

# Regulation 72-1 through 72-9

## Dams and Reservoirs Safety Act Regulations

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## **72-1 Definitions.**

A. “Department” means the South Carolina Department of Health and Environmental Control or its staff or agents.

B. “Board” means the Board of Health and Environmental Control.

C. “Dam” means any artificial barrier, together with appurtenant works, including but not limited to dams, levees, dikes or floodwalls for the impoundment or diversion of water or other fluids where failure may cause danger to life or property.

D. “Appurtenant works” include but are not limited to such structures as spillways, either in the dam or separate therefrom, low level outlet works and water conduits.

E. “Reservoir” means an area which contains or will contain the water or fluid impounded by a dam.

F. “Owner” means those who own, control, operate, maintain, manage or propose to construct a dam or reservoir. In cases where a dam has been abandoned by its owner (either intentionally or unintentionally), and it is necessary to reestablish ownership, the Department shall look first to those entities who hold title to the property on which the dam is constructed and those entities who have acquired some legal responsibility for the dam through covenants or other legal agreements, and secondarily to the other entities who fall under the definition of owner.

G. “Operate” a dam or reservoir means to perform functions intended to preserve or protect the dam or reservoir (or the area potentially impacted by the dam or reservoir). Examples of operator functions include removal or replacement of flashboards, opening or closing of gates, removal of accumulated trash at the spillway, and maintenance functions such as mowing grass on the dam, etc.

H. “Classification inspection” means visual examination of an existing dam or proposed dam site to determine the physical dimensions of the dam and reservoir and the hazard potential of the structure, irrespective of the structural safety of the dam itself.

I. “Preliminary inspection” means a visual but technical evaluation of the structural integrity and physical stability of a dam and may include an analysis of the dam’s ability to pass flood waters. The term “preliminary inspection” means also the recurring routine reinspections that the Department may schedule for certain dams.

J. “Detailed inspection” means all studies, investigations and analyses necessary to evaluate conclusively the structural safety and hydraulic capacity of a dam or reservoir and appurtenant works. This inspection may include but is not limited to soil analysis, concrete or earth stability analysis, materials testing, foundation explorations, hydrologic analysis, including basin studies and flood potential. This inspection shall be performed by a qualified registered professional engineer.

K. “Alteration” means any change to a dam or reservoir which affects the physical parameters and safety of the dam or reservoir which may include but is not limited to changing the height of a dam, increasing the normal pool or principal spillway elevation or changing the elevation or physical dimensions of an emergency spillway.

L. “Repairs” means any work done on a dam which may affect the safety of the dam. This includes but is not limited to work requiring excavation into the embankment fill or foundation of a dam or work requiring removal or replacement of major structural components of a dam.

M. “Removal” means the destruction or breaching of a dam or reservoir to the extent that no water or fluid can be impounded by the dam or reservoir.

N. “Order” means a written document prepared and issued by the Department which mandates specific actions to be accomplished by a dam owner within a specified time frame.

O. “Hazard Potential” means the potential for causing property damage or loss of human life in the event of failure or improper operation of a dam or reservoir.

P. “Engineer” means a registered professional engineer licensed to practice in the State or an individual employed by the USDA-Natural Resources Conservation Service with the title of “engineer” who is qualified and authorized to sign documents prepared and submitted by USDA-Natural Resources Conservation Service.

Q. “Probable Maximum Precipitation” (PMP) means the theoretically greatest-depth of precipitation for a given duration that is physically possible over a given area at a given time of year; these projected maximum precipitation numbers are arrived at by the National Weather Service by studying actual storm events that have occurred in similar climatic areas. Information on PMP is available in publications from the National Weather Service NOAA.

R. “Probable Maximum Flood” (PMF) means the largest flood that theoretically could occur at a given site during our present geological and climatic era. The initiating event in a PMF determination is the PMP.

S. “Height” of a dam is measured in feet from the top of the dam to the natural bed of the stream or water course at the downstream toe of the barrier; if the barrier is not across a stream or water course, height is measured from the top of the dam to the lowest elevation of the outside limit of the barrier.

T. “Storage capacity” or “impoundment storage” of a reservoir is defined to be the volume of water (normally measured in acre-feet) contained in the impoundment at maximum storage elevation (i.e., when water is at the top of the dam.)

**72-2 Dam Classifications and Exemptions.**

A. General. All dams and reservoirs subject to this regulation shall be classified according to their size and hazard potential. Classifications shall be made in accordance with this section and are subject to final approval by the Department. It may be necessary to reclassify dams as additional information becomes available.

B. Size Classification. The classification for size based on the height of the dam and storage capacity shall be in accordance with the table below. Size classification may be determined by either storage or height, whichever gives the larger size capacity.

Size Classification Table

Category	Impoundment		Height
	Storage		(Feet)
	(Acre Feet)		
Very Small	<50	and	<25

Small	≥50 and <1000	or	≥25 and <40
Intermediate	≥1000 and <50,000	or	≥40 and <100
Large	≥50,000	or	≥100

C. Hazard Potential Classification. The classification for potential hazard shall be in accordance with the table below. The hazards pertain to potential loss of human life or property damage in the event of failure or improper operation of the dam or appurtenant works. Probable future development of the area downstream from the dam that would be affected by its failure shall be considered in determining the classification. Dams shall be subject to reclassification if the Department determines that the hazard has changed.

Hazard Potential Classification Table

Hazard Classification	Hazard Potential
High Hazard (Class I)	Dams located where failure will likely cause loss of life or serious damage to home(s), industrial and commercial facilities, important public utilities, main highway(s) or railroads.
Significant Hazard (Class II)	Dams located where failure will not likely cause loss of life but may damage home(s), industrial and commercial facilities, secondary highway(s) or railroad(s) or cause interruption of use or service of relatively important public utilities.
Low Hazard (Class III)	Dams located where failure may cause minimal property damage to others. Loss of life is not expected.

D. Exemptions. The following types of dams are exempt from the Dams and Reservoirs Safety Act and the regulations pertaining thereto:

1. Unless the hazard potential as determined by the Department is such that dam failure or improper reservoir operation may cause loss of human life, any dam which is or shall be (a) less than twenty-five feet in height from the natural bed of the stream or water course measured at the downstream toe of the dam, or twenty-five feet from the lowest elevation of the outside limit of the dam, if it is not across a stream channel or water course, to the maximum water storage elevation and (b) has or shall have an impounding capacity at maximum water storage elevation of less than fifty acre-feet.

2. Any dam owned or operated by any department or agency of the federal government.

3. Any dam owned or licensed by the Federal Energy Regulatory Commission, the South Carolina Public Service Authority, the Nuclear Regulatory Commission, the United States Army Corps of Engineers, or other responsible federal licensing agencies considered appropriate by the Department.

4. Any dam upon which the South Carolina Department of Transportation or county or municipal governments have accepted maintenance responsibility for a road or highway where that road or highway is the only danger to life or property with respect to failure of the dam.

5. Any dam, which in the judgement of the Department, because of its size and location could pose no significant threat of danger to downstream life or property. Upon request, Certificates of Exemption (DHEC Form 2601(6/94) are available from the Department for dams in this category.

E. Dams in Series. If an upstream dam has the capability to create failure in a downstream dam because of its failure flood wave, it shall have the same or higher hazard classification as the downstream dam. If the failure flood wave of the upstream dam will not cause failure of the downstream dam, the upstream dam may have a different hazard potential classification from the downstream dam.

### **72-3 Permitting Procedures and Requirements.**

A. General. Any individual who proposes to construct a new dam or repair, alter or remove an existing dam shall apply for and obtain a permit from the Department for the proposed work. A separate application for construction of each new dam or reservoir and for alteration, repair, or removal of an existing dam or reservoir, shall be filed with the Department, except that only one application need be filed for a dam and the reservoir which will contain the water impounded by the dam. See the Regulation on Dam Classification and Exemptions for dams which are exempt from the Dams and Reservoirs Safety Act and the regulations pertaining thereto.

#### **B. Activities Requiring a Permit.**

1. Construction of a new dam: Construction of a new dam shall not commence until the owner has applied for and received a permit to construct from the Department, except for any new dam exempt from the statute.

2. Repairs to an existing dam: Repairs to an existing dam shall not commence until the owner has applied for and received a repair permit from the Department to perform the necessary repairs. Repairs proposed voluntarily or pursuant to an inspection and repair order require permitting. Should the owner be uncertain as to whether the proposed work is repair or normal maintenance work, he should contact the Department for clarification. In case of an emergency where the owner finds repairs are necessary to safeguard life or property, the owner may start such repairs immediately but shall notify the Department at once of the proposed repair and work under way.

3. Alteration of an existing dam or reservoir: Alteration of an existing dam or reservoir shall not commence until the owner has applied for and obtained a permit from the Department to perform the proposed alteration. Alteration of a dam or reservoir includes but is not limited to changing the height of a dam, increasing the normal pool or principal spillway elevation, or changing the elevation or physical dimensions of an emergency spillway.

4. Removal of an existing dam: Removal of an existing dam shall not commence until the owner has applied for and obtained a permit from the Department to accomplish the proposed removal. Removals proposed voluntarily or pursuant to an inspection and repair order require permitting.

#### **C. Permit Application Procedures.**

1. The initial application for any permit shall be signed by the owner and should be submitted to the Department. The Department shall determine if the work described in the application can be accomplished without a permit and so advise the owner. When the initial application is intended to satisfy the requirements of a final permit application, it shall identify the name, address, telephone number and registration number of the engineer.

2. The Department shall:

a. Review the initial application and shall assign or verify classification of the dam.

b. Notify the owner in writing that an initial application is on file and advise the owner of any additional information that may be required in the final permit application before a permit can be issued. The information normally required by the Department for issuance of a permit is described in the following subsection entitled “Permit Application Requirements” of this Regulation.

c. If appropriate, determine that the proposed work does not require a permit, and notify the applicant that further application procedures shall be waived. The owner may then proceed with the proposed work, once any other required permits are obtained.

d. As it deems appropriate and upon receipt of all necessary information, refer copies of the completed final application to other state and local agencies for review and comment.

e. Arrange for any necessary meetings with the dam owner and/or his engineer to discuss the application and resolve any conflicting or uncertain matters.

f. Issue an appropriate permit upon review and approval of the proposed work contained in the final application.

#### D. Permit Application Requirements.

##### 1. General.

a. The information required in a permit application shall vary depending on the dam’s classification and the type of permit requested. All initial permit applications shall at a minimum contain such general information as name and address of the dam owner; dam location, height and purpose; reservoir surface area, watershed area and characteristics; stream flow; description of existing and probable downstream development; type of permit requested; a brief description of the work to be performed and the proposed time of commencement and completion of work. Specific requirements for the final permit application for each type of permit are contained in subsequent paragraphs.

b. All final permit applications shall be prepared by an engineer and shall include a design report with plans and specifications. In addition, the final permit application shall address the subjects required by the Department for the type permit required (i.e., construction, repair, removal). When the initial application is intended to satisfy final application requirements, it also shall be prepared by an engineer.

c. All designs for proposed work shall be done in accordance with good engineering practices. The safety factors, design procedures and design references that are used shall be included in the final report. Criteria and design procedures developed by the following agencies are acceptable to the Department.

(1) United States Army, Corps of Engineers

(2) United States Department of Agriculture, Natural Resources Conservation Service

(3) United States Department of Interior, Water and Power Resources.

d. Other procedures that are approved by the Department may also be used and referenced. These include special design criteria for tailings ponds involved in mining, with special consideration being given to hydrology and stability.

e. All applications to construct new dams or reservoirs classified as high hazard or significant hazard shall include a fully-developed emergency action plan.

2. Construction Permit Application Requirements. A permit to construct shall not be issued until a final permit application is received and approved by the Department. The areas which shall be addressed in the design report and the plans and specifications for a construction permit are contained in subsequent paragraphs, as are the requirements for an emergency action plan.

a. Design Report - The design report shall address and/or provide specific information pertaining to the following as specified by the Department.

(1) Name and address of the applicant and a general description of the dam and appurtenances. The description shall include a statement of the purpose for which the dam is to be used.

(2) A description of properties located in the flood plain below the dam including number of homes, buildings, roads, utilities and other property that would be endangered should failure of the dam occur. For the purpose of delineating the affected flood plain below the dam, the engineer shall consider it the area in which water surface elevations increase a minimum of one foot as a result of dam failure.

(3) Maps showing the location of the dam, identifying the county, the location of state roads, access to the site and the outline of the reservoir. Aerial photographs or USGS maps may be used for this purpose.

(4) Design criteria including a description of the size, ground cover conditions, and extent of development of the watershed, geology and geotechnical engineering assumptions for the foundation and embankment materials and type of materials to be used in the spillway system(s).

(5) An investigation of the foundation and abutment soils or bedrock and the borrow materials including the location of borrow areas, that are to be used to construct the dam. The foundation and abutments investigation shall consist of borings, test pits and other subsurface exploration necessary to clearly define the existing conditions. The investigations shall be performed so as to define the soil and rock and ground-water conditions. Geologic profiles and a geologic report prepared by a qualified geologist or soil borings examined by an engineer shall be required for certain Class II dams, as determined by the Department, and shall be required for all Class I dams. All construction material such as borrow soil and others shall be adequately specified to assure that the properties meet the design criteria. If on-site materials are specified, they shall be located and determined to be adequate in extent and properties.

(6) Data to indicate that the dam will be stable during construction, filling and under all conditions of reservoir operations including earthquake loading. Any slope subject to drawdown that exceeds 6 inches per day shall be designed to remain stable under the maximum anticipated drawdown conditions.

(7) Data to verify that the dam is safe against overtopping during occurrence of the inflow design flood and wave action. Both present and projected future land use shall be considered in determining the runoff characteristics of the drainage area. The most severe of these two conditions shall be used in the design. All hydrologic assumptions and design calculations shall be included in the report.

(8) Calculations, design data or references to indicate that seepage flow through the embankment, foundation and abutments shall be controlled so that no internal erosion will take place and so there will be no sloughing in the area where the seepage emerges. The design may include an embankment internal drainage system, a zoned embankment, a foundation cut-off, an upstream blanket, a sufficiently wide homogeneous section, or other methods deemed appropriate by the engineer to satisfy minimum acceptable safety factors against excessive seepage.



(9) Calculations and assumptions relative to design of the spillway(s). All dams shall have a spillway system with adequate capacity to safely pass a design flood in the range shown in Table 1 for the appropriate classification unless it is demonstrated by the applicant that adequate capacity is provided by other means. For new dams, the design flood should be selected at the top of the range in Table 1 for the appropriate classification categories. The applicant shall justify to the Department's satisfaction any spillway which is not designed in accordance with this provision.

(10) Criteria for open channel, drop, ogee, chute spillways and other spillway types that include crest structures, walls, channel lining, and miscellaneous details. All masonry or concrete structures shall have joints that are relatively watertight and shall be placed on foundations capable of sustaining applied loads without undue deformation. Provisions shall be made for handling leakage from the channel or underseepage from the foundation which might cause saturation of underlying materials or uplift against the undersurfaces. All earth vegetated spillways shall be designed for an appropriate minimum frequency of use, as shown in Table III. The spillway system shall have adequate capacity to remove from the reservoir within 10 days following passage of the design flood peak at least eighty percent of the water temporarily detained in the reservoir above the elevation of the primary spillway.

(11) Provisions to insure that the upstream slope, crest and downstream slope of earth embankments and abutments will be protected against erosion due to wind and rain. Riprap or other erosion protection shall be considered for the full range in stage between the lowest drawdown elevation and at least two (2) feet above full normal pool.

(12) Other design data, assumptions and analysis data pertinent to individual dams and site conditions.

(13) A proposed construction schedule. The construction schedule shall include the estimated time to complete the construction activities, the techniques and work force to be used to insure that the dam is constructed according to the plans and specifications, techniques to be used to divert stream flow to prevent interference with construction and hazard to life or property, and the extent and method of construction quality control.

(14) A proposed filling schedule for the reservoir.

(15) A maintenance plan. The maintenance plan shall include a listing of the equipment and manpower designated for maintenance and the schedule for performing routine maintenance inspections. The maintenance plan shall address, as a minimum, the following items: such maintenance as is necessary to prevent the growth of trees and brush on the embankment and within the spillway system. The vegetation in areas surrounding dams shall be maintained in such a manner to allow adequate visual inspection of the embankments, spillways and crest of dams; such maintenance as is necessary to remove debris or other deleterious materials from the spillway system; such required inspections as are necessary to insure that all gates, orifices, dissipators and other appurtenances that affect the operation of the dam and reservoir are kept in good repair and working order.

(16) The estimated design life of the dam and the reservoir.

b. Plans and Specifications - One complete set of plans and specifications shall be submitted. The plans shall be detailed engineering design that consists of drawings and specifications which include as a minimum the following:

(1) A cover sheet indicating the name of the project; name of owner, classification of the dam; designated access to the project; and the location with respect to highways, roads, streams, and the dam(s) that would affect or be affected by the proposed structure.

(2) Maps showing the drainage area and outline of the reservoir and the ownership of properties covered by the reservoir or flood pool.

(3) Drawings showing the results of surveys which were made with sufficient accuracy to locate the proposed construction in relation to any downstream hazard and to define the volume of the storage in the reservoir. Locations of centerlines, and other horizontal and vertical control points, shall be shown on a map of the site.

(4) Geologic investigation, cross-sections, profiles, logs of borings, location of borrow areas, principal and emergency spillways and other pertinent items shall be included and drawn in sufficient detail and to a sufficiently large scale to clearly indicate their relative locations and the extent and complexity of the work to be performed.

(5) The technical provisions, as may be required, to describe the method of construction and quality control for the project.

(6) Special provisions, as may be required, to describe the technical provisions needed to insure that the dam is installed according to the approved plans and specifications.

(7) General provisions that specify the rights, duties and responsibilities of the applicant, applicant's engineer, builder, and the prescribed order of work.

c. Emergency Action Plan - One copy of a fully developed emergency action plan for any new dam or reservoir whose hazard classification is high hazard or significant hazard. The emergency action plan shall include, as a minimum, the following:

(1) For a high hazard dam:

(a) An emergency alert notification plan on a format sheet supplied by the Department. All pertinent names and telephone numbers required on the form shall be furnished.

(b) Full computer-generated breach analyses with contour maps showing the inundated areas below the dam for the following cases: sunny-day breach with water at normal pool level and breach of the dam during passage of the design storm at the point when water elevation is at its maximum level in the reservoir.

(c) A written listing of the specific actions that shall be taken if there is reason to conclude the dam is near failure or has failed. This shall include the responsibility of the dam owner to notify any downstream property owners.

(2) For a significant hazard dam:

(a) An emergency alert notification plan on a format sheet supplied by the Department.

(b) Full computer-generated breach analyses for the same cases as a high hazard dam above. An exception to the requirement for full-computer generated breach analyses occurs when the only

downstream hazard is a road. In this instance, it is acceptable to submit flood inundation maps based on the best-available computation techniques without use of a full computer-generated breach analysis.

(c) A written listing of the specific actions that shall be taken if there is reason to conclude the dam is near failure or has failed. This shall include the responsibility of the dam owner to notify any downstream property owners.

3. Repair Permit Application Requirements. A permit to make repairs to a dam or its appurtenant works shall not be issued until a final permit application is received and approved by the Department. The proposed work shall be clearly described in the final permit application which shall include a design report with appropriate plans and specifications. The areas which shall be addressed in the design report and the plans and specifications for a repair permit are contained in subsequent paragraphs.

a. Design Report - The design report shall address and/or provide specific information pertaining to the following as appropriate or as specified by the Department.

(1) Information required in the design report for a construction permit.

(2) Complete description of the proposed work which shall include the specific measures to be taken to reasonably insure the problem shall not recur.

(3) Hydrologic and hydraulic calculations and assumptions relative to design of repairs to spillways. Spillway repairs shall be designed so as to provide adequate capacity to safely pass the appropriate spillway design flood. Table 1 provides a range of design floods based on the extent of downstream hazard within each range. The applicant shall justify to the Department's satisfaction any spillway repairs which are not designed in accordance with this provision.

(4) Calculations and assumptions relative to design of repairs to the structural elements of the dam. Foundation investigations and stability analysis may be required.

(5) Reservoir drawdown and refill schedules.

(6) Seepage control. Complete description of measures taken to protect the integrity of the dam during the repair work shall be included.

b. Plans and Specifications - One complete set of plans and specifications shall be submitted. The plans shall be detailed engineering design that consists of drawings and specifications which include as a minimum the following:

(1) A cover sheet indicating the name of the project, name of owner; classification of the dam; designated access to the site; and the location with respect to highways, roads, streams, and the dam(s) that are affected by the structure.

(2) Maps showing the drainage area and outline of the reservoir.

(3) Drawings showing the results of surveys which were made with sufficient accuracy to locate the dam in relation to any downstream hazard.

(4) Drawings showing appropriate cross section and profile views of the proposed work with centerlines and horizontal and vertical control points clearly identified in a sufficiently large scale to clearly indicate the extent and complexity of the work to be performed.

(5) Technical provisions, as may be required, to describe the method of construction and quality control for the proposed work.

(6) General provisions that specify the rights, duties and responsibilities of the applicant, applicant's engineer, contractor, and the prescribed order of work.

4. Alteration Permit Application Requirements. A permit to make alterations to a dam, its appurtenant works or reservoir shall not be issued until a final permit application is received and approved by the Department. The proposed work shall be clearly described in the final permit application which shall include a design report with appropriate plans and specifications. The areas which shall be addressed in the design report and the plans and specifications for an alteration permit are contained in subsequent paragraphs.

a. Design Report - The design report shall address and/or provide specific information pertaining to the following as appropriate or as specified by the Department.

(1) Information required in the design report for a construction permit.

(2) Complete description of the proposed work.

(3) Hydrologic and hydraulic calculations and assumptions relative to design of any alteration to the spillway system(s), the storage capacity of the reservoir, the normal pool and flood pool elevations or the height of the dam. Any alteration which affects the structure's ability to pass flood waters shall be designed so as to provide adequate capacity to safely pass the appropriate spillway design flood. Table 1 provides a range of design floods based on dam classification. The appropriate spillway design flood shall be based on the extent of downstream hazard within each range. The applicant shall justify to the Department's satisfaction any such alteration which is not designed in accordance with this provision.

(4) Calculations and assumptions relative to design of alterations to the structural elements of the dam. Foundation investigations and stability analysis may be required.

(5) Reservoir drawdown and refill schedule.

b. Plans and Specifications - One complete set of plans and specifications shall be submitted. The plans shall be detailed engineering design that consists of drawings and specifications which must include as a minimum the items listed for a construction permit.

5. Removal Permit Application Requirements. A permit to abandon or remove a dam or reservoir shall not be issued until a final permit application is received and approved by the Department. The proposed work shall be clearly described in the final permit application which shall include a design report with appropriate plans and specifications. The areas which shall be addressed in the design report with plans and specifications for an abandonment permit are as follows:

a. Name and address of the applicant.

b. Detailed descriptions of the proposed changes.

c. Properties located in the flood plain below the dam including number of homes, buildings, roads, utilities and other property that might be endangered.

d. Maps showing the location of the structure that include the county, the location of state roads, access to the site and the outline of the reservoir. Aerial photographs or USGS maps may be used for this purpose.

e. Plans and specifications which shall address the following:

(1) Method of draining the reservoir including a proposed work schedule and statement of the sequence of operations.

(2) Method of disposal or stabilization of the sediment.

(3) Disposition of the dam materials.

(4) Description of the reclamation actions to be applied to the dam and impoundment area.

(5) Means for preventing future impoundment.

#### E. Permits.

1. The Department shall issue permits for construction, repair, alteration or removal of dams and reservoirs. All permits shall contain the general requirements as well as any special requirements necessary for the accomplishment of the work and shall specify a time when the proposed work is to be completed. The special requirements may also specify that the engineer performing the day-to-day construction inspection for the owner is required to submit construction reports to the Department at designated times. The owner shall apply for an extension of time for completion of the work specified in his permit if for any reason the work cannot be completed within the time specified in the permit. Any changes proposed after issuance of a permit shall be submitted to the Department by the owner and approved by the Department prior to initiation of any of the proposed changes. Failure to do so may result in permit revocation.

2. Permits are revocable by the Department in the event that the terms of the permit as set forth by the Department are violated. In the event that an owner's permit is revoked, the owner has the right to request a hearing before an Administrative Law Judge if the request is made within thirty (30) days after written notice of such revocation, as hereinafter provided in the Regulation covering Hearings and Hearings Procedures; provided, however, that the request for a hearing shall not act as a supersedeas.

#### F. Certification of Completion or Operation.

1. Notice of Completion. The owner shall file with the Department written notice of completion of the work for which a permit was issued. The notice shall be filed within ten (10) days after completion of the work, shall set forth the date of completion and shall be accompanied by written certification from the engineer that inspected the work that the work was performed in conformance with the plans and specifications approved by the Department.

2. As-Built Plans. The Department may, in its discretion, require the owner to file in duplicate supplementary drawings, in the form of paper prints, showing the dam and appurtenances as actually constructed or, in connection with the repair, alteration or removal of a dam or reservoir, showing the new work. Such supplementary drawings shall be filed within sixty (60) days after written notice from the Department.

3. Certificate of Completion and Operation. The Department shall issue a certificate of completion and operation upon receipt of a notice of completion from the owner and a written certification from the

engineer and upon approval of the work by the Department. Prior to receipt of the certificate of completion and operation, the owner shall not impound water or raise the water level in the reservoir as may have been stated in the special provisions of the permit. The certificate shall contain the normal requirements for maintenance and operation which shall refer to, as a minimum, the following:

a. Such maintenance as is necessary to prevent the growth of trees and brush on the embankment and within the spillway system.

b. Such maintenance as is necessary to remove debris or other deleterious materials from the spillway systems.

c. Such required inspections as are necessary to insure that all gates, orifices, dissipators and other appurtenances that affect the operation of the dam and reservoir are kept in good repair and working order. Spillway and outlet gates that are required to operate to pass flood flows shall be test operated at least once each year and the owner shall provide reports as required by the Department.

#### **72-4 Inspections.**

A. General. Inspection of dams and their appurtenant works is necessary to verify the safety of dams and compliance with these rules and regulations and the Dams and Reservoirs Safety Act. The results of any inspection are subject to verification by the Department.

B. Classification Inspections. Classification inspections shall be performed in accordance with the Regulation covering Dam Classifications and Exemptions. Classification inspections are initially required to determine if a dam falls under the provisions of the Dams and Reservoirs Safety Act. Subsequent classification inspections may be necessary as development occurs which could affect the hazard potential of a dam, and consequently its classification.

#### **C. Preliminary Inspections.**

1. Preliminary inspections of dams shall be performed by the Department to identify those dams which require maintenance and/or repair actions to reduce their danger to human life or property. Preliminary inspections shall consist of a visual examination of the dam and its appurtenant works and may include an analysis of the dam's ability to pass flood waters or other problems that may be suspect as a result of the visual examination.

2. The Department shall schedule preliminary inspections of dams within a priority system based on the condition of the dam and the dam's classification. Should another authorized investigator indicate a need for a preliminary inspection or should a written private complaint alleging that the person or property of the complainant is endangered by the maintenance, operation or condition of a dam or reservoir be received, the Department shall schedule a preliminary inspection as soon as possible and if necessary a more detailed analysis as available resources permit.

3. The Department shall notify the owner of a dam prior to a preliminary inspection and shall advise the owner of the results of the inspection and of the Department's intentions regarding issuance of a detailed inspection and repair order or intentions regarding issuance of a maintenance order. The owner shall provide all readily available engineering design and performance data to the Department which shall be considered for inclusion in the preliminary inspection report. The owner shall remove sufficient trees, brush and brambles prior to the Department's inspection so that adequate visual examination of the dam and its appurtenant works can be accomplished. The owner shall furnish an Emergency Action Plan for all high

hazard and significant hazard dams as a part of the preliminary inspection or reinspection. The minimum requirements for an Emergency Action Plan shall be the following:

a. An emergency alert notification plan on a format sheet supplied by the Department.

b. A written listing of the specific actions that shall be taken if there is reason to conclude the dam is near failure or has failed. This shall include the responsibility of the dam owner to notify any downstream property owners.

4. The results of a preliminary inspection may form the basis for ordering the dam owner to perform a detailed inspection. Although a preliminary inspection may identify only one specific problem area (such as inadequate spillway capacity, excessive seepage, apparent instability or others), this singular problem will be ample evidence to allow the Department, at its discretion to order a complete detailed inspection of all dam features, components and capabilities. Likewise the results of a preliminary inspection may form the basis for ordering the dam owner to perform certain minimum maintenance items on the dam.

#### D. Detailed Inspections.

1. Detailed inspections may be performed voluntarily or pursuant to an order issued by the Department. The Department may order a detailed inspection after determining through a preliminary inspection that further investigation is required. The owner has the right to request a hearing before an Administrative Law Judge if the request is submitted within 30 days after receiving the preliminary inspection results.

2. A detailed inspection shall be performed by a professional engineer licensed in the State and be in sufficient detail so that appropriate plans and specifications correcting all deficiencies of the dam can be prepared by the engineer and submitted by the owner to the Department for approval. The submission shall contain the results of the detailed inspection and shall be in the form of a permit application requesting either a repair, alteration or removal permit as set forth in the Regulation on Permitting Procedures and Requirements.

### **72-5 Remedial Measures.**

A. General. The Department has the authority and responsibility to issue orders to dam owners mandating remedial measures necessary to protect life and property from danger imposed by unsafe dams. The remedial measures ordered by the Department shall be made at the dam owner's expense and shall normally include a detailed inspection followed by appropriate repairs.

#### B. Inspection and Repair Order.

1. If upon the findings of a preliminary inspection, it is determined that a dam or reservoir is apparently unsafe and a danger to life or property, the Department may issue an "Inspection and Repair Order" to the owner of such dam or reservoir to make at his expense a detailed inspection of the dam or reservoir and to submit plans and specifications to the Department in the form of a permit application to correct all problems found by the detailed inspection. Based on the findings of the detailed inspection, the owner shall make the decision to repair, to alter or to remove the dam and shall submit the appropriate permit application as prescribed in the Regulation on Permitting Procedures and Requirements.

2. If an inspection and repair order is issued, it shall state the findings of the preliminary inspection, the remedial measures required and the date by which such measures are to be completed.

3. The owner of a dam or reservoir which has been determined through a preliminary inspection to be unsafe and a danger to life or property has the right to request a hearing before an Administrative Law Judge if the request is made within thirty (30) days after receiving written notice of such findings, as hereinafter provided in the Regulation on Hearings and Hearing Procedures. The Department may solicit voluntary compliance by the owner to take the remedial steps necessary to reduce the risk of dam failure.

4. Extension of time to complete work specified in an inspection and repair order may be granted by the Department, provided, however, no extension shall be granted when there appears substantial and immediate danger of dam failure.

C. Maintenance Order. If upon the findings of a preliminary inspection, it is determined that a dam or reservoir is not being properly maintained, the Department may issue a "Maintenance Order" to the owner of such dam or reservoir to perform within a specified period of time such items of maintenance that are listed in the "Maintenance Order." The owner has the right to request a hearing before an Administrative Law Judge if such request is submitted within (30) days after receiving such a written order. Extension of time to complete the requested maintenance may be granted based on circumstances over which the owner has no control.

#### D. Emergency Order.

1. The Department shall immediately order emergency measures necessary to protect life or property if the condition of any dam or reservoir completed or under construction is so dangerous to the safety of life or property as not to permit time for the issuance and enforcement of an inspection and repair order or if passing of imminent floods threaten overtopping erosion or destruction of any dam or reservoir capable of danger to life or property. In applying emergency measures, the Department shall have the following limited powers to direct the owner to:

- a. Lower the water level by releasing water from the reservoir.
- b. Completely empty the reservoir.
- c. Take whatever immediate measures necessary to reduce the risk of dam failure.

2. In case of an emergency where the owner finds repairs are necessary to safeguard life or property, he may start such repairs immediately but shall notify the Department at once of the proposed repair and work under way.

3. When the owner fails to comply with the emergency order or cannot be ascertained or found, the Department or its authorized agents may enter and immediately take such actions as may be necessary to provide protection to life or property including removal of the dam. The Department thereafter may recover from the owner, in the name of the State, the expenses incurred in taking such action in the same manner as debts are recoverable by law.

### **72-6 Transfer of Ownership.**

A. General. The owner of any high hazard dam or significant hazard dam shall inform the Department in writing within 30 days after title to the dam or reservoir has been transferred from his ownership.

B. Implementation. The Department shall furnish to the owner a standard form on which change of ownership can be recorded and sent to the Department. This standard form will be a part of each inspection letter that Department staff issues, as a way of reminding the owners of this requirement. The standard form



will be used for the owner's convenience, and the owner can notify the Department in writing about an ownership change without using the standard form.

C. Imposition of Administrative Fine. Failure to notify the Department about an ownership transfer within 30 days after it occurs can result in an administrative fine as detailed in Table II. A fine will not be imposed until the owner has received at least one written notice of the requirement to notify the Department about an ownership transfer and has failed to meet the requirement.

#### **72-7 Administrative Fines.**

A. General. The Department may assess an administrative fine against any person who violates the Dams and Reservoirs Safety Act, the regulations promulgated pursuant to it, or an order issued under the Act. These fines shall be not less than one hundred nor more than one thousand dollars.

B. Implementation. Administrative fines that are assessed shall be based on those shown in Table II for the offenses listed. If the administrative fine is not paid, the Department may recover from the person fined, in the name of the State, the amount of the fine and the expenses incurred in collecting it, in the same manner debts are recoverable by law.

#### **72-8 Effect of Regulations.**

Under no circumstances, and in no particular case, shall these regulations or any part of them, be construed as a limitation or restriction upon the exercise of any proper discretion that is vested in the regulatory agency, nor shall these regulations in any event be construed to deprive the regulatory agency of any exercise of powers, duties and jurisdiction conferred by law, nor to limit or restrict the amount or character of data or information which may be required for proper administration of the Act.

#### **72-9 Hearings and Hearing Procedures.**

A. An Administrative hearing is available, following a timely request, to determine the propriety of:

1. A classification of a dam or reservoir under the Regulation covering Dam Classifications and Exemptions;
2. A revocation or denial of a construction permit under the Regulation covering Permitting Procedures and Requirements;
3. The terms and conditions of a construction permit;
4. The issuance of an inspection and repair order under the Regulation covering Remedial Measures;
5. The issuance of a maintenance order under the Regulation covering Remedial Measures;
6. The imposition of an administrative fine under the Regulation covering Administrative Fines.

B. A hearing may be initiated by any owner, provided that a written request is received within thirty (30) days after notice is given to the owner of the adverse action. The contested case hearing will be held before an Administrative Law Judge. Any request for a hearing shall be filed with the Clerk of the Board of DHEC and shall contain the following:

1. The name of the party requesting the hearing and the issue(s) for which the hearing is requested.

2. The caption or other information sufficient to identify the decision, order, or inaction which is the subject of the hearing; and

3. The relief requested.

C. Board review and any subsequent judicial review of the order of the Administrative Law Judge shall be allowed in accordance with the South Carolina Administrative Procedures Act and any applicable rules and regulations.

TABLE I  
SPILLWAY DESIGN FLOOD CRITERIA

Hazard	Size	Spillway Design Flood (SDF)*
High	Very Small	100-yr. to 1/2 PMF
	Small	1/2 PMF to PMF
	Intermediate	PMF
	Large	PMF
Significant	Small	100-yr. to 1/2 PMF
	Intermediate	1/2 PMF to PMF
	Large	PMF
Low	Small	50 to 100-yr. frequency
	Intermediate	100-yr. to 1/2 PMF
	Large	1/2 PMF to PMF

\*Note: When appropriate, the spillway design flood may be reduced to the spillway discharge at which dam failure will not significantly increase the downstream hazard which exists just prior to dam failure.

TABLE II  
ADMINISTRATIVE FINES

Failure to notify Department within 30 days of ownership transfer:	
High hazard dam (except very small size class)	\$200
High hazard dam (very small size class)	\$100
Significant hazard dam	\$100
Failure to obey written repair order or written emergency repair order	
High hazard dam	\$1000
Significant hazard dam	\$500
Failure to obey written maintenance order:	
High hazard dam	\$500
Significant hazard dam	\$250
Construction of dam without a permit:	
High hazard dam	\$500
Significant hazard dam	\$250
Failure to obey conditions in a permit:	
High hazard dam	\$300
Significant hazard dam	\$150
Failure to provide or update Emergency Action Plan:	
High hazard dam (except very small size class)	\$200
High hazard dam (very small size class)	\$100
Significant hazard dam	\$100
Other violations of Act or Regulations:	

High hazard dam (depending on severity of offense)	\$100-\$1000
Significant hazard dam (depending on severity of offense)	\$100-\$500

TABLE III  
MINIMUM FREQUENCY OF USE EARTH VEGETATED SPILLWAYS

	Low hazard dam	1 year
	Significant hazard dam	10 years
	High hazard dam	25 years