



Bin Measure Payment for MVN (Sand and Mud) Dredging Contracts

Dredging Innovations Group (DIG)

U.S. ARMY CORPS OF ENGINEERS

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Problem

The U.S. Army Engineer New Orleans District (MVN) requested ERDC assist them in exploring alternatives to hopper dredge rental contracts. Rental contracts can apportion more risk to the Government and do not provide incentives to the contractor to maximize production and bin measurement contracts generally require onboard inspectors to verify manual measurements. Total USACE rental hopper dredging contracts totaled \$120,000,000 in FY10. A bin measure dredging contract payment basis would provide incentive for the contractor to maximize production and could reduce USACE contract monitoring costs.

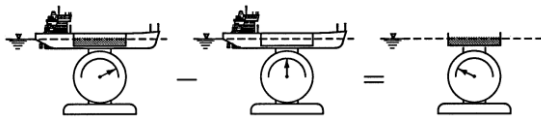
Study Description

The objective of this effort is to provide the information, knowledge, tools, and guidance to implement an automated bin measurement system as a defensible dredging contract payment basis for use by MVN as an alternative to hopper dredge rental contracts for *both* sand and mud loads. R&D previously conducted by DOER, in conjunction with NWP and the USACE Dredging Quality Management (DQM) Program has resulted in the development of a successful automated ullage sensor system (NIVOBOB) for measuring sand loads. Ullage measurement consists of determining the elevation of material in the hopper, and by incorporating the geometric/volumetric relationship (ullage table) the volume of hopper material can be calculated.



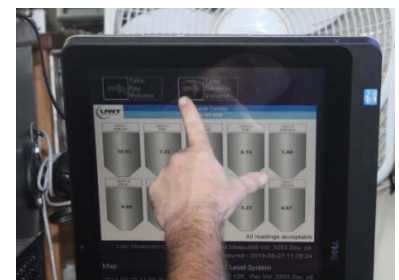
The Mississippi River contains shoaling material that can be either sand, or mud, or a combination of both, therefore any MVN bin measurement system has to be able to accurately measure hopper loads across that sediment spectrum. Modification of the NIVOBOB ullage system will be evaluated for use in mud loads, as well as potential use of the tons dry solids (TDS) measurement method, or

possibly a combination of these two methodologies. TDS is the mass of dry sediment in the hopper that is calculated by measuring the weight and volume of the hopper load (i.e., vessel loaded minus lightship displacement for weight and ullage measurements for determining load volume). TDS has been used internationally (primarily Europe) as a bin measure payment basis for approximately 20 years.



Products

The primary products from this R&D will consist of an automated (sand and mud) prototype bin measurement system, supporting contract technical specifications, and documentation on its development, operational metrics, and use. This measurement method must be defensible, and accurately and precisely measure hopper loads that are equitable and consistent with the actual work performed by the contractor.



Summary

Rental contracts can apportion more risk to the Government and do not provide incentives to the contractor to maximize production. A bin measure dredging contract payment basis would provide incentive for the contractor to maximize production and could reduce USACE contract monitoring costs. The objective of this project is to provide NVM with a robust automatic hopper measurement prototype method that accurately measures sand and mud hopper loads consistent with the actual work performed by the contractor.

*Addressing complex dredging challenges and building institutional capacity
for long-term mission sustainability.*



Tim Welp and Rhonda Lenoir
Coastal and Hydraulics Laboratory

Timothy.L.Welp@usace.army.mil Rhonda.M.Lenoir@usace.army.mil

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Engineer Research and
Development Center