

ACEC ENVIRONMENT & ENERGY, FEDERAL AGENCIES & PROCUREMENT ADVOCACY, AND RISK MANAGEMENT COMMITTEES

Position Paper on Levee Certification and Design

Summary of Recommendations

The ACEC Committees on Environment and Energy, Federal Agencies and Procurement Advocacy, and Risk Management recommend the following actions to protect our industry and the public regarding the federal levee program:

- *Congress should provide sufficient funding for its share of mitigating levee system deficiencies, and should provide incentives for state, local, and private sources to augment their contributions.*
- *As the standard of care, early finalization and adoption of the USACE guidance documents should take place as soon as possible. In addition, Congress should adopt legislation to adopt the finalized USACE ETL 110-2-570 as the standard guidance and standard of care for both public and private projects. The engineering community should continue to support and explain the benefits of using only the QBS selection process for project work.*
- *Congress should adopt legislation to provide liability protection for engineering firms that perform levee certification services provided that they meet the industry standard of care, as established by USACE and FEMA.*
- *To eliminate legal misinterpretation, the Corps and FEMA should define the terms "certification" and "certify" to accurately denote the agencies' intention or refer to "compliance determination" instead of certification. Such action should be taken on an interim basis, until the Congress acts to amend the statute to replace the current levee certification process.*
- *Congress should adopt legislation replacing the current levee certification process with a risk-based approach to flood protection requiring variable-rate flood insurance for all structures within flood-prone areas, including those structures protected by levee systems.*

Background

The events in New Orleans and elsewhere have raised legitimate questions about the level of protection provided by our nation's flood control system. Title IX on the 2007 WRDA establishes a national levee safety program. The U.S. Army Corps of Engineers (USACE) is working on a guidance document to be used as the basis for evaluation and certification of levees and flood control structures. The Federal Emergency Management Agency (FEMA) in its current MAPMOD program is requiring levees to be certified in order for the areas protected to continue their exclusion from FEMA inundation areas.

This paper is intended to inform decision makers about the engineering community's perspective on the current status of this program. It also includes our concerns regarding levee work and provides recommended future actions to protect the public and the engineering industry.

Degree of Problem

The Corps estimates that there are about 15,000 miles of levees built under its flood control program. The additional miles built and maintained by states, localities and private entities are unknown. Title IX of WRDA 2007 requires the establishment of a national inventory of levees to help provide an accurate count of the nation's levee system. Most of the nation's levees are over 50 years old. A large percentage of levees have been locally maintained since construction and the level of care and record keeping varies greatly. In almost every case, the design storm of record has increased during that time period and almost all embankment levees have experienced some settlement. The effort to evaluate and repair and rebuild these levees to achieve certification has been estimated to be as high as \$100 billion.

The current level of funding available through federal, state, local and private sources is not adequate to achieve the goal of providing the minimum level of protection required by FEMA for the nation's levees.

Recommendation: Congress should provide sufficient funding for its share of mitigating levee system deficiencies, and should provide incentives for state, local, and private sources to augment their contributions.

Difficulty in Performing Analyses

Evaluation of levees is often complicated by lack of records providing original design standards, construction methods, maintenance, etc. In addition, key features are hidden from view and levees often cross varying foundation conditions. Certification involves evaluation of actual foundation conditions and structural integrity, calculation of current hydrology (flood of record), and study of historical records. Collecting and properly analyzing these data and records requires a high level of expertise as well as extensive effort.

Recent key guidance, USACE ETL 1110-2-570, *Certification of Levee Systems for the NFIP*, is in draft form, but being used by USACE District offices. Design guidance for levees in New Orleans is in draft format. The latest update to UTEXAS4 for slope stability analysis is just being proven in the field. When standards are in flux, it is difficult for federal agencies, owners, and engineering firms to manage risks appropriately.

In order to carry out the program to the level of quality it requires, it is critical that the best talent be utilized. Qualifications Based Selection (QBS) requirements provide assurance that qualified firms are chosen for technically challenging projects. It is also necessary that owners and the engineering community, as well as federal law, adopt the USACE ETL 1110-2-570 as a standard guidance document so that a consistent and thorough standard of care is provided. This requires that engineering firms be able to participate freely and to be able to set the scope and effort at appropriate levels without concern for cutting prices to win project work, or conversely, for overly conservative efforts in an attempt to lessen engineering firm risks.

Recommendations: As the standard of care, early finalization and adoption of the USACE guidance documents should take place as soon as possible. In addition, Congress should adopt legislation to adopt the finalized USACE ETL 110-2-570 as the standard guidance and standard of care for both public and private projects. The

engineering community should continue to support and explain the benefits of using only the QBS selection process for project work.

Liability Concerns

Engineering firms do not establish the standards and criteria they must use, but rather design a project to the specific standards of the guidance documents discussed above and a given design outcome -- generally protection against a one-percent annual chance storm event. It is unfair to allow design or engineering firms to be placed in jeopardy when they cannot control the impacts on or the outcome and performance of their efforts. Engineering firms should not be responsible for risks that are outside of their scope of services.

Almost all key levee features are hidden from view and they often cross highly varying foundation conditions. Defining the full range of foundation conditions with sufficient confidence is a challenge, especially for those levees that do not have adequate design and construction records.

Rising sea levels which increase flood severity, changing demographics, lack of hazard management considerations in controlling land use in flood hazard zones, and similar factors are escalating flood losses. For economic reasons the design standard is often set at a level that eventually will be exceeded. Catastrophic loss is near certain over time. Property owners in those areas protected by well-constructed levees capable of being certified are not required to (and often do not) purchase flood insurance.

Under current law, courts have allowed parties with damages from levee failures to bring suit against levee designers and engineering firms who inspect for certification purposes, drawing professionals and their firms into the liability net without regard to fault or negligence in performing to established standards of care. The application of strict liability legal principles, where negligence and "reasonable person" considerations are secondary, put the defending engineering firm in a weak position after a damaging event.

Trial attorneys and forensic engineering specialists are fully aware of potential markets for services following damaging flood events. Even if the judgment is ultimately successful an engineering firm can be forced into bankruptcy merely defending itself against baseless allegations.

Many firms are getting out of the levee certification business because it is either uninsurable and/or potentially damaging. Many of ACEC's members who perform levee certification work are facing escalating professional liability premiums, even assuming they can find coverage. The field may be left with only a few firms with sufficient qualified personnel to perform the work (limiting competition), or less than qualified firms in need of work. This would not be good for levee owners, the public, USACE, FEMA, or the country.

Recommendation: Congress should adopt legislation to provide liability protection for engineering firms that perform levee certification services provided that they meet the industry standard of care, as established by USACE and FEMA.

Interim Definition of “Certification”

The terms "certification", "certify", and "certified" are used throughout the Corps' and FEMA's regulations, to refer to the rendering of a professional opinion concerning performance capabilities and condition of levee structures and related mapping data by a qualified professional in the field. While the FEMA regulations make it clear that certification does not constitute a warranty or guarantee of performance, courts have sometimes interpreted these terms to imply that certification is equivalent to a guarantee or warranty, thus relieving other parties (e.g., owners and operators) of their responsibilities under applicable rules, statutes and local ordinances. As a result, the Corps' and FEMA's intent is not furthered. By requiring certification and establishing requirements, the Corps and FEMA are merely seeking an opinion from a professional qualified in the field and do not intend to relieve owners and operators from their responsibilities.

A definition of the terms “certification” and “certify” does not address the potential liabilities of the certifying party. This is a matter to be resolved between the certifying party and the owner or operator in accordance with applicable law.

Recommendation: To eliminate legal misinterpretation, the Corps and FEMA should define the terms "certification" and "certify" to accurately denote the agencies' intention or refer to “compliance determination” instead of certification. Such action should be taken on an interim basis, until the Congress acts to amend the statute to replace the current levee certification process.

Limitations of the Levee Certification Process

Because of the inherent difficulty, risks and limitations of the levee certification process, the process may not be worth perpetuating. Even when a levee has been found to be adequate to provide the limited degree of protection defined by current regulations, it can be argued that levee certification provides a false sense of security to the public against future flood risks. As an industry a far better approach would be to abandon certification and accept the reality that all levees are bound to be overtopped and/or fail under certain circumstances. Therefore, public policy should require purchase of flood insurance for *all* properties protected by levees. The insurance premium rates for a specific property should be tied to the specific risks as measured by established guidelines, considering the calculated flood event frequency and the additional protection afforded by levees or other flood protection structures. With this approach the monetary damages occurring after severe storms would be mitigated and those living behind levees would more readily accept the limited protection provided. In addition, such an alternative would help insurance actuaries to scale premiums consistent with the residual risks.

Recommendation: Congress should adopt legislation replacing the current levee certification process with a risk-based approach to flood protection requiring variable-rate flood insurance for all structures within flood-prone areas, including those structures protected by levee systems.