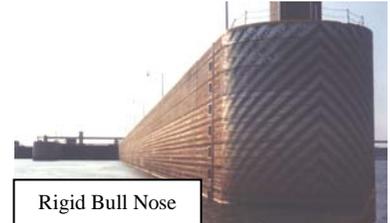




Navigation Safety Initiative

Description

The forces developed within lashings of barge trains due to head-on collisions of inland barge trains with rigid bull noses at the ends of lock approach walls lead to lashing failures, which in turn, have resulted in individual barges being set free. Barges that are no longer under control can collide with dam and/or navigation lock gates. This scenario at its worst can lead to possible pool loss due to gate failure, total loss of barge and cargo, damages to navigation structures, danger to personnel, etc.



Rigid Bull Nose

Issue

The Corps is developing a new engineering methodology and new structural design concepts for bull noses to mitigate/eliminate the potential for rupture of the lashings that then allow “break-away” barges to occur.

Users

Corps’ District engineers will use this new engineering methodology and software in the design of a new deformable bull nose structural system to be used to retrofit existing rigid bull noses that are in use at numerous Corp’s navigation structures.



Barge in

Products

Identification and definition of the basic physics for the impact problem and preliminary concepts for the deformable bull nose structural system have been accomplished.

Benefits

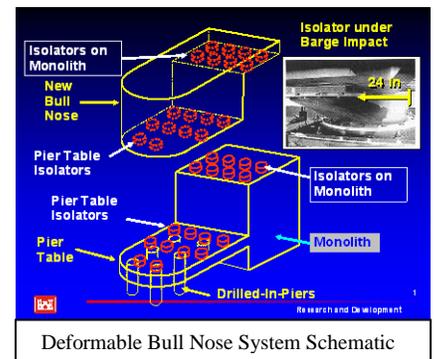
The benefits from this work unit will be derived in potential cost savings by reducing/eliminating the damage to dam and/or lock gates, damage to barges, eliminate the potential for the loss of cargo, etc., by reducing the threat of “break-away” barges occurring.

Corps Program

Navigation Systems Research Program, Mr. Charles E. “Eddie” Wiggins, Program Manager, and Dr. John Hite, Inland Focus Area Leader.

Point of Contact

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Deformable Bull Nose System Schematic

Partners

Information Technology Laboratory; Coastal and Hydraulics Laboratory.

