



Texas Dam Safety Program

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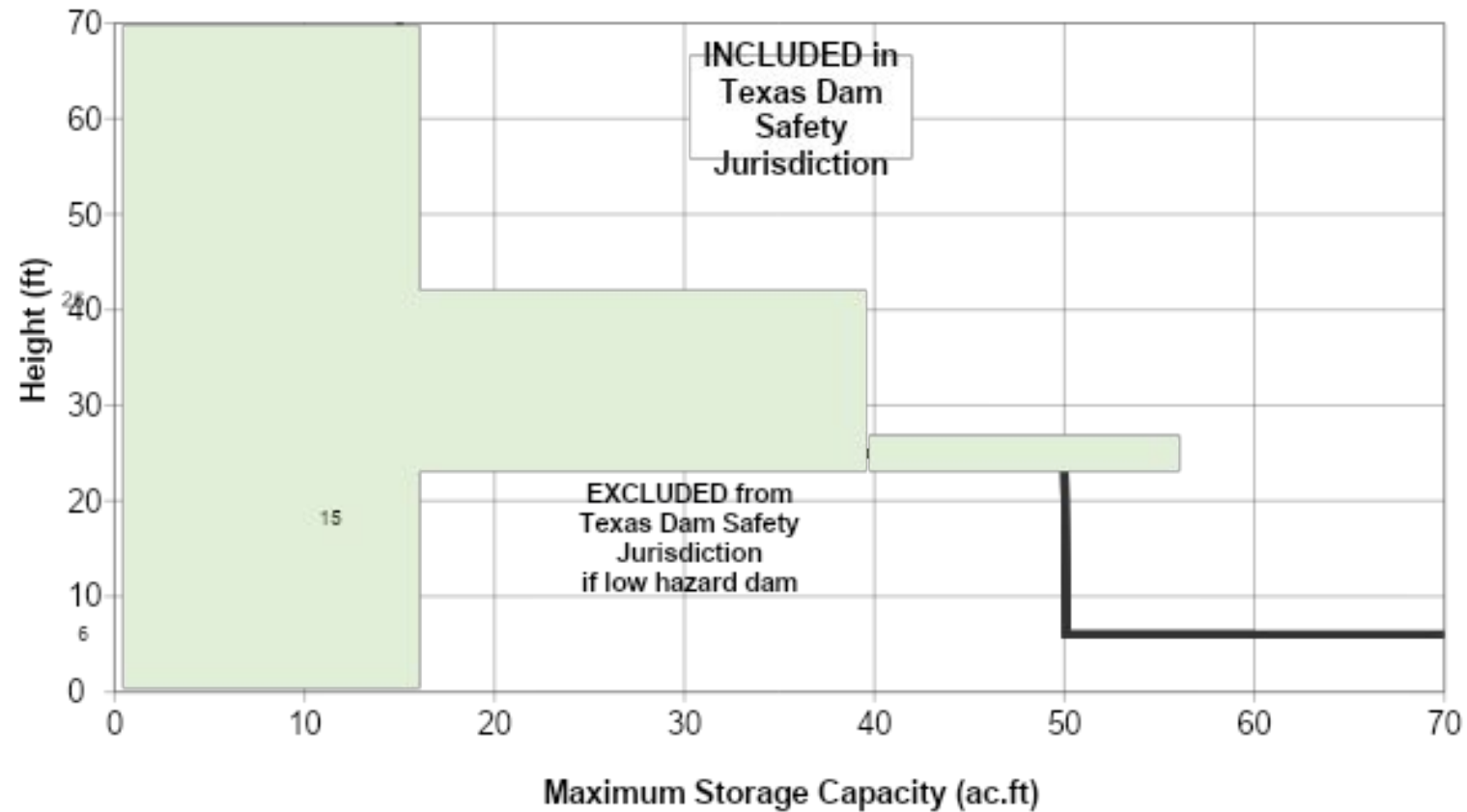
Program Overview

- 26 staff
 - 15 Professional Engineers
 - 3 Engineers-in-Training
- What do we do?
 - Inspect dams (generally every 5 years)
 - Review Hydrologic and Hydraulic studies
 - Review Breach studies
 - Review Plans and specifications
 - Review Emergency Action Plans

Program Overview

- Regulations
 - Texas Water Code 12.052
 - 30 Texas Administrative Code Chapter 299

Program Overview



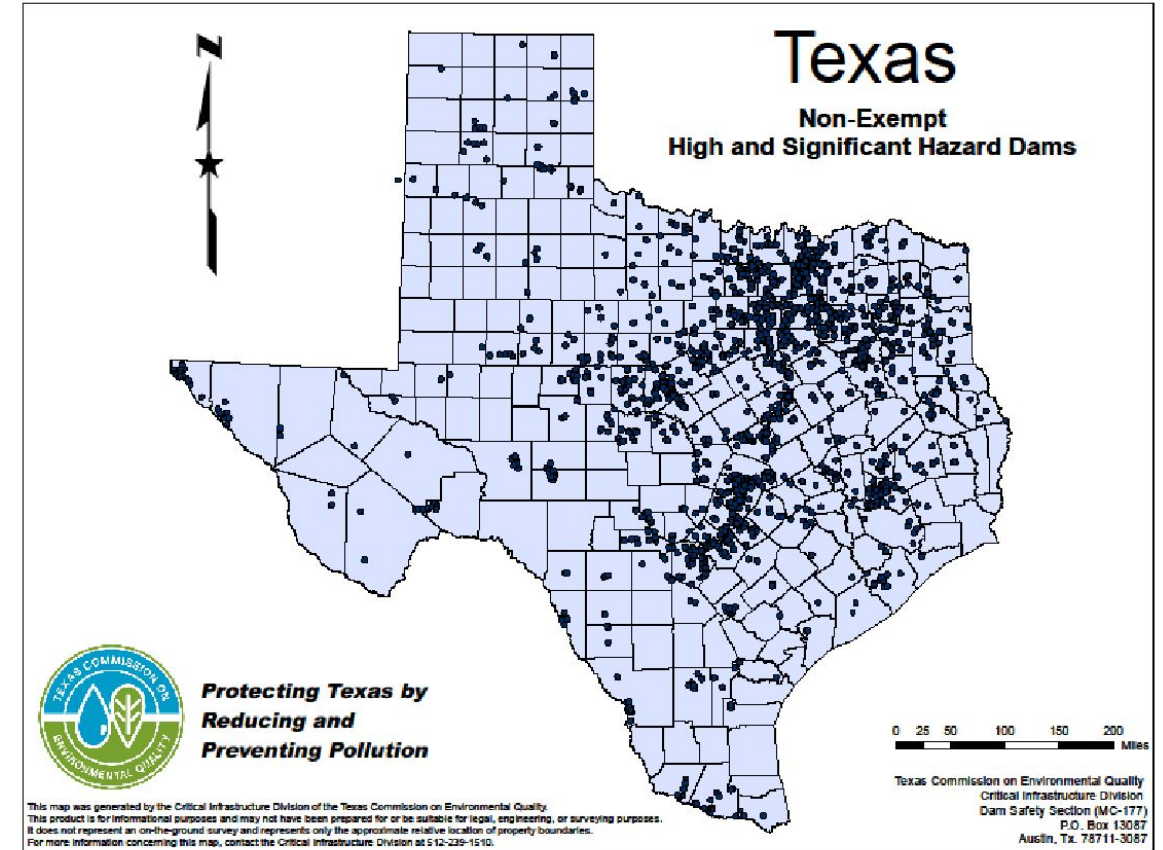
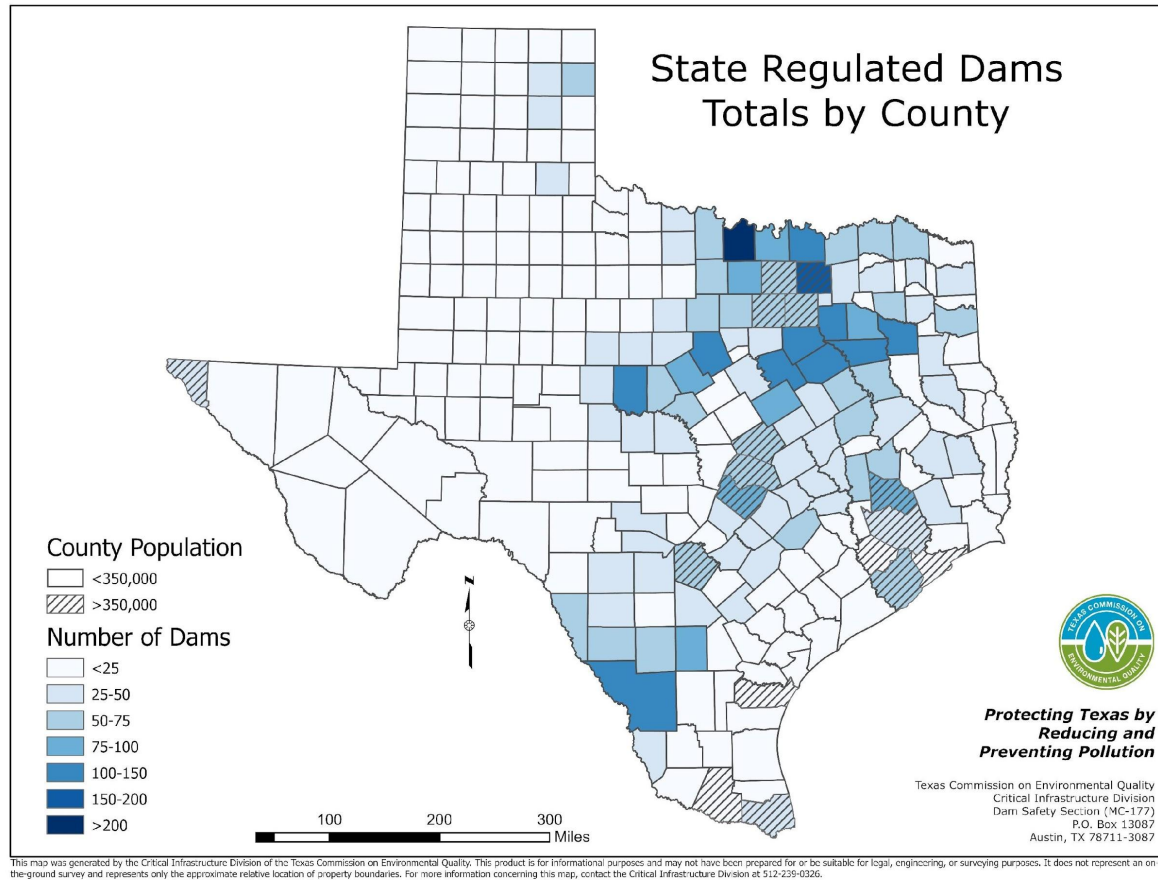
Program Overview

- State-Regulated Dams in Texas – 7,338
 - Non-exempt - 4,096
 - Exempt – 3,242
- Non-Exempt
 - High hazard – 1,517
 - Significant hazard - 310
 - Low Hazard – 2,269

Program Overview

- Exempt Dams:
 - Dams that are owned and maintained by federal agencies such
 - Dams meeting **all** the following criteria:
 - Located on private property
 - Impounds less than 500-acre feet
 - Low or significant hazard
 - In a county with population less than 350,000
 - Not within City Limits

Program Overview



Program Overview

- Hazard Classification
 - Based on the potential loss of human life or property downstream
 - NOT based on the condition of the dam

Program Overview

- High Hazard Dams
 - Loss of life expected (3 or more habitable structures)
 - Excessive economic loss expected and extensive damage to
 - Public facilities
 - Agricultural, industrial, or commercial facilities
 - Public utilities
 - Main highways (TXDOT classified as arterials)
 - Railroads used as a major transportation system

Program Overview

- Significant Hazard Dams
 - Loss of life possible (1 or 2 habitable structures)
 - Appreciable economic loss
 - Damage to isolated homes
 - Damage secondary highways (TXDOT classified Collector roads)
 - Damage to minor railroads
 - Interruption of service or use of public utilities

Program Overview

- Low Hazard Dams
 - No loss of human life expected (no habitable homes)
 - Minimal economic loss
 - Local roads
 - Limited agricultural improvements/farm buildings



Emergency Action Plans

Emergency Action Plans

- EAPs are required for non-exempt high and significant dams.
- EAPs are recommended for exempt significant dams

Emergency Action Plans

- EAP Guidelines
 - Last Updated December 2019
 - Available Online:
 - Guidelines (PDF)
 - Fillable Templates (Microsoft Word)

<https://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html>



Guidelines for Developing Emergency Action Plans for Dams in Texas

Dam Safety Program
Critical Infrastructure Division
Texas Commission on Environmental Quality

GI-394
Revised December 2019

Emergency Action Plans

- Dam Owners are encouraged to build a relationship with the Emergency Management Coordinator
- Emergency Management Coordinator should:
 - Review and acknowledge the EAP
 - Participate in the Tabletop Exercises

Emergency Action Plans



Why do you need an EAP?

- Dams fail

Emergency Action Plans

4.2. Emergency Evaluation and Classification

This section lists the conditions and actions which may be used to classify the level of emergency response, as a guide for the [Owner's Emergency Planning Manager]. Specific dam observations and corresponding emergency classification levels can be found in the Evidence of Distress table in Tab 5.

- **Watch Condition:** A problem has been detected at the dam which requires constant monitoring or immediate action to repair or correct. At this time, the distress condition is manageable by dam personnel.

The [Owner's Emergency Planning Manager] will be responsible for monitoring and repair as soon as possible and implementing the appropriate Notification Flowchart. The following is a list of conditions which constitute "watch" conditions:

- cloudy or dirty seepage or seepage with an increase in flow, boils, piping, or bogs
- seepage around conduits
- large sinkholes with corresponding seepage anywhere on the embankment or downstream from the toe
- any slide that degrades the crest of the embankment or that is progressively increasing in size
- cracking or movement of any concrete structure
- the engagement of the emergency spillway

Why do you need an EAP?

- Dams fail
- Identify emergency conditions

Emergency Action Plans



Why do you need an EAP?

- Dams fail
- Identify emergency conditions
- Expedite an effective response

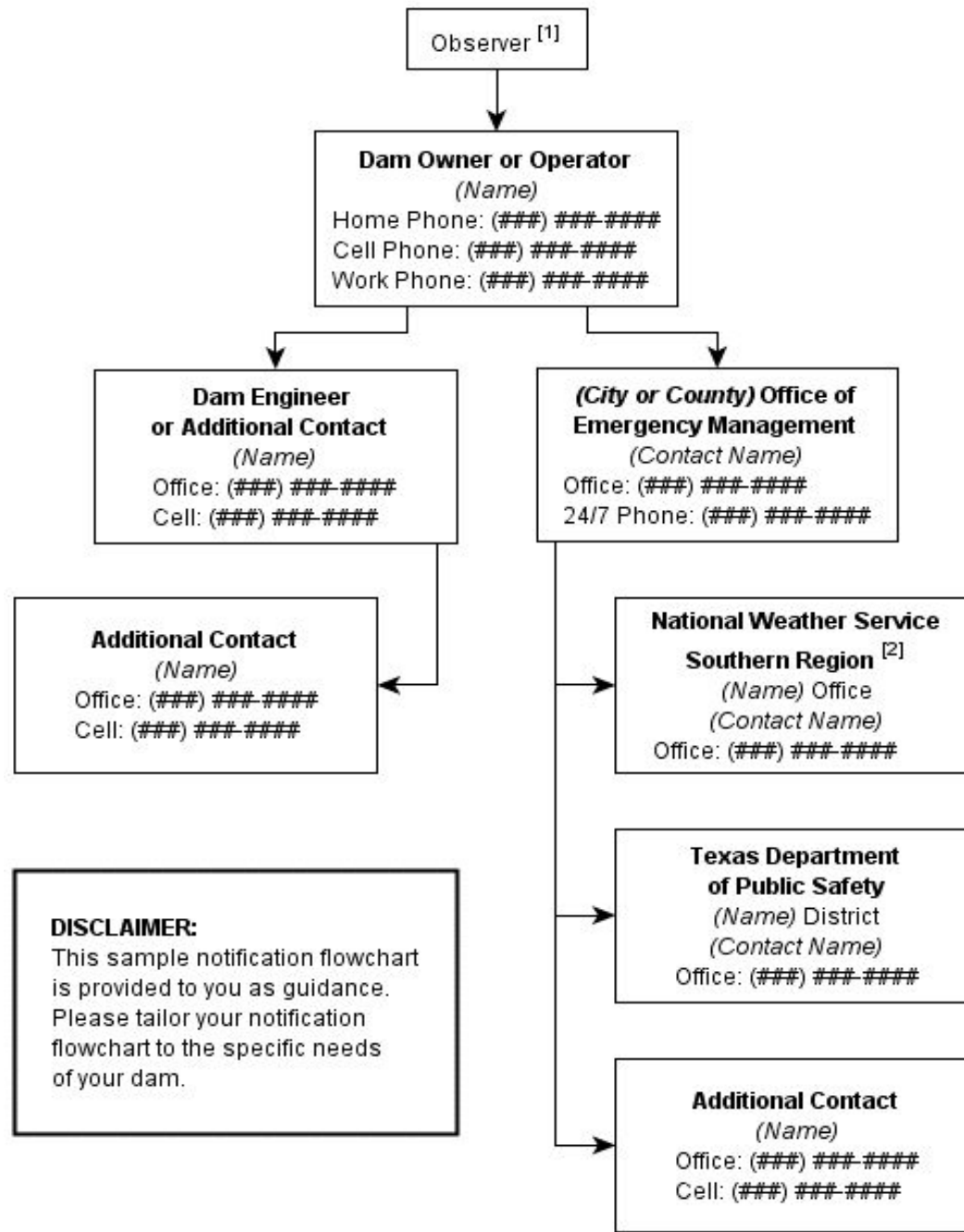


Emergency Action Plans



Why do you need an EAP?

- Dams fail
- Identify emergency conditions
- Expedite an effective response
- Prevent or reduce loss of life and property



Notification Flowcharts

- Make sure all info is up to date
- Day time and after-hours numbers
- Media Contact
- Update as often as needed

EAP – Inundation Maps

- Ensure maps:
 - Are up to date
 - Include enough detail
 - Are easy to understand
- EMCs may request maps for different scenarios

Tabletop Exercises

- 30 TAC 299.61 (h) requires an owner to conduct a tabletop exercise at least once every 5 years.
- Meeting with people involved in the notifications
- Dam Owner should inform TCEQ of the day/time

Tabletop Exercises

- Discussions among participants
- Evaluate the EAP
- Resolve any concerns
- Follow up
 - Update the EAP as necessary
 - Provide a summary of the exercise



Legislation Update

HB 26, 86th Texas Legislature

- Amended Water Code 12.052(a)
- Affects dams with gated spillways used to regulate flood water
- Dam Owner must provide notice of spillway releases made to regulate flood waters
- Requires updates to EAPs by June 1, 2020

HB 137, 86th Texas Legislature

- Amended Water Code 12.052
- Requires TCEQ to provide biannual reports
- Report must include
 - High and Significant dams
 - Condition status
- These reports are confidential

HB 137, 86th Texas Legislature

TX Num	Dam Name	County	Latitude	Longitude	Hazard	Condition	Overall Owner Status	COG	CITY
TX00136	IONI LAKE DAM	ANDERSON	31.613010	-95.461491		FAIR	PRIVATE	ETCOG	
TX00139	CRYSTAL LAKE DAM	ANDERSON	31.744046	-95.502513		FAIR	PRIVATE	ETCOG	
TX00144	ELKHART LAKE DAM	ANDERSON	31.634611	-95.550468		FAIR	PRIVATE	ETCOG	
TX00157	M A DAVEY LAKE DAM	ANDERSON	31.813086	-95.571148		GOOD	PRIVATE	ETCOG	
TX00159	GROVER C WALKER LAKE DAM	ANDERSON	31.809291	-95.586280		GOOD	PRIVATE	ETCOG	
TX00161	JOYCE LAKE DAM	ANDERSON	31.753712	-95.671906		FAIR	PRIVATE	ETCOG	Palestine
TX00162	WOLF CREEK LAKE DAM	ANDERSON	31.773799	-95.698503		FAIR	PUBLIC	ETCOG	Palestine
TX00163	PINEYWOODS LAKE DAM	ANDERSON	31.975903	-95.547763		GOOD	PRIVATE	ETCOG	
TX00165	CIRCLE R DAM NO 2	ANDERSON	31.754328	-95.542206		POOR	PRIVATE	ETCOG	
TX00166	CIRCLE R DAM NO 1	ANDERSON	31.746728	-95.537453		POOR	PRIVATE	ETCOG	
TX00168	KILLION LAKE DAM	ANDERSON	31.755473	-95.493755		POOR	PRIVATE	ETCOG	
TX00170	BLACKBURN CROSSING DAM	ANDERSON	32.057016	-95.436750		FAIR	PUBLIC	ETCOG	
TX05130	UPPER CITY LAKE DAM	ANDERSON	31.767982	-95.665387		FAIR	PUBLIC	ETCOG	Palestine
TX05131	LOWER CITY LAKE DAM	ANDERSON	31.761907	-95.665917		FAIR	PUBLIC	ETCOG	Palestine
TX05817	OTTER CREEK CLUB DAM	ANDERSON	31.981082	-95.751281		GOOD	PRIVATE	ETCOG	
TX06983	BLUE LAKE DAM	ANDERSON	31.762727	-95.654590		POOR	PUBLIC	ETCOG	Palestine
TX07346	LAKE VELMA DAM	ANDERSON	32.007375	-95.778499		FAIR	PRIVATE	ETCOG	
TX09728	PHAN POULTRY FARM DAM	ANDERSON	31.700421	-95.544415		FAIR	PRIVATE	ETCOG	



SB 600, 87th Texas Legislature

- Adds Water Code Section 12.053
- Requires River Authorities to provide information to TCEQ annually
- TCEQ must post the information on a website

HB 1606, 87th Texas Legislature

- Companion Bill: SB 588
- Applies to the Upper Brushy Creek WCID
- States that the District is not required to follow municipal regulations regarding dams.



Operation & Maintenance of Dams

Operation and Maintenance

- Dam Owners are responsible for operating and maintaining their dam
- Owners shall inspect their dams regularly
- Owners shall notify TCEQ of any damage at their dams

Good Condition



Good Condition



Fair Condition



Fair Condition



Poor Condition



Poor Condition



Poor Condition





Potential Funding

Rehabilitation of High Hazard Potential Dams Grant

- Objective:
 - Reduce or eliminate risk of dams of highest consequence
 - Increased understanding and management of risks posed by eligible dams

HHPD

- Overview:
 - Provide financial assistance for eligible High Hazard dams
 - Risk Informed Decision Making
 - Consider Dam Risks in mitigation planning
 - Community Preparedness

HHPD

- FY2019 Grant
 - 26 states applied
 - Texas awarded \$574,647 (out of \$10,000,000 nationwide)
 - Funded engineering and studies for 3 dams
- FY2020 Grant
 - 29 states applied
 - Texas awarded \$987,217 (out of \$10,000,000 nationwide)
 - Funding engineering, studies, design, and construction for 8 dams

HHPD

- FY2021 Grant
 - 15 states applied
 - Texas awarded \$1, 556,603 (out of \$11,640,000 nationwide)
 - Funding engineering, studies, design for 7 dams
 - Application is currently pending final approval from FEMA

HHPD

- Eligible Dams
 - High hazard
 - EAP on file with the state
 - Fails to meet state dam safety standards
 - Cannot be a dam built under the Secretary of Agriculture
 - Cannot be a licensed hydroelectric dam

HHPD

HHPD Eligibility Matrix

Likelihood of Failure	Very High NID = unsatisfactory				
	High NID = Poor				
	Moderate NID = Fair				
	Low NID = Satisfactory				
		Low PAR = 1-10	Medium PAR = 11-100	High PAR = 101 -1000	Very High PAR = 1001+

Consequences: Population at Risk (PAR)

HHPD

- Requirements
 - Subrecipients must be non-federal governmental organizations or non-profits
 - Must have in place a FEMA approved hazard mitigation plan that **includes all dam risks.**
 - Floodplain management plan
 - Prepared within 2 years of award
 - Implemented within 2 years of rehabilitation completion
- Requires a 35% local match

HHPD

- Eligible Projects
 - Planning
 - Design
- Ineligible Projects For FY21
 - Construction
 - Operation and Maintenance costs

HHPD

- For more information:
 - <https://www.fema.gov/emergency-managers/risk-management/dam-safety/grants/resources>
 - Email questions to Trina:
trina.lancaster@tceq.texas.gov

Corps Water Infrastructure Financing Program (CWIFP)

- Long-term, low-cost credit assistance for water resource infrastructure projects
- FY21 appropriations provides funding for “safety projects to maintain, upgrade, and repair dams” owned by non-Federal entities and included in the National Inventory of Dams.

Corps Water Infrastructure Financing Program (CWIFP)

- **ELIGIBLE BORROWERS:**

- Local, state, and Tribal entities
- Partnerships and joint ventures
- Corporations and trusts
- State infrastructure financing authority

Corps Water Infrastructure Financing Program (CWIFP)

- Available to projects or a group of projects with eligible costs in excess of \$20 million
- Funding of up to 49% of project costs
- For more info:
<https://www.usace.army.mil/Missions/Civil-Works/Infrastructure/revolutionize/CWIFP/>



Dam Safety Resources

Association of State Dam Safety Officials

- DamOwner.org
 - Dam Owner Academy Videos
 - Fact Sheets



Questions??

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