

# Removal Guidelines for Dams in Texas

Prepared by  
**TEXAS DAM SAFETY PROGRAM**  
**CRITICAL INFRASTRUCTURE DIVISION**

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## Chapter 1

### Rules and Responsibilities

This document provides guidance for removing a dam in Texas. These guidelines are written with the assumption that the reader is familiar with the processes discussed in these guidelines. The owner of a dam, the owner's Texas Licensed Professional Engineer (PE) in charge, or both should read these guidelines carefully before taking any action. This will potentially save time and expense.

"We" and "us" in this guidance refer to the Texas Dam Safety Program. "You" refers to the individuals associated with a dam that are described in this guidance. This includes but is not limited to dam owners, the owners' representatives, and the owners' PE in charge.

A dam owner may want to remove their dam due to factors such as deterioration and risk of failure, financial concerns, liability, or to return a waterway to its original condition. The question of whether to remove a dam is primarily up to the owner(s), stakeholders of the dam, or both. The Texas Dam Safety Program (program) is not opposed to removing dams but requires that the process be conducted safely and adheres to the applicable state and federal rules.

#### 1.1 Regulatory Authority

These guidelines supplement Title 30, Texas Administrative Code (30 TAC) Chapter 299.

#### 1.2 Professional Responsibility and Duty

This document assumes that the reader has appropriate knowledge of the processes and methodologies referenced and can use standard software common in the engineering profession that is appropriate to dams.

Any analyses associated with the design of dams in Texas is considered the practice of engineering and is subject to the Texas Engineering Practice Act, as amended. See [Texas Board of Professional Engineers and Land Surveyors](https://pels.texas.gov/).<sup>1</sup>

#### 1.3 Liability

The liability associated with the dam remains with the owner throughout the construction project. The owner, owner's representative, or both must exercise due diligence to ensure the safety of personnel, residents, and any other affected person(s) or potential hazards.

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<sup>1</sup> <https://pels.texas.gov/>

## **1.4 Guidelines**

You can find a copy of this document and other guidelines and forms on the [Dam Safety webpage](#).<sup>2</sup>

## **1.5 Glossary**

Important terms referenced in these guidelines are defined in 30 TAC Section 299.2.

## **1.6 Questions or Feedback**

Direct any questions or comments on the content of these guidelines to:

Texas Dam Safety Program, MC-177  
Texas Commission on Environmental Quality  
PO Box 13087  
Austin, TX 78711  
512-239-0326

Or:

[DamsInfo@tceq.texas.gov](mailto:DamsInfo@tceq.texas.gov)

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<sup>2</sup> [www.tceq.texas.gov/compliance/investigation/damsafetyprog.html](http://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html)

## Chapter 2

### Means and Methods

There are several terms that have historically been used to describe a dam removal, which include: decommission, discontinue, breach, break, notch, etc. These and other related terms are often used without a consistent definition as it pertains to the regulatory requirements, oversight, and jurisdiction of the program and will not be used in this document.

The regulatory requirements of the program will no longer apply if one of the two following acceptable methods has been implemented.



1. Remove the entire dam to its natural channel.
2. Remove enough of the dam so that it no longer provides detention (no significant differential between the upstream and downstream depth of water) during normal conditions and during the design flood of the dam. The differential is typically less than 1-ft. deep but higher differentials can be approved on a case-by-case basis.

The owner(s), stakeholders of the dam, or both will decide on the removal method; however, downstream conditions, finances, location, and size of the dam may govern what method is used. Either of the above options would result in the dam being considered removed and not subject to program requirements.

For either option, submit plans and specifications to the program for review and approval before construction begins.

### 2.1 Minimum Requirements for Submission

The minimum requirements for submission are listed below; however, additional documentation or analyses may be requested on a case-by-case basis. Submit the following:

- Construction plans and specifications – See Chapter 3 for additional guidance.
- Information sheet – Include *Proposed New Construction, Modification, Repair, Alteration, or Removal of a Dam*:
  - [Form TCEQ 20345](#)  <sup>3</sup>
  - [Form TCEQ 20345](#)  <sup>4</sup>
- Design Report – Must address all considerations and requirements outlined in these guidelines.

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<sup>3</sup> [www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20345.pdf](http://www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20345.pdf)

<sup>4</sup> [www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20345.doc](http://www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20345.doc)

Submit all required documentation to:

Texas Dam Safety Program, MC-177  
 Texas Commission on Environmental Quality  
 PO Box 13087  
 Austin, TX 78711

## 2.2 Removal Methods Considerations

There are several considerations when choosing which removal method to use. Below are some potential pros and cons that may influence the owner’s choice.

**Table 1 Pros and cons of complete removal of the dam**

<b>Pros</b>	<b>Cons</b>
Ideal for small dams where the dam owner wants to completely remove their liability.	May not be financially reasonable for intermediate and large size dams.
Does not require hydrologic and hydraulic (H&H) or breach analyses.	May require erosion control provisions such that the site and downstream conditions are not affected.
Simplifies plan and specification requirements.	Requires excavated soils or spoils to be relocated, hauled off-site, or both.

**Table 2 Pros and cons of removing enough of the dam such that it no longer provides detention during normal conditions, as well as during the design flood**

<b>Pros</b>	<b>Cons</b>
Ideal for intermediate and large sized dams when removing a section or portion of the dam is financially reasonable.	Requires an H&H analysis to show the dam no longer provides detention during normal conditions, as well as during the design flood of the dam.
Does not require a breach analysis.	May require erosion control provisions such that the site and downstream conditions are not affected.
Simplifies plans and specification requirements.	Requires excavated soils or spoils to be relocated, hauled off-site, or both.



## Chapter 3

### Plans and Specifications

All engineering plans and specifications, inspections, reports, and records to remove a dam must be prepared by, or under the direct supervision of a PE. The final engineered plans and specifications must be signed and sealed by a PE before approval can be granted.

#### 3.1 Contents of Construction Plans and Specifications

The construction plans and specifications submitted for review and approval must be 22x34 inches in size. The plans may be reduced to 11x17 inches in size, if all details are clearly legible, and an accurate scale is included. The submission must also satisfy all applicable requirements outlined in 30 TAC Chapter 299.

Construction plans and specifications must include (but are not limited to) the following, if applicable:

- Project Location
- Vicinity Map
- Existing Dam Profile
- Proposed Dam Profile
- Pertinent Cross-sections
- Erosion and Sediment Control Plan
- Storm Water Pollution Prevention Plan (SWPPP)
- A Plan for the Care and Diversion of Water
- Limits of Construction
- Scale
- North Arrow
- Spoil Location
- Ownership Boundaries

#### 3.2 Downstream Provisions

Dams throughout Texas often provide flood and sediment control for downstream areas. Thus, conditions downstream may be affected or inundated with additional flooding due to the removal of the dam. If applicable, additional provisions need to be developed to notify and protect downstream areas during dewatering, modification or removal, and future conditions that may occur once the dam is modified or removed.

### **3.3 Review and Approval Process**

The program will respond to each submitted package within 30 calendar days of receipt with either a written request for additional information or revision, or with a written approval.

## Chapter 4

### Project Management

The PE on record is responsible for ensuring that the construction project is properly managed, and that adequate quality control is achieved. Additionally, the PE should establish and maintain communication with the program throughout the project. The removal of a dam is generally a narrowly scoped project; however, the owner's PE may reference Chapter 9 of [Design and Construction Guidelines for Dams in Texas](#), RG-473<sup>5</sup> for additional guidance.

#### 4.1 Notification of Construction

After the program has issued written approval for the construction plans and specifications, construction may begin. The dam owner or owner's representative is responsible for notifying the program within 10 working days of the actual construction start date. The following information is required:

- Start date
- Contractor's name and contact information
- Name of the PE or inspector conducting on-site and quality control inspections

#### 4.2 Monthly Progress Reports

Most construction projects to remove a dam will not extend past a month and thus, will not require a monthly progress report. However, projects that do extend beyond a month require monthly reports that include the following:

- The work completed during the month.
- The percent of contract time used.
- The percentage of the project's completion.
- The dates of the reporting period.
- A description of any problems or concerns encountered.
- Any changes to the contact information.

#### 4.3 Change Orders



After approval, the plans and specifications must not be substantially changed without either written approval before the work is started or notifications of the changes, as defined in 30 TAC Section 299.26. When a construction project requires modifications to the approved construction plans and specifications, the owner's PE must submit a change order as required in Chapter 9 of *Design and Construction Guidelines for Dams in Texas*, RG-473. (See footnote)

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<sup>5</sup> [www.tceq.texas.gov/downloads/publications/rg/rg-473.pdf](http://www.tceq.texas.gov/downloads/publications/rg/rg-473.pdf)

## 4.4 Engineer's Notification of Completion and Record Drawings

Once the construction project has been completed, the dam owner or owner's representative must submit:

- *Engineer's Notification of Completion* (see form below) within 45 calendar days of the completion date. (30 TAC Section 299.29)
  - [Form TCEQ-20347](#)  <sup>6</sup>
  - [Form TCEQ-20347](#)  <sup>7</sup>
- Signed and sealed record drawings within six months of the completion date. (30 TAC Section 299.30.)

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<sup>6</sup> [www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20347.pdf](http://www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20347.pdf)

<sup>7</sup> [www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20347.doc](http://www.tceq.texas.gov/downloads/compliance/enforcement/dam-safety/20347.doc)

## Chapter 5

### Dam Exemption, Exclusion, and Special Case Removal

There may be a scenario where removing the dam is not a viable or preferred option and the owner(s), stakeholders, or both may want to modify it (i.e., reduce the height, remove a section, or both) to meet the legislative exemption criteria or the exclusion criteria defined by 30 TAC Section 299.1. The program does not regulate exempt or excluded dams.

If—in the future—the dam no longer meets all exemption criteria or the exclusion criteria, the dam will fall under program regulations. Find more information on exemptions and classifications on the [Dam Safety webpage](#).<sup>8</sup> Exclusions are covered in 30 TAC Subchapter 299.1(a)(2) (Attached Graphic).

A dam can be both excluded and exempt from Texas Dam Safety regulation and would avoid the same program regulations; however, the criteria to maintain the excluded or exempt status differs.

- **Exempt dams** are generally more susceptible to losing their exempt status due to factors out of the owner's control such as rising county population, expanding city limits, and changes to the dam's downstream inundation area that may raise its hazard classification (also known as hazard creep).
- **Excluded dams** on the other hand can only lose their excluded status by hazard creep (assuming the dam isn't modified), which is naturally limited by their relatively short inundation limits.

### 5.1 Requirements for Exemption and Exclusion

All requirements and considerations within these guidelines also apply to modifying a dam into an **exempt** or **excluded** structure. However, the engineered design report may need to include a simplified or full breach analysis to demonstrate that the dam in its proposed configuration will:

- For **exempt** structures, meet the exemption criteria and the criteria of a low or significant hazard dam, not a high hazard dam.
- For **excluded** structures, have a low hazard classification, as required by the **exclusion** criteria.

Depending on the nature of the modifications, a breach analysis may not be needed to demonstrate the hazard classification of the modified dam. The need for a breach analysis will be determined on a case-by-case basis. Notably, if the dam height is lowered to be less than 6-ft in height, it will be considered an excluded structure, and a breach analysis and H&H analysis will not be required.

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<sup>8</sup> [www.tceq.texas.gov/compliance/investigation/damsafetyprog.html](http://www.tceq.texas.gov/compliance/investigation/damsafetyprog.html)

## 5.2 Liability

Exempt or excluded dams are not regulated by the program but they often impound breachable volumes. As such, the owner of the dam is still liable for any damages that may occur downstream of the dam in the event of a failure.

## 5.3 Emergency Action Plan (EAP)

If any hazard (road, house, railroad, etc.) is located downstream of a significant hazard-exempt dam and could potentially be inundated by a dam failure, we recommend that the owner(s) create and maintain an EAP to protect those downstream hazards and the dam owner's liability. The EAP does not have to be submitted to, nor accepted by the program.

## 5.4 Operation and Maintenance (O&M)

The owner must maintain an exempt dam in a safe condition (30 TAC Section 299.43). We recommend that the owner develop a written O&M plan. The owner may use the most current version – at the time of the plan's development – of [Guidelines for Operation and Maintenance of Dams in Texas](#), GI-357,<sup>9</sup> (see chapter 7); a maintenance manual; a checklist; or use some other written procedure to demonstrate implementation of the plan.

Design the O&M plan to provide clear maintenance instructions and guidance for the owner's or owner's representatives' use. The plan is for your records (the owner's) and should be available if requested by the program; however, you are not required to submit the plan to, nor is it approved by the program.

## 5.5 Special Case Removal

Some Texas dams can be removed without a threat to the public. They must meet at least one of the following special-case removal criteria:

- Height or volume that would not normally fall under the program's regulation (as defined in 30 TAC Section 299.1), but due to its hazards the dam is regulated.
- A small-sized low or significant hazard dam with a maximum storage equal to or less than 200 ac-ft, which is outside of a city limit, and does not act as a public road.
- An in-channel dam or one completely located within the banks of a river or stream.

Dams that meet one of the above criteria may be removed without the full in-depth approval process, eliminating requirements for plans and specifications or H&H and breach analyses. However, these dams must:

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<sup>9</sup> [www.tceq.texas.gov/publications/gi/gi\\_357/index.html](http://www.tceq.texas.gov/publications/gi/gi_357/index.html)

- Receive written approval from the program.
- Be completely removed to natural ground.
- Provide adequate erosion control.
- Be removed under the supervision of a PE.

The owner, owner's engineer, or both must notify the program once the dam has been removed.

A dam may meet all or some of the above criteria but – due to other factors outside of these requirements – may still need plan and specification approval before the dam may be removed. This will be determined on a case-by-case basis.

## Chapter 6

### Environmental and Local Impact

The owner or the owner's PE may need to consider additional issues, some of which may have an environmental impact, local impact, or both due to the construction project. These additional considerations are included as a reference only. The program's review and approval will not be contingent upon these considerations, so no documentation on these issues needs to be submitted for review. However, other regulatory entities may require that you address the issues before construction begins.

#### 6.1 Floodplain Management

The construction project may increase the downstream depth and the frequency of flooding. This may enlarge the base (100-year FEMA) floodplain, creating adverse impacts. A dam's removal, modification, or both may also alter the course of the downstream channel. Therefore, removing or modifying a dam may require a subsequent change to the applicable Flood Insurance Rate Maps.

When removing or modifying a dam, the owner should notify the local Floodplain Administrator. A Letter of Map Amendment or a Letter of Map Revision may be required. The local administrators are responsible for reviewing floodplain modifications within their jurisdiction.

The owner of a dam, the owner's PE, or both – depending on the situation – should notify the downstream county sheriff and emergency management coordinator prior to draining the dam, so that emergency personnel are aware of the increase in streamflow and the potential for increased stream levels.

#### 6.2 Water Rights Permit

The existing reservoir and dam may have a water rights permit assigned to it. If so, before the construction project begins, the owner or owner's representative must have that permit amended or cancelled. If other parties have water rights associated with the reservoir or dam, the owner or owner's representative may need to address those rights. Direct questions about water rights to:

Water Availability Division  
Texas Commission on Environmental Quality  
PO Box 13087  
Austin, TX 78711  
PH: 512-239-4691  
Email: [info@tceq.texas.gov](mailto:info@tceq.texas.gov)



### 6.3 Edwards Aquifer Protection Program

The existing reservoir and dam may have an Edwards Aquifer Protection Plan associated with it. If so, before the construction project begins, the owner or owner's representative must have the plan amended or canceled. Direct questions about the Edwards Aquifer Protection Plan to:

Edwards Aquifer Protection Program  
Texas Commission on Environmental Quality  
PO Box 13087  
Austin, TX 78711  
Email: eapp@tceq.texas.gov

Austin Regional Office  
PH: 512-339-2929  
San Antonio Regional Office  
PH: 210-490-3096

### 6.4 Ecological Issues

The dam removal methods in these guidelines will undoubtedly have a direct or indirect effect on the ecosystem in the area. It is often a difficult and complicated process to determine the overall impact the construction project will have in advance due to the complexity of the environment and its individual ecosystems. Nonetheless, it is the PE's responsibility to consider the following potential areas:

**Effects to wetlands or Waters of the U.S.** – regulated by the U.S. Army Corps of Engineers (USACE) – may require additional permits. These may include a Section 10 Permit (Rivers and Harbors Act of 1899) and a Section 404 Permit (Clean Water Act). Consult the appropriate USACE district office to determine what, if any, permits are required:

- Albuquerque District – most of West Texas (575-652-4574)
- Tulsa District – parts of the Texas Panhandle and north Texas along the Red River (918-669-7366)
- Galveston District – coastal region of Texas (409-766-3869)
- Fort Worth Division – the rest of Texas (817-886-1731)

**Effects to wildlife habitats and endangered species** – due to the removal or modification of a dam. Before construction begins, the owner or owner's representative should contact the [Wildlife Habitat Assessment Program](#)<sup>10</sup> through the Texas Parks and Wildlife Department (TPWD) to determine the potential effect of the project.

TPWD will also evaluate the proposed project for any adverse effects on wetlands, or whether the project will require a Marl, Sand, Gravel, Shell, or Mudshell Permit.

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<sup>10</sup> [https://tpwd.texas.gov/huntwild/wild/wildlife\\_diversity/habitat\\_assessment/](https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/habitat_assessment/)

They may also require an environmental study, plan, and inspection, or the relocation of fish before draining the lake. Contact TPWD:

Texas Parks and Wildlife Department  
Wildlife Habitat Assessment Program  
4200 Smith School Road  
Austin, TX 78744  
PH: 512-912-7011  
Email: [WHAB@tpwd.texas.gov](mailto:WHAB@tpwd.texas.gov)

**Effects on historical or archeological structures** – may be considered if the dam is more than 50 years old or if archeological deposits or associated historic structures are located on the site. If there are any historical or archeological items associated with the site, if the dam is on public land, if it is federally funded, or if permits are required for the project, the owner or owner’s representative must contact the Texas Historical Commission for their review of the project.

Texas Historical Commission  
PO Box 12276  
Austin, TX 78711  
PH: 512-463-6100  
Email: [ths@thc.texas.gov](mailto:ths@thc.texas.gov)

## 6.5 Additional Considerations

A dam may have multiple owners, have easements to the property, or legal commitments to maintain the dam and reservoir. These parties are responsible for establishing an agreement among themselves about the dam. The Texas Dam Safety Program does not mediate between dam owners. However, in cases where owners deny or avoid responsibility the program may order the modification or removal of a dam.

The dam may serve as an embankment or corridor for a road, railroad, easement, pipeline, or utility. As such, appropriate accommodations must be agreed upon and implemented by all associated parties before, during, and after construction.

If the dam is licensed by the Federal Energy Regulatory Commission (FERC), the owner or owner’s representative may need to provide FERC with additional documentation and receive their written approval before the construction project begins.

See Chapter 5 of [Design and Construction Guidelines for Dams in Texas](#), RG-473 <sup>11</sup> for additional guidance on determining environmental impacts.

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<sup>11</sup> [www.tceq.texas.gov/downloads/publications/rg/rg-473.pdf](http://www.tceq.texas.gov/downloads/publications/rg/rg-473.pdf)