

DEPARTMENT OF NATURAL
RESOURCES

TITLE 458, RULES FOR SAFETY OF DAMS AND
RESERVOIRS

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Title 458 - RULES FOR SAFETY OF DAMS AND RESERVOIRS

Chapter 1 - DEFINITIONS

001. For purposes of Title 458, the definitions found in the Safety of Dams and Reservoirs Act, Neb. Rev. Stat. §§ 46-1601 to 46-1670, and the following definitions apply:

001.01. Act means the Safety of Dams and Reservoirs Act, Neb. Rev. Stat. §§ 46-1601 to 46-1670.

001.02. Application includes an application form, plans, and specifications.

001.03. Consulting Board means the board appointed by the Department under Neb. Rev. Stat. § 46-1645.

001.04. Department means the Nebraska Department of Natural Resources.

001.05. Dam shall have the same meaning as the definition found in Neb. Rev. Stat. § 46-1611.

001.06. Diversion Structure means a structure constructed solely for the purpose of raising water to divert it into a canal. The height of the structure must be limited such that it provides only this function and does not create unnecessary storage.

001.07. Landowner means person or persons with recorded title to land where a Dam and Reservoir are or will be located.

001.08. Plan or Plans mean engineering drawings, design reports, hazard classification studies, geotechnical reports, and other studies as required.

001.09. Reservoir shall have the same meaning as the definition found in Neb. Rev. Stat. § 46-1631.

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Chapter 2 - FEES

001. The filing fee for an application for approval of the construction, enlargement, reconstruction, alteration, or abandonment of a Dam shall be determined by measuring the height of the Dam from the natural bed of the stream or watercourse at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier, if it is not across a stream channel or watercourse, to the maximum storage elevation. Filing Fees are as follows:

001.01. One-hundred and fifty dollars (\$150.00) for Dams less than twenty-five (25) feet in height.

001.02. Two-hundred and fifty dollars (\$250.00) for Dams twenty-five (25) feet in height to not more than fifty (50) feet in height.

001.03. Three-hundred and fifty dollars (\$350.00) for Dams in excess of fifty (50) feet in height.

001.04. Twenty-five dollars (\$25.00) for an application to remove or breach a Dam.

003 There is no cost for filing a construction certification form for Dams.

004. The amount of the filing fee for the approval of Plans of a previously constructed Dam is the same as the amount for construction of a new Dam of the same size.

005. All fees in this section are nonrefundable.

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Chapter 3 - REQUIREMENTS FOR APPLICATION APPROVAL AND NOTICE

001. APPLICATIONS. Any person intending to construct, enlarge, reconstruct, alter, abandon, breach, or remove a Dam must file an Application and obtain Application approval prior to construction, enlargement, reconstruction, alteration, abandonment, breach, or removal of the Dam. The Application must be accompanied by the filing fee.

001.01. The applicant's engineer is required to meet with the Department in a pre-design conference prior to submission of an Application for a significant or high hazard class Dam.

001.02. Applications must be made on a form provided by the Department. Plans and specifications must be submitted with the Application form.

001.03. If the proposed project will also require a surface water storage appropriation under Neb. Rev. Stat. § 46-241, the Application may be submitted with the application for a surface water storage appropriation or anytime within one hundred and eighty (180) calendar days of the filing of the application for the surface water appropriation. If the Application is not filed within the one hundred and eighty calendar days the application for a surface water storage appropriation shall be dismissed.

001.04. If the owner of the Dam is not the Landowner of the land where the Dam and Reservoir will be located, the Application shall be accompanied by documentary evidence describing the relationship and responsibilities of the owner of the Dam and the owner of the land as it relates to the Dam and Reservoir. Acceptable documentary evidence includes but is not limited to leases, contracts, memoranda of agreements, easements, options to buy or authority to condemn under existing laws for purposes of construction of a Dam and Reservoir. The Application will not be approved if the owner of the Dam does not have sufficient legal authority to construct, operate, and maintain the Dam and Reservoir for its anticipated design life or sufficient authority to comply with any order the Department issues regarding the safety of the Dam or operation of the Dam and Reservoir.

001.05. The Application must be signed by all the owners of the Dam and Reservoir.

001.06. The Application shall include the name, mailing address, email address, and telephone number of the person or persons responsible for maintaining and operating the Dam and Reservoir. Each person's responsibilities shall be described in sufficient detail to provide the Department with an understanding of who is responsible for each aspect of the Dam's maintenance and operation along with accurate information about how each person can be contacted. The Application must include

copies of all contracts or other agreements between the applicant and the person responsible for operation and/or maintenance of the Dam and Reservoir.

001.07. Dams are required to have an outlet for releasing water in compliance with Neb. Rev. Stat. § 46-241(5). If the Dam is designed without an outlet, a request for a waiver as described in Department rule Title 458, Chapter 5 must accompany the Application for approval.

001.08. If the Dam is classified as high hazard potential, an emergency action plan that meets the requirements of Neb. Rev. Stat. § 46-1647 should be submitted along with the Application. If the Dam is classified as a significant hazard Dam, the Department will notify the applicant if an emergency action plan is required and when the plan must be filed.

001.09. The Department will return Applications that are incomplete or incorrectly filled out to the applicant. The corrected or completed Application must be returned to the Department within ninety days or the Application will be dismissed. Any associated Application for a surface water appropriation will also be dismissed. Fees will not be refunded.

001.10. The Department may waive any of the requirements of this chapter if the requirements are unnecessary for the Application approval.

002. PLANS AND SPECIFICATIONS.

002.01. A Nebraska licensed engineer shall prepare and seal all Plans and specifications. The engineer may be assisted, under their control, by qualified engineering geologists, geotechnical engineers, geologists, and other specialists as necessary. Plans and specifications submitted to the Department shall be as detailed as they would be for submission to contractors bidding on the work.

002.02. Detailed specifications or references to standard specifications for both materials and construction aspects shall accompany the Plans. The specifications shall be those currently acceptable and normally used by design and construction professionals. Material specifications are those specifications which will cover the materials proposed to be used. Construction specifications are those specifications describing how the work (construction, enlargement, reconstruction, alteration, abandonment, breach, or removal) is to be accomplished, the sequence of procedures to be followed, the limitations, and the desired results.

002.03. Plans for construction, enlargement, reconstruction, alteration, abandonment, breach, or removal of a Dam shall conform to the following:

002.03A. Be made on sheets with minimum dimensions of 11 inches by 17 inches and maximum dimensions of 22 inches by 34 inches and shall have adequate margins on all sides.

002.03B. Be of such clarity and with distinct characters of such size as to retain clarity and resolution when reduced to 11 inches by 17 inches.

Characters shall not be smaller than one-tenth inch on the 11 inches by 17 inches drawings and two-tenths inch on the 22 inches by 34 inches drawings.

002.04. Plans shall include the following information:

002.04A. A map showing the outside limits of the Reservoir water line at maximum storage elevation and at normal storage elevation, the Dam location, the government subdivisions in which the Dam and Reservoir are located including the quarter section, section, township, range, and county; the location and name of any and all streams which are the source of water or on which the Dam is located and, if applicable, the location of any pump or diversion facility used to provide water to the Reservoir.

002.04B. The latitude and longitude of the intersection of the Dam centerline with the natural stream channel. Latitude and longitude must be referenced to the North American Datum of 1983.

002.04C. The course of the stream or watercourse and the drainage area boundary upstream from the proposed or existing Dam.

002.04D. The area, time of concentration, and runoff curve number of the drainage basin.

002.04E. The elevations, dimensions, materials, and maximum capacities of all spillways. Elevations shall be referenced to the North American Vertical Datum of 1988.

002.04F. All pertinent hydrologic and hydraulic data. For each design storm analyzed, indicate the following:

002.04F1. The design rainfall and runoff amount,

002.04F2. The recurrence interval,

002.04F3. The peak inflow into the Reservoir,

002.04F4. The maximum discharge from each spillway,

002.04F5. The peak Reservoir elevation and flow velocity in the auxiliary spillway, and

002.04F6. The results of the auxiliary spillway stability analysis.

002.04G. A topographic map of the Dam site and the return area to the natural channel from all conduits and spillway(s). The map must be derived from on site or Light Detection and Ranging (LiDAR) survey and show two-foot contour intervals or less.

002.04H. A topographic map of the Reservoir within the Reservoir area. The map must be derived from on site or Light Detection and Ranging

(LiDAR) survey and show two-foot contour intervals or less.

002.04I. A table showing the Reservoir surface area and incremental and cumulative Reservoir storage at two-foot elevation intervals and at the crest elevation of the drawdown, principal and auxiliary spillways, other outlets, and the top of Dam elevation.

002.04J. The cross sections listed below, with all elevations referred to in the cross sections referenced to the North American Vertical Datum of 1988 or an assumed benchmark.

002.04J1. The valley along the centerline of the Dam showing the profile of the top of the Dam and the original ground line;

002.04J2. A maximum cross section perpendicular to the Dam centerline and other cross-sections or views to clarify construction details;

002.04J3. Other cross-sections, profiles, or plan views showing the location and elevations of the drawdown works, spillways, and other components.

002.04K. If there are multiple owners or there are easements appurtenant to the land where the Dam and Reservoir are located, a plan of survey showing the boundary line of each ownership and easement. The plan of survey shall include labels to indicate separate ownerships or easements. This drawing must agree with the information provided in the Application described in Chapter 3 § 001.04 of these rules.

002.04L. The certificate of the engineer responsible for design of the facility. Examples of engineer's certificates are available on the Department's web site. The engineer's certificate shall include a designation of the hazard classification for the Dam. The certificate shall be on the first sheet of the drawings. The engineer's certificate is a statement of opinion by a professional engineer stating that the work has been conducted in accordance with the normal standard of care for the dam engineering practice within the United States.

003. NOTICE.

003.01. The owner of any Dam must promptly notify the Department of any change in the ownership of the Dam or Reservoir or of the land where the Dam and Reservoir are located; and, of any changes in responsibility for the maintenance or operation of the Dam or Reservoir, including who is responsible for any releases from the Reservoir. Notification must be made on the form provided by the Department.

003.02. The owner of any Dam must promptly notify the Department in writing of any change of address of the owner or person responsible for maintenance or operation of the Dam or Reservoir.

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Chapter 4 - REQUIREMENTS FOR DAMS CONSTRUCTED PRIOR TO SEPTEMBER 4, 2005, AND NOT PREVIOUSLY APPROVED BY THE DEPARTMENT.

001. This Chapter applies to all Dams that were completed prior to September 4, 2005, but have not been approved by the Department pursuant to Neb. Rev. Stat. §46-1670.

002. The Department may waive any of the requirements of this chapter if the requirements are unnecessary for the Application approval.

003. APPLICATIONS. Application must be made on a form provided by the Department. Plans and specifications for the Dam must be submitted to the Department with the Application form. The filing fee shall accompany the Application.

003.01. If a surface water appropriation is required for the storage Reservoir in accordance with Neb. Rev. Stat. § 46-241, the Plans, specifications, and Application for approval shall be submitted at the same time as the application for a surface water appropriation.

003.02. If the owner of the Dam is not the Landowner of the land where the Dam and Reservoir are, the Application shall be accompanied by documentary evidence describing the relationship and responsibilities of the owner of the Dam and the Landowner. Acceptable documentary evidence includes but is not limited to leases, contracts, memoranda of agreement, or easements. The Application will not be approved if the owner of the Dam does not have sufficient legal authority to operate and maintain the Dam and Reservoir for its anticipated design life or sufficient authority to comply with any order the Department issues regarding the safety of the Dam or operation of the Dam and Reservoir.

003.03. The Application form must be signed by all the owners of the Dam and Reservoir.

003.04. The Application shall include the name, mailing address, email address, and telephone number of the person or persons responsible for maintaining and operating the Dam and Reservoir. Each person's responsibility shall be described in sufficient detail to provide the Department a complete description of each person's duties and responsibilities and accurate information about how each person can be contacted. The Application must include copies of all contracts or other agreements between the applicant and the person responsible for operation and/or maintenance of the Dam and Reservoir.

003.05. If the Dam does not have an outlet for releasing water in compliance with Neb. Rev. Stat. § 46-241(5), a request for a waiver as described in Department rule Title 458, Chapter 5 must accompany the

application for approval.

003.06. The Department will return Applications that are incomplete or incorrectly filled out to the applicant. The corrected or completed Application must be returned to the Department within ninety days. Failure to refile within 90 days will result in the forfeiture of the fees, and dismissal of the Application. If applicable, the Application for an associated surface water storage appropriation will also be dismissed.

004. PLANS. A Nebraska licensed engineer shall prepare all Plans and specifications. The engineer may be assisted, under their control, by qualified engineering geologists, geotechnical engineers, geologists, and other specialists as necessary. Plans and specifications shall be as detailed as they would be for submission to contractors bidding on work. Plans shall include:

004.01. A topographic map of the Reservoir area as determined by on-site or Light Detection and Ranging (LiDAR) surveys with two-foot contour intervals or less.

004.02. A table showing the incremental and cumulative Reservoir surface area and Reservoir storage at two-foot elevation intervals and at the crest elevation of the drawdown, the principal and auxiliary spillways, other outlets and the top of Dam elevation.

004.03. A map showing the outside limits of the Reservoir water line at maximum storage elevation and at normal storage elevation, the Dam location, the government subdivisions in which the Dam and Reservoir are located including the quarter section, section, township, range, and county; the location and name of any and all streams which are the source of water or on which the Dam is located and, if applicable, the location of any pump or diversion facility used to provide water to the Reservoir.

004.04. The height of the Dam from the downstream toe of the Dam to the maximum storage elevation.

004.05. All elevations referred to in the cross sections below must refer to the North American Vertical Datum of 1988 or an assumed benchmark.

004.05A. The valley along the centerline of the Dam showing the profile of the top of the Dam and the original ground line;

004.05B. A maximum cross section perpendicular to the Dam centerline and other cross-sections or views to clarify construction details;

004.05C. Other cross-sections, profiles or plan views showing the location and elevations of the drawdown works, spillways, and other components.

004.06. Elevations, dimensions, materials, and maximum capacities of all spillways.

004.07. If there are multiple owners or there are easements appurtenant to the land where the Dam and Reservoir are located, a plan of survey showing the boundary line of each ownership and easement. The plan of survey shall include labels to indicate separate ownerships or easements. This drawing must agree with the information provided in the Application described in Chapter 4 § 002.02 of these rules.

004.08. A statement, certified by an engineer, as to the hazard classification of the Dam and whether it is subject to the Act.

005. EMERGENCY ACTION PLANS.

005.01. An emergency action plan that meets the requirements of Neb. Rev. Stat. § 46-1647 must be submitted with an Application if the Dam is classified as a high hazard Dam. If the Dam is classified as a significant hazard Dam, the Department will notify the applicant if an emergency action plan is required and when the plan must be filed.

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Chapter 5 - OUTLET WORKS

001. In order to protect the rights of persons downstream and to facilitate compliance with interstate compacts, decrees, and agreements, all Dams, including all structures subject to Chapter 3 and 4 of these rules, are required to have an outlet works. An outlet works may also be required to facilitate lowering of the Reservoir level during a dam-related emergency or for required maintenance. The Department may waive the requirement for an outlet works if the owner of the Dam has an acceptable alternative method for passing water when ordered to do so. A request for a waiver must be filed on a form provided by the Department and must describe why an outlet works is not necessary, and how the owner of the Dam will meet the requirements of Neb. Rev. Stat. § 46-241(5) and be accompanied by the filing fee.

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Chapter 6 - COMPLETION CERTIFICATION

001. The owner of a Dam shall file with the Department a completion certification after completion of a new or reconstructed Dam and Reservoir or enlargement of a Dam and Reservoir, or the alteration of any Dam. The completion certification shall be on a form provided by the Department accompanied by supplementary drawings or descriptive matter signed and sealed by the engineer, showing or describing the work as actually completed. The drawings and descriptive matter shall substantially conform to the requirements for Plans and specifications in Chapter 3 of these regulations. If the construction, reconstruction, enlargement, or alteration of the Dam and Reservoir meet the requirements of the Act and these regulations, the Department will issue an approval to operate to the owner.

002. The owner of a Dam shall file with the Department a completion certification after completion of the removal, breach, or abandonment of the Dam. The completion certification shall be made on a form provided by the Department , and signed by the dam owner or the engineer responsible for the work if required by the Department.

003. Signing of the completion certification by the engineer means that the work has been conducted in accordance with the normal standard of care for the dam engineering practice within the United States.

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Chapter 7 - CONSULTING BOARD

001. When the safety and technical considerations pertaining to an Application approval, an approval to operate, or the Plans and specifications of a Dam require it, or when requested by the owner, the Department shall appoint a Consulting Board of three or more engineers to report to the Department on the safety features involved. The cost and expense of a Consulting Board, if appointed at the request of an owner, shall be paid by the owner.

002. Dam owners interested in having an independent third-party review performed shall submit their request to the Department in writing. The Department will not accept a request for review from anyone other than the owner of a Dam. The request must be accompanied by the filing fee and include the following information:

002.01. The purpose of requesting a Consulting Board review.

002.02. The application number or plan number assigned to the project by the Department.

002.03. A statement acknowledging that the Dam owner understands that the costs and expenses associated with the Consulting Board review are the responsibility of the Dam owner and that the Dam owner agrees to pay all such costs and expenses.

002.04. A statement acknowledging that the conclusions and recommendations of the Consulting Board are not binding upon the Department and that the Department maintains the final authority for the approval of all designs, reports, studies, and other engineering documents.

003. Any engineer willing to serve on a Consulting Board may submit their qualifications to the Department.

004. The Department shall maintain on its website a list of all engineers whom the Department has found to be qualified and willing to serve on a Consulting Board.

005. Upon receipt of a request for a Consulting Board review, the Department shall randomly appoint engineers on the list that are able to serve for the project described. Those appointed cannot have any conflict of interest concerning the project subject to review and shall not have been employed by the Dam owner within the last five years.

006. Once the Consulting Board is formed, the Department will schedule a meeting with the Dam owner, Department, and the Consulting Board to discuss the purpose and extent of the review and the time frame for completing the review. The Dam owner shall pay to the Consulting Board members one-half the probable costs of review prior to the start of the review.

007. The Consulting Board's role is to provide an independent review. Therefore, when reviewing Plans and specifications of another engineer, the Consulting Board shall send to the Department in writing any questions it has for the design engineer, or shall request the Department to schedule a meeting with the design engineer.

008. The Dam owner, the engineer, or any agent of the owner are prohibited from contacting or lobbying the Consulting Board except for contact made during meetings scheduled and attended by the Department. Any contact by the Dam owner, the engineer, or any agent of the owner with a member of the Consulting Board shall be documented in writing by the Consulting Board member and provided to the Department.

009. The Consulting Board shall compile a final report of its review and submit a copy to the Department and to the Dam owner.

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Chapter 8 - HAZARD POTENTIAL CLASSIFICATION

001. All Dams shall be classified as high hazard potential, significant hazard potential, low hazard potential, or minimal hazard potential as defined in these rules. The Department will accept only those hazard potential classifications made by an engineer with experience in classifying Dam hazard potential. The hazard potential classification of any Dam may be updated by the Department based on current conditions.

002. Any Dam to be constructed within the zoning limits of a city or a village must be designed and constructed as a high hazard potential Dam. This requirement can be mitigated or adjusted if development in the breach route area is sufficiently curtailed due to zoning restrictions, easements, deed restrictions, or other methods of restriction acceptable.

