



Levee Safety Program – Periodic Inspections Frequently Asked Questions

Q: Why is a levee inspection program necessary?

A: There is always a level of risk for those who live behind a levee. A levee safety inspection program is necessary to inspect, monitor and record inspection results and ensure stakeholders are doing what is necessary for levee stability. Inspection results notify stakeholders of deficiencies that, once fixed, will reduce the flood risk to those behind the levee.

Q: How often are levees inspected?

A: The U.S. Army Corps of Engineers conducts routine inspections as well as periodic inspections. USACE conducts periodic inspections every five years. Public safety is paramount to the Corps and additional inspections are added when they are necessary.

Q: What is the difference between routine and periodic inspections?

A: Routine inspections give us a good idea of the condition of the levees and we use that information to do more detailed analysis where needed. The 5-year, periodic inspections are very detailed and allow us to gather a great deal in information on levee performance in addition to levee condition.

Q: What is underseepage and sand boils and how are they caused?

A: Hydraulic engineers expect water to move under earthen levees, especially during floods when water is high on one side of the levee and resulting hydrostatic pressures are greater. Underseepage weakens levees when water seepage pulls soil materials with it. Left unchallenged, such underseepage can become uncontrolled. If underseepage is undetected and not controlled, eventually enough soil can be pulled from the levee foundation to compromise it or even cause its failure.

The movement of soil from under the levee is called sand boiling. At first a sand boil may only be a few inches in diameter and look like a small crater with water and an occasional bit of soil flowing from it. Left unchecked, flows may increase with more and more material moved, weakening the levee. Sand boils look like sand or dirty water “boiling” out of the ground.

Q: What does 500-year level of protection mean for a levee?

A 500-year level of protection means there is two-tenths of one percent chance – or .2% chance – of a levee failing in any given year. Such levees have been called 500-year levees. This is misinterpreted by many as a calendar-year measurement– that the levees are statistically built so they will fail only once every five centuries. In fact, studies show there is a two-tenths of one percent chance – or .2% chance – of their failing in any given year. It theoretically could happen in two consecutive years.

Q: Do you have enough Recovery Act money to do the periodic inspections routinely?

A: Congress passed the Recovery Act to help stimulate the economy in 2010. The federal funds have now expired and we will return to our regular 5-year, detailed inspections in addition to our routine inspections. It is important to remember, we were able to use some of that money to help the local economy while gathering more data on the condition and performance of the levees that we normally could collect between periodic, 5-year inspections.



Q: What is the levee inspection process?

A: The process takes place in a number of steps:

- 1- Engineering contractors provide an independent inspection and evaluation of the levees.
- 2- After consulting with the engineering contractors and analyzing levee information, the inspection team provides a recommended rating and finding. The District levee safety officer is responsible for determining the final inspection rating
- 3- The Corps of Engineers provides the inspection results to the local sponsor. If deficiencies are found, the levee district has 60 days to present Corp with plan to fix or justification for not fixing.
- 4- The levee district has two years to fix deficiencies.

Q: Who conducted the inspections and why was the work outsourced?

A: The American Recovery and Reinvestment Act provided funding for the Corps to accelerate the inspection process by outsourcing the Periodic Inspections to three engineering firms.

Kaskaskia Engineering Group (Belleville, IL) performed the periodic inspection of the Metro East Sanitary District levee system. Their team members were comprised of Hanson Professional Services (St. Louis, MO), Horner & Shifrin, Inc. (St. Louis, MO & Fairview Heights, IL), SCI Engineering (Fairview Heights, IL), and Reitz & Jens, Inc. (St. Louis, MO).

Q: What does an unacceptable rating mean?

A: An unacceptable rating means that one or more items that make up the levee system would prevent the system from performing as intended. It may also mean that a serious deficiency noted in past inspections (which had previously resulted in a minimally acceptable system rating) has not been corrected within the established timeframe.

Q: What are the consequences of an unacceptable rating?

A: An unacceptable system rating places the levee system in an “inactive” status under the Corps Rehabilitation and Inspection Program (or PL 84-99 program). The levee system will no longer be eligible for federal rehabilitation funds to repair the levee system if it is damaged in a flood or storm event.

Q: When do the deficiencies have to be corrected by?

A: “U” rated items that contribute to an overall system designation of “Minimally Acceptable” will need to be addressed by the local sponsor/USACE-MVS within a two year timeframe. If these “U” items are not addressed within the two-year limit, the system will then be considered Unacceptable. The local sponsor should develop a plan to address the unacceptable rated items and implement that plan within the two-year timeframe.

Q: Will the Corps of Engineers help fix the deficiencies found?

A: If the levee is not a Corps of Engineers levee system, the Corps will inspect the levees and report the findings to the local sponsors. The deficiencies found must be addressed by those sponsors. Operation, maintenance, repair, rehabilitation and replacement activities are also local sponsor responsibilities. Subject to the findings and authorities, the local sponsors will decide on options to pursue, which may include work with the Corps or other partners.
