

## Risk Assessments

Risk assessments are an important element of the Levee Safety Program. In order to be able to assess, communicate, and manage risk as part of the Levee Safety Program mission, it has to be quantified to understand it better. A risk assessment does this, by moving beyond the inventory and inspections, which are the foundational elements of the safety program.

A risk assessment asks: what is the range of possible undesirable events (flood, storm or earthquake, etc.), how will the infrastructure perform in the face of these events; and what are the consequences if the infrastructure doesn't perform as intended--life-loss is paramount concern.

The use of risk assessments complements traditional approaches to levee safety (such as factors of safety), it does not replace them. Good standards for design, construction, and operations remain critical to levee safety as key methods to address the uncertainty in a dynamic environment.

A risk assessment provides a better understanding of the likelihood, performance and consequences; improves how risks can be discussed and raises awareness; and helps establish priorities and solutions that effectively address these risks. Additionally, a risk assessment informs a well-formulated, well-justified federal and local investment that addresses life safety.

## Overlap with NFIP

FEMA's levee activities are focused on mapping for NFIP purposes and the Corps' Levee Safety Program is focused on levee reliability and communicating the associated risks. Often times the distinctions between these two programs are misunderstood.

The Corps encourages communities to consider all options to minimize flood risk and to purchase flood insurance. Both the Corps and FEMA agree the local community is responsible for providing the documentation to demonstrate a levee meets NFIP criteria. It's a community choice to participate in the NFIP and often times the community has O&M responsibility for the levee.

See [www.FEMA.gov](http://www.FEMA.gov) for more information.

## Things To Remember

- ◆ **Levees do not eliminate flood risk.**
- ◆ **The number one goal of the Levee Safety Program is life safety.**
- ◆ **It is important to communicate accurate and timely information about the risk of living and working behind levees so informed decisions can be made about safety.**
- ◆ **Levee safety is a component of a broader flood risk management approach.**
- ◆ **A sustainable, system-wide, and collaborative approach is the most effective way to manage and assess levees and other flood risk reduction methods.**
- ◆ **A levee system is only as strong as its weakest link.**
- ◆ **Levee safety is a shared responsibility.**

## National Levee Database

The National Levee Database (NLD) allows users to search and visualize attributes of levees and floodwalls relevant to flood fighting, design, construction, operation, maintenance, repair and inspection.

To access the database, visit  
<http://nld.usace.army.mil>



For more information on the Corps Levee Safety Program, visit  
[www.mvr.usace.army.mil/  
publicaffairsoffice/LSP1/LSPHome.htm](http://www.mvr.usace.army.mil/publicaffairsoffice/LSP1/LSPHome.htm)



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## Levee Safety Program

There is always a level of risk for those who live or work behind a levee. The purpose of the U.S. Army Corps of Engineers (USACE) Levee Safety Program is to develop a clear picture of the condition of our nation's levees, communicate the risk associated with the systems to our stakeholders and the public, and encourage informed decision making in the interest of life safety.

In 2006, the U.S. Army Corps of Engineers (USACE) created its Levee Safety Program with the mission to assess the integrity and viability of levees and recommend courses of action to make sure that levee systems do not present unacceptable risks to the public, property and environment. USACE subsequently launched a major effort to create a levee safety organization; build an infrastructure inventory through the National Levee Database (NLD); develop a methodology for performing technical risk assessments of existing levee infrastructure; and review and revise current related policies and procedures associated with levees.

Several types of levees participate in the program:

- Levees that are built, operated and maintained by the U.S. Army Corps of Engineers
- Levees that are built by the U.S. Army Corps of Engineers and turned over for operation and maintenance by a local sponsor
- Levees that have been constructed by a non-federal entity and are enrolled in the Corps' Rehabilitation and Inspection Program



## Levee Inspections

The objectives of USACE levee inspections are to ensure that the levee system will perform as expected; identify deficiencies or areas that need monitoring or immediate repair; to continuously assess the integrity of the levee system in order to identify any changes over time; to collect information in order to make informed decisions about future actions; and to determine eligibility for federal rehabilitation funding for the levee in accordance with PL84-99.

Routine Inspections, also referred to as annual inspection or Continuing Eligibility Inspection, are performed on an annual basis to ensure the levee system is being properly operated and maintained.

Periodic Inspections are conducted by a multidisciplinary team, led by a professional engineer. Periodic inspections include a detailed, comprehensive and consistent evaluation of the condition of the levee system and will be conducted every five years. Components of the Periodic Inspection include evaluating routine inspection items; verifying proper operation and maintenance; evaluating operational adequacy, structural stability and, safety of the system; and comparing current design and construction criteria with those in place when the levee was built.

Inspection process steps:

- 1-Pre-inspection data is gathered and analyzed by the inspection team.
- 2-USACE or an engineering contractor conduct an inspection of the levee system. (The local sponsor is invited to attend the inspection).
- 3-The inspection team relays their findings to the District LSO.
- 4-The LSO makes his preliminary determination of the rating, which is then provided to the local sponsor.
- 5-The local sponsor has 60 days to respond to USACE to refute or provide additional information pertaining to deficiencies found during the inspection while USACE performs Quality Assurance of the inspection report.
- 6-After 60 days, the LSO makes a final system rating determination, which is relayed to the local sponsor.
- 7-For "Minimally Acceptable" or "Acceptable" levee systems in which deficiencies have been noted in the report, the local sponsor has a specified time-frame to address the issues, up to a maximum of 2 years.

## Inspection Results

Inspections identify deficiencies that, when fixed, will not only make the levee better, it will strengthen the entire system.

Based on the inspection results, levee systems will receive a rating of Acceptable ("A"), Minimally Acceptable ("M") or Unacceptable ("U").

An "M" rating means there is one or more items rated as Minimally Acceptable or one or more items rated as Unacceptable and an engineering determination concludes that the Unacceptable items would not prevent the system from performing as intended during the next flood event.

The system remains active in PL84-99 during the time allowed to make needed corrections (up to a maximum of two years). If the sponsor does not present USACE with proof the deficiencies were corrected within the designated time-frame, the system becomes inactive in PL84-99.

"U" rating means one or more items are rated as Unacceptable and would prevent the system from performing as intended.

A "U" rating automatically makes the levee system inactive in PL84-99. The Levee System will be considered "active" in PL84-99 when "U" rated deficiencies are corrected by the local sponsor and verified by USACE, or when a System-Wide Improvement Framework is approved.

**The Corps of Engineers will provide assistance during a flood fight to levee systems regardless of the rating they receive.**

