



***Missouri Levee  
Inspection Program***

***by***

***Matthew Hunn, P.E.  
Inspection of Completed Works Program Manager  
St. Louis District***

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# Missouri Levee Systems



- **39 Levee systems**
  - **12 > 100 year**
  - **27 < 100 year**
- **267 Miles of Protection**
- **109 Drainage Structures**
- **61 Closure Structures**
- **40 Pump Stations**

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# Corps of Engineer Levees



- **ICW = Federal Levee System . . . WE have Others!!!**
  - Federal Levees
  - Non-Federal Levees
  - Private Levees
- **Public Law 84-99 = Flood Rehab Assistance Program**
  - **Both** Federal and Non-Federal Levees

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# Corps Levee Inspection Overview



- **O&M Inspection (Annual) = Sponsor Responsibility  
(Levee Owner's Manual, March 2006)**
  - **Federal – Annual**
  - **Non-Federal – Semi-Annual**
- **Pump station Inspection**
- **Periodic Inspection**
- **Initial Eligibility Inspection (Non-Federal)**
- **Levee Alteration review**
- **Studies (Authority and Cost Shared)**



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# Levee Maintenance Sponsor Responsibility

- **Turf**
- **Animal Control**
- **Erosion**
- **Encroachments**
- **Closure Structures**
- **Slope Stability**
- **Culverts/Discharge Pipes**
- **Bank Protection**
- **Underseepage/Relief Wells/Drainage Systems**
- **Pump Stations**

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# Trees??

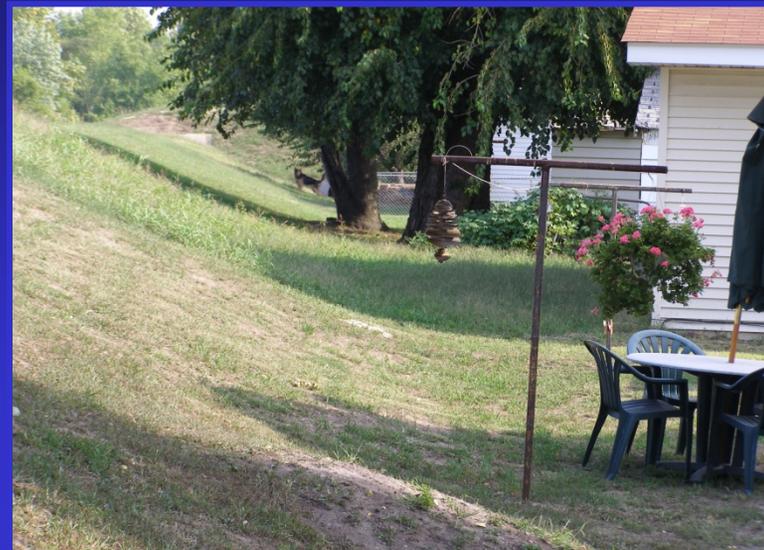


- **Several of the Missouri levees received a minimally acceptable rating due to trees in the levee or too close to the levee toe.**
- **Steps to dealing with tree issue:**
  - **O&M inspection team makes a preliminary assessment if the trees may be a problem.**
  - **A “tree team” then is sent to make a technical assessment to see if tree is a hazard and if it is how they can be removed in an environmentally acceptable manner.**
  - **No Sponsor will receive an unacceptable rating for trees if they are making an effort to remove those trees identified by the Corps within two years.**



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# Trees / Encroachments



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# Corroding Steel Floodgates

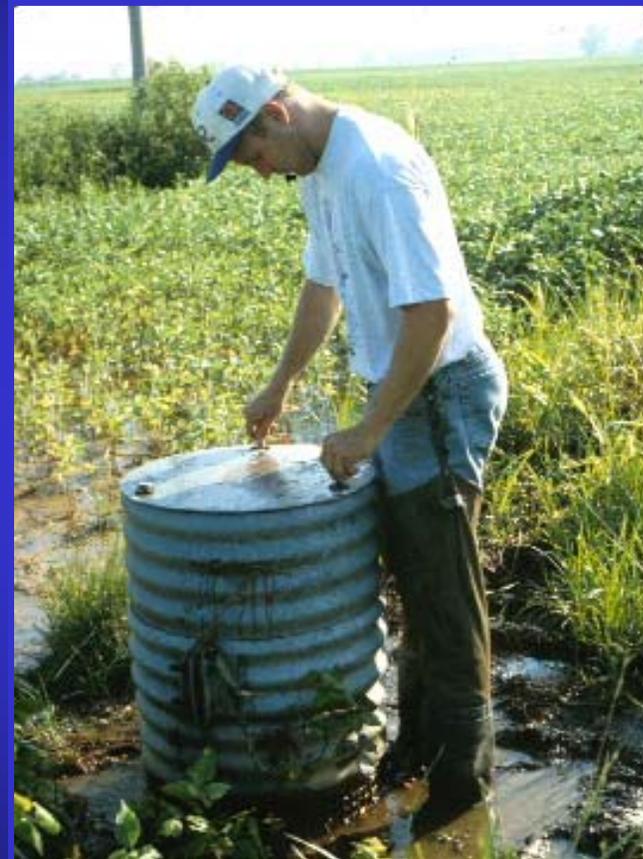


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# Relief Wells



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# Gravity Drains



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# Closure Structures



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# FEMA and Corps of Engineers



**HOW does all of this interact with FEMA???**

- **FEMA Maps Risk - MapMod Program (DFIRMS)**
  - **Provisionally Accredited Levee (PAL) – Interim Step**
  - **Certification**

# Provisionally Accredited Levee (PAL)



- **Corps Review Of Information On Levee Systems that Provide Base Flood Protection (100-year)**

**“No available information to indicate the levee does not still provide base flood protection”??**

**AND**

**“Project inspection rating is . . . Acceptable/Minimally Acceptable”**

- **Corps Responds with “Yes” or “No” Recommendation to FEMA for Provisionally Accredited Levee (PAL) Determination**



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# Certification/Accreditation!!!



## Two Options for Certification – 44 CFR 65.10

Sponsor submit package – Registered Engineer

- OR -

COE Certification Letter to FEMA



**FEMA Accredits!!**

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# Emergency Management



- **Emergency – We are there with YOU**
  - **Technical Assistance**
  - **Flood Fighting Supplies Thru Sponsor / Community**
  - **Emergency Repair/ "Advance Measures"**
  - **Damage Assessment and Repair Scopes Post-Emergency**
  - **Contract Work for Flood Control Structure Repair**

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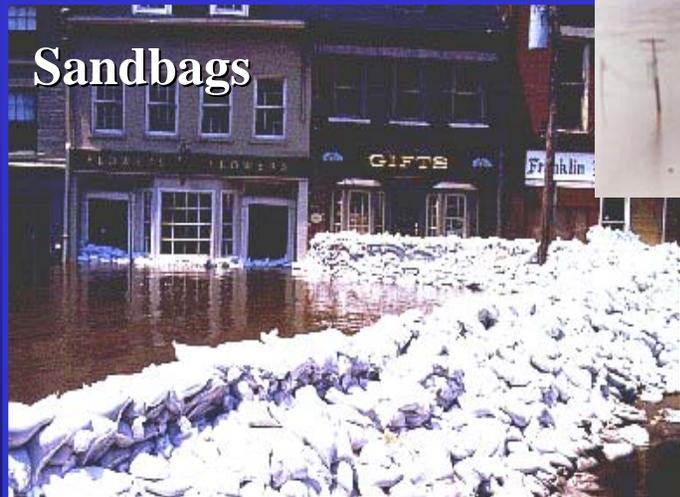
# Assistance



Plastic



Pumps



Sandbags



Repairs

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# Current Activities



- **Creation of National Levee Database**
  - **Levee Information – Sections, gates, pump stations**
  - **Levee Districts will have access**
  - **Track changes/alterations**
- **Levee Inspection Software**
  - **See past performance**
  - **Not “individual” based!**

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# St. Louis District Emergency Management



**Chief, Readiness Branch**

**Jake Scanlon  
(314) 331-8569**

**ICW Program Manager**

**Matthew Hunn  
(314) 331-8568**

**Natural Disaster Program Manager**

**Jim Kuehnle  
(314) 331-8570**

**Catastrophic Disaster Program Manager**

**Rick Waggoner  
(314) 331-8566**

**Emergency Operations Center**

**(314) 331-8605**

**Fax**

**(314) 331-8615**

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