



NEWS RELEASE

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U.S. Army Corps of Engineers Completes Wood River Levee underseepage analysis

St. Louis – The U.S. Army Corps of Engineers in St. Louis today announced results of extensive subsurface soil investigation and analyses of the Wood River Levee system. This work was undertaken to refine requirements to restore the design level of protection to the system, which calls for the levees to be able to resist a flood registering a stage of 52 feet with two feet of freeboard on the Mississippi River gage at St. Louis.

It was initially believed that seepage of river water, especially at flood stages, could be adequately countered at Wood River by installing additional relief wells. However, the new analyses which are both much more thorough and consistent have revealed that subsurface soils conditions are less favorable than historic data indicated.

Based on analyzing the new data, Corps of Engineers experts believe added work will be necessary, raising estimated costs for the Wood River Levee from about \$40 million to a final figure of some \$111.3 million.

The overall analysis, including the Wood River Levee, looks at approximately 63 miles of flood protection levees that stretch from Madison County southward into Monroe County in Illinois. The reason for the investigation, which the Corps agreed to undertake in May 2009, has been to better understand the combined effects of deterioration due to aging infrastructure and deficiencies in original designs when the levees were built, some as long ago as 60 years.

Historical data and past levee performance has been taken into consideration, but major new data has come from subsurface soil investigations that have included drilling soil samples and performing similar soil tests known as cone penetration tests. Both methods provide data that enables geotechnical engineers to analyze actual soil layers and their characteristics.

Nearly 1800 core soil drillings or penetration tests are being used in the underseepage analysis – one every 330 feet on both the land and river side of the levees in the three counties. More than 600 such tests have been done along the Wood River Levee alone. Tests are being performed by a commercial contractor and data are being analyzed in the St. Louis District as well as independently by another Corps District.

In addition to results of soil studies, new safety standards to meet modern engineering criteria are being applied to the data and driving costs. The Wood River data and its analysis indicates that in addition to relief wells, sand berms and cutoff walls will have to be employed to restore the required level of safety to the levees. Both of those measures are more expensive to incorporate than simply adding relief wells, but both are required to better ensure public safety and infrastructure behind the levees.

The \$111.3 million figure that has been cited by the Corps of Engineers is to provide protection against a river elevation that might be expected with a two-tenths of one percent likelihood in any given year. This equates to what has previously been termed as “500-year protection.” Similar total costs to achieve a lower one percent level of protection – previously indicated as 100-year protection – are estimated at \$77.7 million. However the latter figure may change somewhat based on an independent analysis being conducted for the Southwestern Illinois Flood Prevention Council.

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The combination of better, more consistent data and independent review is providing a higher degree of confidence that the new cost figures and plans to meet safety criteria are much more reliable.

These cost figures do not include work specific to the recently discovered underseepage issue adjacent to the Melvin Price Locks and Dam south of Alton, Ill. Analysis of that stretch of levee is currently underway and costs would be born solely by the federal government.

St. Louis flood safety experts have met with officials from the Wood River Levee District, the Flood Prevention Council and local politicians to lay out their findings and to seek ways to move forward on the challenges. In meeting with the officials, Col. Thomas O'Hara, District Commander told them, "We learned a lot from the additional tests and analysis, and the Wood River Levee has more problems than we knew about before. Additional costs we are identifying are directly related to what has to be done to solve the problems," he said.

While the Corps of Engineers authorization is for restoring the levees back to authorized levels of protection, the agency is also working with Metro East partners to identify ways to achieve interim one percent levels of flood protection that will enable the levees to be certified by a professional engineer to qualify them for FEMA levee accreditation. The fixes specifically to meet the lower one percent protection criteria cannot be simply augmented to meet the more stringent safety standards at the two-tenths of one percent level, and this may increase the total costs to meet those higher requirements.

Engineering standards to meet safety requirements that lead to levee certification and FEMA accreditation have become more stringent following damage and life losses from Hurricane Katrina. The new standards also take into account better understanding of the phenomena of underseepage and its threat to long term levee safety.

U.S. Army Corps of Engineers scientists and engineers emphasize that cost increases are being based solely on new data and analysis. But in the end, public safety must be the measure of success.

While acknowledging that federal and Corps of Engineers processes are historically slow, Col. O'Hara emphasized that the St. Louis District stands ready to explore innovative solutions to the challenges with local agencies. Pledging transparency, he indicated analyses of other reaches of the three-county system will be forthcoming in the near future.

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Note to editors: Their schedules permitting, we will try to make subject matter experts available to answer technical questions concerning the nature of the data from underseepage analysis and its meaning. Contact the St. Louis PA office to arrange these discussions.