

The Texas Commission on Environmental Quality (commission or agency) adopts the repeal of §§299.1 - 299.5, 299.11 - 299.18, 299.21 - 299.31, 299.51, and 299.61; and new §§299.1 - 299.7, 299.11 - 299.17, 299.21 - 299.33, 299.41 - 299.46, 299.51, 299.52, 299.61, 299.62, 299.71, and 299.72.

New §§299.1, 299.2, 299.6, 299.13 - 299.16, 299.21 - 299.24, 299.27, 299.42 - 299.45, 299.51, 299.52, 299.61 and 299.62 are adopted *with changes* to the proposed text as published in the July 25, 2008, issue of the *Texas Register* (33 TexReg 5859). New §§299.3 - 299.5, 299.7, 299.11, 299.12, 299.17, 299.25, 299.26, 299.28 - 299.33, 299.41, 299.46, 299.71 and 299.72 and the repealed sections are adopted *without changes* to the proposed text and will not be republished.

#### BACKGROUND AND SUMMARY OF THE FACTUAL BASIS FOR THE ADOPTED RULES

The existing dam safety rules, adopted in 1986, were developed after significant changes were made to the standards used to evaluate dams by the National Dam Safety Program. Even though the agency's Dam Safety Program has undergone significant changes since then, no changes have been made to the existing rules since their adoption in 1986. The commission adopts the repeal of the existing rules in Chapter 299 and adopts new, updated rules in Chapter 299.

In recent years, three distinct reviews were conducted of the Dam Safety Program rules. The reviews included: 1) the Executive Director's Task Force on Dam Safety (a task force of 26 stakeholders representing a wide cross section of interests) in 1998; 2) the House Natural Resources Subcommittee on Dam Safety in November of 1998; and 3) a peer review by the Association of State Dam Safety Officials, at the request of the agency, in 2003. The reviews made several recommendations for significant

modifications and updates to the existing rules. This rulemaking incorporates many of the recommendations.

Two stakeholder meetings were held in 2005 with approximately 40 individuals representing owners, professional engineers, associations, and sponsors of Natural Resources Conservation Service which assisted project dams, federal agencies, and state agencies. Owners included members of the general public. Environmental groups were also invited but did not attend. Considerable input was received and incorporated in this rulemaking. Staff also reviewed dam safety rules from at least ten states in 2005.

Other meetings were held in 2005 and 2006 with the Texas Association of Watershed Sponsors, Texas Water Conservation Association, and American Society of Civil Engineers to discuss the proposed rule package.

Two additional stakeholder meetings were held in 2008 with approximately 40 individuals, including several individuals who participated in the 2005 stakeholder meetings. Considerable input was again received and incorporated in this rulemaking.

The State Auditor's Office prepared *An Audit Report on the Dam Safety Program at the Texas Commission on Environmental Quality*, published in May 2008. It was recommended in this report that the commission should revise the rules to address key dam safety practices.

These adopted new rules make the program more similar to federal and other state programs.

In this action, the existing rules are repealed and new rules are adopted. The adopted new rules relate to design, review, and approval of construction plans and specifications; construction, operation and maintenance, inspection, repair, removal, emergency management, site security, and enforcement of proposed and existing dams. The commission revised existing criteria to make the rules more consistent with current engineering industry practices. The adopted new rules also include added requirements for emergency action plans, gate operating plans, and security plans and better define an owner's responsibilities.

The adopted new rules also provide options for upgrading existing dams. These adopted new rules ease some of the inspection burden by removing small- and intermediate-size, low-hazard dams from a periodic inspection schedule.

The adopted new rules improve the organizational flow of the requirements and update all relevant cross-references and citations.

The commission adopts administrative changes throughout the rules to be consistent with Texas Register requirements and agency guidelines. These changes include spelling out acronyms, updating references to the commission's predecessor agencies, and updating cross-references.

The commission adopts the repeal of all sections of the current chapter and adopts new sections that improve organization and readability. The adopted rules reorganize this chapter to remove redundancy in the requirements and place similar requirements in the same section.

## SECTION BY SECTION DISCUSSION

Adopted new §299.1, Applicability, establishes the applicability of this chapter.

Existing §299.1(1), relating to the definition of dam, is moved in part to adopted new §299.1 to clarify how this chapter applies to different types of dams and to be consistent with the definition used in federal regulations.

Adopted new §299.1(a) limits the applicability of this chapter to certain types of dams and ensures that the commission's rules correspond to federal regulations. Figure: 30 TAC §299.1(a)(2) is added to make the definition clearer. In response to comment, the commission has added §299.1(a)(4) to include pumped storage or terminal storage facilities for clarity.

Adopted new §299.1(b) includes language indicating that all requirements for dams are included in this chapter, but does not relieve the owner from meeting the requirements for water rights and Edwards Aquifer protection plans. This is necessary to ensure that owners are aware of other requirements that may apply to their dams.

Adopted new §299.1(c) includes language from existing §299.1(1) and adds federally owned dams from existing §299.21, Applicability, and above ground water storage tanks to the list of dams not covered by these rules to be consistent with the practice of the Dam Safety Program. In response to comment, the commission has defined above ground storage tanks as either steel, concrete, or plastic. This change is necessary to clarify that earth embankments are not included in the definition of above ground storage tanks and therefore are covered by these rules.

Adopted new §299.1(d) provides that all dams shall meet the size and hazard requirements of the chapter, including those exempt from the requirements of Subchapter C, Construction Requirements, and those that are granted an exception under §299.5, Exception. This rule is necessary to make it clear that all owners of dams shall follow the requirements and to prevent dams from being constructed without using standards as outlined in this chapter. In response to comment, the commission has further clarified the rule to include dams that do not require a water right permit.

Existing §299.1, Definitions, is repealed and moved to adopted new §299.2, Definitions. The definitions for "Effective crest of the dam," "Probable maximum flood (PMF)," and "Probable maximum precipitation (PMP)," "Existing dam," "Height of dam," "Normal storage capacity," and "Proposed dam" are moved from existing §299.1 to the adopted new §299.2 (discussed further), renumbered to accommodate the addition of new definitions now found in adopted new §299.2, and changed to clarify the language to avoid misinterpretation. The commission determined that there was a need for clearer definitions because a number of questions have been raised on the interpretation of these definitions.

The definition for "Dam" is moved from existing §299.1 to new §299.2(14), renumbered to accommodate the addition of new definitions, and changed to clearly identify a dam as being a barrier, or barriers, constructed for the purpose of impounding water. The definition is expanded to include a dam's appurtenant structures as being part of the dam and to indicate that it would be used for the purpose of either permanently or temporarily impounding water. The commission determined that this is a more inclusive definition, similar to the federal definition.

The definition for "Deliberate impoundment" is moved from existing §299.29, Deliberate Impoundment, and is included in the list of definitions in adopted new §299.2(17), instead of in the text of the rules to avoid confusion. The formatting and the rule language have been modified to be consistent with Texas Register requirements and agency guidelines, but there are no substantive changes.

The definition of "Deficient dam" is included in adopted new §299.2(16) to ensure that the commission's rules correspond to the definition in the federal regulations. In response to comment, the commission has added the word "significant" before the word "threat" to be consistent with other sections in the rule.

The definitions for "Spillway design flood" and "Spillway evaluation flood" are deleted and replaced by the term "Design flood" in adopted new §299.2(18) in order to remove redundancy and avoid confusion. "Design flood" includes both deleted terms.

The definition for "Hazard classification" is moved from existing §299.13, Hazard Classification Criteria, to adopted new §299.2(29) and changed to clarify the language. The commission determined that the language in existing §299.13 was confusing since numerous questions have been received concerning the definition.

The definition for "Maximum storage capacity" is moved from existing §299.1 to adopted new §299.2(36). The definition is expanded to reflect that, for purposes of these rules, the storage capacity does not include areas that would be below natural ground. The commission determined that the maximum storage capacity was related to the amount of water that would be released during a failure of the dam and that water impounded below natural ground would not be released during such an event.

The definition for "Owner" is included to list the different persons that could be identified as an owner of a dam. Adopted new §299.2(44)(A) lists an owner as a person who holds legal possession or ownership of an interest in a dam. Adopted new §299.2(44)(B) lists an owner as a person who is the fee simple owner of the surface estate of the tract of land on which the dam is located. Adopted new §299.2(44)(C) lists an owner as a person who is a sponsoring local organization of a dam constructed by the Natural Resources Conservation Service. Adopted new §299.2(44)(D) lists an owner as a person who has a lease, easement, or right-of-way to construct, operate, or maintain a dam. This is necessary to list all potential owners of a dam.

The definitions for "Abandon," "Accepted engineering practices," "Alteration," "Appurtenant structures," "Breach," "Breach analysis," "Breach inundation area," "Closure of dam," "Closure section," "Commence construction," "Conceptual design," "Construction," "Construction change order," "Dam failure," "Detention dam," "Drawdown," "Emergency action plan," "Emergency repairs," "Emergency spillway," "Engineering inspection," "Enlargement," "Fetch," "Inundation map," "Loss of life," "Main highways," "Maintenance," "Maintenance inspection," "Minimum freeboard," "Minor highways," "Modification," "NAD83 conus datum," "NAVD88 datum," "Outlet," "Piping," "Principal spillway," "Professional engineer," "Reconstruction," "Rehabilitation," "Removal," "Repairs," "Reservoir," "Safe manner," "Seal," "Secondary highways," "Secure location," "Spillway," "Sponsoring local organization," "Stability analysis," and "Substantially complete" are included in adopted new §299.2 to clearly define terms and words that are unique to the dam safety industry for clarity of their use in this chapter.

In response to comment, the commission has changed the words "controlled of" in §299.2(5), Breach, to the words "controlled or" to better describe the conditions of a breach.

In response to comment, the commission has changed the word "analyses" in §299.2(6), Breach analysis, to the word "analysis" to correct a spelling error.

In response to comment, the commission has changed the word "backfill" in §299.2(8), Closure of dam, to the word "material" to provide a clearer definition.

In response to comment, the commission has deleted the phrase "flood-induced or piping" in §299.2(32), Loss of life, since there could be other causes for failure and has changed the phrase "without considering evacuation or other emergency actions that could be taken" to "without considering the mitigation of loss of life that could occur with evacuation or other emergency actions" for clarity.

In response to comment, the commission has added "or any future updates" to §299.2(41), NAD83 conus datum, to provide for any changes in the future.

In response to comment, the commission has added a definition in §299.2(51) for "pumped storage dam" to provide a definition for a new term used in the chapter. The remaining definitions in §299.2 have been renumbered.

Existing §299.2, General, and existing §299.3, Duties, Obligations, and Liabilities of Dam Owners, are repealed and the requirements contained in those sections are either deleted or moved from the repealed sections to new sections to improve the organization and readability.

Adopted new §299.3(a) includes that the executive director may require an owner to obtain an independent team of consultants or other dam safety experts to evaluate the adequacy of the dam or appurtenant structures if the executive director has determined that the dam constitutes a significant threat to human life or property. Language was added to the rule to provide the requirements for use of an independent team of professional engineers or other dam experts and will also be included in a guidance document developed by the executive director. The commission determined that an independent team will be better able to evaluate all aspects of the adequacy of the dam and make recommendations. This process has been used successfully at least two times for dams in Texas. These determinations may be necessary for certain dams in order to ensure their safety and compliance with these rules.

Adopted new §299.3(b) requires that an owner submitting an application for a water rights permit that includes a dam, provide documentation that the proper materials to ensure that the requirements of this rule will be met during the application review are submitted.

Existing §299.4, Registered Engineer, is repealed and the adopted new §299.4 is renamed "Professional Engineer" to agree with the term used by the Texas Board of Professional Engineers.

Adopted new §299.4(a)(1) provides language from existing §299.4 that was rewritten for ease of readability. Adopted new §299.4(a)(2) provides that professional engineers shall prepare evaluations,

analyses, and reports as required in this chapter. This change was made to ensure that all duties of a professional engineer are in one rule to avoid confusion. Adopted new §299.4(a)(3) includes language from existing §299.26, Construction Inspection, to ensure that all duties of a professional engineer are in one rule to avoid confusion. The commission also wants to ensure that the requirements do not conflict with contract requirements of the engineering industry. Adopted new §299.4(a)(4) includes, in the list of duties of a professional engineer performing or supervising the engineering, inspections of high- and significant-hazard dams and large, low-hazard dams, as defined in adopted new §299.13, Size Classification Criteria, and §299.14, Hazard Classification Criteria. The commission determined that due to the size and hazard of these dams, this requirement is necessary to ensure that the engineering characteristics of the dam and appurtenant structures are being evaluated according to accepted engineering practices.

Adopted new §299.4(b) concerning waiver of requirements by the executive director includes language from the last phrase of existing §299.4 and has been rewritten for ease of readability.

Existing §299.5, Exception, is repealed and moved to the adopted new §299.5, Exception. Adopted new §299.5(a) includes language from existing §299.5 that is modified to be consistent with Texas Register requirements and agency guidelines. The term "registered engineer" is changed to "professional engineer" to agree with the term used by the Texas Board of Professional Engineers.

Language is added in §299.5(b) to identify the materials the owner would need to submit to the executive director with the exception request. This requirement clarifies the types of material needed to be submitted by the owner with the exception request.

Adopted new §299.5(c) includes language to specify the method for either approving or denying the exception request. This is necessary to provide owners and engineers with the commission's procedure for addressing exception requests.

Adopted new §299.6, Changing Ownership of Dams, includes a requirement to notify the executive director when there is a change in ownership of property that includes a dam. This requirement was recommended in the report prepared by the 1998 Executive Director's Task Force on Dam Safety and is necessary for the executive director to maintain a current list of owners and contact information in the event of an emergency. In response to comments, the commission has changed the language to indicate that the change of ownership is related to the property since the dam is located on the property and the property is transferred. Also, the commission changed the language to require the current owner to notify the new owner of the requirements to notify the commission of the change of ownership. This change is necessary for clarity.

Adopted new §299.7, Inventory of Dams, includes a requirement for the executive director to maintain an inventory of dams in Texas. The commission determined that the inventory is essential to maintaining a database for information on the dam and owner, for providing statistics on dams during the legislative process, and for continuing to receive federal funds for the Dam Safety Program. The State Auditor's Office has also recommended that this requirement is essential to the Dam Safety Program.

Existing §299.11, Classification of Dams, is repealed and moved to adopted new §299.12, Classification of Dams, for better organization of the subchapter.

Adopted new §299.11, General, concerning the evaluation of the hydrologic, hydraulic, and structural adequacy of a dam includes language from existing §299.2(b) and is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.11(1) provides that the hydrologic and hydraulic adequacy of a dam would be evaluated using the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been conducted on the hydrologic criteria, which would provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement is necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted §299.11(2) concerning a list of conditions that may endanger a dam, includes language from existing §299.2(b) and is modified to be consistent with Texas Register requirements and agency guidelines.

Existing §299.12, Size Classification Criteria, is repealed and moved to adopted new §299.13 for better organization in the subchapter.

Adopted new §299.12(a) concerning classification of dams by size and hazard and not on the condition of the dam, includes language from existing §299.11 and is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.12(b) provides that allows a dam's hazard classification to be changed at any time based on an inspection and downstream hazard evaluation by the executive director or the owner's professional engineer; a breach analysis performed by either the executive director or the owner's professional engineer; or a review of current aerial photography and topographic maps along with field confirmation. During a stakeholders meeting in 2005, stakeholders expressed frustration that it appeared that a hazard classification could not be changed and that owners would be required to upgrade dams at a considerable cost when it may not be necessary. The commission determined that there has been a process in place for changing a hazard classification and that process is included in the rules.

Existing §299.13, Hazard Classification Criteria, is repealed and moved to adopted new §299.14, Hazard Classification Criteria, for better organization in the subchapter.

Adopted new §299.13, Size Classification Criteria, includes language from existing §299.12 that is modified to be consistent with Texas Register requirements and agency guidelines and to be consistent with adopted new §299.1(a). In response to comment, the commission deleted language in the figure for height for small dams to be consistent with adopted new §299.1(a).

Existing §299.14, Hydrologic Criteria for Dams, is repealed and moved to adopted new §299.15, Hydrologic and Hydraulic Criteria for Dams, for better organization in the subchapter.

Adopted new §299.14, Hazard Classification Criteria, includes language from existing §299.13 that is modified to be consistent with Texas Register requirements and agency guidelines. Existing §299.14(b) indicated that the minimum hydrologic criteria would be based on both existing and planned future development. Stakeholders at a stakeholders meeting in 2005 indicated that designing for a future development that may not occur would be costly and recommended that the language be changed to be based on only a development existing at the time of the classification. In addition, adopted new §299.14 provides that a breach analysis could be used as part of the classification. In response to comment, the commission has added language to the rule that the breach analysis addresses the incremental impact of the potential breach over and above the impact of the flood that may have caused the breach. This language is necessary to provide owners with guidelines for the classification of dams and make it consistent with adopted new §299.15(a)(4)(A)(i). Language is added to §299.14(1) - (3) to provide more detail for the loss of life (one to six lives or one or two inhabitable structures for significant-hazard dams and seven or more lives or three or more inhabitable structures for high-hazard dams in the breach inundation area downstream of the dam). This has been the practice of the Dam Safety Program since 1986 and has been added to rules. In response to comment, the commission has changed the word "inhabitable" in §299.14(2)(A) and (3)(A) to "habitable" for better definition and has deleted the word "important" in §299.14(2)(B)(iv) and (3)(B)(iii) to clarify the language.

Existing §299.15, Evaluation of Existing Dams, is repealed and moved to adopted new §299.16, Structural Evaluation of Dams, for better organization in the subchapter.

Adopted new §299.15(a)(1) is added to state that this subsection applies only to proposed dams to distinguish between proposed and existing dams.

Adopted new §299.15(a)(1)(A) references adopted new Figure: 30 TAC §299.15(a)(1)(A) and includes language from existing §299.14(a) and existing Figure: 30 TAC §299.14(b) that is modified for clarity and to be consistent with Texas Register requirements and agency guidelines. Existing Figure: 30 TAC §299.14(b) is also modified to change the requirements for the percentage of the probable maximum flood (PMF) for large-size, low-hazard dams, small-size, significant-hazard dams, large-size, significant-hazard dams, small-size, high-hazard dams, and intermediate-size, high-hazard dams. This is necessary to be consistent with the language in adopted new §299.15(a)(3). Language is added to adopted new Figure: 30 TAC §299.15(a)(1)(A) for interpolation of the information in the table. The upper limits for the interpolation for large dams are based on analysis of the heights of large dams in Texas (only one dam exceeds the 200-foot height) and the maximum storage capacity (300,000 acre-feet maximum storage capacity is in the middle of the maximum storage capacities for the large dams in Texas). The commission determined that dams with maximum storage capacities greater than 300,000 acre-feet should be at the upper range of the minimum hydrologic criteria. Stakeholders during the last stakeholder meeting in 2008 recommended a change in the table to provide more consistency.

Adopted new §299.15(a)(1)(B) provides that the minimum design flood hydrograph shall be based on size and hazard classification of a proposed dam at the time of the design and shall be calculated using the criteria in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been

conducted on the hydrologic criteria, which provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement is necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted new §299.15(a)(1)(C) allows proposed dams and spillways or dams and spillway to be reconstructed, modified, enlarged, rehabilitated, or altered using hydrologic procedures of the Natural Resources Conservation Service to be acceptable, provided the procedures are shown to be equal to or more conservative than the procedures in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This is necessary to continue a policy that has been in place since 1986.

Adopted new §299.15(a)(2) provides that any dam designed to withstand overtopping without failure of the dam, including the foundation and abutments, is exempt from meeting the minimum hydrologic criteria. A dam that is designed to withstand overtopping would be armored with a material to allow overtopping without failing under any flood event. A dam with this design is exempt from meeting the minimum hydrologic criteria.

Adopted new §299.15(a)(3)(A) provides that an existing dam, that was required to pass 100% of the PMF before the effective date of these rules and is shown to pass 75% or more of the PMF by a professional engineer, would not be required to be upgraded to minimum hydrologic criteria. The dam would be considered adequate to meet the minimum hydrologic criteria provided the owner has the following: 1) an emergency action plan that meets the requirements in adopted new §299.61, Emergency Action Plans; 2)

an operation and maintenance plan; 3) an inspection program; and 4) provides an annual report to the executive director, beginning 12 months after the effective date of this rule. The 1998 Executive Director's Task Force on Dam Safety and the stakeholders in the 2005 stakeholder meetings strongly recommended that existing dams should be addressed differently than proposed dams. The commission agreed and determined that many of the dams that do not meet the minimum hydrologic criteria were constructed, and possibly approved, under a previous set of rules and regulations and that a criteria of 75% of the PMF would be appropriate for the average of the extreme storms in the state. The commission also determined that the owners of these dams needed to meet additional requirements to maintain the dam in a safe manner. Nearly 40% of the high-hazard dams in Texas are considered adequate under this adoption compared to nearly 30% under the current rules. In response to comment, the commission has changed the language in adopted new §299.15(a)(3)(A) to clarify the owner's responsibilities by moving the "owner of" to the front of adopted new subparagraph (A) and rearranging the sentence structure. Additionally, the words "large or high-hazard" have been added to clarify the application of this subparagraph. In response to another comment, the commission has changed the word "program" in adopted new §299.15(a)(3)(A)(ii) to "plan" to be consistent with adopted new §299.43(a).

Adopted new §299.15(a)(3)(B) provides that a dam that was required to meet the minimum hydrologic criteria before the effective date of these rules, but is shown by a professional engineer to meet the minimum hydrologic criteria in Figure: 30 TAC §299.15(a)(1)(A), will not be required to be upgraded and the dam will be considered adequate to meet the new minimum hydrologic criteria. This is necessary to provide consistency with adopted new subsection (a)(3)(A). In response to comment, the commission has changed the language to clarify the owner's responsibilities by moving the "owner of" to the front of the subparagraph and rearranging the sentence structure.

Adopted new §299.15(a)(3)(C) includes language from existing §299.15(a) that is modified to be consistent with Texas Register requirements and agency guidelines. In addition, language is added that if an existing dam does not meet the minimum hydrologic criteria or if the hazard classification of an existing dam has been raised and the dam does not meet the minimum hydrologic criteria, the executive director may require the owner to submit to the executive director one of the following, prepared by a professional engineer: 1) construction plans and specifications for upgrading the dam; 2) an analysis or other option to request a reduction in the minimum hydrologic criteria; or 3) a plan for an alternative to upgrading. The stakeholders in 2005 recommended that options be made available for dam owners. The commission agreed that options needed to be available for owners to find the best solution for providing a safe dam. In response to comment, the commission has changed the language in §299.15(a)(3)(C) to clarify the owner's responsibilities by moving the "owner of" to the front of the subparagraph and rearranging the sentence structure. The commission also has changed the language in adopted new §299.15(a)(3)(C)(i) to include upgrading only to no more than 75% of the PMF and providing the requirements given in adopted new §299.15(a)(3)(A). A typographic error was also corrected in adopted new §299.15(a)(3)(C). The word "or" after "paragraph (3)(A)" is changed to "of."

Adopted new §299.15(a)(3)(D) provides language that when a dam that meets the requirements of subsection (a)(3)(A) is required to be modified due to structural deficiencies, the executive director shall require the owner to submit final construction plans and specifications for the structural modifications without having to upgrade the dam to meet the minimum hydrologic criteria. This is necessary to provide owners with guidance for upgrading dams and to avoid unnecessary modifications. In response to comment, the commission has changed the language in adopted new §299.15(a)(3)(D) to clarify the

owner's responsibilities by moving the "owner of" to the front of adopted new subparagraph (D) and rearranging the sentence structure.

In response, to comment the commission has added adopted new §299.15(a)(3)(E) to provide the process for notifying the owner of requirements.

Adopted new §299.15(a)(4)(A)(i) provides that one of the options to reduce the minimum hydrologic criteria is for a breach analysis to be prepared by a professional engineer. The breach analysis would model three different scenarios and would need to demonstrate that existing downstream improvements would not be adversely affected (defined as the downstream flooding differentials being less than or equal to one foot between breach and non-breach simulations in the affected area). The commission determined that a breach analysis is a viable option for owners to use in reducing the minimum hydrologic criteria since a differential of one foot or less would not cause additional flooding or loss of life. In response to comment, the commission has changed the phrase "PMF" to "design flood" since all dams are not required to pass the PMF.

Adopted new §299.15(a)(4)(A)(ii) includes language from existing §299.14(b) and existing §299.15(b) and is modified to be consistent with Texas Register requirements and agency guidelines. Language is added that other technical options would be included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been conducted on the hydrologic criteria, which provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum

hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement would be necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted new §299.15(a)(4)(A)(iii) provides that one of the options to reduce the minimum hydrologic criteria would be for the owner to provide documentation of the purchase of, or an easement for, the property downstream of the dam that would be impacted by a dam failure and that the land had been dedicated for non-residential and non-commercial use. The commission determined that options need to be available for owners to find the best solutions for providing a safe dam and that this would be an acceptable non-structural option.

Adopted new §299.15(a)(4)(A)(iv) provides that one of the options to reduce the minimum hydrologic criteria would be for the owner to provide documentation that the property downstream of the dam that would be impacted by a dam failure had been dedicated for non-residential and non-commercial use. The commission determined that options need to be available for owners to find the best solutions for providing a safe dam and that this would also be an acceptable non-structural option.

Adopted new §299.15(a)(4)(B) provides a process for the executive director to review and approve the owner's request for reduction of the minimum hydrologic criteria.

Adopted new §299.15(a)(4)(C) provides a process for the executive director to deny the owner's request for reduction of the minimum hydrologic criteria.

Adopted new §299.15(b)(1) provides that the hydraulic adequacy for proposed dams or dams proposed to be reconstructed, modified, enlarged, rehabilitated, or repaired will be evaluated using the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been conducted on the hydrologic criteria, which would provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement is necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted new §299.15(b)(2) provides that an owner shall have a professional engineer address the stability of the spillways to determine if the spillways will adequately meet the minimum hydrologic criteria without being significantly damaged. The commission determined that spillway stability was not being addressed by professional engineers during evaluations of dams and spillways. Failure to ensure stability of spillways has led to spillways being severely damaged during storm events.

Adopted new §299.15(b)(3) provides that an owner's professional engineer determine minimum freeboard for proposed large dams as outlined in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that experience with dams during Hurricane Rita in 2005 indicated that freeboard could be essential during extreme storm events to prevent failure of a dam.

Adopted new §299.15(c) provides that if it would become necessary for an owner of an existing dam to reevaluate the hydraulic adequacy, the owner shall have a professional engineer evaluate the hydraulic adequacy using the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been conducted on the hydrologic criteria, which would provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement is necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted §299.16, Interim Alternatives, is repealed and moved to adopted new §299.17, Alternatives to Upgrading Dams, for better organization in the subchapter.

Adopted new §299.16(a) concerning a requirement to submit a geotechnical, geological, and structural report to support the design of a proposed dam or a dam that is proposed to be reconstructed or structurally modified, enlarged, rehabilitated, or altered includes language from existing §299.23(c), Content of Construction Plans and Specifications, that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.16(b) provides that an owner have a professional engineer develop a stability analysis as described in the most current version, at the time of the analysis, of the agency's *Design and*

*Construction Guidelines for Dams in Texas* for proposed large- and intermediate-size dams and large and intermediate dams that are proposed to be reconstructed or structurally modified, enlarged, rehabilitated, or altered and submit the analysis with the construction plans and specifications. Stability analyses are necessary to evaluate slopes on larger dams to ensure that slopes are flat enough to prevent slope failures such as slides. The commission determined that there were problems in the past due to the lack of minimum stability criteria on a critical dam. Stakeholders recommended that a guideline document would be the most appropriate place to include those criteria to allow changes to be made more easily.

Adopted new §299.16(c) provides language that allows the executive director to request that an owner of a possible deficient dam perform geotechnical, structural, or stability analyses to determine if the integrity of the dam was threatened. The commission determined that this language would be necessary to determine safety needs and possibly prevent a failure of a dam.

Adopted new §299.16(d)(1) provides language that allows the owner or the executive director to request a person that proposes to dredge a reservoir within 200 feet of a dam have a professional engineer perform an evaluation to determine if the integrity of the dam would be compromised by the activity. Dredging too close to a dam could result in soil seams being exposed to reservoir water that would allow water to flow under the dam or upstream slopes being disturbed. These situations could result in a failure of the dam. The 200 feet should be sufficient distance to protect the dam.

Adopted new §299.16(d)(2) includes language that allows the owner or the executive director to request a person that proposes to install a utility line or pipeline in a dam that requires significant excavation in the dam or spillways have a professional engineer perform an evaluation to determine if the integrity of the

dam would be compromised by the activity. These proposals need to be evaluated since utility lines and pipelines can be under pressure, and utility lines and pipelines need to be installed with a specified amount of cover, which could mean a significant depth into the dam. Utility lines and pipelines can affect the stability of the dam, and these lines could break under pressure and cause the dam to fail.

Adopted new §299.16(d)(3) includes language that allows the owner or the executive director to request a person that proposes to construct a road across a dam or spillways or within 200 feet of the dam have a professional engineer perform an evaluation to determine if the integrity of the dam would be compromised by the activity. These proposals need to be evaluated since traffic on the road can exceed the design loads for the dam and could cause depressions in the dam which could result in settlement of the dam or slides from water standing in the depression. A road, if not properly designed and constructed, could affect the stability of the dam. The 200 feet should be sufficient distance to protect the dam.

Adopted new §299.16(d)(4) includes language that allows the owner or the executive director to request a person that proposes to drill oil or gas wells or perform oil or gas exploration within 500 feet of a dam have a professional engineer perform an evaluation to determine if the integrity of the dam would be compromised by the activity. Removal of oil and gas from a well or exploration for oil and gas could result in settlement of the foundation beneath a dam resulting in a failure of the dam. Equipment used by the drilling company could also cause damage to the dam resulting in cracking, slope failures, or possible failure of the dam. The 200 feet should be sufficient distance to protect the dam. In response to comment, the commission has added performing horizontal drilling or fracturing to the list of activities related to oil or gas exploration or drilling. These additional activities could have a detrimental effect on the integrity

of the foundation, especially if too close to the dam. Additionally, the commission changed the distance from the dam to 500 feet from 200 feet.

Adopted new §299.16(d)(5) includes language that allows the owner or the executive director to request a person that proposes to blast within 1/2 mile from a dam have a professional engineer perform an evaluation to determine if the integrity of the dam would be compromised by the activity. Blasting can result in waves similar to earthquake waves. Under certain situations, blasting could result in cracks in the foundation or liquefaction of the foundation or embankment soils and failure could occur. The 1/2 mile should be sufficient distance to protect the dam.

Existing §299.17, Emergency Management, is repealed and moved to adopted new §299.61 for better organization within the chapter.

Adopted new §299.17(a) provides for alternatives to structural upgrading of a dam. The 1998 Executive Director's Task Force on Dam Safety and the stakeholders participating in the 2005 stakeholder meetings strongly recommended that there be alternatives to upgrading a dam. Structural upgrading is costly. The commission determined that many of the dams that do not meet the minimum hydrologic criteria were constructed, and possibly approved, under a previous set of rules and regulations and that a criteria of 75% of the PMF would be appropriate for the average of the extreme storms in the state. The commission also determined that the owner of the dams covered by the subsection needed to meet additional requirements to maintain the dam in a safe manner. The commission determined that alternatives could also include reduction of minimum hydrologic criteria according to §299.15(a)(4), removal of the dam, lowering the reservoir to a level that would allow it to meet the appropriate minimum hydrologic criteria,

or a combination of structural or non-structural methods as proposed by the owner's professional engineer.

Adopted new §299.17(b) provides a process for the executive director to review the owner's alternative plan for the dam.

Existing §299.18, Variance, is repealed.

Existing §299.21, Applicability, is repealed and moved to adopted new §299.21.

Adopted new §299.21(a) concerning dams covered by the rules includes language from existing §299.21 and is modified to be consistent with Texas Register requirements and agency guidelines. Existing §299.21 indicates that the subchapter applies to dams requiring commission authorization. The existing language was not clear. The intent is that the subchapter apply to dams requiring a water rights permit authorization as provided in Texas Water Code, §11.126(c). The adopted language makes that clarification and also includes any dam that is required to obtain approval of an Edwards Aquifer protection plan. The list of dams that are subject to this subchapter is expanded to ensure that the critical dams have plans and specifications reviewed and construction monitored to prevent deficient dams from being built. The new list includes dams originally designed and constructed with the assistance and written concurrence of the Natural Resources Conservation Service but that are being proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired without the assistance and written concurrence of the Natural Resources Conservation Service. This situation has already occurred for 22 dams. The list of dams covered in these rules was discussed with the Natural Resources Conservation

Service office in Temple before being added to the rule. The list also includes dams used for temporary detention purposes and impounding a maximum storage capacity of over 200 acre-feet. These dams would potentially be located in areas where failure could cause loss of life and the dams have not been reviewed under the language in existing §299.21, and also include small, high- and significant-hazard dams exempted from a water rights permit under Texas Water Code, §11.142. The commission determined that these dams all need to be subject to this subchapter to prevent deficient dams from being constructed. In response to comment, the commission has added dams that are used for pumped storage to the list of dams that are subject to the requirements of this subchapter to be consistent with adopted new §299.1(a). The commission also renumbered the section due to the additional language.

Adopted new §299.21(b) concerning dams excluded from these rules includes language from existing §299.21 and adopted new §299.22, Review and Approval of Construction Plans and Specifications, that is modified to be consistent with Texas Register requirements and agency guidelines. The adopted subsection clearly identifies which dams were originally designed and constructed with the assistance and written concurrence of the Natural Resources Conservation Service and are not subject to the subchapter. This was a concern expressed in one of the stakeholders meetings in 2005. Also, dams constructed for mining purposes and approved and inspected by the Mine Safety and Health Administration are excluded to avoid duplication of the approval process. This was also a concern expressed in one of the stakeholder meetings in 2005. Another exclusion is small, low-hazard dams exempted from a water rights permit. These dams are generally built on farms and ranches for livestock use and are not located where a failure would result in loss of life. The subsection also exempts maintenance and emergency repairs from being subject to the subchapter, which is in agreement with Texas Water Code, §11.144.

Existing §299.22, Approval of Plans and Specifications, is repealed and moved to adopted new §299.22.

Existing §299.23, Content of Construction Plans and Specifications, is repealed and moved to adopted new §299.22 and adopted new §299.16 for better organization within the subchapter.

Adopted new §299.22(a)(1) includes language from existing §299.22 that is modified to be consistent with Texas Register requirements and agency guidelines. The requirement for sealing, signing, and dating the construction plans and specifications ensures that the commission's rules correspond to the requirements of the Texas Board of Professional Engineers. The rule ensures that the requirements do not cover emergency repairs.

Adopted new §299.22(a)(2) ensures that the commission's rules are in addition to the requirements in Texas Water Code, §11.121 and 30 TAC Chapter 213, relating to Edwards Aquifer.

Adopted new §299.22(a)(3) requires that the plans and specifications for proposed dams would not be approved by the executive director unless the plans and specifications include language, or design criteria, that require the proposed contractor to develop a Storm Water Pollution Prevention Plan and submit a Notice of Intent for coverage under the State of Texas Construction General Permit. This is necessary to ensure that the commission's rules are consistent with federal requirements and language in 30 TAC §281.25(a)(4).

Adopted new §299.22(a)(4) includes language from existing §299.22 that is modified to be consistent with Texas Register requirements and agency guidelines. The language also ensures that the commission's rules correspond to Texas Water Code, §11.126(c) and §11.144.

Adopted new §299.22(a)(5) clarifies that the construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam shall be performed according to approved construction plans and specifications unless construction change orders have been approved as indicated in proposed new §299.26, Construction Change Orders. This subsection is necessary to ensure that dams are built according to approved plans.

Adopted new §299.22(b)(1) provides for options on the size of construction plans and a requirement for a scale. The standard size of construction plans is 22 inches by 34 inches. The option of submitting half-size plans is allowed if the details are legible. This option provides a small cost savings for owners. The language on scale corresponds with Texas Water Code, §11.126(b).

Adopted new §299.22(b)(1)(A) includes language requiring a vicinity map on the construction plans. Currently, most construction plans include a vicinity map. The commission determined that a map identifying all features is essential to determine impact of the features on the dam and the dam's impact on the features. Each of the features on the vicinity map could have a significant impact on the design of the dam.

Adopted new §299.22(b)(1)(B) includes language from existing §299.23(a)(1) that is modified to be consistent with Texas Register requirements and agency guidelines. New language requires latitude and longitude for the midpoint of the dam for ease in locating the dam in the field.

Adopted new §299.22(b)(1)(C) includes language from existing §299.23(a)(2) that is modified to be consistent with Texas Register requirements and agency guidelines. New language includes the proposed bottom of the core trench and elevations of all features. The commission determined that the core trench is essential for a dam and that the core trench be excavated into impervious material (material that is difficult for water to flow through). The elevations are critical to ensure that any potential flow is being addressed to avoid potential for failure of the dam or appurtenant structures in the future.

Adopted new §299.22(b)(1)(D) concerning inclusion of a spillway profile on the construction plans is moved from existing §299.23(a)(2) without change.

Adopted new §299.22(b)(1)(E) includes language from existing §299.23(a)(2) that is modified to be consistent with Texas Register requirements and agency guidelines. New language provides that the boring logs would only be included on the construction plans if they are not included in a separate geotechnical report, which is preferred. This is necessary so that engineers are not required to place the logs of borings on the construction plans, thereby creating insurance issues for the engineers.

Adopted new §299.22(b)(1)(F) concerning inclusion of a cross section of the dam on construction plans is moved from existing §299.23(a)(3) without change.

Adopted new §299.22(b)(1)(G) concerning inclusion of detailed sections of outlet conduits, control works, and spillways on the construction plans include language from existing §299.23(a)(4) that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.22(b)(1)(H) concerning inclusion of different types of instrumentation on the construction plans includes language from existing §299.23(a)(5) that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.22(b)(1)(I) concerning inclusion of requirements, or design criteria, for a contractor to develop a Storm Water Pollution Plan on construction plans is modified to be consistent with federal requirements and language in §281.25(a)(4).

Adopted new §299.22(b)(1)(J) includes language that requires including other design standards as described in the most current version, at the time of the evaluation, of the agency's *Design and Construction Guidelines for Dams in Texas*. The commission determined that a guideline document would be the appropriate place to include other design standards instead of the rules. As the dam construction industry changes due to new technology, changes are more easily made in a guideline.

Adopted new §299.22(b)(2) includes language for options on the size of construction plans and for a requirement for a scale. The standard size of construction plans is 22 inches by 34 inches. The option of submitting half-size plans would be allowed if the details are legible. This option would provide a small cost savings for owners. The language on scale would correspond with Texas Water Code, §11.126(b).

Adopted new §299.22(b)(2)(A) requires a vicinity map on the construction plans. Currently, most construction plans include a vicinity map. The commission determined that a map identifying all features is essential to determine impact of the features on the dam and the dam's impact on the features. Each of the features in the language could have a significant impact on the design of the dam.

Adopted new §299.22(b)(2)(B) includes language from existing §299.23(a)(4) that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.22(b)(2)(C) includes language from existing §299.23(a)(2) that is modified to be consistent with Texas Register requirements and agency guidelines. Language is added that the boring logs would only be included on the construction plans if they are not included in a separate geotechnical report, which is preferred. This is necessary so that engineers are not required to place the logs of borings on the construction plans, thereby creating insurance issues for the engineers.

Adopted new §299.22(b)(2)(D) concerning inclusion of requirements, or design criteria, for a contractor to develop a Storm Water Pollution Plan on the construction plans is modified to be consistent with federal requirements and language in §281.25(a)(4).

Adopted new §299.22(b)(2)(E) includes language that requires including other design criteria as described in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*. The commission determined that a guideline is the appropriate place to include other design criteria instead of the rules. As the dam construction industry changes due to new technology, changes are more easily made in a guideline.

Adopted new §299.22(c)(1) concerning the requirement for the various types of materials to be included in the specifications include language from existing §299.23(b)(1) that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.22(c)(2) includes language from existing §299.23(b)(3) that is modified to be consistent with Texas Register requirements and agency guidelines. Language is added that construction plans would not be substantially changed without either written approval by the executive director or notification of the changes as defined in adopted new §299.26. This is necessary to provide alternatives for construction change order processing and approval to avoid delays in construction and causing increased costs.

Adopted new §299.22(c)(3) concerning a requirement to be included in the specifications for the proposed contractor to develop a Storm Water Pollution Plan is modified to be consistent with federal requirements and language in §281.25(a)(4).

Adopted new §299.22(c)(4) includes language that requires including other design specifications as described in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*. The commission determined that a guideline document is the appropriate place to include other design specifications instead of the rules. As the dam construction industry changes due to new technology, changes are more easily made in a guideline.

Adopted new §299.22(d)(1)(A) lists geotechnical, geological, and structural evaluation reports for all proposed dams and dams that are proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired that may be required for review during the executive director's review of plans and specifications. In the current review method, professional engineers are requested to submit geotechnical, geological, and structural reports. The commission determined that these reports are necessary to properly evaluate the safety of the proposed dam.

Adopted new §299.22(d)(1)(B) concerning a stability analysis that may be required by the executive director includes language from existing §299.23(c) that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.22(d)(1)(C) includes language from existing §299.2(b) and is modified to be consistent with Texas Register requirements and agency guidelines for all proposed dams and dams that are proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired. The commission determined that the procedures used in previous hydrologic and hydraulic studies needed to be reviewed and revised, and new research had been conducted on the hydrologic criteria, which would provide a more representative approach. This results in less cost to owners for upgrading dams to meet the minimum hydrologic criteria. The new procedures are included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*. This requirement is necessary to ensure that professional engineers use the most current and easily verified procedures.

Adopted new §299.22(d)(1)(D) requires a report on the proposed instrumentation for proposed large dams and existing large dams proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or

repaired. Instrumentation for large dams is recommended to measure movement, settlement, pressure, and seepage flow. For large dams, this instrumentation could be critical for monitoring to prevent problems that could threaten the integrity of the dam. During construction, the instrumentation would be used to monitor increases in pressure, movement, and seepage flow. Language is included for the frequency of data collection to be included in the report because critical information could be missed if the data collection is too infrequent. In response to comment, the commission has deleted the word "or" after §299.22(d)(1)(D)(iii) to end the sentence.

Adopted new §299.22(d)(1)(E) provides requirements for reports addressing site-specific conditions. Dam sites with good geotechnical and geological conditions have already been used for dams in the past. New dam sites are becoming more difficult to locate for proposed dams as evidenced by problems experienced recently by owners' professional engineers who did not prepare site-specific reports.

Adopted new §299.22(d)(2)(A) requires a quality control and assurance plan for all proposed dams. The commission determined that many of the problems associated with dams are the result of improper construction that could have been prevented with a good quality control and assurance plan. The executive director has examples of dams constructed with limited or no quality control that have, or are currently, experiencing major problems.

Adopted new §299.22(d)(2)(B) requires a closure plan for any proposed dams that require a closure section. Closure of the dam is one of the most critical parts of the construction of a dam. It is essential that this closure section be placed properly, in the right sequence, and within a reasonable amount of time to prevent a failure of the project. The commission determined that review of this plan would be necessary

to prevent problems in the future. In response to comment, the commission has added language that the plan includes the percentage of construction work that will be completed or the amount of construction that would be completed before closure would start. The additional language is necessary for clarity.

Adopted new §299.22(d)(2)(C) requires submittal of a plan, for review, for addressing emergencies that threaten the integrity of the dam for all proposed high- and significant-hazard dams during construction. History has shown that failures do occur during construction. A properly prepared emergency plan can help the owner protect his investment and protect downstream lives and property. Review of this plan is necessary to ensure that there is an appropriate method for addressing emergencies.

Adopted new §299.22(e)(1) clarifies a review process, which will be included in the most current version, at the time of the review, of the agency's *Design and Construction Guidelines for Dams in Texas*. The commission determined that this issue is of concern to professional engineers who are trying to get projects approved so that construction can start. A guideline document best addresses the issue since time frames should be flexible and may need to be easily changed.

Adopted new §299.22(e)(2) provides a process for the executive director to notify the owner of the approval of construction plans and specifications.

Adopted new §299.22(e)(2)(A) explains the approval method of a dam associated with a water rights permit. The subsection requires that the water rights permit be issued and a time limitation section be added to the water rights permit requiring construction of a proposed dam or reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam to be started and completed within a

specified time frame before approval of the plans and specifications is given. This language ensures that the commission's rules are consistent with Texas Water Code, §11.121. These requirements are also necessary to ensure that dams are not built before the water rights permit is either issued or denied. If the permit is denied and the dam was built, it would require action to have the dam removed, which would be costly to the owner.

Adopted new §299.22(e)(2)(B) explains the approval method of a dam submitted as part of an application for an Edwards Aquifer protection plan. Included is the language that the executive director would not approve the plans and specifications for the dam until an Edwards Aquifer protection plan has been issued by the appropriate regional office. This language is necessary to ensure that dams are not built without the approval of an Edwards Aquifer protection plan.

Adopted new §299.22(e)(3) - (6) provides a process for the executive director to approve or require revisions to construction plans and specifications.

Adopted new §299.22(f)(1) requires the executive director to reevaluate the approved construction plans and specifications of a dam if construction did not commence within four years after approval. The purpose for the reevaluation is to determine if the approval may be invalid due to any changes of the rules, regulations, and accepted engineering practices, or downstream hazard classification, during the four-year period. This determination would be made regardless whether any extension of time authorization is given. The commission determined that new research or legislation could result in changes in the rules or the *Hydrologic and Hydraulic Guidelines for Dams in Texas* and the plans and

specifications would no longer be valid. This requirement is necessary to ensure that the dam is built under the most current rules.

Adopted new §299.22(f)(2) provides a process for the executive director to notify the owner that the construction plans and specifications for a dam that construction had not commenced within four years of the approval would have to be resubmitted.

Adopted new §299.22(f)(3) requires the plans and specifications to meet the rules and regulations in effect at the time they are prepared.

Existing §299.24, Maintenance of Records, is repealed and moved to adopted new §299.23, Maintenance of Construction Records, for better organization within the subchapter.

Adopted new §299.23(a) includes language from existing §299.24(a) that is modified to be consistent with Texas Register requirements and agency guidelines. The requirement for maintaining construction records not only applies to construction of a proposed dam, but also to reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam. This requirement formalizes a practice that has been in place since 1986. Language on the type of construction records is added for clarity.

Adopted new §299.23(b) includes language from existing §299.24(a) that is modified to be consistent with Texas Register requirements and agency guidelines. This requirement is for high- and significant-

hazard dams to ensure that owners are alerted in advance of the requirements. In response to comment, the commission has added the words "as applicable" since not all items in the list apply to all dams.

Adopted new §299.23(c) concerning the type of information to include in construction records includes language from existing §299.24(b) that is modified to be consistent with Texas Register requirements and agency guidelines. In response to comment, the commission has added the words "as applicable" since not all items in the list apply to all dams.

Adopted new §299.23(d) provides a requirement that the construction records be maintained by the owner in a secure location at the construction site or at a location designated by the owner that is immediately accessible to the owner until the completion of construction. This requirement is necessary to prevent unauthorized access to the records.

Adopted new §299.23(e) provides a requirement that after construction the owner would transfer the construction records to a permanent, secure location at a location designated by the owner that is immediately accessible to the owner. This requirement is necessary to prevent unauthorized access to the records and to allow the executive director to review all records upon request.

Existing §299.25, Construction Progress Report, is repealed and moved to adopted new §299.24, Construction Progress Reports, for better organization within the subchapter.

Adopted new §299.24, Construction Progress Reports, includes language from existing §299.25 that is modified to be consistent with Texas Register requirements and agency guidelines. A requirement is

added to include the contractor's name and the name and telephone number of the professional engineer or inspector that will be on site during construction in the material submitted to the executive director.

This requirement is necessary for contacting personnel at the construction site for inspections or information during construction. In response to comment, the commission has deleted "by the tenth of each month" from §299.24(b) since the word "monthly" is already used in the subsection.

Existing §299.26, Construction Inspection, is repealed and moved to adopted new §299.25, Construction Inspection, for better organization within the subchapter.

Adopted new §299.25(a) - (c) includes language from existing §299.26 that is modified to be consistent with Texas Register requirements and agency guidelines and to correspond with Texas Water Code, §12.016. Language is added to include a process for notifying the owner of deficiencies or violations and for the owner to bring the construction into compliance with the approved plans and specifications as outlined in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*. These requirements are necessary to keep construction costs down due to a delay.

Existing §299.27, Plan and/or Specification Changes and Amendments, is repealed and moved to adopted new §299.26 for better organization within the subchapter.

Adopted new §299.26(a), (b), (d), and (e) includes language from existing §299.27 that is modified to be consistent with Texas Register requirements and agency guidelines. The term "before work commences under the changes" is removed so that critical work would not be delayed while waiting for approval. The

terms "changes" and "amendments" is changed to "construction change order" to ensure that the commission's rules correspond with terms used in construction to avoid confusion of terms. Subsection (b) requires the owner to submit a construction change order for approval before the adopted changes start unless an emergency has occurred. In that case, a construction change order would be submitted after the work is performed. This is necessary to avoid costly delays in construction. The rule also requires the owner to notify the executive director by telephone or electronic mail of emergency action taken within 24 hours after becoming aware of the emergency. This requirement is necessary to allow the executive director to be aware of the emergency. Additionally, the rule requires that if the time needed for an approval of a change order will require that the construction be halted, the work may be performed once the construction change order is signed, sealed, and dated by the owner's professional engineer. The rule also requires that if the construction change order is not approved, the owner would be responsible for having the work modified to reflect the approved construction change order. This is necessary to avoid costly delays in construction.

Adopted new §299.26(c) provides the process and time frame the executive director will use to review the construction change order according to the most current version, at the time of the review, of the agency's *Design and Construction Guidelines for Dams in Texas*. These requirements are necessary for construction to continue in a timely manner and provide the method necessary to get a construction change order approved so construction would not be delayed.

Existing §299.28, Noncompliance with Approved Plans and Specifications, is repealed and moved in part to adopted new §299.25 and adopted new §299.71, Enforcement, for better organization within the chapter.

Adopted new §299.27(a) requires submittal of a written request to close the dam, prepared by a professional engineer, to the executive director to close the dam before beginning closure as described in the most current version, at the time of the closure, of the agency's *Design and Construction Guidelines for Dams in Texas*. The request would also include submittal of an emergency action plan and documentation that all parts of the proposed plan for closure of the dam had been met, as described in §299.22(d)(2)(B). The commission determined that closure of a dam is a critical part of construction, and it is necessary that all essential phases of construction be completed before closure of the dam starts. This requirement of a submission requesting approval from the executive director requires the professional engineer to verify that these essential phases are complete before a request for closure of the dam would be made and the dam could be safely closed. The commission also determined that emergencies could possibly occur during this phase of construction. The requirement for an emergency action plan is necessary to ensure that the owner has a plan for warning the public downstream and taking appropriate action if an emergency occurs.

Adopted new §299.27(b) provides that the owner may begin closure of the dam after receiving written approval by the executive director. The commission made this change based on comments expressed by professional engineers on the process for approval.

Adopted new §299.27(c) includes language requiring the owner to notify the executive director that the gate operation plan had been completed with the request for closure of the dam. This is necessary to ensure that a plan for operation of the gates is in place in the event the gates would need to be operated during closure of the dam to protect the dam. In response to comment, the commission has added the

words "If appropriate" to the language. Not all dams that have a closure plan have gates and need a gate operation plan.

Existing §299.29, Deliberate Impoundment, is repealed and moved to adopted new §299.2(12) and adopted new §299.28, Deliberate Impoundment, for better organization within the subchapter.

Adopted new §299.28, Deliberate Impoundment, includes language from existing §299.29 that is modified to be consistent with Texas Register requirements and agency guidelines. The requirement clarifies that the request for deliberate impoundment would be made in writing after the dam was substantially complete and that approval would be provided after the executive director verifies that construction was substantially complete according to the owner's professional engineer. The commission determined that this requirement was necessary to clarify as to when and how a request for deliberate impoundment be made.

Existing §299.30, Certificate of Completion, is repealed and moved to proposed new §299.29, Notification of Completion, for better organization within the subchapter.

Adopted new §299.29(a) includes language from existing §299.30 that is modified to be consistent with Texas Register requirements and agency guidelines and to change the time frame for notification of completion. The existing time frame for submission of the notification was immediately after construction. A time frame of 45 calendar days is more practical to allow the professional engineer additional time to ensure that the construction is substantially complete before submitting the notification. The requirement for sealing, signing, and dating the notification ensures that the commission's rules

correspond to the requirements of the Texas Board of Professional Engineers. Additional language is added to allow the professional engineer to submit the notification separate from the record drawings, which take longer to prepare and put an added burden on the professional engineer.

Adopted new §299.29(b) and (c) concerning the type of information that professional engineers and owners would include in notification of project completion include language from existing §299.30 that is modified to be consistent with Texas Register requirements and agency guidelines.

Existing §299.31, Record Drawings and Permanent Reference Mark, is repealed and moved to proposed new §299.30, Record Drawings, and adopted new §299.31, Permanent Reference Mark, for better organization within the subchapter.

Adopted new §299.30(a) includes language from existing §299.31 that is modified to be consistent with Texas Register requirements and agency guidelines and to change the time frame for submission of record drawings. The existing time frame for submission of the record drawings was as soon as possible after construction. A time frame of six months is more reasonable to allow the professional engineer additional time to ensure that all construction changes are documented before submitting the record drawings. The rule also requires the record drawings to be sealed, signed, and dated. This requirement ensures that the commission's rules correspond to the requirements of the Texas Board of Professional Engineers.

Proposed new §299.30(b) would allow the owner to have a professional engineer submit a sealed, signed, and dated letter instead of another set of drawings if no changes were made during construction. This would reduce the cost of the project for the owner.

Adopted new §299.31, Permanent Reference Mark, includes language from existing §299.30 that is modified to be consistent with Texas Register requirements and agency guidelines. A new requirement is included to require latitude and longitude of the permanent reference mark(s) for ease in locating the mark(s) in the field. The commission determined that reference mark(s) are difficult to locate over time without such coordinates.

Adopted new §299.32, Gate Operation Plan, requires an owner of a proposed dam with a gated principal spillway to develop a gate operation plan before the completion of construction. The commission determined that proper operation of the gates is important for the safety of the public and that it is necessary to have the plan developed before the end of construction. A reservoir can fill to levels greater than the normal storage capacity during one rainfall event, and the owner would need to know what procedures to follow during the event to avoid putting downstream people at risk.

Adopted new §299.33(a) requires development of operation and maintenance procedures for proposed dams before completion of construction. Good operation and maintenance procedures will protect a dam against deterioration, prolong the dam's life, and should be initiated as soon as the dam is completed. Good operation and maintenance procedures will reduce the risk for the owner and for the downstream public.

Adopted new §299.33(b) includes a requirement that the owner of any proposed dam shall provide the date the owner will turn over the operation and maintenance to a property owners association, homeowner association, or any other designated group to the executive director. The executive director has received

numerous complaints from property owners associations, homeowner associations, and other groups that ownership has been changed to the property owners association, homeowner association, and other group without the knowledge of the property owners association, homeowner association, or other group and the executive director has had difficulty locating the owner for correcting problems at the dam. This requirement would be necessary to have the parties identified at the end of construction so there could be a continuity of maintenance to avoid deterioration of the dam.

Adopted new §299.41, Owner's Responsibilities, include language from existing §299.2(c) and existing §299.3 that is modified to be consistent with Texas Register requirements and agency guidelines. As indicated in Texas Water Code, §12.052(f), the owner of a dam is responsible for the operation and maintenance of the dam. The commission determined that the operation and maintenance of a dam is extremely important to prevent deterioration and possibly failure of the dam or appurtenant structures. Aging dams are more susceptible to deterioration. Over 89% of the dams listed in the agency's inventory of dams are over 25 years old. Therefore, the requirements for addressing maintenance items as quickly as possible have become even more important.

Adopted new §299.42(a)(1) concerning the ability of the executive director to enter a person's property for the purpose of inspecting a dam to ensure that the commission's rules correspond with Texas Water Code, §12.017.

Adopted new §299.42(a)(2) requires the periodic inspections of dams by the executive director based on hazard classification on a five-year frequency for all high- and significant-hazard dams and all large, low-hazard dams. Small and intermediate, low-hazard dams are not included in a periodic inspection schedule,

but could be inspected for determining hazard classification or assessing various types of problems or conditions. The commission has determined that there are currently 1,661 high- and significant-hazard and large, low-hazard dams and that these 1,661 dams could be inspected on a five-year frequency by the current staff of seven full-time employees and through outsourcing contracts. The 1998 Executive Director's Task Force on Dam Safety also recommended a five-year frequency. The commission also determined that these dams present the greater potential for loss of life to the downstream public and should be inspected on a regular basis, instead of inspecting all of the 7,068 dams listed in the agency's inventory of dams.

Adopted new §299.42(a)(3) describe the elements that may be included in the executive director's inspection. The inspection may include a visual inspection and evaluation of the dam, appurtenant structures, and downstream area; taking measurements; taking photographs for documentation; conducting an evaluation of the hazard classification; and reviewing and evaluating the owner's operation, maintenance, inspection programs, and the emergency action plan. The commission determined that these elements are the essential parts of an inspection for evaluating the safety, integrity, and operation of a dam and appurtenant structures.

Adopted new §299.42(a)(4) provides that the executive director prepare an inspection report complete with recommendations, possibly including hydrologic, hydraulic, or structural evaluations, and send a copy to the owner. Owners have requested copies of reports so that they could determine the locations of problems and the recommendations for correcting the problems.

Adopted new §299.42(a)(5) requires the owner to respond to the executive director concerning an inspection, if requested, and to provide a plan of action with time frames for addressing all of the recommendations. The commission determined that the executive director has been using this method over the last year with considerable success and that there would be greater success if this was a requirement in the rules.

Adopted new §299.42(b)(1) requires the owner to inspect the dam and appurtenant structures on a regular time frame and during emergency events. The commission determined that regular inspections by the owner is invaluable for detecting problems at an early stage and allowing the owner to make corrections before the problems become more extensive and costly to repair. Inspections after significant rainfall events and during emergency events also help detect problems early and allow correction.

Adopted new §299.42(b)(2) requires the owner to notify the executive director by telephone or electronic mail after becoming aware of any problems or damage that pose a threat to the dam. This requirement is necessary to allow the executive director to document the problem or damage. In response to comment, the commission has changed the initial time for reporting from 24 hours to 72 hours and the time to send a letter from five days to five working days. Additionally, the word "significant" has been added before "threat." The time will allow the owner to spend the initial time working on the dam before contacting the executive director.

Adopted new §299.42(b)(3) requires the owner to submit all engineering reports prepared by the owner's professional engineer under this section to the executive director for review within 45 calendar days after receipt of the report. Language is added to require the engineering inspection report to include the date of

the inspection, a description of the items observed during the inspection, findings, and recommendations. This requirement allows the executive director to review the report as soon as possible and respond to the owner so that corrections recommended by the executive director can be made with other corrections.

Adopted new §299.42(b)(4) includes language that allows the owner to have an engineering inspection by a professional engineer on a more frequent basis than described for the executive director. The executive director may use an engineering inspection report prepared by the owner's professional engineer or a professional engineer from a federal agency in lieu of making a periodic inspection. The language on the frequency of inspections by the owner was recommended in the most recent stakeholder meeting. This language was recommended by the 1998 Executive Director's Task Force on Dam Safety to avoid duplication of effort.

Adopted new §299.43, Operation and Maintenance, requires the owner to develop an operation and maintenance program. The commission determined that a good operation and maintenance program protects a dam against deterioration and prolongs the dam's life and that a poorly maintained dam will deteriorate and could fail. Nearly all parts of the dam and appurtenant structures are susceptible to deterioration if not properly maintained. The executive director has numerous examples of poorly maintained dams. This requirement is necessary to provide owners with a tool for performing maintenance on a regular basis to provide safe dams and appurtenant structures.

Adopted new §299.43(a) requires owners to implement an operation and maintenance program. Language is added that the owner may use the most current version, at the time of the evaluation, of the agency's *Guidelines for Operation and Maintenance of Dams in Texas*, a manual, checklist, or some other

procedure to demonstrate implementation of the program. This requirement is necessary to have owners develop some type of operating and maintenance program using some type of procedure. In response to comment, the commission has changed the word "program" to "plan." The intent of the language was that the owner develop an operation and maintenance plan.

Adopted new §299.43(a)(1) requires schedules for engineering and maintenance inspections in the owner's program. This requirement provides owners with an easy way of tracking inspections for documentation purposes.

Adopted new §299.43(a)(2) requires the inclusion of any restrictions imposed by the professional engineer's design in the operation and maintenance manual. This requirement is necessary because these restrictions are important for the safety of the dam and must be followed. In response to comment, the commission has deleted the word "original" since other design criteria may need to be included.

Adopted new §299.43(a)(3) lists the types of maintenance items to be addressed by the owner and when they should be addressed. This would allow the owner to track maintenance for each item and have an easy way to check for maintenance items. In response to comment, the commission has added the words "but not limited" to the list since there could be additional items in an operation and maintenance beside those listed.

Adopted new §299.43(a)(4) requires inclusion of a plan for monitoring any instrumentation at the dam and appurtenant structures. This allows the owner to track the instrumentation readings and know when a reading becomes critical.

Adopted new §299.43(b) requires the owner to document operation and maintenance activities undertaken and to provide the documentation to the executive director upon request of the executive director. The commission determined it is necessary for the owner to document the operation and maintenance activities for the record and that the review is best performed when requested by the executive director.

Adopted new §299.44(a) requires owners of all existing intermediate- and large-size dams with a gated principal spillway to develop a gate operation plan within two years after the effective date of the rules. The commission determined that proper operation of a gated principal spillway is important for the safety of the public and that it is necessary to have an operation plan in place so the owner knows what procedures to follow during normal operating conditions or during flood events to avoid putting people downstream at risk. The two-year time frame allows the owner time to develop the gate operation plan and to notify the executive director that the plan is either completed or that a gate operation plan already exists. Although not specifically identified in Texas Water Code, §12.052, the commission determined that gate operation plans would be part of the maintenance of dams (preserving from failure), and therefore, they are added as a requirement in the rules. In response to comment, the commission has added language to allow the owner to request an extension of time and to provide the process for requesting an extension, including showing cause or a reasonable basis for the extension and the time frame for completing the gate operation plan. The commission determined that the two-year time frame may be too short for some owners. In response to another comment, the commission has deleted the word "principal" since other spillways could have gates and changed the word "their" to "a" to agree with the language.

Adopted new §299.44(b) lists the gate regulating procedures and a method for coordinating releases, if applicable, that need to be included in the gate operation plan. The commission determined that these requirements are the most important parts of a gate operation plan and that the owner needs to have a plan to follow during normal operating conditions, flood events, and power failures. In response to comment, the commission has added "other varying hydrologic events" since there may be other events that need to be addressed in a gate operation plan.

Adopted new §299.44(c) provides that the gate operation plan is an appendix to the emergency action plan. A gate operation plan is considered an integral part of the emergency action plan since it includes the procedures to follow during an emergency operation of the gates. Language is added to require that if the owner submits a copy of the gate operation plan, the executive director shall file it with the owner's emergency action plan in the agency's confidential, permanent records. The Office of the Attorney General determined in a letter opinion in 2005 that emergency action plans are considered confidential and are not subject to public information requests. A gate operation plan is considered an integral part of that plan.

Adopted new §299.45(a) would require an owner to make emergency repairs under the supervision of a professional engineer and implement the emergency action plan as soon as possible after the emergency is discovered and evaluated without having to obtain approval from the executive director. The commission determined that it is essential that repairs are initiated as quickly as possible to avoid more significant damage or a failure and that the emergency action plan is implemented to alert the downstream public.

Adopted new §299.45(b) requires the owner to notify the executive director by telephone or electronic mail within 12 hours after the emergency is discovered and evaluated. This requirement is necessary to allow the executive director to be aware of the emergency. In response to comment, the commission has added the word "facsimile" to the list of ways to notify the executive director since there are other ways for notification.

Adopted new §299.45(c) requires the owner to have a professional engineer develop plans for permanent repairs after the emergency repairs are completed and submit the plans for review and approval. This requirement is necessary to be consistent with requirements of the Texas Board of Professional Engineers.

Adopted new §299.46(a) requires the owner to maintain records and reports, if available, on the inspection, operation, and maintenance of the dam. This requirement is necessary to provide a historical record of the dam in the event problems develop and a record of all features at the dam. The commission determined that in the event of a problem, records have been invaluable in developing corrections to the problems.

Adopted new §299.46(b) includes a requirement that legible or electronic copies be maintained by the owner in a secure location designated by the owner that is accessible to the owner for the life of the dam.

Adopted new §299.46(c) includes a requirement that the records, or access to the records, shall be provided to the executive director upon request. This requirement is necessary to prevent unauthorized access to the records and to allow the executive director to determine if the dam is being inspected, operated, and maintained according to the requirements in the rules and accepted engineering practices.

Adopted new §299.46(d) includes a new requirement that an owner shall transfer all records to a new owner when there is an ownership change. This requirement is necessary to ensure that the new owner has access to all records.

Existing §299.51, Removal of Dams and Reservoirs, is repealed and moved to adopted new §299.51, Removal or Breach of Dams, for better organization within the subchapter.

Adopted new §299.51(a) requires that the owner is required to submit plans to the executive director for the removal or breaching of a dam. This requirement is necessary to be consistent with other sections in the rules and to ensure that the removal or breach is properly designed.

Adopted new §299.51(b) requires that the owner have a professional engineer submit plans for the removal or breach of a dam as outlined in the most current version, at the time of the design, of the agency's *Dam Removal Guidelines*. The commission determined that removing or breaching a dam could alter the flood characteristics of the stream and could endanger downstream lives and property if not performed properly and that all items in the guidelines should be addressed to provide a safe situation to downstream lives and property. The requirement for sealing, signing, and dating the removal or breach plans ensures that the commission's rules correspond to the requirements of the Texas Board of Professional Engineers.

Adopted new §299.51(c) provides that the owner may also be required to address environmental and social impacts for the removal or breach of a dam as described in the most current version, at the time of

the design, of the agency's *Dam Removal Guidelines*, which may require approval from other agencies before construction can begin. The commission determined that removing or breaching a dam could alter the environment and increase property or human health and safety concerns downstream if not performed properly and that all items needed to be addressed to minimize the risk downstream. The commission also determined that the executive director's approval may not be the only approval necessary to perform the removal or breach of a dam. In response to comment, the commission has changed the word "construction" to "work" for better clarity.

Adopted new §299.51(d) provides that the owner may be required to restore the property to the condition of the site before the dam was constructed. The commission determined that there are cases where a dam may exist on property not owned by the dam owner and the property owner may require the dam owner to restore the property to pre-construction conditions. In response to comment, the commission has changed language to indicate that the owner may be required to restore the dam site to blend with the topography of the lake area. Only the dam site may need to be restored, not the entire property.

Adopted new §299.51(e) concerning the requirements for written approval of dam removal include language for the review and approval method for removal or breaching a dam. This is necessary to provide owners with a review process.

Adopted new §299.51(f) requires that an owner shall provide the executive director within 45 days of completion of the breach or removal a notification of completion. Language also requires that an inspection be conducted to verify that the dam had been removed or breached. The commission determined that it is necessary for the owner to notify the executive director so the executive director can

verify that the work had been completed according to the approved plans to avoid a partially removed or partially breached dam being left in place that could cause problems downstream if the breach enlarged or continued to cut down, releasing additional waters downstream.

Adopted new §299.52, Abandonment of Dams, includes language from existing §299.2(c) and is modified to be consistent with Texas Register requirements and agency guidelines. Language is included to provide that it is the owner's responsibility to remove or breach the dam at the owner's expense. In response to comment, the commission has added "regardless of hazard classification" to clarify that any dam that is abandoned is subject to the requirement.

Existing §299.61, Emergency Action, is repealed and moved to adopted new §299.72, Emergency Orders, for better organization within the chapter.

Adopted new §299.61(a) requires owners of all high- and significant-hazard dams to prepare an emergency action plan to follow in the event of, or threat of, a dam emergency. Emergency action plans are essential to provide owners with a plan for promptly responding during an emergency and minimizing consequences. An emergency may occur with little or no warning, thereby providing minimal time to assess and respond. These plans are designed to minimize impacts and reduce reaction time. The commission determined that the need for emergency action plans is one of the most critical requirements needed for existing dams.

Adopted new §299.61(b) includes a requirement that gives the owner two years to submit the emergency action plan after the effective date of the rules. There are 1,654 dams that are currently listed as high- and

significant-hazards dams. Currently, there are only 136 high- and significant-hazard dams that have been documented by the executive director as having an emergency action plan. The owners need time to develop the emergency action plans. In response to comment, the commission has added language to allow the owner to request an extension of time according to the process in §299.61(d). The commission determined that the two-year time frame may be too short for some owners.

Adopted new §299.61(c) includes a requirement that a plan for addressing emergencies during construction of a proposed high- or significant-hazard dam be submitted for review before either requesting closure of the dam or upon completion of construction of the dam, if the dam does not require a closure section. History has shown that failures do occur during construction. A properly prepared emergency action plan can help the owners protect their investment and protect downstream lives and property. Review of the plan is necessary to ensure that there is a method for addressing emergencies.

Adopted new §299.61(d) includes language that the owner should use guidelines provided by the executive director or a format approved by the executive director before starting the plan. A guideline provides consistency between emergency action plans. The commission determined that different guidelines will be provided depending on the size of the dam. In response to comment, the commission has added language to allow the owner to request an extension of time and to provide the process for requesting an extension, including showing cause or a reasonable basis for the extension and the time frame for completing the emergency action plan. The two-year time frame may be too short for some owners.

Adopted new §299.61(e) concerns the review method for reviewing an emergency action plan. This is necessary to provide the process for review of the emergency action plan.

Adopted new §299.61(f) requires that the emergency action plan be filed in the agency's confidential, permanent records. The Office of the Attorney General determined in an opinion letter in 2005 that emergency action plans are considered confidential and are not subject to public information requests.

Adopted new §299.61(g) requires that the owner review the emergency action plan annually, update the emergency action plan as necessary, and submit annual updates to the executive director beginning three years after the effective date of these rules. This requirement is necessary since personnel change and new personnel need to be trained in order to react properly during an emergency and to provide a time frame for the owner to submit any updates. Language is also added that if the emergency action plan had been reviewed and the owner determined that no updates were necessary, the owner is required to notify the executive director in writing if updates to the emergency action plan had not been adopted or implemented. This requirement is necessary to ensure that the owner is reviewing the emergency action plan.

Adopted new §299.61(h) includes language requiring a table top exercise of the emergency action plan on a frequency no greater than five years. The success of an emergency action plan will often depend upon the training of employees, including periodic exercises. All parties need to know their roles and responsibilities. This requirement is necessary for the protection of the downstream public. In response to comment, the commission has added a definition to §299.61(h) for "table top exercise" so all parties understand what is being required.

Adopted new §299.62, Security of Dams, includes a requirement that owners of high-hazard dams, that may need increased security due to the critical nature of the dam and reservoir, shall address security at their dams after being notified in writing by the executive director within six months of the effective date of these rules to prevent unauthorized operation or access and meet backup power requirements to ensure operation of the dam and appurtenant structures. The requirement is for these owners to develop a security plan within two years of being notified by the executive director and submit the plan to the executive director for review. The security plan will be filed in the confidential, permanent records of the executive director. If a request for a security plan is received, the executive director will file a request for an opinion from the Office of the Attorney General under Texas Government Code, §418.182. Over half of the dams identified by the executive director as being dams with increased security needs, have already had a security inspection and have been advised of security needs. The commission determined that security plans need to be developed on these dams because of their importance in the state. The commission also determined that backup power requirements need to be addressed by owners in the event of a power failure. This became evident during Hurricane Rita in 2005, when one owner had to operate spillway gates with backup power to prevent further damage to the dam. The commission further determined that it was necessary to provide a time frame for notifying the owners and to provide the owners time to begin the process of addressing security. Although not specifically identified in Texas Water Code, §12.052, the commission determined that security plans would be part of the maintenance of dams (preserving from failure), and therefore, they are added as a requirement in the rules. In response to comment, the commission has added language to adopted new §299.62(b) to allow the owner to request an extension of time and to provide the process of requesting an extension, including showing cause or a

reasonable basis for the extension and the time frame for completing the security plan. The two-year time frame may be too short for some owners.

Adopted new §299.71, Enforcement, includes language from existing §299.2(a) and existing §299.28 that is modified to be consistent with Texas Register requirements and agency guidelines.

Adopted new §299.72, Emergency Orders, includes language from existing §299.61 that is modified to be consistent with Texas Register requirements and agency guidelines, and to correspond with Texas Water Code, Chapter 35.

#### FINAL REGULATORY IMPACT ANALYSIS DETERMINATION

The commission determined that a regulatory analysis under Texas Government Code, §2001.0225, is not necessary for this rulemaking since these adopted new rules do not meet the definition of a "major environmental rule" as defined in Texas Government Code, §2001.0225(g)(3). A "major environmental rule" is a rule that is specifically intended to protect the environment or reduce risks to human health from environmental exposure, and that may adversely affect in a material way the economy, a sector of the economy, productivity, competition, jobs, or the public health and safety of the state or a sector of the state. The purpose of this rulemaking is to provide greater clarity in rules relating to the Dam Safety Program, and increased protection of public health and safety due to new requirements for emergency action plans, gate operations plans, security plans, and increased inspection requirements.

While these rules could result in protection of the environment, the primary intent of the rules is to protect property and human health and safety as provided under Texas Water Code, §12.052(d). These adopted

new rules are also not intended to reduce risks to human health from environmental exposure, but are instead intended to reduce risks to property and humans from the failure of a dam. Revising and clarifying the dam safety rules do not have any adverse effects on the environment or public health and safety of the state or section of the state; rather, a more detailed outline of the process for classification, construction, upgrading, removal, and emergency management of dams should improve the public health and safety of the state or a sector of the state.

Even if this adopted rulemaking could be interpreted as specifically intending to protect the environment or reduce risks to human health from environmental exposure, these adopted new rules do not adversely affect in a material way the economy, productivity, competition, jobs, the environment, or the public health and safety of the state or a sector of the state. While costs for maintenance and construction of dams may increase for many owners, improvement in dam safety will save money in the long run. The costs from dam failures could be great. These rules should not adversely impact the economy, competition, or jobs.

Additionally, even if this rulemaking could be construed to be a "major environmental rule," the rules do not exceed a standard set by federal law, exceed an express requirement of state law, exceed a requirement of a delegation agreement between the state and federal law, and is not adopted solely under the agency's general powers. These new rules reflect accepted engineering practices. Based on this assessment, the adopted rulemaking does not constitute a major environmental rule that falls within the applicability of Texas Government Code, §2001.0225, and thus is not subject to the regulatory analysis provisions of §2001.0225.

The commission invited public comment regarding this draft regulatory impact analysis determination during the public comment period. No comments were received.

#### TAKINGS IMPACT ASSESSMENT

The commission evaluated these adopted new rules and performed an assessment of whether these adopted new rules constitute a takings under Texas Government Code, Chapter 2007. The primary purpose of this adopted rulemaking is to provide clarity and specificity, and to add requirements reflecting the best practices of accepted engineering practices for the classification, design, construction, upgrading, repair, removal, and emergency management of dams and reservoirs. The adopted rulemaking substantially advances these stated purposes because the adopted rules provide more detail and specificity. They do implement current engineering industry standards, such as outlining the process for removal of a dam and adding requirements for emergency action plans, gate operation plans, and security plans. There are no feasible alternatives because these requirements are necessary to protect human health and safety.

Promulgation and enforcement of these adopted new rules are neither a statutory nor a constitutional taking of private real property. The adopted new rules do not affect a landowner's rights in private real property, in whole or in part, temporarily or permanently. These adopted new rules do not burden, restrict, or limit the owner's right to property nor will it reduce the land value by 25% or more beyond that which would otherwise exist in the absence of the new rules. These adopted new rules do not change the classification of an existing dam and reservoir; instead, the adopted new rules initiate requirements upon owners, such as creating a security plan, a gate operation plan, an emergency action plan, and an operation and maintenance program. Therefore, there are no burdens imposed on private real property,

and the benefits to the state are more modern dam and reservoir rules, which should result in safer dams in the State of Texas. For these reasons, the adopted new rules do not constitute a taking under Texas Government Code, Chapter 2007.

#### CONSISTENCY WITH THE COASTAL MANAGEMENT PROGRAM

The commission reviewed the adopted rules and found that they are neither identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(b)(2) or (4), nor will they affect any action/authorization identified in Coastal Coordination Act Implementation Rules, 31 TAC §505.11(a)(6). Therefore, the adopted rules are not subject to the Texas Coastal Management Program.

The commission invited public comment regarding the consistency with the coastal management program during the public comment period. No comments were received.

#### PUBLIC COMMENTS

The commission held a public hearing in Austin on August 19, 2008. There were no comments received at the public hearing. The comment period closed on August 25, 2008.

The following commenters provided written comments: Brazos River Authority (BRA); City of Austin (COA); Colorado River Municipal Water District (CRMWD); Freese and Nichols, Inc. (FNI); Lloyd Gosselink Rochelle & Townsend, P. C. (LGRT); Lower Colorado River Authority (LCRA); Luminant Power (LP); Texas and Southwestern Cattle Raisers Association (TSCRA); and Texas Water Conservation Association (TWCA).

## RESPONSE TO COMMENTS

### *General*

LGRT acknowledged "the hard work and effort by the Executive Director's staff in developing the proposed Rules" and commended the commission for allowing stakeholders "to be actively involved in this process."

**The commission appreciates the comment.**

LCRA indicated that the "comprehensive approach taken by the proposed rules is a positive step" and "the commission and staff are to be commended for the inclusive process utilized to strengthen and improve the provisions of Chapter 299."

**The commission appreciates the comment.**

TSCRA expressed support for the proposed rules and appreciation for the hard work of the staff.

**The commission appreciates the comment.**

TWCA expressed appreciation for TCEQ's effort to promote dam safety in the state and for recognizing the need for updating the rules.

**The commission appreciates the comment.**

LCRA indicated that there are several guidelines proposed and suggested that the rules include a formal process, including stakeholder participation, in the development of the guidelines.

**The commission responds that the commission forwarded the guidelines to stakeholders for review and comment before final publication. Also, the guidelines require stakeholder review and comment for future guidelines before being changed. No changes were made to the rules in response to this comment.**

LCRA suggested that consideration should be given to provide more guidance for exceptions to the rules.

**The commission responds that §299.5 provides that an exception be granted if the executive director determines that the physical conditions involved or consequences of potential failure, when evaluated using accepted engineering practices, make the requirements unnecessary. This requirement provides enough specificity to be reasonable and enough flexibility to allow the executive director to make exceptions when necessary. No changes were made to the rules in response to this comment.**

LCRA recommended that all sensitive information on "critical infrastructure" dams be maintained in the executive director's confidential files and include a definition for "critical infrastructure" dams.

**The commission acknowledges the comments. The executive director includes all sensitive material that the Office of the Attorney General has indicated is not to be released to the public and any**

**material that is declared to be confidential by the dam owner but has not been reviewed by the Office of the Attorney General that we believe could be confidential under the Texas and Federal Homeland Security Act in the confidential files. A definition has not been included since the term is not used in the rule. No changes were made to the rules in response to this comment.**

CRMWD and TWCA indicated that there should be a separate category for lined earthen storage reservoirs or pumped storage reservoirs if such remain subject to the proposed rules.

**The commission responds that pumped storage facilities, whether lined or unlined, are considered dams under this set of rules. In response to this comment, the commission has added a definition for pumped storage facilities in §299.2(51), and has added language referring to pumped storage facilities to §299.1(4) and §299.21(a)(4) to indicate that these rules are applicable to these facilities.**

FNI requested language that would clarify that dams that meet the size requirements, but are exempt from a water right permit are still responsible for meeting the safety requirement, but do not have to submit plans for approval if they are low-hazard.

**The commission agrees with the comment. Although the rules include language in §299.1(d) and §299.21(b)(4), that addresses this comment, the language is not clear. Therefore, language was added to §299.1(d) to include dams that do not require a water right permit. Additional changes were made to address sentence structure and clarity of words due to the language change.**

FNI requested that a definition be added for executive director.

**The commission responds that §299.2 references 30 TAC §3.2, which provides a definition for executive director. No changes were made to the rules in response to this comment.**

Regarding Costs to State and Local Government, TWCA indicated that there is a conflict between the language in this section and the rule. The language in this section indicates the executive director would review and approve emergency action plans, gate operation plans, and security plans and the rule does not require a review and approval.

**The commission agrees that the rule does not require review and approval of the listed plans. Although there was a conflict in language, this conflict did not affect the estimation of costs provided in the section.**

Regarding Costs to State and Local Government, TWCA indicated that the costs quoted for state agencies and local governments and the costs for individuals and businesses are grossly misstated and suggested that a survey be conducted to determine a more accurate accounting of costs before the rules are implemented.

**The commission appreciates the comment. However, the costs are average costs over the total of small, intermediate, and large dams. While the costs for larger dams may be more than the costs quoted per dam, the costs for smaller dams, which is the largest number of dams, is considerably smaller. The commission believes that it has adequate information on which to make this average estimation. No changes were made to the rules in response to this comment.**

Regarding Costs to State and Local Government, TWCA indicated that they are concerned with the commission's ability to attract, train, and retain qualified staff to oversee and implement the rules.

**The commission appreciates the comment. However, no changes are made in response to the comment since this is outside the scope of this rulemaking.**

Regarding the Takings Impact Assessment, TWCA indicated that the Taking Impact Assessment is in conflict with the rule. TWCA indicated that the assessment states that the new rules do not change the classification of an existing dam and reservoir whereas the rule in §299.12(b) allows the executive director to re-classify the hazard classification of a dam at any time.

**The commission acknowledges the comment. The intent of the cited language in the assessment was to state that the rule could not be a burden on private real property because the rule does not require dams to be automatically reclassified upon approval of the rule. The rule does clarify that the hazard classification may be changed due to an increase in downstream development or removal of downstream development. This requirement for change in hazard classification existed prior to the rulemaking, does not burden private real property, and is necessary for public health and safety. No changes were made to the rules in response to this comment.**

*Section by Section*

Regarding §299.1(c)(5), CRMWD and LGRT requested clarification of the term "tanks."

**The commission agrees that further clarification is necessary and has changed the language of this section as a result of the comments. The chapter does not apply to above ground storage tanks that include steel, concrete, or plastic tanks used to store water or other liquids, but does apply to earth embankments.**

Regarding §299.2(5), FNI indicated that the word "of" in the first line should be "or."

**The commission agrees with the comment and has changed the language.**

Regarding §299.2(6), FNI indicated that the word "analyses" in the first line should be "analysis."

**The commission agrees with the comment and has changed the language.**

Regarding §299.2(8), LGRT suggested that the definition of "closure of dam" needs to be clarified since backfill implies only earth material can be used for closure of a dam.

**The commission agrees that the definition needs to be clarified. The word "backfill" is changed to "material."**

Regarding §299.2(10), LCRA requests clarification of whether land clearing constitutes start of construction or if additional work would be required to constitute "commencement of construction."

**The commission responds that the definition states that any activity other than planning or land acquisition would be considered commencement of construction. Land clearing or excavation would be considered commencement of construction. No changes were made to the rules in response to this comment.**

Regarding §299.2(12), FNI stated that the definition for construction should also include "modifying" an existing dam.

**The commission responds that there are separate definitions for "modification," "alteration," "rehabilitation," "reconstruction," and "repair" that cover existing dams. No changes were made to the rules in response to this comment.**

Regarding §299.2(16), LGRT, the definition of "deficient dam," suggested that the word "significant" be inserted in the definition before the word "threat."

**The commission agrees with the comment and has made the suggested change to be consistent with other sections of the rule.**

Regarding §299.2(18), LCRA suggested that the definition of design flood include the phrase "including all lesser floods" after the words "design flood."

**The commission responds that the design flood is a flood used to design the dam and appurtenant structures and does not include "lesser" floods. No changes were made to the rules in response to this comment.**

Regarding §299.2(32), the definition of "loss of life," LCRA indicated that the definition should be clarified.

**The commission agrees that the language should be clarified. The phrase "flood-induced or piping" has been deleted since there could be other causes for failure and the phrase "without considering evacuation or other emergency actions that could be taken" was changed to "without considering the mitigation of loss of life that could occur with evacuation or other emergency actions."**

Regarding §299.2(41), FNI suggested that the definition of "NAD83 conus datum" include the potential for any future upgrades.

**The commission agrees with the comment and has made the suggested change.**

Regarding §299.2(49), LGRT indicated that the experience requirement included with the definition of professional engineer should be removed.

**The commission acknowledges the comment. As part of the rule development process, the executive director met with the staff of the Texas Board of Professional Engineers to discuss requirements for**

**professional engineers. It was their recommendation that experience be included in the language.**

**No changes were made to the rules in response to this comment.**

Regarding §299.3(a), FNI suggested that written guidelines be developed to help owners know when they need an independent team of experts.

**The commission agrees with the comment and has included language concerning when an independent team of experts may be needed in the *Design and Construction Guidelines for Dams in Texas*. No changes were made to the rules in response to this comment.**

Regarding §299.6, TSCRA suggested that the requirements for "changing ownership of dams" include at the closing of a land sale.

**The commission agrees with the comment and changed the language to include the suggestion and to clarify the language. The language has been changed to "when there is a change in ownership of the property which includes a dam, the previous owner shall include notification in the transaction to the new owner that the new owner . . ."**

Regarding §299.6(4), LGRT suggested that clarification should be given concerning whether for a change in ownership of a dam owners may simply submit deeds of record or if there must be some explicit reference therein to dams located on the property.

**The commission agrees that the language needs clarification and has added "and property on which the dam is located." The deed does not need to reference the dam.**

Regarding §299.7, LCRA indicated that dam owners should be provided a copy of the inventory information for their dam(s) to ensure data awareness and owner awareness.

**The commission responds that this is not a rule issue and that the owner can request the information at any time. No changes were made to the rules in response to this comment.**

Regarding §299.12, LGRT asked if the executive director will notify a dam owner when there is a reclassification of hazard for his dam and how much time will be granted to address any improvements or alterations needed to comply with the reclassification.

**The commission responds that the executive director will notify the owner if there is a reclassification of the hazard. The owner will then be requested to provide a timeline for addressing any modifications or improvements that may be needed. A specific time will need to be considered for each dam due to the circumstances. No changes were made to the rules in response to this comment.**

Regarding §299.12, TWCA suggested that language be changed to indicate that reclassification be based on a risk assessment that includes a cost benefit analysis of not reclassifying the dam.

**The commission acknowledges the comment. The rules include use of other technical options the owner can use in assessing hazard classification. If the owner disagrees with the hazard classification assigned as a result of an inspection, the owner can pursue one of the options provided in §299.15(a)(4). The options in the rule refer to the options in the *Hydrologic and Hydraulic Guidelines for Dams in Texas*, which includes a risk assessment. A risk assessment can be submitted to the executive director for review. No changes were made to the rules in response to this comment.**

Regarding Figure: 30 TAC §299.13, COA indicated that there appeared to be a mistake in the table for the "small" classification since it did not appear to agree with the language in §299.1.

**The commission agrees that the language in the table does not agree with §299.1 and should read "greater than six feet." Therefore, the language in Figure: 30 TAC §299.13 has been changed to be consistent with §299.1. No changes other than to the Figure were made to the rules in response to this comment.**

Regarding §299.14, FNI stated that hazard should be based on the incremental impact of the breach and suggested that the language should include the statement that "the hazard classification is based on the incremental impact of the potential breach over and above the impact of the flood that may have caused the breach."

**The commission agrees that the language needs to be clarified. However, the commission does not agree that all hazard classifications should be based on a breach analysis. The commission agrees**

**that a breach analysis should be an option that an owner can use. Therefore, the language has been added that "the hazard classification may include use of a breach analysis that addresses the incremental impact of the potential breach over and above the impact of the flood that may have caused the breach, . . ."**

Regarding §299.14 and §299.15, TWCA indicated that rules do not address how the commission will manage compliance with the rules for owners of existing dams and recommended that language be added to clearly define how the executive director will manage compliance for existing dams.

**The commission agrees with the comment. The language in §299.15(a)(3) has been changed to clarify the owner's responsibilities by moving the "owner of" to the front of subparagraphs (A), (B), (C), and (D) and rearranging the sentence structure. Section 299.15(a)(3)(E) has also been added to provide the process for notifying the owner of requirements.**

Regarding §299.14(2)(A) and §299.14(3)(A), FNI commented that addition of number of houses to determine hazard classification in the rule is a significant improvement in clarity.

**The commission appreciates the comment.**

Regarding §299.14(2)(A), LCRA suggested that the word "inhabitable" be changed to "habitable" to be more descriptive and for clarity.

**The commission agrees with the suggestion and has made the changes in this paragraph and in §299.14(1)(A) and (3)(A), which use the same word.**

Regarding §299.14(3)(B)(iii), LCRA recommended that the rules define what are considered "important" utilities.

**The commission agrees that the use of the word "important" is not clear. Therefore, the word "important" will be removed from both §299.14(2)(B)(iv) and (3)(B)(iii), which include the same word. The word is unnecessary.**

Regarding §299.15(a)(3)(A), FNI and TWCA indicated that the language does not seem to allow for upgrades to be only to 75% of the PMF.

**The commission agrees with the comment. The language in §299.15(a)(3)(C)(i) has been changed to include upgrading only to no more than 75% of the PMF and providing the requirements given in paragraph (3)(A).**

Regarding §299.15(a)(4)(A), LGRT indicated that there is no time frame for the executive director addressing a submission for reduction in the minimum hydrologic criteria.

**The commission responds that time frames are best addressed in guidelines because the time frames can be changed as necessary. The time frames are given in *Design and Construction Guidelines for Dams in Texas*. No changes were made to the rules in response to this comment.**

Regarding §299.15(a)(4)(A)(i), FNI indicated that the breach analysis should refer to the design storm event rather than the PMF.

**The commission agrees with the comment and has made the suggested change. The design flood is the appropriate language since all dams are not required to pass the PMF.**

Regarding §299.16(d), LGRT indicated that the dam owner may not be aware of the activities and may not have jurisdiction to address preparation of the engineer evaluation report. LGRT also indicated that the burden of enforcement should not be placed on the owner.

**The commission acknowledges the comment and agrees that the owner may not always be able to request a report. This subsection is not a requirement for the owner. Additionally, the rule would allow the owner to request that executive director request the report. No changes were made to the rules in response to this comment.**

Regarding §299.16(d), TWCA suggested that the executive director coordinate review and adoption of this subsection with other agencies that oversee permitting of these activities.

**The commission acknowledges the comment and will do its best to coordinate these activities. No changes were made to the rules in response to this comment.**

Regarding §299.16(d)(4), LP suggested expanding the applicability of the engineer evaluation from a minimum of 200 feet to 500 feet and include activities such as horizontal drilling or fracturing.

**The commission agrees with the comment. Horizontal drilling and fracturing for oil or gas production could have a detrimental affect on the integrity of the foundation if the work is too close to the dam. The suggested changes are made in response to the comment.**

Regarding §299.16(d)(5), BRA indicated that dam owners may have no control over blasting activities on other's property so compliance with this requirement may not be possible.

**The commission acknowledges the comment and agrees that the owner may not have control over blasting activities on other's property. This paragraph is not a requirement for the owner. Additionally, the rule would allow the owner to request that executive director request the report. No changes were made to the rules in response to this comment.**

Regarding §299.17, (identified mistakenly as §299.2(b)), TWCA indicated that the language was unclear as to the type of alternatives that can be considered and the approval process. TWCA indicated by electronic mail that TWCA was concerned by the use of the word "or" and whether that word was implied after each paragraph.

**The commission acknowledges the comment. The word "or" is implied after each paragraph. The commission has determined that the process is best given in guidelines. The *Design and Construction Guidelines for Dams in Texas* includes the process for approval.**

Regarding §§299.21 - 299.31, LGRT and TWCA expressed concern that time frames should be included for review and approval of owner submittals.

**The commission responds that the time frames are best given in guidelines because they can be more easily changed. The *Design and Construction Guidelines for Dams in Texas* includes this information. No changes were made to the rule in response to the comment.**

Regarding §299.22(d), LGRT indicated that there are a number of reports that the owner may be required to submit as part of the plan and specification submittal. LGRT requested more specifics on what reports are required for each type of dam.

**The commission responds that this information is best given in guidelines. The *Design and Construction Guidelines for Dams in Texas* includes this information. No changes were to the rule in response to this comment.**

Regarding §299.22(d)(1)(D)(iii), FNI suggested that the word "or" be deleted from the end of the line.

**The commission agrees with the comments and has made the suggested change.**

Regarding §299.22(d)(2)(B)(i), CRMWD indicated that the language would imply that the entire fill section of the dam would have to be completed before submitting a closure plan.

**The commission agrees that the language needs to be clarified. The closure plan is to be submitted with the construction plans and specifications, not when the dam is ready to be closed. The closure plan will be approved with the construction plans and specifications, and the request for approval to close will be done by a written request from the professional engineer. The intent of the rule is that the closure plan include either the percentage of the construction work that will be completed, or the amount of work that would be completed before the closure would begin. Additional language was included in the rule to clarify this in response to the comment.**

Regarding §299.23(b) and (c), FNI recommended the words "as applicable" be added before each list of requirements for records, since all items in the lists are not applicable for all projects.

**The commission agrees and has changed the language in the rule as requested.**

Regarding §299.24(b), FNI and LGRT suggested deleting the phrase "by the tenth of each month" since the language already uses the term "monthly."

**The commission agrees with the comment and has changed the language in the rule as requested.**

Regarding §299.27(a)(2), CRMWD suggested that a specified time limit should be included in the rule for a review of a closure plan to avoid putting the dam at risk waiting for a long approval.

**The commission responds that the rule does not require a long review process since the closure plan would be approved during review of the construction plan before work starts. The requirement in**

**§299.27(a)(2) is that the owner's professional engineer submit a written request to close. The approval will be completed within 24 hours after receipt provided all required material is included with the request. These requirements are included in the *Design and Construction Guidelines for Dams in Texas*. No changes were made in the rules in response to this comment.**

Regarding §299.27(c), FNI recommended that the words "if appropriate" be added to the first of the sentence since not all dams that have a closure plan need a gate operation plan.

**The commission agrees with the comment and the language in the rule has been changed.**

Regarding §299.28(b), FNI stated that significant impoundment usually starts with the beginning of the closure section and that a statement of substantial completion cannot be submitted before then.

**The commission responds that usually, impoundment is not started with the beginning of the closure since a low flow valve is open to allow the stream flows to go downstream without jeopardizing the placement of soil in the closure. The valve is then not closed until completion of the closure section. No changes were made in the rules in response to this comment.**

Regarding §299.31, LP requested clarification whether a permanent reference mark needs to be established for minor repairs.

**The commission responds that a permanent reference mark is not needed for a minor repair project. As indicated in the definitions, minor repairs would be classified as maintenance. The term**

**"repaired" refers to major repairs that affect the structural integrity of the dam. No changes were made in the rules in response to this comment.**

Regarding §299.32, TWCA suggested that in lieu of submitting the plan to the executive director, that the plan be kept in a secure location and be made available to the executive director at the offices of the owner.

**The commission acknowledges the comment. The rule does not require submission of the gate operation plan to the executive director. If the owner decides to send the plan to the executive director, it will be placed with the emergency action plan as an appendix. No comments will be submitted to the owner. Therefore, the owner can maintain the plan at his office. No changes were made in the rules in response to this comment.**

Regarding §299.32 and §299.33, LGRT has indicated that these two sections are redundant since both are included in Subchapter D of these rules.

**The commission acknowledges the comment. The two sections are included in Subchapter C to provide owners and engineers with all requirements for proposed dams in one area, including dams with gated spillways and the need for an operation and maintenance plan after construction of a new dam. The sections reference the sections in Subchapter D. No changes were made in the rules in response to this comment.**

Regarding §299.42(b)(1), COA expressed concern about this requirement for inspections of dams due to the large number of dams they own. The COA requested a definition for significant rainfall events and also a time frame to conduct rain event inspections. The COA also asked which dams would be under this requirement.

**The commission acknowledges the comment. The COA should develop an inspection schedule as part of their operation and maintenance plan. This schedule would also include inspections during rain events. Since a certain size rain event may be different for different dams, a definition will not be given in the rule; however, this can be defined in the inspection schedule. The inspection for each dam after an event may be different due to the type of dam; therefore, the timing should also be contained in the inspections schedule. This requirement only applies to dams covered by this chapter as indicated in §299.1. No changes were made in the rules in response to this comment.**

Regarding §299.42(b)(2), FNI recommended the word "significant" be added before the word "threat." LP expressed concerns that the time frame to report problems is too short and will result in problems that are minor be reported on a weekend. LP recommended that the term "24" be changed to "72" and that written notification be completed in "5 business" days.

**The commission agrees with FNI and has made the suggested changes. The intent of the rule is that the owner notifies the executive director when significant problems are noted. Therefore, the commission agrees with the comments from LP and has changed the language to include five working days.**

Regarding §299.43(a), FNI indicated that the language concerning the requirement for an operation and maintenance program is for all dams rather than high and significant hazard dams, but does not require submission of an operation and maintenance plan.

**The commission agrees with the comment. The word "program" was used in the rule instead of "plan." The commission intended to require an operation and maintenance plan in this rule. Therefore, the language was changed to "plan" to agree with the intent of the language. The word "program" was also changed to "plan" in §299.15(a)(3)(A)(ii) to be consistent with §299.43(a).**

Regarding §299.43(a), BRA suggested that the operation and maintenance plan should be submitted to the executive director for information purposes only.

**The commission acknowledges the comment. However, the plan is not required to be submitted to the executive director. The owner should have the plan available when the dam is inspected. No changes were made in the rules in response to this comment.**

Regarding §299.43(a)(2), activities to be included in a plan, LGRT indicated that the use of the word "original" before the words "professional engineer design" was unclear.

**The commission agrees with the comment and has deleted the word "original" since other design criteria may also be necessary to include in the operation and maintenance plan.**

Regarding §299.43(a)(3), FNI suggested adding the words "but not be limited to" to the list.

**The commission agrees that there could be additional items in the operation and maintenance plan; therefore, the recommended language has been added.**

Regarding §299.43(a)(3) and §299.43(a)(4), FNI suggested that the lists referred to in the rules should be in guidelines instead of rules.

**The commission does not agree with the comment. The lists clearly identify the specific operation and maintenance items that must be included in a plan. No changes were made in the rules in response to this comment.**

Regarding §299.44, Gate Operation Plan, LGRT indicated that the requirements should not be considered prescriptive, but should allow dam owners to address constantly changing conditions during varying hydrologic events.

**The commission does not agree with the comment that the section is prescriptive. The rule gives enough flexibility for the owner to address operation during any event. However, the commission has added "other varying hydrologic events" to the items that must be included in the plan to give dam owners more flexibility.**

Regarding §299.44, BRA suggested that the gate operation plan should be submitted to the executive director for information purposes only. TWCA suggested that in lieu of submitting the plan to the

executive director, the plan be kept in a secure location and make those plans available to the executive director at the offices of the owner.

**The commission acknowledges the comments. The rule does not require submission of the gate operation plan. If the owner decides to send the plan to the executive director, it will be placed with the emergency action plan as an appendix. No comments will be submitted to the owner. Therefore, the owner can maintain the plan at his office. No changes were made in the rules in response to this comment.**

Regarding §299.44, LCRA, LP, and TWCA suggested that the two-year requirement for submission of a gate operation plan is not long enough. It was suggested that either an exception and extension of time, or a negotiated time be provided in the language.

**The commission agrees with the comments. The two-year time frame may be too short for some owners; therefore, language has been added to §299.44(a) to allow the owner to request an extension of time and to provide the process of requesting an extension, including showing cause or a reasonable basis for the extension and the time frame for completing the emergency action plan.**

Regarding §299.44(a), FNI suggested deleting the word "principal" between "gated" and "spillways" and changing "their" to "a."

**Gates could be used on either principal or emergency spillways; therefore, the commission agrees with the first suggestion. The commission also agrees with the second suggestion since an owner**

**may not have a professional engineer or has a professional engineer that is not familiar with gate operation procedures. The commission has made the recommended changes to the rule.**

Regarding §299.44(a), LP indicated that the language requires a gate operation plan without regard for the size of the watershed and requests consideration of a provision that the requirement be waived for dams with small watersheds and gates only for lowering the lake.

**The commission responds that all dams with gated spillways should have a gate operation plan regardless of the size of the watershed. A design flood can occur on any watershed and the owner would need to operate the gates using some type of procedure. That procedure, even if a simple procedure, should be developed in advance of a flood event. No changes were made in the rules in response to this comment.**

Regarding §299.45(b), FNI suggested adding "or other appropriate means" after "electronic mail."

**The commission agrees that the rules should not limit the type of notification that may be used in notifying the executive director about emergency situations. Therefore, the commission has added the word "facsimile" to the rule instead of the suggested language since the suggested language is a broad term that would be hard to define.**

Regarding §299.51(c), LGRT suggested that the word "construction" be replaced with the word "work."

**The commission agrees that this suggested word is a better word and has made the change to the rule.**

Regarding §299.51(d), LGRT indicated that the language is not clear since the word "property" can have more than one meaning. LGRT recommended that the subsection should either be deleted or rewritten.

**The commission agrees that the language is not clear. The language has been changed in the rule in response to the comment to indicate that the owner may be required to restore the dam site to blend with the topography of the lake area.**

Regarding §299.52, FNI questions if removal of dams after abandonment applies to low-hazard dams.

**The commission agrees that the language in the rule needs to be clarified. The section applies to all dams, and the rule has been revised for clarity to include all dams, regardless of hazard classification.**

Regarding §299.61, TWCA, LP, FNI, LCRA, and LGRT suggested that the two-year requirement for submission of an emergency action plan is not long enough. It was suggested that either an exception and extension of time, or a negotiated time be provided in the language.

**The commission agrees with the comments. The two-year time frame may be too short for some owners; therefore, the commission has revised §299.61(b) to allow the owner to request an extension of time. The commission has also revised §299.61(d) to provide the process of requesting**

**an extension, including showing cause or a reasonable basis for the extension and the time frame for completing the emergency action plan.**

Regarding §299.61, BRA and LGRT suggested that the emergency action plan should be submitted to the executive director for information purposes only. TWCA suggested that in lieu of submitting the plan to the executive director, the plan be kept in a secure location and make those plans available to the executive director at the offices of the owner.

**The commission responds that an emergency action plan is one of the most important documents associated with the dam and needs to be reviewed to determine if the plan includes all of the important parts of a plan. The executive director will provide comments within 30 days of receipt of the plan. The executive director needs a copy of the plan in the event of an emergency. No changes were made in the rules in response to this comment.**

Regarding §299.61(d), CRMWD and TWCA suggested that the executive director publish a guideline for preparation of emergency action plans before the start of the two-year requirement.

**The commission agrees with the comment. The guideline will be published before the rule is effective. No changes were made in the rules in response to this comment.**

Regarding §299.61(h), FNI requested clarification of the term "table top exercise" and suggested that this needs to be referenced in the emergency action plan guideline in §299.61(d). COA expressed concern

about performing table top exercises individually for the number of dams they own. COA requested that an alternative exercise be considered.

**The commission responds that a "table top exercise" is a meeting of the dam owner and the state and local emergency management officials in a conference room environment. A table top exercise can be done at the same time for multiple dams if the dams are within the same jurisdiction, since the same emergency management personnel will be involved. The definition of a table top exercise is included in the rule for clarity. In addition, more guidance on table top exercises is included in the emergency action plan guidelines.**

Regarding §299.62, BRA suggested that the security plan should be submitted to the executive director for information purposes only. TWCA suggested that in lieu of submitting the plan to the executive director, the plan be kept in a secure location and make those plans available to the executive director at the offices of the owner.

**The commission responds that a security plan is a very important document for the owner and needs to be reviewed to determine if the plan includes all of the important parts of a plan. The executive director will provide comments within 30 days of receipt of the plan. The executive director needs a copy of the plan in the event of a threat. No changes were made in the rules in response to this comment.**

Regarding §299.62, TWCA, LP, FNI, LCRA, and LGRT suggested that the two-year requirement for submission of a security plan is not long enough. It was suggested that either an exception and extension of time, or a negotiated time be provided in the language.

**The commission agrees with the comments. The two-year time frame may be too short for some owners; therefore, language has been added to §299.62 (b) to allow the owner to request an extension of time and to provide the process of requesting an extension, including showing cause or a reasonable basis for the extension and the time frame for completing the security plan.**

Regarding §299.62(a)(1), TWCA expressed concern that the language is too vague, since security is situational, differing from dam to dam. TWCA suggested that language be included to define types of threats to plan for and the level of security that will be required.

**The commission agrees that security is situational and varies from dam to dam. Therefore, the language is general and not specific. The intent is that each dam owner develop a security plan that addresses the threats for that dam and how to secure the dam for those threats. No changes were made in the rules in response to this comment.**

Regarding §299.71, LGRT asked about the protocol that will be used for initiating enforcement for violations of the rules, how the agency will distinguish between major and minor violations, and the type of violations that will trigger formal enforcement.

**The commission responds that enforcement of violations is beyond the scope of this rulemaking and will be handled in development of the enforcement initiation criteria under a separate process after the rule is approved. No changes were made in the rules in response to this comment.**

Regarding §299.72, FNI asked how the commission could direct an owner to take action without notice to the owner.

**The commission responds that the language in this section is from Texas Water Code, §12.052(d) and (e), which allows the commission to take immediate action for an emergency without going through the notice process. However, the owner is provided notice after the emergency action and may request a hearing under Chapter 35 of the agency's rules.**

## **SUBCHAPTER A: GENERAL PROVISIONS**

### **§§299.1 - 299.5**

#### **STATUTORY AUTHORITY**

These repeals are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted repeals implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.1. Definitions.**

#### **§299.2. General.**

#### **§299.3. Duties, Obligations, and Liabilities of Dam Owners.**

#### **§299.4. Registered Engineer.**

#### **§299.5. Exception.**

## **SUBCHAPTER A: GENERAL PROVISIONS**

### **§§299.1 - 299.7**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

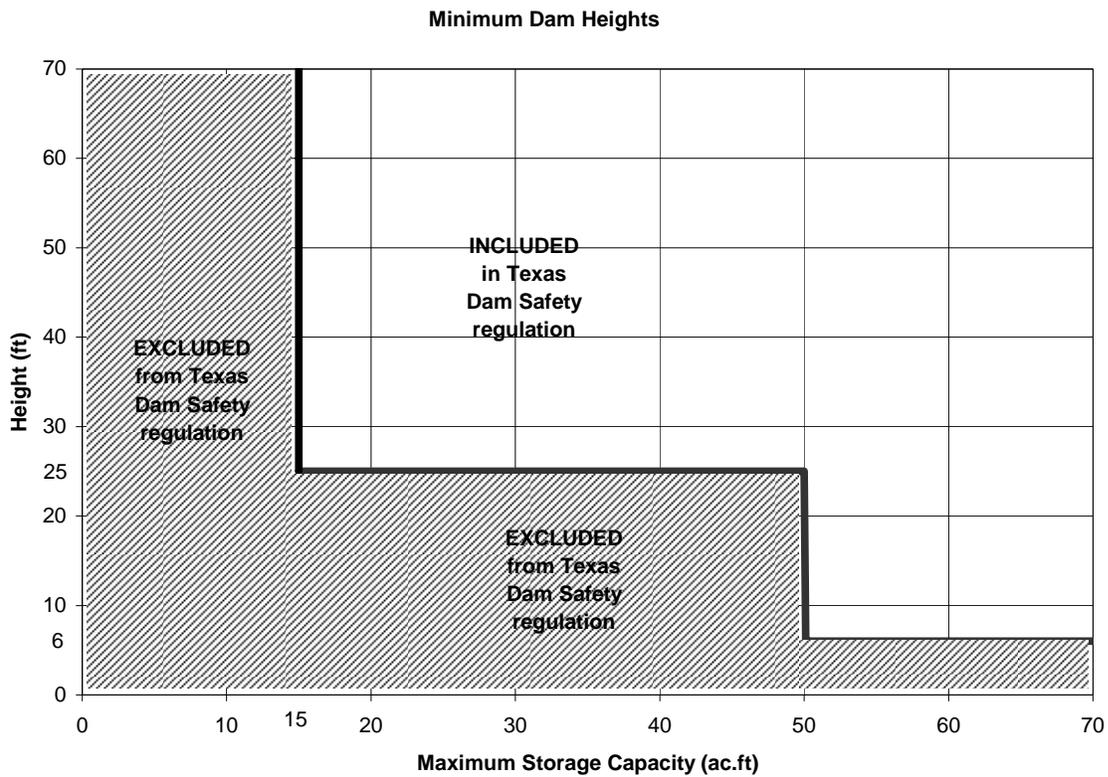
#### **§299.1. Applicability.**

(a) This chapter applies to design, review, and approval of construction plans and specifications; and construction, operation and maintenance, inspection, repair, removal, emergency management, site security, and enforcement of dams that:

(1) have a height greater than or equal to 25 feet and a maximum storage capacity greater than or equal to 15 acre-feet, as described in paragraph (2) of this subsection;

(2) have a height greater than six feet and a maximum storage capacity greater than or equal to 50 acre-feet;

Figure: 30 TAC §299.1(a)(2)



(3) are a high- or significant-hazard dam as defined in §299.14 of this title (relating to Hazard Classification Criteria), regardless of height or maximum storage capacity; or

(4) are used as a pumped storage or terminal storage facility.

(b) This chapter provides the requirements for dams, but does not relieve the owner from meeting the requirements in Texas Water Code (TWC), Chapter 11, and Chapters 213, 295, and 297 of this title (relating to Edwards Aquifer; Water Rights, Procedural; and Water Rights, Substantive; respectively). All applicable requirements in those chapters will still apply.

(c) This chapter does not apply to:

(1) dams designed by, constructed under the supervision of, and owned and maintained by federal agencies such as the Corps of Engineers, International Boundary and Water Commission, and the Bureau of Reclamation;

(2) embankments constructed for roads, highways, and railroads, including low-water crossings, that may temporarily impound floodwater, unless designed to also function as a detention dam;

(3) dikes or levees designed to prevent inundation by floodwater;

(4) off-channel impoundments authorized by the commission under TWC, Chapter 26;

and

(5) above-ground water storage tanks (steel, concrete, or plastic).

(d) All dams must meet the requirements in this chapter, including dams that do not require a water right permit, other dams that are exempt from the requirements in Subchapter C of this chapter (relating to Construction Requirements), and dams that are granted an exception as defined in §299.5 of this title (relating to Exception).

**§299.2. Definitions.**

The following words and terms in this section are in addition to the definitions in §3.2 of this title (relating to Definitions). The words and terms in this section, when used in this chapter, have the following meanings.

(1) **Abandon**--The owner no longer maintaining a dam for a period of ten years, or refusing to maintain the dam.

(2) **Accepted engineering practices**--The application of design and analysis methods that are commonly used by professional engineers in their field of expertise and are well documented in published design manuals, codes of practice, text books, and engineering journals.

(3) **Alteration**--Any change to a dam or appurtenant structures that affects the integrity, safety, and operation of the dam, including, but not limited to:

(A) changing the height of a dam;

(B) increasing the normal pool or principal spillway elevation, or changing the hydraulic capability of the principal spillway; or

(C) changing the original elevation, physical dimensions, or hydraulic capability of an emergency spillway.

(4) **Appurtenant structures**--The outlet works and controls, spillways and controls, gates, valves, siphons, access structures, bridges, berms, drains, hydroelectric facilities, instrumentation, and other structures related to the operation of a dam.

(5) **Breach**--An excavation or opening, either controlled or a result of a failure of the dam, through a dam or spillway that is capable of completely draining the reservoir down to the approximate original topography so the dam will no longer impound water, or partially draining the reservoir to lower impounding capacity.

(6) **Breach analysis**--The analysis of potential dam failure scenarios, including overtopping and piping (magnitude, duration, and location), using accepted engineering practices, to evaluate downstream hazard potential or to develop inundation maps.

(7) **Breach inundation area**--An area that would be flooded as a result of a dam failure.

(8) **Closure of dam**--The commencement of placing material within the closure section of the dam.

(9) **Closure section**--The section of the dam left open during construction of a proposed dam in order to pass floodwaters through the dam without endangering the dam.

(10) **Commence construction**--An actual, visible activity beyond planning or land acquisition that initiates the beginning of the construction of a dam in the manner specified in the approved construction plans and specifications for that dam. The action must be performed in good faith with the intent to continue with the construction through completion.

(11) **Conceptual design**--A design that presents a location and proposed plan of the dam and appurtenant structures and elevations of all pertinent features of the dam.

(12) **Construction**--Building a proposed dam and appurtenant structures capable of storing water.

(13) **Construction change order**--A document recommended by the owner's professional engineer and signed by the owner's contractor and the owner that authorizes a significant addition, deletion, or revision of the approved construction plans and specifications that has a material impact on the safety and integrity of the dam.

(14) **Dam**--Any barrier or barriers, with any appurtenant structures, constructed for the purpose of either permanently or temporarily impounding water.

(15) **Dam failure**--breach and uncontrolled release of the reservoir.

(16) **Deficient dam**--A dam that fails to meet the requirements of this chapter and poses a significant threat to human life or property.

(17) **Deliberate impoundment**--The intentional impoundment of water in the reservoir, including:

(A) closing the lowest planned outlet or spillway;

(B) blocking the diversion works that are used during construction to divert water around the construction area; and

(C) beginning the closure of the dam.

(18) **Design flood**--The flood used in the design and evaluation of a dam and appurtenant structures, particularly for determining the size of spillways, outlet works, and the effective crest of the dam.

(19) **Detention dam**--A dam that has an impoundment that is normally dry and has an ungated outlet structure that is designed to completely drain the water impounded during a flood within five days.

(20) **Drawdown**--The change in surface elevation of a reservoir due to a withdrawal of water from the reservoir.

(21) **Effective crest of the dam**--The elevation of the lowest point on the crest (top) of the dam, excluding spillways.

(22) **Emergency action plan**--A written document prepared by the owner or the owner's professional engineer describing a detailed plan to prevent or lessen the effects of a failure of the dam or appurtenant structures.

(23) **Emergency repairs**--Any repairs, considered to be temporary in nature, necessary to preserve the integrity of the dam and prevent a possible failure of the dam.

(24) **Emergency spillway**--An auxiliary spillway designed to pass a large, but infrequent, volume of flood flow, with a crest elevation higher than the principal spillway or normal operating level.

(25) **Engineering inspection**--Inspection performed by a professional engineer, or under the supervision of a professional engineer, to evaluate the condition, safety, and integrity of the dam and appurtenant structures to determine if the dam and appurtenant structures meet applicable rules and accepted engineering practices, including a field inspection and review of records for design, construction, and performance.

(26) **Enlargement**--Any change in, or addition to, an existing dam or reservoir that raises, or may raise, the normal storage capacity of the reservoir impounded by the dam.

(27) **Existing dam**--Any dam under construction or completed as of the effective date of these rules.

(28) **Fetch**--The straight-line distance across a reservoir subject to wind forces.

(29) **Hazard classification**--A measure of the potential for loss of life, property damage, or economic impact in the area downstream of the dam in the event of a failure or malfunction of the dam or appurtenant structures. The hazard classification does not represent the physical condition of the dam.

(30) **Height of dam**--The difference in elevation between the natural bed of the watercourse or the lowest point on the downstream toe of the dam, whichever is lower, and the effective crest of the dam.

(31) **Inundation map**--A map delineating the area that would be flooded by a particular flood event, or a dam failure.

(32) **Loss of life**--Human fatalities that would result from a failure of the dam, without considering the mitigation of loss of life that could occur with evacuation or other emergency actions .

(33) **Main highways**--Roads classified as a rural arterial system by the Texas Department of Transportation, including interstate highways, United States highways, and state highways.

(34) **Maintenance**--Those tasks that are generally recurring and are necessary to keep the dam and appurtenant structures in a sound condition, free from defect or damage that could hinder the dam's functions as designed, including adjacent areas that also could affect the function and operation of the dam.

(35) **Maintenance inspection**--Visual inspection of the dam and appurtenant structures by the owner or owner's representative to detect apparent signs of deterioration, other deficiencies, or any other areas of concern.

(36) **Maximum storage capacity**--The volume, in acre-feet, of the impoundment created by the dam at the effective crest of the dam. For purposes of calculating maximum storage capacity for the Inventory of Dams as described in §299.7 of this title (relating to Inventory of Dams), only water that can be stored above natural ground level (not in excavations in the reservoir) or that could be released by a failure of the dam is considered in assessing the storage volume. The maximum storage capacity may decrease over time due to sedimentation or increase if the reservoir is dredged.

(37) **Minimum freeboard**--The difference in elevation between the effective crest of the dam and the maximum water surface elevation resulting from routing the design flood appropriate for the dam.

(38) **Minor highways**--Roads classified as a rural collector road or rural local road by the Texas Department of Transportation, including county roads and Farm-to-Market roads not used to provide service to schools.

(39) **Modification**--Any structural alteration of a dam, the spillways, the outlet works, or other appurtenant structures that could influence or affect the integrity, safety, and operation of the dam.

(40) **Normal storage capacity**--The volume, in acre-feet, of the impoundment created by the dam at the lowest uncontrolled spillway crest elevation, or at the maximum elevation of the reservoir at the normal (non-flooding) operating level.

(41) **NAD83 conus datum**--The North American Datum of 1983 is a reference system used to obtain the spherical coordinates of a point on the earth's surface. The standard North American Datum of 1983, or any future updates, must be used for all latitude and longitude measurements.

(42) **NAVD88 datum**--The North American Vertical Datum of 1988 is a reference system used to obtain vertical measurements on the earth's surface. The North American Vertical Datum of 1988 must be used for all vertical measurements recorded with a global positioning system receiver.

(43) **Outlet**--A conduit or pipe controlled by a gate or valve, or a siphon, that is used to release impounded water from the reservoir.

(44) **Owner**--Any person who can be one or more of the following:

(A) holds legal possession or ownership of an interest in a dam;

(B) is the fee simple owner of the surface estate of the tract of land on which the dam is located if actual ownership of the dam is uncertain, unknown, or in dispute unless the person can demonstrate by appropriate documentation, including a deed reservation, invoice, bill of sale, or by other legally acceptable means that the dam is owned by another person or persons;

(C) is a sponsoring local organization that has an agreement with the Natural Resources Conservation Service for a dam constructed under the authorization of the Flood Control Act of 1944 (as amended), Public Law 78-534, the Watershed Protection and Flood Prevention Act, 1954 (as amended), Public Law 83-566, the pilot watershed program under the Flood Prevention of the Department of Agriculture Appropriation Act of 1954, Public Law 156-67, or Subtitle H of Title XV of the Agriculture and Flood Act of 1981, the Resource Conservation and Development Program; or

(D) has a lease, easement, or right-of-way to construct, operate, or maintain a dam.

(45) **Piping**--The progressive removal of soil particles from a dam by percolating water, leading to development of channels or flow paths.

(46) **Principal spillway**--The primary or initial spillway engaged during a rainfall runoff event that is designed to pass normal flows.

(47) **Probable maximum flood (PMF)**--The flood magnitude that may be expected from the most critical combination of meteorologic and hydrologic conditions that are reasonably possible for a given watershed.

(48) **Probable maximum precipitation (PMP)**--The theoretically greatest depth of precipitation for a given duration that is physically possible over a given size storm area at a particular geographical location at a certain time of the year.

(49) **Professional engineer**--An individual licensed by the Texas Board of Professional Engineers to engage in the practice of engineering in the state of Texas, with experience in the investigation, design, construction, repair, and maintenance of dams.

(50) **Proposed dam**--Any dam not yet under construction.

(51) **Pumped storage dam**--A rectangular or circular embankment used to store water pumped from another source.

(52) **Reconstruction**--Removal and replacement of an existing dam or appurtenant structures.

(53) **Rehabilitation**--The completion of all work necessary to extend the service life of a dam and meet the safety and performance standards of this chapter.

(54) **Removal**--The complete elimination of a dam, the appurtenant structures, and the reservoir to the extent that no water can be impounded by the dam or reservoir and the approximate original topography of the dam and reservoir area is restored.

(55) **Repairs**--Any work done on a dam that may affect the integrity, safety, and operation of the dam, including, but not limited to:

(A) excavation into the embankment fill or foundation of a dam; or

(B) removal or replacement of major structural components of a dam or appurtenant structures.

(56) **Reservoir**--A body of water impounded by a dam.

(57) **Safe manner**--Operating and maintaining a dam in sound condition, free from defect or damage that could hinder the dam's functions as designed.

(58) **Seal**--To affix a professional engineer's seal to each sheet of construction plans or to an engineering report or required document.

(59) **Secondary highways**--Roads classified as a rural major collector road by the Texas Department of Transportation, including Farm-to-Market roads used to provide service to schools.

(60) **Secure location**--A building that is locked and accessible to the owner and owner's representative.

(61) **Spillway**--An appurtenant structure that conducts outflow from a reservoir.

(62) **Sponsoring local organization**--any political subdivision of the state, or other entity, with the authority to carry out, maintain, or operate work of improvement installed with the assistance of the federal government.

(63) **Stability analysis**--The analytical procedure for determining the most critical factor of safety for a slope.

(64) **Substantially complete**--A dam under construction that is complete except for minor correction of items identified in the final construction inspection and that can be operated in a safe manner to the dam's full functional capability.

**§299.3. General.**

(a) As part of an evaluation to determine if the dam and appurtenant structures constitute a significant threat to human life or property, the executive director may require the owner to obtain the services of an independent team of professional engineers or other dam experts, at the owner's expense, to determine the adequacy of the design, construction, or operation of the dam if safety considerations

warrant an independent review. The requirements for use of the independent team of professional engineers or other dam experts will be included in a guideline developed by the executive director. The executive director shall submit the requirement in writing to the owner and shall provide a list of engineers and other dam experts. The owner shall submit the qualifications and size of the team to the executive director for any comments prior to beginning the independent review.

(b) When an owner submits an application for a water rights permit to either construct a dam, reconstruct, modify, enlarge, rehabilitate, alter, or repair an existing dam, or authorize an existing dam without making any changes to the dam, the owner shall submit the following:

(1) a conceptual design of the construction for a proposed dam and appurtenant structures, or proposed reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam;

(2) the geotechnical, hydrologic, and hydraulic reports for the proposed site, if the reports have been completed; and

(3) other pertinent information on an existing dam using a form provided by the executive director.

(4) The executive director shall provide a technical review of these documents as described in §281.19 of this title (relating to Technical Review).

**§299.4. Professional Engineer.**

(a) For all dams subject to the executive director's review under this chapter, a professional engineer shall:

(1) prepare all plans and specifications;

(2) prepare evaluations, analyses, or reports required by this chapter;

(3) observe the progress and the quality of the construction of proposed dams or reconstruction, modification, enlargement, rehabilitation, alteration, repair, or removal of existing dams to determine, in general, if the construction is proceeding according to the approved construction plans and specifications. It is understood that the professional engineer is not responsible for the contractor's means, methods, techniques, sequences, or procedures of construction selected by the contractor, or the safety precautions and programs incident to the work of the contractor; and

(4) either perform or supervise engineering inspections, as defined in §299.2 of this title (relating to Definitions), of high- and significant-hazard dams and large, low-hazard dams, as defined in §299.13 and §299.14 of this title (relating to Size Classification Criteria; and Hazard Classification Criteria; respectively).

(b) The executive director may waive these requirements based on §299.5 of this title (relating to Exception).

**§299.5. Exception.**

(a) The executive director may grant an exception to any or all of paragraphs (1) - (9) of this subsection if the executive director determines that the physical conditions involved or consequences of potential failure, when evaluated using accepted engineering practices, make the requirements unnecessary:

(1) §299.4 of this title (relating to Professional Engineer);

(2) §299.22 of this title (relating to Review and Approval of Construction Plans and Specifications);

(3) §299.23 of this title (relating to Maintenance of Construction Records);

(4) §299.24 of this title (relating to Construction Progress Reports);

(5) §299.25 of this title (relating to Construction Inspection);

(6) §299.26 of this title (relating to Construction Change Orders);

(7) §299.28 of this title (relating to Deliberate Impoundment);

(8) §299.30 of this title (relating to Record Drawings); and

(9) §299.31 of this title (relating to Permanent Reference Mark).

(b) The owner shall submit the request for an exception in writing to the executive director. The request may include:

(1) cost-benefit analyses;

(2) detailed engineering studies prepared by a professional engineer; and

(3) any other pertinent information.

(c) The executive director's decision to approve or deny the request for an exception must be in writing and specify the extent of the exception granted or denied and the executive director's reasons for granting or denying the exception.

#### **§299.6. Changing Ownership of Dams.**

When there is a change in ownership of the property that includes a dam , the current owner shall include notification to the new owner in the transaction that the new owner shall notify the executive director in writing within 90 days following the transaction and provide:

- (1) the name, address, and telephone number of the new owner(s);
- (2) the date of ownership transfer;
- (3) the name and telephone number of the individual who will be responsible for operation and maintenance of the dam; and
- (4) a certified copy or photocopy of instruments recorded in the office of the county clerk showing transfer of the dam and property on which the dam is located to a new owner.

**§299.7. Inventory of Dams.**

The executive director shall maintain an inventory of dams that includes information on:

- (1) ownership;
- (2) physical dimensions of the dam;
- (3) hazard classification;
- (4) normal and maximum storage capacity;
- (5) use of reservoir, including the water rights permit, if applicable;

(6) inspection date;

(7) location; and

(8) condition of the dam.

**SUBCHAPTER B: DESIGN AND EVALUATION OF DAMS**

**§§299.11 - 299.18**

**STATUTORY AUTHORITY**

These repeals are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted repeals implement TWC, §§5.103, 5.105, and 12.052.

**§299.11. Classification of Dams.**

**§299.12. Size Classification Criteria.**

**§299.13. Hazard Classification Criteria.**

**§299.14. Hydrologic Criteria for Dams.**

**§299.15. Evaluation of Existing Dams.**

**§299.16. Interim Alternatives.**

**§299.17. Emergency Management.**

**§299.18. Variance.**

## **SUBCHAPTER B: DESIGN AND EVALUATION OF DAMS**

### **§§299.11 - 299.17**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.11. General.**

The executive director shall evaluate the hydrologic, hydraulic, and structural adequacy of the dam in determining whether a proposed or existing dam is considered a deficient dam.

(1) The executive director shall evaluate the hydrologic and hydraulic adequacy of the dam and spillways using the criteria in the most current version, at the time of the evaluation, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*.

(2) The executive director may also take into consideration the condition of the dam, including the possibility that the dam might be endangered by:

(A) overtopping;

(B) seepage;

(C) piping;

(D) settlement;

(E) erosion;

(F) cracking;

(G) sinkholes;

(H) earth movement;

(I) uplift;

(J) overturning;

(K) failure of gates or operation of gates;

(L) failure of spillways;

(M) failure of conduits; or

(N) other conditions, as appropriate.

**§299.12. Classification of Dams.**

(a) The executive director shall classify all proposed and existing dams based on size (small, intermediate, or large) and downstream hazard (low, significant, or high) and not on the physical condition of the dam.

(b) The executive director may reclassify the hazard classification of a dam at any time based on:

(1) an inspection and downstream hazard evaluation by the executive director;

(2) a report of an inspection and downstream hazard evaluation by the owner's professional engineer;

(3) a breach analysis performed by either the executive director or the owner's professional engineer as described in §299.15(a)(4)(A)(i) of this title (relating to Hydrologic and Hydraulic Criteria for Dams); or

(4) a review of current aerial photography and topographic maps, along with information obtained in the field.

**§299.13. Size Classification Criteria.**

The executive director shall classify dams for size based on the larger of the height of the dam or the maximum storage capacity.

Figure: 30 TAC §299.13

SIZE CLASSIFICATION		
Category	Impoundment Maximum Storage (Acre-Foot)	Height (Ft.)
Small	Equal to or Greater than 15 & Less than 1,000  Equal to or Greater than 50 & Less than 1,000	Equal to or Greater than 25 & Less than 40  Greater than 6 & Less than 40

Intermediate	Equal to or Greater than 1,000 & Less than 50,000	Equal to or Greater than 40 & Less than 100
Large	Equal to or Greater than 50,000	Equal to or Greater than 100

**§299.14. Hazard Classification Criteria.**

The executive director shall classify dams for hazard based on either potential loss of human life or property damage, in the event of failure or malfunction of the dam or appurtenant structures, within affected developments, that are existing at the time of the classification. The hazard classification may include use of a breach analysis that addresses the incremental impact of the potential breach over and above the impact of the flood that may have caused the breach, as defined in §299.15(a)(4)(A)(i) of this title (relating to Hydrologic and Hydraulic Criteria for Dams). The classification must be according to the following.

(1) Low. A dam in the low-hazard potential category has:

(A) no loss of human life expected (no permanent habitable structures in the breach inundation area downstream of the dam); and

(B) minimal economic loss (located primarily in rural areas where failure may damage occasional farm buildings, limited agricultural improvements, and minor highways as defined in §299.2(38) of this title (relating to Definitions)).

(2) Significant. A dam in the significant-hazard potential category has:

(A) loss of human life possible (one to six lives or one or two habitable structures in the breach inundation area downstream of the dam); or

(B) appreciable economic loss, located primarily in rural areas where failure may cause:

(i) damage to isolated homes;

(ii) damage to secondary highways as defined in §299.2(58);

(iii) damage to minor railroads; or

(iv) interruption of service or use of public utilities, including the design purpose of the utility.

(3) High. A dam in the high-hazard potential category has:

(A) loss of life expected (seven or more lives or three or more habitable structures in the breach inundation area downstream of the dam); or

(B) excessive economic loss, located primarily in or near urban areas where failure would be expected to cause extensive damage to:

(i) public facilities;

(ii) agricultural, industrial, or commercial facilities;

(iii) public utilities, including the design purpose of the utility;

(iv) main highways as defined in §299.2(33); or

(v) railroads used as a major transportation system.

**§299.15. Hydrologic and Hydraulic Criteria for Dams.**

(a) Hydrologic criteria.

(1) Minimum hydrologic criteria for proposed dams. The following minimum hydrologic criteria includes those proposed dams to be constructed according to Texas Water Code, §11.142.

(A) A proposed dam design must meet the minimum design flood hydrograph criteria.

Figure: 30 TAC §299.15(a)(1)(A)

HYDROLOGIC CRITERIA FOR DAMS		
Classification		
Hazard, as defined in §299.14 of this title (relating to Hazard Classification Criteria)	Size, as defined in §299.13 of this title (relating to Size Classification Criteria)	Minimum Design Flood Hydrograph (expressed as a percentage of the probable maximum flood (PMF)).
Low	Small	25% PMF
	Intermediate	25% PMF to 50% PMF
	Large	50% to 75% PMF
Significant	Small	50% PMF
	Intermediate	50% PMF to 75% PMF
	Large	75% to PMF
High	Small	75% PMF
	Intermediate	75% to PMF

	Large	PMF
<p>When a range is given, the minimum flood hydrograph must be determined by straight-line interpolation within the given range. Interpolation must be based on either height of dam or maximum storage capacity, whichever results in the highest percentage of PMF. The interpolation for large, low-hazard dams for height must be between end points of 100 feet and 50% PMF and 200 feet and 75% PMF. The interpolation for large, low-hazard dams for maximum storage capacity must be between the end points of 50,000 acre-feet and 50% PMF and 300,000 acre-feet and 75% PMF. The interpolation for large, significant-hazard dams for height must be between end points of 100 feet and 75% PMF and 200 feet and PMF. The interpolation for large, significant-hazard for maximum storage capacity must be between the end points of 50,000 acre-feet and 75% PMF and 300,000 acre-feet and PMF.</p>		

(B) The minimum design flood hydrograph must be based on the size and hazard classification of a proposed dam at the time of the design and calculated using the criteria in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines of Dams in Texas*.

(C) Proposed dams and spillways or dams and spillway to be reconstructed, modified, enlarged, rehabilitated, or altered using hydrologic procedures of the Natural Resources Conservation Service will be acceptable, provided that the procedures are shown to be equal to or more conservative than the procedures provided in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*.

(2) Exemptions to minimum hydrologic criteria for proposed dams. Any dam designed to withstand overtopping without failure of the dam, including the foundation and abutments, as demonstrated by studies prepared by the owner's professional engineer will be exempt from the minimum hydrologic criteria.

(3) Minimum hydrologic criteria for existing dams. The following criteria applies to dams that existed before the effective date of this subchapter.

(A) An owner of a large- or high-hazard existing dam that was required to meet 100% of the probable maximum flood (PMF) before the effective date of these rules and that is shown by an evaluation by a professional engineer to meet 75% or more of the PMF will not be required to upgrade the dam to meet minimum hydrologic criteria in paragraph (1)(A) of this subsection. The dam will be considered adequate to meet the minimum hydrologic criteria, provided the owner:

(i) has an emergency action plan that meets the requirements in §299.61 of this title (relating to Emergency Action Plans);

(ii) has an operation and maintenance plan for the dam as described in §299.43 of this title (relating to Operation and Maintenance);

(iii) has an inspection program that has been implemented as described in §299.42 of this title (relating to Inspections); and

(iv) submits an annual report to the executive director documenting compliance with the requirements in clauses (ii) and (iii) of this subparagraph, beginning 12 months after the effective date of this section.

(B) An owner of a dam not specified in paragraph (3)(A) of this subsection that was required to meet the minimum hydrologic criteria before the effective date of these rules, but is shown by an evaluation by a professional engineer to meet the minimum hydrologic criteria in paragraph (1)(A) of this subsection, will not be required to be upgraded and the dam will be considered adequate to meet the minimum hydrologic criteria.

(C) An owner of an existing dam that does not meet the minimum hydrologic criteria in paragraph (1)(A) of this subsection or the size or hazard classification has been raised and the dam does not meet the minimum hydrologic criteria in paragraph (1)(A) of this subsection for the new size or hazard classification may be required to submit to the executive director any of the following, prepared by a professional engineer:

(i) final construction plans and specifications as described in §299.22 of this title (relating to Review and Approval of Construction Plans and Specifications) for modifying, enlarging, or altering the dam or spillways to meet the minimum hydrologic criteria as described in paragraph (1)(A) of this subsection, provided the minimum hydrologic criteria at least meets 75% of the PMF and the owner addresses the requirements in paragraph (3)(A) of this subsection;

(ii) an analysis or other option to request a reduction in the minimum hydrologic criteria as described in paragraph (4) of this subsection; or

(iii) a plan for alternatives to upgrading as described in §299.17 of this title (relating to Alternatives to Upgrading Dams).

(D) An owner of an existing dam that meets the requirements of subparagraph (A) of this paragraph and that is required to be modified due to structural deficiencies shall be required to submit to the executive director final construction plans and specifications for the structural modifications as described in §299.22 of this title. The dam will not be required to be upgraded to meet the minimum design criteria in paragraph (1)(A) of this subsection.

(E) An owner of a dam that has been evaluated under this paragraph shall be advised of the requirements for the owner's dam by letter. The owner shall be required to submit a written plan of action to address the requirements and a time frame to complete the requirements.

(4) Reduction of minimum hydrologic criteria. The minimum hydrologic criteria may be reduced as follows.

(A) The owner may request that the executive director reduce the minimum hydrologic criteria if the owner submits:

(i) dam breach analysis, prepared by a professional engineer and using the normal storage capacity non-flood event, the barely overtopping flood event, and the design flood event, if applicable, that demonstrate existing downstream improvements would not be adversely affected, which is defined as the downstream flooding differentials being less than or equal to one foot between breach and non-breach simulations in the affected area;

(ii) one or more technical options included in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines of Dams in Texas*, demonstrating that existing downstream improvements would not be adversely affected;

(iii) documentation of the purchase, or an easement for, the property downstream of the dam that would be impacted by a dam failure and showing that it has been dedicated to non-residential and non-commercial use; or

(iv) documentation that the property downstream has been dedicated by the property owner to non-residential and non-commercial use.

(B) The executive director shall evaluate the owner's request for reduction in the minimum hydrologic criteria to determine if the request is appropriate. If the executive director agrees with the analysis, the executive director shall approve the request in writing.

(C) If the executive director does not agree with the owner's request for reduction in the minimum hydrologic criteria, the executive director shall deny the request in writing.

(b) Hydraulic criteria for proposed dams or dams proposed to be reconstructed, modified, enlarged, rehabilitated, or altered.

(1) The owner shall have a professional engineer evaluate the hydraulic adequacy of the dam and spillways using the guidelines in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines of Dams in Texas*.

(2) The owner shall have a professional engineer address the stability of the spillways to determine if the spillways will adequately meet the minimum design storm without being significantly damaged.

(3) The owner shall have a professional engineer determine a minimum freeboard for a proposed large size dam as defined in §299.13 of this title (relating to Size Classification Criteria) as outlined in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*.

(c) Hydraulic criteria for existing dams. If it becomes necessary for an owner of an existing dam to reevaluate the hydraulic adequacy of the dam and spillways, the owner shall have a professional engineer evaluate the hydraulic adequacy of the dam and spillways using the guidelines in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines of Dams in Texas*.

**§299.16. Structural Evaluation of Dams.**

(a) The owner shall have a professional engineer submit a geotechnical, geological, and structural evaluation in a report to the executive director with the final construction plans and specifications as described in §299.22 of this title (relating to Review and Approval of Construction Plans and Specifications) to support the design of a proposed dam or a dam that is proposed to be reconstructed, or structurally modified, enlarged, rehabilitated, or altered. The report must include, as applicable:

(1) details of the geology of the project site and vicinity;

(2) location and logs of test borings, pits, and shafts;

(3) results of field and laboratory tests on structural and foundation materials;

(4) seepage studies;

(5) stability analyses of embankments, spillways, retaining walls, and inlet structures, as described in subsection (b) of this section; and

(6) recommendations concerning:

(A) embankment slopes, crest width, and berms;

(B) core trench size and depths;

(C) moisture-density and strength requirements;

(D) soil dispersion requirements;

(E) minimum compressive strength for concrete;

(F) construction sequence procedures and techniques for excavations and embankments;

(G) types of compaction equipment; and

(H) seepage control requirements.

(b) The owner shall have a professional engineer develop a stability analysis as outlined in the most current version, at the time of the analysis, of the agency's *Design and Construction Guidelines for Dams in Texas* to support the design of proposed large- and intermediate-size dams, as defined in §299.13 of this title (relating to Size Classification Criteria), and large- and intermediate-size dams that are proposed to be reconstructed or structurally modified, enlarged, rehabilitated, or altered. The analysis must be submitted to the executive director with the final construction plans and specifications as described in §299.22 of this title.

(c) The executive director may require the owner of an existing dam to have a professional engineer perform a geotechnical and structural evaluation or a stability analysis and submit a report, as described in subsections (a) and (b) of this section, following an inspection, as described in §299.42 of this title (relating to Inspections), if the executive director determines that the dam was found to be deficient and the integrity of the dam was threatened. If the owner has a professional engineer prepare a report, the owner shall submit the professional engineer's report to the executive director for review upon completion of the report.

(d) When a person proposes one of the following activities near the owner's dam, the owner or the executive director may request that the person have a professional engineer perform an evaluation to determine if the integrity of the dam would be compromised. If the person has a report prepared by a professional engineer, the person shall submit the evaluation report to the executive director and the owner for review and approval before any work is performed for a proposal to:

(1) dredge the reservoir within 200 feet of the dam;

(2) install a utility line or pipeline in the dam or in the spillways that requires significant excavation in the dam or spillways;

(3) construct a road across the dam or spillways or within 200 feet of the dam;

(4) drill oil or gas wells, perform horizontal drilling or fracturing, or perform oil or gas exploration within 500 feet of the dam and spillways; or

(5) blast within 1/2 mile of the dam.

**§299.17. Alternatives to Upgrading Dams.**

(a) An owner may elect to implement alternative methods, instead of upgrading the dam using structural methods, to meet minimum hydrologic criteria by submitting to the executive director:

(1) a plan for meeting the requirements in §299.15(a)(3) of this title (relating to Hydrologic and Hydraulic Criteria for Dams);

(2) a plan for meeting the requirements in §299.15(a)(4) of this title;

(3) a plan for removing the dam, as described in §299.51 of this title (relating to Removal or Breach of Dams);

(4) a plan for lowering the reservoir level to a level that will allow it to meet the appropriate minimum hydrologic criteria; or

(5) a plan using a combination of structural and non-structural methods as proposed by the owner's professional engineer.

(b) The executive director shall review the owner's proposal and respond as described in §299.22(e) of this title (relating to Review and Approval of Construction Plans and Specifications).

## **SUBCHAPTER C: CONSTRUCTION REQUIREMENTS**

### **§§299.21 - 299.31**

#### **STATUTORY AUTHORITY**

These repeals are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted repeals implement TWC, §§5.103, 5.105, and 12.052.

**§299.21. Applicability.**

**§299.22. Approval of Plans and Specifications.**

**§299.23. Content of Construction Plans and Specifications.**

**§299.24. Maintenance of Records.**

**§299.25. Construction Progress Report.**

**§299.26. Construction Inspection.**

**§299.27. Plan and/or Specification Changes and Amendments.**

**§299.28. Noncompliance with Approved Plans and Specifications.**

**§299.29. Deliberate Impoundment.**

**§299.30. Certificate of Completion.**

**§299.31. Record Drawings and Permanent Reference Mark.**

## **SUBCHAPTER C: CONSTRUCTION REQUIREMENTS**

### **§§299.21 - 299.33**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.21. Applicability.**

(a) This subchapter applies only to construction requirements, including submittal, review, and approval of engineering plans and specifications, inspections, reports, and records, for the construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam:

- (1) requiring a water rights permit authorization;

(2) requiring an Edwards Aquifer protection plan;

(3) originally designed and constructed with the assistance and written concurrence of the Natural Resources Conservation Service under authorization of the Flood Control Act of 1944 (as amended), Public Law 78-534, the Watershed Protection and Flood Prevention Act of 1954 (as amended), Public Law 83-566, the pilot watershed program under the Flood Prevention of the Department of Agriculture Appropriation Act of 1954, Public Law 156-67, or Subtitle H of Title XV of the Agriculture and Flood Act of 1981, the Resource Conservation and Development Program, but being proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired without the assistance and written concurrence of the Natural Resources Conservation Service;

(4) used for a pumped storage facility;

(5) used for temporary detention purposes and impounding a maximum storage capacity of 200 acre-feet or more; or

(6) that is small and classified as either significant- or high-hazard, as defined in §299.13 and §299.14 of this title (relating to Size Classification Criteria; and Hazard Classification Criteria; respectively), and exempt from a water rights permit under Texas Water Code, §11.142.

(b) This subchapter does not apply to:

(1) dams for which an exception is approved according to §299.5 of this title (relating to Exception) to the extent for which the exemption is granted;

(2) proposed dams designed and constructed, or existing dams designed and modified, rehabilitated, or repaired, with the assistance and written concurrence of the Natural Resources Conservation Service under authorization of the Flood Control Act of 1944 (as amended), Public Law 78-534, the Watershed Protection and Flood Prevention Act of 1954 (as amended), Public Law 83-566, the pilot watershed program under the Flood Prevention of the Department of Agriculture Appropriation Act of 1954, Public Law 156-67, or Subtitle H of Title XV of the Agriculture and Flood Act of 1981, the Resource Conservation and Development Program;

(3) proposed dams designed and constructed, or existing dams designed and modified, rehabilitated, or repaired for mining purposes and approved and inspected by the Mine Safety and Health Administration;

(4) small, low-hazard dams, as defined in §299.13 and §299.14 of this title, exempted from a water rights permit under Texas Water Code, §11.142; and

(5) maintenance or emergency repairs, as defined in §299.2 of this title (relating to Definitions).

**§299.22. Review and Approval of Construction Plans and Specifications.**

(a) General.

(1) The owner shall submit final construction plans and specifications, which are sealed, signed, and dated by a professional engineer, to the executive director for review and approval before commencing construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam. Emergency repairs are defined in §299.2(23) of this title (relating to Definitions) and §299.45 of this title (relating to Emergency Repairs).

(2) The executive director shall not issue approval of final construction plans and specifications for construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam until a water rights permit or an Edwards Aquifer protection plan, if required, is issued.

(3) The executive director shall not issue approval of final construction plans and specifications for construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam unless the plans and specifications include language, or design criteria, that requires the proposed contractor to develop a Storm Water Pollution Prevention Plan and submit a Notice of Intent (NOI) for coverage under the State of Texas Construction General Permit (TXR150000), if applicable.

(4) The owner shall not allow construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam to be commenced before the executive director's review of the final construction plans, specifications, and other engineering

reports and the owner receives written approval of the final construction plans and specifications. The owner shall provide a copy of the executive director's written approval to the contractor before commencing construction.

(5) Construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam shall be performed according to the final construction plans and specifications approved by the executive director unless construction change orders have been approved as indicated in §299.26 of this title (relating to Construction Change Orders).

(b) Construction plans.

(1) Construction plans for proposed dams must be 22 inches by 34 inches in size. The plans may be reduced to 11 inches by 17 inches in size if all details are clearly legible and an accurate scale is included. A scale must be included on all sheets of the construction plans. The plans must include the following, as applicable:

(A) a vicinity map that shows the location of the proposed dam and appurtenant structures with respect to:

(i) boundaries of political subdivisions;

(ii) streams;

(iii) highways;

(iv) railroads;

(v) pipelines;

(vi) transmission lines; and

(vii) utilities;

(B) a topographic map of the dam site with:

(i) contour intervals not to exceed five feet;

(ii) latitude and longitude (in decimal degrees to six decimal places) of the midpoint of the dam using the North American Vertical Datum of 1988 conus datum; and

(iii) a superimposed plan of the dam showing the locations of any:

(I) spillways;

(II) outlet conduit;

(III) borings and test pits;

(IV) possible borrow areas; and

(V) other structures.

(C) a profile of the dam site taken on the long axis of the dam showing:

(i) the location of the outlet conduit and each spillway;

(ii) the proposed bottom of the core trench; and

(iii) elevations of all features.

(D) a profile of each spillway along its long axis;

(E) a log of all borings showing the classification of materials encountered below the surface, if not provided in a separate geotechnical report;

(F) a cross section of the dam at maximum section showing complete details and dimensions;

(G) detailed sections of outlet conduits, control works, and spillways with a sufficient number and detail to delineate all of these features;

(H) the proposed location of all permanent instrumentation, pressure cells, settlement plates, piezometers, inclinometers, slope indicator casings, data acquisition systems, or other devices;

(I) the requirements, or design criteria, for the proposed contractor to develop a Storm Water Pollution Prevention Plan and submit a NOI, if applicable, or authorization under TXR150000; and

(J) other design standards as described in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*.

(2) Construction plans for the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of existing dams must be 22 inches by 34 inches in size. The plans may be reduced to 11 inches by 17 inches in size if all details are clearly legible and an accurate scale is included. A scale must be included on all sheets of the construction plans. The plans must include the following, as applicable:

(A) a vicinity map that shows the location of the dam and spillways with respect to:

(i) boundaries of political subdivisions;

(ii) streams;

(iii) highways;

(iv) railroads;

(v) pipelines;

(vi) transmission lines; and

(vii) utilities.

(B) detailed sections of the dam, spillways, outlet conduit, or control works being enlarged, altered, or repaired with sufficient detail to delineate the work to be performed;

(C) a log of all borings, if necessary, showing the classification of materials encountered below the surface, if not provided in a separate geotechnical report;

(D) the requirements, or design criteria, for the proposed contractor to develop a Storm Water Pollution Prevention Plan and submit a NOI, if applicable or authorization under TXR150000; and

(E) other design criteria as described in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*.

(c) Specifications. The specifications must include the following:

(1) the requirements for the various types of materials to be used in the construction or reconstruction, modification, enlargement, rehabilitation, alteration, or repair of the dam, spillways, outlet conduits, and control works;

(2) a provision that plans and specifications will not be substantially changed without either written approval of the executive director before the work is started, or notification of the changes as defined in §299.26 of this title;

(3) a requirement that the proposed contractor develop and implement a Storm Water Pollution Prevention Plan, if applicable, and submit an NOI for authorization under TXR150000; and

(4) other design specifications as described in the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*.

(d) Engineering reports and plans.

(1) Engineering reports that may be required by the executive director for review include:

(A) a geotechnical, geological, and structural evaluation report that includes the information described in §299.16 of this title (relating to Structural Evaluation of Dams);

(B) a stability analysis for proposed large- and intermediate-size dams as defined in §299.13 of this title (relating to Size Classification Criteria), and large- and intermediate-size dams that are proposed to be reconstructed or structurally modified, enlarged, rehabilitated, or altered, as described in §299.16 of this title;

(C) a hydrologic and hydraulic report for proposed dams and dams that are to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired, that includes the information described in the most current version, at the time of the analysis, of the agency's *Hydrologic and Hydraulic Guidelines for Dams in Texas*;

(D) a report on proposed instrumentation for proposed large dams and existing large dams, as defined in §299.13 of this title, that are to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired. This report must include:

(i) types and locations of proposed instrumentation;

(ii) depths of instrumentation; and

(iii) frequency and duration of data collection.

(E) any reports prepared for addressing site-specific conditions and recommendations.

(2) Engineering plans that may be required by the executive director for review include:

(A) a quality control and assurance plan for all proposed dams. This plan must include:

(i) designation and qualifications of the on-site inspector(s);

(ii) designation of a testing laboratory;

(iii) types and frequency of tests to be conducted; and

(iv) a construction schedule.

(B) a plan for closure of any proposed dam that requires a closure section. This plan must include:

(i) the percentage of construction work that will be completed or the amount of construction that would be completed before closure would start;

(ii) the sequence to be followed during closure; and

(iii) the estimated time to complete closure.

(C) a plan for addressing possible emergencies that threaten the integrity of the dam for all proposed high- and significant-hazard dams during construction. This plan must include:

(i) a flow chart for notification of emergency management officials and the downstream public;

(ii) identification of possible emergencies that could occur during construction and potential consequences;

(iii) technical requirements for addressing any possible emergencies; and

(iv) responsibilities of all parties.

(e) Review and approval process.

(1) The executive director shall review the final construction plans, specifications, and engineering reports and plans according to the most current version, at the time of the design, of the agency's *Design and Construction Guidelines for Dams in Texas*.

(2) If the final construction plans and specifications meet the requirements of this chapter and accepted engineering practices, the executive director shall issue written approval to the owner unless the plans and specifications are for a proposed dam and have been submitted as part of the application for a water rights permit or for an Edwards Aquifer protection plan.

(A) If the final construction plans and specifications are for a proposed dam and have been submitted as part of the application for a water rights permit, the executive director shall advise the owner that the plans and specifications meet the requirements of this chapter and accepted engineering practices. However, the executive director shall not issue written approval of the final construction plans and specifications until the water rights permit is issued and a time limitation section, in compliance with Texas Water Code, Chapter 11, has been added to the water rights permit requiring construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam to be started and completed within specified time frames.

(B) If the final construction plans and specifications are for a proposed dam and have been submitted as part of the application for an Edwards Aquifer protection plan, the executive director shall not issue written approval of the final construction plans and specifications until the Edwards Aquifer protection plan is issued by the appropriate regional office.

(3) If the final construction plans and specifications do not meet the requirements of this chapter, the executive director shall provide the owner written comments on the items needing revision.

(4) After receipt of the revised final construction plans and specifications or an addendum to the plans and specifications, the executive director shall review and issue written approval to the owner if all requirements in this chapter and accepted engineering practices have been met.

(5) If all requirements still have not been met, the executive director shall either provide the owner written comments on the items still needing revision or schedule a meeting with the owner to discuss the items needing revision.

(6) Upon submission of the revised, and agreed on, final construction plans and specifications or an addendum to the plans and specifications, the executive director shall issue written approval to the owner if applicable rules and accepted engineering practices have been met.

(f) Time limitations after approval of final construction plans and specifications.

(1) If construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam is not commenced within four years of the executive director's approval of final construction plans and specifications, the approval will be subject to reevaluation. If rules, regulations, and accepted engineering practices or the downstream hazard classification have changed during the four-year period, the approval may be considered invalid regardless of any extension of time authorizations given according to Chapter 295 of this title (relating to Water Rights, Procedural) and Chapter 297 of this title (relating to Water Rights, Substantive).

(2) If the executive director determines that the approval is invalid, the executive director shall notify the owner in writing that new construction plans, specifications, and other engineering reports must be submitted before the work may commence.

(3) The new construction plans and specifications must meet the requirements of the rules and regulations in effect at the time of the reevaluation.

**§299.23. Maintenance of Construction Records.**

(a) The owner shall maintain construction records during construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam, which include:

(1) approved construction plans and specifications;

(2) approved construction change orders;

(3) construction test results as described in subsection (b) of this section;

(4) approval letters; and

(5) construction inspection reports and other engineering reports that may be developed during construction.

(b) The owner shall furnish copies of the construction test results for high- and significant-hazard dams to the executive director for review at least once a month during the construction period to document compliance with the approved plans and specifications and the requirements in this chapter.

The test results to be submitted must include, as applicable:

- (1) soil moisture-density test results;
- (2) soil dispersion test results; and
- (3) concrete trial batch design test and compression test results.

(c) The owner shall also record, as applicable:

- (1) final bottom width and elevations of core and cutoff trenches;
- (2) structural excavations;
- (3) documentation of permanent sheet piles or bearing piles; and
- (4) documentation of foundation grouting, de-watering problems, or observations during the construction period of any instruments installed to measure movements, stresses, and pore pressure.

(d) The owner shall maintain the construction records as described in subsections (a) - (c) of this section in a secure location at the construction site or at a location designated by the owner that is immediately accessible to the owner until the completion of construction.

(e) After completion of construction, the owner shall transfer the construction records in subsections (a) - (c) of this section to a permanent, secure location designated by the owner that is immediately accessible to the owner as described in §299.46 of this title (relating to Records).

**§299.24. Construction Progress Reports.**

(a) The owner shall have a professional engineer provide the following information to the executive director in writing within ten working days after construction on the dam commences:

(1) the actual start date;

(2) the contractor's name and address; and

(3) the name and telephone number of the professional engineer or inspector that will be on site during construction.

(b) The owner shall have a professional engineer submit monthly reports of progress on high- and significant-hazard dams to the executive director during construction. The report must include:

- (1) the work accomplished during the month;
- (2) the percent of the contract time used;
- (3) the percentage of completion of the project on the date of the report;
- (4) a description of problem areas encountered during construction;
- (5) the dates of the reporting period; and
- (6) any changes in the contact information.

**§299.25. Construction Inspection.**

(a) The owner shall have a professional engineer, or a qualified inspector, provided the inspector is under the direct supervision of the owner's professional engineer, conduct inspections of the construction work to determine if the work is in compliance with approved construction plans, specifications, and accepted engineering practices.

(b) The executive director may make periodic inspections of the construction to determine if the dam is in compliance with approved plans and specifications. If the executive director's inspection reveals that the dam is not being constructed according to the approved construction plans and specifications, the executive director shall notify the owner by telephone and in writing as outlined in the most current

version, at the time of the evaluation, of the agency's *Design and Construction Guidelines for Dams in Texas* of the deficiency items or violations noted. The executive director shall direct the owner to take the necessary action to bring the project into compliance with the approved plans and specifications within 30 days after being notified.

(c) The owner, at the owner's expense, shall submit documentation of the work or tests performed or sufficient information to enable the executive director to determine if conformity with approved plans and specifications is accomplished.

**§299.26. Construction Change Orders.**

(a) The owner shall submit any proposed changes to the approved construction plans and specifications to the executive director for review and approval as a construction change order as defined in §299.2(13) of this title (relating to Definitions). The construction change order must be signed, sealed, and dated by a professional engineer.

(b) The owner shall submit a construction change order before work starts on the proposed changes, if possible. If there is an emergency requiring immediate action, a construction change order may be submitted after the work is performed. However, the owner or the owner's professional engineer shall inform the executive director by telephone or electronic mail of the action being taken as soon as the situation allows, but no later than 24 hours after becoming aware of the emergency or the need for a change order. If the time needed for an approval of a change order will require that the construction be halted, the work may be performed once the construction change order is signed, sealed, and dated by the

owner's professional engineer and submitted for review. However, if the construction change order is not approved, the owner shall be responsible for having any work performed or modified to reflect the approved construction change order, as needed.

(c) The executive director shall review a construction change order according to the most current version, at the time of the review, of the agency's *Design and Construction Guidelines for Dams in Texas*.

(d) The executive director may request that the owner submit a construction change order if, during construction, the executive director finds that changes to the construction plans and specifications are necessary to ensure the integrity of the dam.

(e) If the proposed construction change order would result in a change in the permitted water rights, the owner shall submit an application for an amendment of the water rights permit.

**§299.27. Closure of Dam.**

(a) The owner shall have a professional engineer submit a written request to close the dam to the executive director for approval as described in the most current version, at the time of the closure, of the agency's *Design and Construction Guidelines for Dams in Texas* before beginning closure of the dam.

The request must include:

- (1) a copy of the owner's emergency action plan; and

(2) documentation that all parts of the proposed plan for closure of the dam, as described in §299.22(d)(2)(B) of this title (relating to Review and Approval of Construction Plans and Specifications), have been met.

(b) The owner may begin closure of the dam after receiving written approval from the executive director.

(c) If appropriate, the owner shall notify the executive director in writing that the gate operation plan has been completed with the request for closure of the dam as described in §299.32 of this title (relating to Gate Operation Plan).

**§299.28. Deliberate Impoundment.**

(a) The owner of a dam and reservoir designed to impound more than 1,000 acre-feet at normal storage capacity shall submit a written request to the executive director to begin deliberate impoundment of water, as defined in §299.2(17) of this title (relating to Definitions). The owner shall submit a letter from the owner's professional engineer stating that the dam is substantially complete.

(b) The owner may begin deliberate impoundment after receiving written approval from the executive director.

**§299.29. Notification of Completion.**

(a) The owner shall have the professional engineer of record submit written notification, which is sealed, signed, and dated, to the executive director within 45 calendar days after the work is substantially completed on the construction of a proposed dam or the reconstruction, modification, enlargement, rehabilitation, alteration, or repair of an existing dam. This notification may be submitted separately from the record drawings.

(b) The owner's professional engineer shall state that, to the best of the professional engineer's knowledge, the construction or reconstruction, modification, enlargement, rehabilitation, alteration, or repair was completed in substantial compliance with the approved plans and specifications and any approved construction change orders.

(c) For projects excepted under §299.5 of this title (relating to Exception), the owner shall notify the executive director in writing that construction or reconstruction, modification, enlargement, rehabilitation, alteration, or repair was completed.

**§299.30. Record Drawings.**

(a) Within six months after final completion of construction, the owner shall submit to the executive director a complete set of record drawings of the project for filing with the permanent records. These record drawings must show all revisions made during construction, including the permanent reference mark(s); be sealed, signed, and dated by the professional engineer; and be identified as final record drawings.

(b) If no changes were made during construction, the owner may submit in writing a statement, which is signed, sealed, and dated by the professional engineer, that no changes were made during construction.

**§299.31. Permanent Reference Mark.**

The owner of a proposed dam or a dam proposed to be reconstructed, modified, enlarged, rehabilitated, altered, or repaired shall have the professional engineer of record establish one or more permanent reference mark(s) for future use near, but separate from, the project. Accurate location(s) and elevation(s) above mean sea level for the permanent reference mark(s) must be shown on the record drawings. Horizontal and vertical measurements recorded with a global positioning system (GPS) receiver must be based on the North American Datum of 1983 and the North American Vertical Datum of 1988 horizontal and vertical reference datums. Elevation data must be recorded using a survey instrument or survey grade GPS receiver. Latitude and longitude measurements must be provided in decimal degrees to six decimal places.

**§299.32. Gate Operation Plan.**

The owner shall have a professional engineer develop a gate operation plan, as described in §299.44(c) of this title (relating to Gate Operation Plan), for the owner of a proposed dam with a gated principal spillway before completion of construction.

**§299.33. Operation and Maintenance.**

(a) The owner shall develop operation and maintenance procedures as described in §299.43 of this title (relating to Operation and Maintenance) for all proposed dams before completion of construction.

(b) If applicable, the owner shall provide the date that the owner will turn over the operation and maintenance of the dam to a property owner association, homeowner association, or other designated group and the new contact information in writing to the executive director.

## **SUBCHAPTER D: OPERATION AND MAINTENANCE OF DAMS**

### **§§299.41 - 299.46**

#### **STATUTORY AUTHORITY**

These new sections are adopted proposed under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.41. Owner's Responsibilities.**

(a) The owner shall be responsible for operating and maintaining the dam and appurtenant structures in a safe manner.

(b) The owner shall be responsible for addressing all maintenance and safety concerns at the dam and appurtenant structures identified during any inspections conducted by the executive director or the owner.

(c) The owner shall ensure that necessary maintenance, repairs, alterations, or modifications are initiated and completed in a timely manner following any inspection.

(d) Nothing in this chapter or in orders issued by the commission shall be construed to relieve an owner of a dam or reservoir of the legal duties, obligations, or liabilities incident to ownership or operation.

**§299.42. Inspections.**

(a) Periodic engineering inspections by the executive director.

(1) The executive director may enter any person's property at any time for the purpose of inspecting any dam to determine if the dam is being maintained in a safe manner.

(2) The executive director shall perform periodic engineering inspections of dams based on hazard classification, as defined in §299.14 of this title (relating to Hazard Classification Criteria), on the following frequency.

(A) High-hazard dams shall be inspected once every five years.

(B) Significant-hazard dams shall be inspected once every five years.

(C) Large dams, as defined in §299.13 of this title (relating to Size Classification Criteria), in the low-hazard classification shall be inspected once every five years.

(D) Small and intermediate dams, as defined in §299.13 of this title, in the low-hazard classification shall not be included in the periodic inspection program. These dams may be inspected for the purposes of:

(i) determining hazard classification;

(ii) assessing condition of the dam following an emergency such as a flooding event;

(iii) assessing condition of the dam that could threaten the integrity of the dam as a result of a request by the owner;

(iv) assessing the condition of the dam as a result of a complaint; or

(v) assessing the condition of a dam as a result of a request from someone other than the owner.

(3) The executive director's engineering inspection may consist of:

(A) conducting a visual inspection and evaluation of the condition of the dam and appurtenant structures, the downstream area, and any other areas affected by the dam;

(B) taking measurements of elevations, dimensions, slopes, and locations of the dam and appurtenant structures;

(C) taking photographs for documentation;

(D) conducting an evaluation of the hazard classification to determine if the classification should be changed as a result of the inspection;

(E) reviewing and evaluating the owner's operation, maintenance, and inspection programs and all other records; and

(F) reviewing the owner's emergency action plan, including the gate operation plan if applicable.

(4) The executive director shall prepare a written inspection report that provides the findings from the inspection and lists recommendations for actions to be taken to assist the owner in maintaining the continued integrity, safety, and operation of the dam. The executive director may require the owner to have the owner's professional engineer perform hydrologic, hydraulic, or structural evaluations of the dam as described in Subchapter B of this chapter (relating to Design and Evaluation of

Dams). The executive director shall provide the owner with a copy of the written report, or letter, as soon as practical after the inspection.

(5) The owner shall provide a written response to the executive director, if requested, and include a plan of action with time frames for addressing all of the executive director's recommendations from the inspection.

(b) Inspections by the owner.

(1) The owner, or the owner's representative, shall inspect the dam and appurtenant structures on a regular time frame as part of the owner's operation and maintenance procedures, as defined in §299.43 of this title (relating to Operation and Maintenance), following significant rainfall events, and during emergency events as described in §299.61 of this title (relating to Emergency Action Plans). The owner or the owner's representative shall perform maintenance inspections at least once a year.

(2) The owner shall notify the executive director by telephone or electronic mail within 72 hours and in writing within five working days after becoming aware of any problems or damage that pose a significant threat to the dam's safety, integrity, or operation.

(3) The owner shall submit a copy of all engineering inspection reports prepared by the owner's professional engineer under this section to the executive director for review within 45 calendar days after receipt of the report from the professional engineer. The report prepared by the owner's

professional engineer must consist of the inspection date, description of the items observed during the inspection, the findings, and recommendations.

(4) The owner may elect to have an engineering inspection by a professional engineer more frequently than described in subsection (a)(2) of this section. The executive director may use the engineering inspection report prepared for the owner by the professional engineer in lieu of making a periodic inspection as described in subsection (a)(2) of this section. A report prepared by a professional engineer with the Federal Energy Regulatory Commission, Natural Resources Conservation Service, Bureau of Reclamation, Corps of Engineers, or Mine Safety and Health Administration may also be used in lieu of the periodic inspection described in subsection (a)(2) of this section.

**§299.43. Operation and Maintenance.**

(a) The owners of all dams shall develop and implement an operation and maintenance plan . The owner may use the most current version, at the time of the plan development, of the agency's *Guidelines for Operation and Maintenance of Dams in Texas*, a manual, a checklist, or some other procedure to demonstrate implementation of the program. Operation and maintenance activities that must be addressed include, but are not limited to:

(1) the schedules for both engineering and maintenance inspections performed by the owner or the owner's professional engineer;

(2) any restrictions imposed by the professional engineer's design;

(3) a list of maintenance items and a schedule for addressing each item, including, but not limited to:

(A) replacing riprap;

(B) eliminating animal burrows;

(C) removing blockage from the principal spillway inlet and outlet structures and removing obstructions from the emergency spillways, including fences;

(D) lubricating, repairing, painting, and exercising gates or valves, if in working condition, or if applicable;

(E) removing corrosion on gates and other metal appurtenant structures;

(F) sealing of cracks and joints in concrete;

(G) preventing or controlling erosion, including animal and vehicular trails and wave action erosion;

(H) eliminating small trees (less than or equal to four inches in diameter) and brush on the dam and all trees and brush in the spillways and adjacent to concrete structures;

(I) maintaining adequate grass cover on earthen dams and spillways;

(J) maintaining proper function of foundation or toe drains; and

(K) correcting any other items that may impact the dam or appurtenant structures;

and

(4) if applicable, a plan for monitoring instrumentation in the dam and appurtenant structures, to include:

(A) a list of all types of instruments, instrument number, and locations;

(B) schedules and procedures for reading and maintenance of each instrument;

and

(C) a list of critical readings for each instrument and the process to follow if critical readings are measured.

(b) The owner shall document operation and maintenance activities undertaken and shall provide the documentation to the executive director for review as soon as possible upon request of the executive director.

**§299.44. Gate Operation Plan.**

(a) The owners of all existing intermediate- and large-size dams, as defined in §299.13 of this title (relating to Size Classification Criteria), with gated spillways shall have a professional engineer develop a gate operation plan within two years after the effective date of the rules. The owner's professional engineer shall notify the executive director in writing that the gate operation plan has either been completed or a gate operation plan exists that meets the requirement of this section. If an owner cannot complete the gate operation plans within the two years required in subsection (b) of this section, the owner shall request an extension of time showing cause or a reasonable basis for the need for an extension and providing a time frame to complete. The request shall be submitted to the executive director for review and approval.

(b) The gate operation plan must include:

(1) gate procedures for use during normal operating conditions, flood events, other varying hydrologic events, and power failures; and

(2) a method for coordinating releases with owners of other dams in the river basin, if applicable.

(c) The gate operation plan shall be considered an appendix to the owner's emergency action plan. If the owner submits a copy of the gate operation plan to the executive director, the executive director shall file it with the owner's emergency action plan in the agency's confidential, permanent records.

**§299.45. Emergency Repairs.**

(a) The owner shall undertake emergency repairs under the supervision of a professional engineer and implement the emergency action plan as soon as possible after the emergency is discovered and evaluated. The owner may start emergency repairs without approval from the executive director.

(b) The owner shall notify the executive director by telephone, electronic mail, or facsimile of the action being taken as soon as the emergency situation allows, but no more than 12 hours after the emergency is discovered and evaluated.

(c) The owner shall have a professional engineer develop plans for permanent repairs as soon as the emergency is over. The owner shall have a professional engineer submit the plans for review and approval, as described in §299.22 of this title (relating to Review and Approval of Construction Plans and Specifications).

**§299.46. Records.**

(a) All owners shall maintain records, if available, on the inspection, operation, and maintenance of their dams, including, but not limited to:

- (1) inspection checklists, reports, and correspondence;

- (2) a log of all operation and maintenance activities undertaken;
  - (3) a gate operation plan, if applicable;
  - (4) a log of all repairs undertaken, including the date of the repairs and the work performed;
  - (5) a log of instrumentation readings, if applicable;
  - (6) a log of all flood events and emergencies; and
  - (7) approved plans, record drawings, specifications, approval letters, construction records, and other engineering and design reports.
- (b) Owners shall maintain legible or electronic copies in a secure location, designated by the owner, that is immediately accessible to the owner for the life of the dam.
- (c) Owners shall provide copies of all records or access to view the records to the executive director upon request.
- (d) An owner shall provide all records to a new owner when there is an ownership change.

## **SUBCHAPTER D: REMOVAL OF DAMS**

### **§299.51**

#### **STATUTORY AUTHORITY**

The repeal is adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

The adopted repeal implements TWC, §§5.103, 5.105, and 12.052.

#### **§299.51. Removal of Dams and Reservoirs.**

## **SUBCHAPTER E: REMOVAL OR BREACH OF DAMS**

### **§299.51, §299.52**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.51. Removal or Breach of Dams.**

(a) Owners proposing to remove or breach a dam, or owners ordered to remove a deficient dam by the executive director, the commission, or court action, shall submit final plans and specifications to the executive director for review and approval before start of work to remove or breach the dam.

(b) The owner shall have a professional engineer submit to the executive director sealed, signed, and dated plans for removing or breaching a dam as outlined in the most current version, at the time of the design, of the agency's *Dam Removal Guidelines*.

(c) The owner may be required to address environmental or social impacts as described in the most current version, at the time of the design, of the agency's *Dam Removal Guidelines*, which may require approval from other agencies before work can begin.

(d) The owner may be required to restore the dam site to blend with the topography of the lake area .

(e) If the plans for removal or breaching meet the requirements in subsection (b) of this section, the executive director shall issue written approval to the owner.

(f) The owner shall provide the executive director within 45 days after completion of the breach or removal a notification of completion. The executive director shall conduct an inspection after receipt of notification of completion to verify that the removal or breach has been completed in agreement with the plans.

**§299.52. Abandonment of Dams.**

If an owner abandons a dam at any time, regardless of hazard classification, the owner shall remove or breach the dam, as described in §299.51 of this title (relating to Removal or Breach of Dams), at the owner's expense, to eliminate any hazard to life and property downstream.

## **SUBCHAPTER E: EMERGENCY ACTION**

### **§299.61**

#### **STATUTORY AUTHORITY**

The repeal is adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

The adopted repeal implements TWC, §§5.103, 5.105, and 12.052.

#### **§299.61. Emergency Action.**

## **SUBCHAPTER F: EMERGENCY MANAGEMENT**

### **§299.61, §299.62**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.61. Emergency Action Plans.**

(a) The owners of all high- and significant-hazard dams, as defined in §299.13 of this title (relating to Size Classification Criteria) and §299.14 of this title (relating to Hazard Classification Criteria), shall prepare an emergency action plan to be followed by the owner in the event or threat of a dam emergency.

(b) The owner of an existing high- or significant-hazard dam shall submit the emergency action plan to the executive director for review within two years after the effective date of the rules unless an extension of the time frame is requested and approved by the executive director as described in subsection (d) of this section.

(c) The owner of a proposed high- or significant-hazard dam shall submit the emergency action plan to the executive director before either requesting closure of the dam or upon completion of construction of the dam, if the dam does not require a closure section.

(d) The owner shall prepare the emergency action plan using guidelines provided by the executive director or using a format approved by the executive director before the plan is prepared. If an owner owns more than one dam, the owner shall prepare a plan, with timelines, for preparing emergency action plans based on priority determined by hazard and submit the plan to the executive director for review. If an owner cannot complete the emergency action plan within the two years required in subsection (b) of this section, the owner shall request an extension of time showing cause or a reasonable basis for the need for an extension and providing a time frame to complete. The request shall be submitted to the executive director for review and approval.

(e) The executive director shall review the emergency action plan and provide any comments in writing to the owner.

(f) The executive director shall file the emergency action plan in the agency's confidential, permanent records.

(g) The owner shall review the emergency action plan annually, update the emergency action plan as necessary, and submit a copy of the updated portions of the emergency action plan to the executive director annually beginning three years after the effective date of this section. If the emergency action plan was reviewed by the owner and no updates were necessary, the owner shall submit written notification to the executive director that no updates to the emergency action plan have been adopted or implemented.

(h) The owner shall perform a table top exercise of the emergency action plan on the frequency provided in the owner's emergency action plan, or at least every five years. A table top exercise is a meeting of the owner and the state and local emergency management personnel in a conference room setting .

**§299.62. Security of Dams.**

(a) Owners of high-hazard dams that are notified in writing by the executive director within six months of the effective date of these rules of dams that may need increased security shall address:

(1) security at the owner's dams to prevent unauthorized operation or access; and

(2) backup power requirements to ensure operation of the dam and appurtenant structures.

(b) The owner shall develop a security plan for the dam within two years of being notified by the executive director and shall submit the security plan to the executive director for review and comment. If an owner cannot complete the security plan within the two years, the owner shall request an extension of time showing cause or a reasonable basis for the need for an extension and providing a time frame to complete. The request shall be submitted to the executive director for review and approval.

(c) The executive director shall file the security plan in the agency's confidential, permanent files.

## **SUBCHAPTER G: ENFORCEMENT**

### **§299.71, §299.72**

#### **STATUTORY AUTHORITY**

These new sections are adopted under the authority granted to the commission in Texas Water Code (TWC), §5.012, which provides that the commission is the agency responsible for implementing the constitution and laws of the state relating to conservation of natural resources and protection of the environment; §5.013, which establishes the commission's authority over various statutory programs, such as dam safety; §5.103 and §5.105, which establish the commission's general authority to adopt rules; §12.052, which establishes the commission's authority to promulgate rules for the safe construction, maintenance, repair, and removal of dams located in this state; and §7.002, which authorizes the commission to enforce provisions of the TWC.

These adopted new sections implement TWC, §§5.103, 5.105, and 12.052.

#### **§299.71. Enforcement.**

(a) If the executive director alleges violations of this chapter, enforcement action may be pursued according to Texas Water Code, Chapter 7 and §70.5 of this title (relating to Remedies). Remedies include:

(1) seeking an emergency order from the commission to either reconstruct, modify, alter, or repair the deficient dam or remove the dam as described in §299.72 of this title (relating to Emergency Orders); or

(2) referring to the Office of the Attorney General for civil judicial action, including the assessment of civil penalties and injunctive relief.

(b) An owner who willfully fails or refuses to take appropriate action within the time frames addressed in the appropriate executive director enforcement letters is liable for a penalty of not more than \$5,000 a day for each day the violation continues.

**§299.72. Emergency Orders.**

According to the provisions of Texas Water Code, §12.052, and Chapter 35 of this title (relating to Emergency and Temporary Orders and Permits; Temporary Suspension or Amendment of Permit Conditions), the commission may issue emergency orders, without notice to the owner, directing the owner of a deficient dam to take immediate and appropriate action to remedy situations posing a threat to human life or property.