount of post tensioning force in existing Tainter gate trunnion girder anchor rods. The testing under this contract will be done using dispersive wave technology.

2. References:

ER 1110-2-1156 “ Engineering and Design: Safety of Dams – Policy and Procedures”  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER\\_1110-2-1156.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerRegulations/ER_1110-2-1156.pdf)

EM 1110-2-2607 “ Engineering and Design: Planning and Design of Navigation Dams”  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM\\_1110-2-2607.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerManuals/EM_1110-2-2607.pdf)

ETL 1110-2-584 “ Engineering and Design: Design of Hydraulic Steel Structures”  
[http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL\\_1110-2-584.pdf](http://www.publications.usace.army.mil/Portals/76/Publications/EngineerTechnicalLetters/ETL_1110-2-584.pdf)

3. Background: Many dams within the USACE portfolio contain water regulating Tainter gates that are held in place by post tensioned anchor rods. A large percentage of the anchoring systems employed, including many that utilize smooth anchor rods, require periodic testing to insure the rods still contain the tension force intended by the designer and needed to provide the appropriate factor of safety against future loads. Past testing has typically been done by pulling each rod with an instrumented jack and directly reading the tension force. Though very accurate, this method of testing is relatively slow and often requires extensive planking and/or scaffolding to allow for the safe and proper placement of equipment. Loading the anchor rod ends also has the inherent risk of adversely affecting the seating of the end anchoring device and can place equipment and personnel in harm's way if a rod were to break. Attempts have been made to develop simpler testing methods, such as ultrasonic sounding, with little prior success. However, recently a method has been developed that determines rod tension based upon the way the rod vibrates when the rod end is tapped. This new

**ECB No.** 2015-20

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method utilizes dispersive wave technology and only requires a magnetically attached sensor, portable data recorder and a mallet. This method of testing is much faster than past methods, is generally considered safer, and in most cases requires less planking and/or scaffolding. This results in significantly lower costs. Currently some jack load testing (about 10% of anchors) is still required to calibrate the analysis tools against the unique aspects of each site. It is anticipated that progress in the technology will soon allow removal of this requirement. However, it will up to the Designer of Record to determine if jack load testing is desired for verification.

4. Given the large number of Tainter gate anchoring systems within the USACE portfolio that require periodic testing, and the potential for significant cost savings, it is anticipated that there will be a large demand for testing using the new dispersive wave methodology. Therefore, HQUSACE, in conjunction with the Inland Navigation Design Center (INDC) and the U.S. Army Engineer Research and Development Center (ERDC), is currently working to award a National IDIQ contract for dispersive wave testing services. Once in place, the contract will cover the testing of ungrouted anchors. Currently grouted anchors can be successfully tested in only limited scenarios. However, advancements are being made in the use of dispersive wave testing methodologies on grouted anchors and it is anticipated that this testing service will be available in the latter years of the contract. The contract will be administered by the Louisville District, but will be set up such that any USACE District can request contract capacity and execute Task Orders. It is anticipated that the contract will be ready for use by the spring of 2016. The base period of performance for the contract will be one year with four one-year option periods.

5. Information regarding the contract will be posted and maintained at the following INDC TEN page: <https://ten.usace.army.mil/TechExNet.aspx?p=s&a=CX;84>.

6. Distribution: Unlimited.

7. The points of contact for this ECB are Jeff Lillycrop, CEERD-HT, 202-761-4229, Larry Dalton, INDC, 502-315-6279, and Richard Ludwitzke, CECW-CE, 202-761-1580.

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