

VERMONT ENVIRONMENTAL PROTECTION RULES

VERMONT DAM SAFETY RULE

**State of Vermont
Agency of Natural Resources
Department of Environmental Conservation**

**Water Investment Division
Dam Safety Program
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Montpelier, Vermont 05620**

Vermont Dam Safety Rule

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§37-101 Authority

This rule is adopted by the Vermont Agency of Natural Resources pursuant to 10 V.S.A. Chapter 43, in particular §1110.

§37-102 Purpose

The purpose of this rule is to provide guidance on the implementation of 10 V.S.A. Chapter 43 regarding the inventory, inspection, and evaluation of dams in Vermont. This includes guidance regarding the regulation and Agency oversight of dams under the jurisdiction of the Department of Environmental Conservation, including dams the failure of which may result in loss of human life, economic loss including property damage, lifeline disruption, and environmental damage. This rule also provides guidance regarding measures intended to protect public safety and provide for the public good through the proper planning, design, construction, reconstruction, enlargement, repair, alteration, breach, removal, inspection, operation, maintenance, monitoring, and supervision of dams and to provide for adequate margins of safety.

§37-103 Definitions

Any terms not defined in this section shall have the meaning given to the term by any Vermont statutes, rules, or policies governing the subject matter.

Agency means the Vermont Agency of Natural Resources

Appurtenant works means structures belonging to the dam and related to the dam's operation, including but not limited to, spillways, either in the dam or separate therefrom; the reservoir and its rim; low-level outlet works; and water conduits such as tunnels, pipelines or penstocks, either through the dam or its abutments.

Auxiliary Spillway means the secondary spillway not in use under normal conditions but used when needed to pass flood flows that exceed the capacity of the principal spillway.

Breached Dam means a dam that does not retain water or liquid but may or may not retain sediment under mean annual flow conditions with a hydraulic height of zero due to a partial dam failure or construction of a channel through or around a dam (i.e. dam maintains the reservoir drained under normal conditions).

Dam means any artificial barrier, including its appurtenant works, that is capable of impounding water, other liquids, or accumulated sediments.

A dam includes an artificial barrier that meets all the following:

1. previously was capable of impounding water, other liquids, or accumulated sediments;
2. was partially breached; and
3. has not been properly removed or mitigated.

A dam shall not mean:

1. barriers or structures created by beaver or any other wild animal as that term is defined in Section 4001 of this title;
2. transportation infrastructure that has no normal water storage capacity and that impounds water only during storm events;
3. an artificial barrier at a stormwater management structure that is regulated by the Agency of Natural Resources under Chapter 47 of this title;

4. an underground or elevated tank to store water otherwise regulated by the Agency of Natural Resources or an agricultural waste storage facility regulated by the Agency of Agriculture, Food and Markets under 6 V.S.A. Chapter 215;
5. above or below grade tanks, vessels, or storage chambers of steel or concrete construction used to store wastewater;
6. dug ponds created by excavating below grade and constructed without artificial barriers or outlet structures, which pose no threat to life, property, lifelines, or the environment downstream from the pond;
7. any structure related to a wastewater treatment facility permitted by the Agency pursuant to 10 V.S.A. § 1263, excluding wastewater ponds and lagoons impounded by a dam;
8. levees, meaning any earthen embankment, floodwall, or structure along a water course whose purpose is flood risk reduction or water conveyance.

Dam Breach Analysis means the analytical process of computing the flood hydrograph, resulting flood levels, and inundation area resulting from a simulated dam breach or failure.

Dam Crest means the top of the nonoverflow portion of the dam.

Dam Failure means a collapse of a dam resulting in the uncontrolled release of all or a portion of the reservoir contents.

Department means the Department of Environmental Conservation.

Dike means any appurtenant artificial barrier located on the same reservoir or waterbody as the dam that together with the dam impounds or is capable of impounding the reservoir. Typically, dikes are at saddle (low) points around a reservoir rim and do not include appurtenances such as spillways or low-level outlets. A dike is a dam.

Drainage Area means the total area that drains to a particular point on a river, stream, or reservoir.

Drained refers to the condition of a reservoir or impoundment where the water level is intentionally lowered below normal levels using appurtenant works such as a low-level outlet or temporary controls such as pumps or siphons. The dam remains in place and has not been partially breached, breached, or removed. Reservoirs can be drained permanently such as during dam removal, or temporarily, such as during dam rehabilitation.

Embankment means an artificially constructed feature usually consisting of earth and rock with sloping sides and a flat crest, intended to provide a permanent barrier that impounds or is capable of impounding water.

Emergency includes, but is not limited to, dam failures and all conditions leading to or causing a dam failure, including overtopping, or any other condition of a dam and its appurtenant structures that may be construed by the Department as hazardous or threatening to life or property.

Emergency Action Plan means a written plan that identifies the area that would likely be inundated by the failure of a dam, and identifies the actions that should be taken by the Owner to protect life, property, lifelines, and the environment in the event of a dam failure or threatening condition at the dam. The plan is usually implemented in cooperation with the local, regional, and state emergency personnel.

Engineer means a professional engineer licensed under Title 26 who has experience in the design and investigation of dams.

Environmental Loss means damage to the natural environment resulting from the failure or mis-operation of a dam, including damage to aquatic biota and habitat. Only the incremental damage caused by dam failure or mis-operation is considered. Environmental losses are considered “reversible” if they are expected to self-remediate within five years.

Federal dam means a dam owned by the United States or a dam subject to Federal Energy Regulatory Commission license or exemption.

Flashboard means a section (board) of timber, concrete, metal, inflatable bladder, etc. placed on the crest of a spillway to raise the water level, but that is designed to either be quickly removed in the event of a storm or deliberately designed to fail under storm loading.

Freeboard means the vertical distance between the dam crest and the reservoir water surface.

Hazard creep means the increase in hazard potential due primarily to new development downstream of existing dams that was not present during original design and construction or has increased since the dam’s hazard classification was last evaluated.

Hazard Potential means the potential for incremental damages that could result from the release of water or stored contents due to failure of the dam or mis-operation of the dam or its appurtenances. The hazard potential classification of a dam is based on the potential loss of life, and damage to property, lifelines, and the environment resulting from dam failure, and does not reflect in any way on the current condition of the dam and its appurtenant structures.

HIGH Hazard Potential Dam mean dams where failure or mis-operation will probably cause loss of human life.

Hydraulic Height-of-dam means the vertical distance from the lowest point in the stream bed or native ground surface at the downstream toe of the dam to the elevation of the normal pool or water level in the reservoir.

Hydrologic and Hydraulic Analysis or “H&H” means the analytical process of computing the inflow to a reservoir and outflow from a dam under normal and storm conditions. This also includes the analyses of intermediary flood events and the means of managing flows during the construction, rehabilitation, or removal of a dam. Such analyses are used to determine normal and maximum reservoir pools, dam crest, spillway, and low-level outlet design requirements.

In-Service Dam means a dam that is currently retaining water, liquid, or sediment as originally designed.

Incremental damage means under the same conditions (e.g., flood, earthquake, or other event), the difference in impacts that would occur due to failure or mis-operation of the dam as opposed to those that would have occurred without failure or mis-operation of the dam and appurtenances

Inspection means the examination of a dam to determine its condition and need for improved operation, maintenance, study and analyses, repairs, rehabilitation, and or removal.

Instrumentation means an arrangement of devices (e.g. piezometers, inclinometers, weirs, etc.) installed into or near a dam which provide for measurements that can be used to evaluate the structural behavior and performance of a dam.

Intake structure means a dam that is constructed and operated for the primary purposes of minimally impounding water for the measurement and withdrawal of streamflow to ensure use of the withdrawn water for snowmaking, potable water, irrigation, or other purposes approved by the Department.

Interested person means, in relation to any dam, a person: who has riparian rights affected by that dam; who has a substantial interest in economic or recreational activity affected by the dam; or whose safety would be endangered by a failure of the dam.

Inundation Map means a map delineating the area that could be flooded by a particular flood event and dam failure condition.

Invert means the base level of a weir, pipe, tunnel, or penetration.

Lifeline means a structure or service indispensable for maintaining or protecting life, including but not limited to key transportation links such as bridges or highways; power supply lines; potable water connection or supply; or sanitary sewer connection.

LOW Hazard Potential Dam means dams where failure or mis-operation results in no probable loss of human life and low economic and environmental losses

Low-level outlet or “LLO” means an installed pipe and operable gate or valve typically located in or near the foundation of a dam that can be used to alter water levels, drain the reservoir, or otherwise meet operational or safety needs. Also called a pond drain.

Maximum Pool means the highest water elevation, reservoir surface area, and reservoir storage capacity that could be impounded by the dam, including accumulated sediments, with the water or liquid level at the top of the lowest nonoverflow part of the structure or dam crest.

MINIMAL Hazard Potential Dam means dams that impound or are capable of impounding less than 500,000 cubic feet (11.48 acre-feet) of water, other liquid, and/or sediment and meet the LOW hazard potential dam definition above.

Non-federal dam means a dam that is not a federal dam.

Non-power dam means any dam that is not a power dam.

Normal Pool means the water elevation, reservoir surface area, and reservoir storage capacity that is prevalent at the site or typical under normal, non-storm conditions. Typically, this level is controlled by the principal spillway.

Order means an official document prepared by the Department authorizing a dam owner to construct, enlarge, raise, lower, remodel, remove, reconstruct, or otherwise alter any nonfederal dam, pond, or impoundment or other structure that is or will be capable of impounding more than 500,000 cubic feet of water or other liquid after construction or alteration, pursuant to 10 V.S.A. § 1082.

Owner means a person owning legal title to a dam or the owner of the land on which a dam is located.

Operation and Maintenance Plan or “O&M” means a plan that provides guidelines for the necessary, regular operation and maintenance activities at a dam.

Partially Breached Dam means a dam that is no longer capable of impounding its normal pool under normal conditions but may still partially impound the reservoir, and has a hydraulic height greater than zero under mean annual flows (i.e. normally maintains a partially filled reservoir). A portion of the dam structure that impacts flow remains in place.

Person means any individual; partnership; company; corporation; association; joint venture; trust; municipality; the State of Vermont or any agency, department, or subdivision of the State; any federal agency; or any other legal or commercial entity.

Potential Failure Mode Analysis means the development and evaluation of possible modes of partial or full failure at a dam.

Power dam means a dam that relates to or is incident to the generation of electrical energy for public use or as part of a public utility system.

Principal spillway means a structure that maintains normal pool conditions and over which daily non-storm related and flood flows are discharged. Also called a primary or service spillway.

Probably/probable means more likely than not to occur; expected; realistic.

Property Loss means direct and indirect economic losses due to flood-damaged property or infrastructure located downstream of a dam, as a result of dam failure.

Removed Dam means the location where a dam once existed but is now a free-flowing stream with no remaining remnants of the dam in place that could impound water.

Reservoir means any area which contains or will contain impounded water, wastewater, or liquid-borne materials by virtue of its having been impounded by a dam. Also referred to as impoundment.

SIGNIFICANT Hazard Potential Dam means dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

Spillway Crest means the invert elevation of the subject spillway.

Spillway Design Flood or "SDF" means the storm event which the hydraulic capacity of the spillway structure and dam is designed and required to safely pass.

Stoplog means a section of timber, concrete or steel placed in a slot or channel to maintain normal pool conditions but that can be removed to alter water levels, drain the reservoir, or otherwise meet operational or safety needs.

Structural Height-of-dam means the vertical distance from the lowest point in the stream bed or native ground surface at the downstream toe of the dam to the elevation of the lowest nonoverflow section of the dam crest.

Toe-of-dam means the junction of the downstream slope or face of a dam with the native ground surface or the invert out of the low-level outlet, whichever occurs at the lowest point.

Unsafe Dam means a dam that has been determined to be unsafe via Unsafe Dam Proceedings.

Unsafe Dam Order means an order issued by the Department as a result of an Unsafe Dam Proceeding, directing reconstruction, repair, removal, breaching, draining, or other action the Department considers necessary to improve the safety of the dam sufficiently to protect life and property.

Unsafe Dam Proceedings means dam safety proceedings carried out pursuant to 10 V.S.A. § 1095.

Wastewater means sanitary waste or used water from any building or structure or campground, including, but not limited to, carriage water, toilet water, shower and wash water, food processing wastewater, and process wastewater. Wastewater does not include stormwater.

§37-104 General Provisions

The following general provisions shall apply to this rule:

1. This rule is adopted to implement the requirements of Vermont Statutes Annotated Title 10, Chapter 43, for the purpose of protecting public safety and providing for the public good through the inventory, inspection, and evaluation of dams in the State.
2. No political subdivision of this State may enact a rule, ordinance, or other such law which results in a dam or reservoir under the jurisdiction of the Department being regulated less stringently than it would otherwise be regulated under this rule.
3. Nothing in this rule shall be construed to relieve an owner or operator of a dam or reservoir of the legal duties, obligations, or liabilities incident to the ownership or operation of the dam or reservoir.

§37-105 Applicability

This rule shall apply to non-federal, non-power dams in the State of Vermont under jurisdiction of the Agency of Natural Resources, Department of Environmental Conservation (the Department). It applies to dam registration, classification, inspection, application and approval to construct, re-construct, alter, repair, breach, or remove a dam, as well as related standards including design standards, operation and maintenance standards, inspection standards, and Emergency Action Plans. This rule shall not apply to dams owned and operated by the United States government or dams subject to a Federal Energy Regulatory Commission license or exemption (power and/or federal dams), or dams under the jurisdiction of the Vermont Public Utility Commission (power dams).

§37-106 Dam Owner Obligation and Responsibility

1. A dam owner is responsible for the safe management and operation of their dam, and compliance with Vermont Title 10, Chapter 43 and this rule.
2. The owner is solely responsible for the significant financial undertaking required of dam ownership. This includes costs associated with operation, maintenance, inspection, registration, compliance with standards, engineering study and design, risk assessment, permitting, Emergency Action Planning, repairs, reconstruction, and removal. Inability to meet the financial obligations associated with maintaining a dam in safe condition may result in the Department requiring the impoundment to be drained.
3. The owner shall cooperate with the Department's agents, engineers, and other employees in the implementation of this rule. This includes facilitating access to the dam and furnishing, upon

request, the plans, specifications, operating and maintenance data, inspection reports, or other information related to the dam as requested by the Department. Nothing in this rule shall be construed to deprive any owner of such administrative or judicial recourse to the courts as they may be entitled to under the laws of the State.

4. Compliance with this rule shall not relieve a dam owner or operator from liability for injury to persons, including loss of life, or damage to property of others as a result of dam failure or misoperation.

§37-107 Dam Recording in Lands Records

1. Purpose: The purpose of filing a notice in the land records in the municipality in which a dam is located is to inform present and future property owners of the presence of a dam on the property and the legal responsibilities associated with dam ownership.
2. Applicability: The owner of any dam that is subject to the requirements of this rule and that is in the Vermont Dam Inventory shall record a completed notice in the land records in accordance with the requirements of this section.
3. Procedure:
 - a. Dam Record Form: Within 60 days of receiving a written request from the Department, the owner of a subject dam shall submit a completed Dam Record Form to the Department. The data requested in the Dam Record Form shall include the name of the dam owner, the location and dimensions of the dam, whether and when the dam has been inspected, and any other such information as may be prescribed by the Department. The Dam Record Form will not be deemed complete unless and until all information required by the Department has been supplied by the subject dam owner. For dams with multiple owners, all owners must submit a Dam Record Form.
 - b. Dam Record Certificate: Upon receipt of a complete Dam Record Form, the Department shall issue a Dam Record Certificate to the dam owner.
 - c. Filing: The Dam Record Certificate supplied by the Department shall serve as the appropriate notice to the land records in the municipality in which a dam is located. The owner of a subject dam shall file the Dam Record Certificate in the land records upon receipt. The dam owner shall provide to the Department, within 30 days of its recording, a copy of the recorded Dam Record Certificate that includes the recorder stamp, book, and page number of the notice to the land records. If a dam is located in multiple municipalities, filing of notice must occur in each municipality where the dam is located.
4. Transfer of Ownership: The owner of a subject dam shall notify the Department of a pending transfer of legal title of their dam before the transfer occurs. Within 30 days of the transfer of ownership of a dam or property on which a dam is located, the new owner of the subject dam shall inform the Department in writing of the transfer. Upon receipt of such notice, a new Dam Record Certificate will be issued and recorded in accordance with subsections b. and c., above.

§37-108 Annual Dam Registration Fee

1. Applicability: This section shall apply to owners of HIGH, SIGNIFICANT, and LOW hazard dams capable of impounding more than 500,000 cubic feet (11.48 acre-feet) of water, other liquid, and/or sediment.
2. Procedure: The Annual Dam Registration Fee will be assessed to the owner of the dam as of January 1st of each year. The Department will provide an invoice to dam owners and follow the Collections Procedure to ensure timely collection of all amounts owed. If a dam is owned by multiple owners, the responsibility of dividing and making payment is up to the owners to determine amongst themselves. If, within the course of the year in which the annual registration fee is due, an owner removes a subject dam, the annual registration fee will be refunded once proof of completed dam removal is received by the Department.
3. Transfer of ownership: Should the ownership of a subject dam be transferred, the required annual registration fee shall be paid by the owners of the dam at the time that the registration fee is due, regardless of when transfer of ownership of the dam occurred in the preceding year.
4. Fees: The registration fee due shall be determined in accordance with 3 V.S.A. § 2822.

§37-109 Hazard Classification

1. General: Dams shall be assigned a hazard classification for the purpose of identifying potential risks to public safety, establishing inspection schedules and assuring adherence to design criteria in accordance with a dam's potential for damage to life or property in the area downstream from the dam in the event of failure. This classification determination shall be made by the Department and noted in the Vermont Dam Inventory. It may be necessary to periodically reclassify dams and evaluate hazard creep as additional information becomes available or conditions change. The following hazard classifications shall apply to dams subject to this rule:

Classification	General Definition
HIGH	Dams where failure or mis-operation will probably cause loss of human life.
SIGNIFICANT	Dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environment damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.
LOW	Dams where failure or mis-operation results in no probable loss of human life and low economic and environmental losses.
MINIMAL	A dam that meets the LOW hazard definition, above, but is only capable of impounding less than 500,000 cubic feet.

The following additional guidance is provided and shall apply to dams subject to this rule:

Classification ¹	Direct Loss of Life	Property Losses	Lifeline Losses	Environmental Losses
HIGH	Probable or Certain (one or more) (extensive downstream residential, commercial, or industrial development)	Not considered for this classification	Not considered for this classification	Not considered for this classification
SIGNIFICANT	None expected	Major or extensive public and private facilities	Disruption of essential or critical facilities and access	Major or extensive mitigation required or impossible to mitigate
LOW	None expected	Private agricultural lands, equipment and isolated non-occupied buildings, non-major roads.	No disruption of services – repairs are cosmetic or rapidly repairable damage	Minimal incremental damage
MINIMAL	Same as LOW hazard, above			

1) Categories are based on overall dam performance and do not apply to appurtenances.

2. **Determination:** The Department shall determine a dam's hazard classification by systematically assessing the four loss types in the following order: life, property, lifeline, and environmental losses.
 - a. **Direct Loss of Life:** Loss of life potential is to be established based on available mapping, engineering judgement, and inundation mapping of the area downstream of the dam. Analyses of loss of life potential shall consider the extent of development and associated population at risk, time of flood wave travel, flow depth and velocities, and warning time.
 - b. **Property Losses:** Property losses are evaluated by assessing both direct economic loss to downstream properties due to dam failure, and indirect economic impact due to loss of dam services (i.e., impact on a community due to loss of water supply or flood control protection). Public, commercial, and private property losses shall be considered, including damage to bridges, roads, utilities, downstream dams, buildings, and homes.
 - c. **Lifeline Losses:** Indirect threats to life caused by the interruption of lifeline services due to dam failure shall be considered. This includes loss of access to medical and emergency facilities, loss of access to utilities such as drinking water, wastewater and power supply, or loss of communication infrastructure. The importance of the lifeline and anticipated outage shall be considered.
 - d. **Environmental Losses:** Environmental impact downstream caused by the incremental flood wave produced by dam failure shall be considered. The assessment of environmental loss shall consider the damage that would normally be expected as a result of the magnitude flood event under which the dam failure occurred. If environmental losses are reversible or expected to mitigate or self-remediate within five years, they shall be considered LOW or MINIMAL. If major or extensive mitigation is required or losses are severe or permanent, they shall be considered SIGNIFICANT. Examples of SIGNIFICANT environmental losses include release of hazardous or toxic material in sediment accumulated behind a dam, release of hazardous or toxic material from landfills or storage facilities caused by a dam failure, release of wastewater, release of high levels of accumulated sediment, mine tailings, loss or long term impact to threatened or endangered species habitat, or other natural resource concerns determined by the Department with consultation with the Vermont Department of Fish & Wildlife.

3. Hazard creep reviews: Hazard creep reviews of all dams shall be performed as part of inspection and reporting or at the discretion of the Department, with the exception of MINIMAL hazard dams, which should have a desktop study, map review, and if necessary, field visit to confirm hazard classification at least every 15 years. Hazard creep review can also be conducted as part of a requested inspection.
4. Dams in Series: If an upstream dam failure has the capability to create failure of a downstream dam because of its incremental flood wave, it shall have the same or higher hazard potential classification as the downstream dam.
5. Hazard Potential Reconsideration. The Department reserves the right to undertake hazard classification reconsideration under its own initiative. An owner or interested person may at any time request the Department to reconsider the hazard potential classification of their dam. The request must be filed by an engineer, on a form provided by the Department which provides the findings of the engineer's technical analysis and investigations in support of a change in classification. The Department will issue a written decision within 60 days of receipt of a request for hazard classification reconsideration, deemed complete by the Department, and such decision shall be final and binding upon the parties.

§37-110 Inspection Schedule

Dam inspections shall be performed under the supervision of an engineer. Inspections shall be performed in compliance with Department requirements by the Department or an engineer hired by the owner.

1. Inspection Types:
 - a. Periodic: Visual inspections performed in compliance with Department requirements and standards by the Department or an engineer hired by the owner, performed at a frequency described in the table below. In the event the Department is unable to perform a periodic inspection, the Department shall give the owner 6 months' notice to hire an engineer and complete the inspection.

Periodic Inspections ⁽¹⁾	
Hazard Classification	Frequency
HIGH	2 years
SIGNIFICANT	5 years
LOW	10 years
MINIMAL	None

(1) The first inspection shall be performed when initiated or required by the Department and subsequent inspections shall be performed in compliance with the table above.

- b. Non-Periodic: Visual inspections performed in compliance with Department requirements by the Department or an engineer hired by the owner outside of the specified Periodic Inspection interval. This may occur at the request of an owner or interested person, or following detection of changes in conditions, or application of new or different loading conditions. For all dams, the Department retains the authority to perform non-periodic inspections at its discretion or upon request of the owner or an interested person.
 - c. Inventory: Inspection performed in compliance with Department requirements by the Department or an engineer hired by the owner to document the configuration of the dam for input into the Vermont Dam Inventory.

- d. Construction: Visual inspections performed in compliance with Department requirements by the Department or an engineer hired by the owner performed during construction to observe project progress and assess the work for compliance with plans, specifications, and Order conditions.
- e. Comprehensive: A detailed inspection performed by an engineer hired by the owner that includes all studies, investigations, and analyses required by the Department to evaluate project risk and safety. Comprehensive inspections shall be performed:
 - i. for HIGH hazard dams on a 10-year basis,
 - ii. for SIGNIFICANT hazard dams on a 15-year basis.
 - iii. The Department may, at its discretion, require a comprehensive inspection be conducted outside the schedule established in parts i-ii.

The first comprehensive inspection shall be performed when initiated or required by the Department and subsequent inspections shall be performed in compliance with the time frames established above.

- 2. Individual Inspection Request: An interested person may request the Department to inspect a dam by putting such request in writing to the Department. The written request for inspection shall include:
 - a. The location of the dam or water body on which the dam is located;
 - b. The name, mailing address, and daytime telephone number of the owner, if known; and
 - c. A statement explaining why the requestor believes the dam should be inspected.

The Department shall review the request and any available information on the dam. If the Department determines that an inspection is required, the Department shall schedule an inspection of the dam with the owner.

- 3. Department Permission for Entry for Inspections: Owners shall allow the Commissioner of the Department, or a duly authorized representative, at reasonable times and upon presentation of credentials to enter upon and inspect the dam on their property. If the owner does not permit access to the property and the Department determines that public safety requires the dam to be inspected, the Department may apply for an access order to gain entry to the property.
- 4. Reporting: The engineer shall provide the owner of the dam a copy of the inspection report documenting the findings from the inspection. Should the owner hire an engineer to perform an inspection, the owner shall furnish a copy of the report to the Department within 45 days of the completion of the inspection. Inspections shall meet the content and format requirements of the Department.

§37-111 Compliance with Inspection Reports

- 1. General: If, based on inspection, the Department determines that maintenance, investigation and analysis, or repairs or reconstruction of a dam are needed to comply with Department Standards and maintain the dam in a safe condition, the Department shall notify the owner in writing and require the owner undertake such work within the time period specified in the notice. Failure of the owner to complete the work required by the Department will be subject to enforcement.

2. Investigation and Analyses: This will include additional study, investigations, and or analyses required by the Department to be completed by an engineer hired by the owner to evaluate the risk, condition, and safety of a dam. This investigation may include updated visual inspection, special inspection, instrumentation assessment or installation, structural stability analyses, detailed hydrologic/hydraulic assessment, dam breach analyses, flood inundation mapping, hazard classification determination, subsurface investigation, soil and materials testing, foundation explorations, risk assessment, development of conceptual alternatives, cost estimates and recommendations for additional study at the discretion of the Department or engineer. This study and evaluation work will identify risk factors and better define the type and extent of repairs or reconstruction necessary to bring the dam into compliance with this rule.
3. Repair/Reconstruction/Removal: Based on the results of the Study and Analyses performed by an engineer hired by the owner, the owner shall develop a plan to undertake the necessary work to bring the dam into compliance with this rule.
4. In the event that the owner does not undertake the work required by the Department to comply with an inspection report, the Department, based on consideration of the public safety and the specific characteristics of the dam, may take enforcement actions against the owner, initiate Unsafe Dam Proceedings, or require the owner to comply with one or more of the following requirements which will remain in effect until the necessary repair, reconstruction, or removal has been permitted and completed:
 - a. Plan and perform a program of regular, non-periodic safety inspections;
 - b. Develop an enhanced operation and maintenance plan or Emergency Action Plan;
 - c. Adhere to reservoir-level restrictions, including the draining of the reservoir subject to any conditions imposed by the Agency;
 - d. Obtain financial assurance associated with the cost of breach or removal of the dam; and
 - e. Any other measures the Department determines to be necessary to protect public safety.

For the purposes of this rule, financial assurance means a dam owner establishes and maintains financial security that is payable to the Department in an amount sufficient to pay for the breach or removal of the dam by the Department, should such breach or removal be deemed necessary. The amount of the financial security is sufficient if it can adequately cover the costs associated with a breach or removal of the dam, including the costs of: investigation, design, permitting, and construction; and any other appropriate cost as determined by the Department. The form of the financial security shall be one or more of the following: a surety bond guaranteeing performance; one or more irrevocable letters of credit, payable to or at the direction of the Department; a trust fund established for the benefit of the Department; a policy of insurance that provides the Department with acceptable rights as a beneficiary thereof and that is issued by an insurance carrier whose operations are subject to regulation and examination by a State agency; one or more annuities; or one or more certificates of deposit; any other form which the Department determines to be acceptable.

§37-112 Dam Order

Prior to performing any work on a dam capable of impounding more than 500,000 cubic feet, the owner shall complete and submit a Dam Order Application so that the Department can determine jurisdiction relative to the proposed activity. The application shall meet the content and format requirements of the Department.

1. The findings and conditions contained in a Dam Order issued by the Department are final and binding upon all owners, State agencies, and other government agencies, regulatory or otherwise, as to the safety of design, construction, reconstruction, enlargement, repair, alteration, breach, removal, maintenance, and operation of any dam or reservoir.
2. The Department may require additional review by a selected group of independent technical specialists to review technical considerations and specifications pertaining to a dam order application. If determined necessary, the Department must inform the dam owner of this requirement in writing. The Department maintains the authority to develop the specific scope of work of the specialists, and review and approve the specialists hired by the dam owner. The expenses of these specialists shall be paid for entirely by the owner.

§37-113 Department Maintenance of Records

1. Vermont Dam Inventory: The Department shall maintain an inventory of all known dams subject to its jurisdiction. The inventory shall list, at a minimum, the dam location, owner, and hazard classification. The Department shall update and publish the Vermont Dam Inventory annually, and shall include information collected as part of the Vermont Dam Inventory as part of the Agency of Natural Resources' Natural Resources Atlas.
2. Department Request for Information: Upon request of the Department, for a dam listed in the Vermont Dam Inventory and under this rule, an owner shall make available for inspection and review, all pertinent material related to the dam, including plans, specifications, inspection reports, and any other information the Department may require.

§37-114 Enforcement Actions

Violations of any portion of this rule are subject to enforcement under applicable Vermont law, including 10 V.S.A Chapter 43 and 10 V.S.A Chapters 201 and 211. Failure to maintain and operate a dam in accordance with the standards provided in this rule shall constitute a violation of this rule.

§37-115 Emergency Action

Dam owners have primary responsibility for determining when an emergency involving a dam or reservoir under their ownership exists. When the owner of a dam or reservoir determines an emergency exists, the owner shall immediately implement the Emergency Action Plan, contact emergency management organizations to notify any persons who may be endangered should the dam fail, notify the Department, and take actions necessary to safeguard life, and health. A Dam Order as required under § 37-112 is not required to undertake emergency actions regulated in this section.

If a dam presents an imminent threat to human life or property, as determined by a dam owner or the Department following an investigation conducted pursuant to an Unsafe Dam Proceeding, and necessary actions are not being taken by the owner in the judgment of the Department, the Department may take such action as necessary to protect life and property. In taking emergency action, the Department may:

1. Take full charge and control of any dam;
2. Lower the water level or completely drain the reservoir by releasing water from the reservoir;
3. Perform any necessary remedial or protective work at the site; or

4. Take such other steps as may be essential to safeguard life and property.

The Department may maintain full control over the dam until it is rendered safe or the emergency has ceased, and the owner is able to resume control of operations. The Department's take-over of the dam shall not relieve the owner of a dam of ownership or legal liability to the Department or third parties for damages resulting from dam failure. The Departments' assumption of control over the dam shall not constitute a taking and the Department shall not be liable to the dam owner or others for diminution in property value that may be caused by the Department's work.

The cost and expense of the remedial means provided herein, including cost of any work done to render a dam safe, may be collected by presentation of bills to owners in the same manner as other debts to the State are recoverable. If such bills are not promptly paid by the owner, the cost shall be recovered by the State from the owner by action brought by the Department in a court of appropriate jurisdiction. After taking whatever actions necessary to protect life and property and render the dam safe, the Department shall subsequently conduct an Unsafe Dam hearing.

§37-116 Severability

If any section, subsection, division or subdivision of this rule shall be determined to be invalid, such determination shall apply only to the particular section, subsection, division, or subdivision, and all other provisions shall remain in full force and effect.

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