Introduction: The following is a quick summary of the activities in the US Army Corps of Engineers (USACE) Levee Safety Community of Practice (CoP). This update is provided periodically to keep those involved in levee safety informed of USACE activities and can be distributed internally and externally to USACE.

1. **Levee Safety Engineer Circular (EC)**
2. **Periodic Inspection Status/American Reinvestment and Recovery Act (ARRA)**
3. **Tolerable Risk Guidelines Workshop (TRG)**
4. **National Levee Database (NLD)**
5. **Levee Vegetation Update**
6. **Levee System Evaluation for the National Flood Insurance Program (NFIP)**
7. **National Committee on Levee Safety (NCLS)**
8. **Levee Screening Tool (LST) and Levee Senior Oversight Group (LSOG)**
9. **International Levee Handbook**
10. **Civil Works Review Policy EC 1165-2-209 Coordination**

**1. Levee Safety Engineer Circular:** Since December of 2010 the USACE Levee Safety Policy and Procedures Team has been seeking input on a new Engineer Circular (EC) for the USACE Levee Safety Program. Three rounds of webinars (12 webinars in all) have been conducted over the past few months. This summer, the team hosted two large workshops— one in the Washington, DC area in May and one in the Denver area in June—and two mini-workshops—one in Sacramento, CA in June and one in Vicksburg, MS, in August. More than 250 people total attended all the workshops, which included representatives from USACE districts, divisions and headquarters, other federal and state agencies, local sponsors, non-governmental organizations, and architect-engineer firms. In all over 1,500 comments have been received and entered into the team’s comment management system run by Abt Associates. The comment window remains open while the Policy and Procedures Team continues to draft the EC. Comments should be sent to Levee_Safety@abtassoc.com. Once the draft EC is completed later in calendar year 2011, another series of outreach activities is planned. Current topics include, but are not limited to, management of the USACE Levee Safety Program, including stakeholder involvement, tolerable risk guidelines, risk communication, levee inspections, risk assessment and portfolio management. For additional information on the effort, please contact: Steve O’Leary at Stephen.d.oleary@usace.army.mil.

**2. Periodic Inspection Status/ARRA:** USACE conducts two types of levee inspections. The first one is the Routine Inspection (RI), also referred to as annual inspection or Continuing Eligibility Inspection. It is typically performed on an annual basis to ensure the levee system is being properly operated and maintained. The Periodic Inspection (PI) is the second type or level of inspection and is conducted by a multidisciplinary team, led by a professional engineer. It includes a more detailed, comprehensive and consistent evaluation of the condition of the levee system and will typically be conducted every five years. Components of the PI 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. The American Recovery and Reinvestment Act of 2009 (ARRA) provided $90 million to USACE to conduct PIs on its federally authorized levee systems, representing approximately 60% of the USACE federal levee portfolio. Levee system PIs funded through the ARRA have been outsourced to nearly 40 prime Architectural/Engineering (A/E) contractors. Seventy-five task orders were
awarded to A/E Contractors totaling more than $72 million. Currently, 59 task orders have been completed. Work associated with the task orders is scheduled to extend through 2012. PI findings thus far have revealed numerous deficiencies including excessive vegetation, structure encroachments and inadequate pipes.

This positive effort will result in an independently developed, consolidated and detailed look at many USACE federal levee projects. Lessons learned will be used to improve the current PI process. Final PI reports are being provided to levee sponsors and can be used in a variety of ways – prioritizing deficiencies for repair, communicating the levee condition, documenting levee performance over time, and informing the assignment of a Levee Safety Action Classification. Additionally, the PI Reports will be uploaded into the National Levee Database (NLD) to continue building on the national repository of critical flood risk reduction infrastructure data.

3. Tolerable Risk Guidelines (TRG) Workshop: Tolerable risks are risks that the public are willing to live with so as to secure certain benefits. The concept of tolerability of risk is fundamental to risk-informed decision making. Tolerable risk guidelines (TRG) are essential for successful assessment, management, and communication of the risk involved with levee systems in the USACE inventory. On March 17-18, 2010 the USACE Levee Safety Policy and Procedures Team hosted an international workshop that focused on, “Exploration of Tolerable Risk Guidelines for Levee Systems.” The workshop examined the concepts and principles of tolerable risk, reviewed the status of TRG in the United States and other countries, and obtained input on the role of TRG and possible issues and concepts that should be considered in developing TRG for levee systems.

The agenda, participating organizations, presentations, papers and summary of proceeds are available at http://www.nfrmp.us/trg2010/. The information obtained from this workshop will be used to inform and guide the development of a chapter in the Levee Safety EC dealing with portfolio risk management and the use of TRG.

4. National Levee Database: The USACE Levee Safety Program recently promoted a “soft release” of the Public View portion of the National Levee Database, a living, dynamic database of information relative to the status and safety of the nation’s levee systems. The NLD is currently available to the public at https://nld.usace.army.mil. The currently available Public View of the NLD restricts the release of certain information subject to the “For Official Use Only” classification; however, USACE and other approved individuals still maintain access through the https://corpsmap.usace.army.mil site. Visible components include a summary screen with project history and related links, a map interface for viewing geospatial data, reporting and data mining tools, and a help section. Although the soft release earlier this summer was not accompanied with a formal announcement, plans are underway to release the NLD to state dam safety offices at the Association of State Dam Safety Officials conference at the end of September and officially make the NLD available to the public and all non-federal users with a series of formal announcements on October 27th. At that time the NLD will be fully functional and will have associated help desk features.

The NLD team, headed by roll-out project manager, Cathi Sanders, and technical project manager, Bryan Baker are currently coordinating efforts with other federal agencies and states to integrate information into the NLD. Progress is being made with FEMA on uploading their Mid-term Levee Inventory (MLI) data starting with Region 7 and with the state of California on uploading their levee database information. Webinars and training workshops have been ongoing with the focus on federal agencies first, then turning to tribes and state agencies. The intent of this approach is to capture the levee data available from USACE programs, the FEMA MLI and as many other federal agencies as possible before asking non-federal partners to input additional levee data not already captured. The overall goals are to develop a collaborative effort with federal and non-federal entities in the transfer of NLD technologies, incorporation of non-Corps data to the NLD, and to provide access and awareness of the NLD to the nation.
Progress continues with a new software suite to provide additional functionality in the use and management of the NLD data in FY11. Known as NLD 3.0, this version will be available to USACE districts beginning in October 2011. USACE internal webinars have been held to allow all of USACE to become familiar with recent changes to the NLD and the plans for making the NLD available to other users. Look for more information to be sent to the Levee Safety Program Managers in the very near future.

Physical surveys of existing levees continue and 92% of the total 14,700 miles in the USACE levee portfolio (USACE operated and those in the PL 84-99 program) have been surveyed and entered in the NLD, 7% are under contract and 1% is waiting for contract award. The surveys done to date have not only provided critical data, they have identified additional levees and additional miles of levees not originally known to be in a USACE program. The 1% of levee mileage still to be surveyed is 180 miles that were recently identified as being in a USACE program through the last round of surveys. A total of over 1000 miles of additional levees were identified beyond those originally indicated by the FY06 questionnaire.

5. **Levee Vegetation Update:** In an effort to improve flood risk management, including levee safety policy, USACE is in the midst of three major levee vegetation management actions that will be released in a phased approach during the latter half of 2011. The first is the final publication of the U.S. Army Engineer Research and Development Center’s (ERDC) report on its initial research on the effects of woody vegetation on levees. The second is a revised system-wide improvement framework policy (SWIF). This policy provides committed levee sponsors an opportunity to implement a comprehensive interagency approach to identify solutions that optimize resources and prioritize improvements and corrective actions based on risk. The third action is the revised draft *Policy Guidance Letter (PGL) – Process for Requesting a Variance from Vegetation Standards for Levees and Floodwalls*. This document outlines the process by which a levee sponsor may request a variance from USACE vegetation standards. Toward the end of 2011, the revised draft of the PGL will be posted in the Federal Register for a public comment period, after which comments will be considered before issuing the final policy.

6. **Levee System Evaluation for the National Flood Insurance Program (NFIP):** FEMA is currently involved in efforts to revise its procedures for analyzing and mapping levees that do not meet FEMA’s accreditation criteria. The new procedures are intended to be more precise in establishing flood zones. A suite of methodologies that are technically-sound, credible, and cost-effective are being evaluated to replace the “without levee” method. Specifically, levee height and structural characteristics will be used to help determine if and when overtopping and breach calculations might provide a better estimate of flood hazards. This new approach will be a collaborative effort with local communities, and also allows for the consideration of analyses performed at the local level, thereby enhancing FEMA’s understanding of the levee system and its components. To date, FEMA has been working with internal and external partners, including USACE, as it develops potential methodologies. From the USACE perspective, the Risk Management Center and the Hydrologic Engineering Center have been engaged with the modeling technical teams. In addition FEMA is looking at how to leverage other USACE activities, such as the NLD and LST. Prior to final release, FEMA intends to issue the proposed solution for public comment. At that time, USACE will determine how the proposed methods may or may not influence the implementation of Engineer Circular (EC) 1110-2-6067, *USACE Process for the National Flood Insurance Program (NFIP) Levee System Evaluation*.

7. **National Committee on Levee Safety (NCLS):** The National Committee on Levee Safety (NCLS) delivered its recommendations for a National Levee Safety Program in January 2009. Based on the vision of “an involved public and reliable levees,” the recommendations seek to further the concept of shared responsibility. The recommendations are based on three central concepts:
• Comprehensive and consistent national leadership which provides for state delegated programs, national technical standards, risk communication, and coordination of environmental and safety concerns.

• Strong levee safety programs in all states, that in turn, provide oversight and critical levee safety processes; and

• A foundation of well aligned federal agency programs and processes.

While USACE has approximately 14,700 miles of levees in its program, it is estimated that there are 100,000 additional miles of levees nationwide. Federal agencies, such as USACE and FEMA, are implementing portions of the NCLS recommendations under current authorities. USACE is moving forward on the NLD, while FEMA is moving forward on communicating residual risks associated with levees as part of an overall Levee Awareness Program. In FY12, the NCLS will begin to 1) further define requirements for national levee standards that include engineering policies, procedures, standards, and criteria for a range of levee types and related facilities and features; 2) leverage efforts initiated by USACE in the area of Tolerable Risk Guidelines, including fostering international partnerships to outline how this concept could be applied to levees and levee safety decisions; and 3) build upon the USACE Levee Safety Action Classification process to develop a process to quickly identify and prioritize leveed areas with limited information.

Earlier this year, the NCLS began publishing a newsletter, Levee Safety Connections. Providing a digest of information about levees in the United States, the purpose of the newsletter is to raise visibility on this important issue. The second edition was recently published and is available at www.leveesafety.org.

8. Levee Screening Tool (LST) and Levee Senior Oversight Group (LSOG): The level of detail for data entry in the Levee Screening Tool (LST) is being refined, along with the LST itself. This has been a tremendous challenge for all involved, and the support and patience of all participants has been greatly appreciated. The LST development team is now working on refining the LST to make it more user-friendly and to aid in the management of the results. Every effort is being made to minimize changes to the tool that will require rework of the data input by the districts. The current phase of the LST development is scheduled for completion in August 2011. District levee segment screening efforts continue and the National QA Cadre and the Risk Management Center LST team are available to assist districts in the use and methodology of the LST upon request.

The first national rollup was held August 2010 and was an excellent test of the overall process. Several refinements from the first roll up were implemented for the second roll-up held 16-19 November, 2010 in Dallas, Texas. The second roll-up served as an educational opportunity for districts on the expectations for justifications for engineering assessments used within the LST. First LSOG meeting was conducted on 4-6 January 2011. The LSOG reviewed several levee segments, but assigning final Levee Safety Action Classification (LSAC) ratings were postponed. This was because some of the segments were part of bigger levee systems, which remaining segments had yet to be screened, in addition to, the need for refinement of the information to be documented as part of the final LSAC ratings.

Since the January 2011 LSOG meeting, four additional National Roll-Ups have taken place (March, April, June, and July) around the country. Currently, within the LST there are 459 levee segments in an open status and 79 in the approval process.

The LSOG held their second meeting 16-19 August 2011. Additional screened levee systems were reviewed. However, after deliberation it was decided that some additional actions need to be accomplished prior to finalizing any LSACs ratings - (1) Complete one more LSOG meeting to fine-tune the process; (2) Review the LSAC
chart with the current classifications to date to ensure consistency in the process; and (3) Review and complete the communication and roll-out plan that will be used to release the results. This would also include some internal coordination activities, such as webinars.

The next LSOG meeting is scheduled for the week of 5 December 2011 in New Orleans. The original plan was to complete all screenings by December 2012. This schedule has been extended to as late as FY 2014, based on individual district levee inventories. Districts with less than 50 segments should have their inventory completed by the end of FY 2012, those with 51-100 segments should be completed by the end of FY 2013, and those with greater than 100 segments should be completed by the end of FY 2014.

Districts are encouraged to involve non-federal levee sponsors in the screening effort and should prioritize future screening of projects to those levee segments that are believed to pose the highest risk potential (life safety, economic, and environmental).

Currently, the Portland District is the leader with 22 screenings submitted for national review.

9. **International Levee Handbook:** An international team lead by the United Kingdom, and comprised of Ireland, France, Germany, Netherlands, and the United States, is developing an International Levee Handbook to include all aspects involved with the life-cycle of levee systems. Participation will be expanded as other countries express interest. The handbook is intended to capture and convey international best practices for levee activities including: Form and Function, Operation and Maintenance, Condition Assessment, Emergency Management, Site Characterization, Geotech/Hydraulic Performance, Design and Construction. US leadership is through USACE, DHS and the National Committee on Levee Safety. The United States is the lead of two chapters: Operation and Maintenance and Emergency Management, though all countries will contribute to the development of each chapter. Input/assistance is being solicited from within USACE, other US Federal and state agencies, and associations. This is a multiyear effort, with the published final report scheduled for summer 2013. More information can be found at [www.leveehandbook.net](http://www.leveehandbook.net).

10. **Civil Works Review Policy EC 1165-2-209 Coordination:** Review Plans developed for, and the conduct of, Type I Independent External Peer Reviews (IEPR) and Safety Assurance Reviews (Type II) are to be coordinated with the Risk Management Center (RMC) and the appropriate Planning Center of Expertise for each project. Plans and projects to be coordinated with the RMC can be submitted to Mr. Colin Krumdieck at [Colin.W.Krumdieck@usace.army.mil](mailto:Colin.W.Krumdieck@usace.army.mil).

    The RMC EC 1165-2-209 Sharepoint site with guidance and examples is available at: [https://kme.usace.army.mil/Centers/IWR/RMC/External/Quality/default.aspx](https://kme.usace.army.mil/Centers/IWR/RMC/External/Quality/default.aspx)
