

State of Hawaii
DEPARTMENT OF LAND AND NATURAL RESOURCES
Engineering Division
Honolulu, Hawaii 96813

November 22, 2010

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Request for Final Approval to Repeal Hawaii Administrative Rules, Title 13, Subtitle 7, Chapter 190 and to Adopt Proposed Hawaii Administrative Rules, Title 13, Subtitle 7, Chapter 190.1 as Required by the "Hawaii Dam and Reservoir Safety Act of 2007", Chapter 179D HRS – Dams and Reservoirs

I. ACTION REQUESTED:

The Department of Land and Natural Resources ("Department") Engineering Division, hereby submits a request for approval to 1) Repeal Hawaii Administrative Rules ("HAR"), Hawaii Administrative Rules, Title 13, Subtitle 7, Chapter 190 and 2) adopt HAR, Title 13, Subtitle 7, Chapter 190.1, entitled "Dams and Reservoirs".

II. BACKGROUND, PURPOSE AND SUBJECT MATTER:

During the 2007 Legislative session, the Legislature totally revised Chapter 179D of the Hawaii Revised Statutes (HRS), in an Act entitled the Dam and Reservoir Safety Act of 2007 (Exhibit 6). The purpose of Chapter 179D, HRS is to provide for the inspection and regulation of the construction, operation, and removal of certain dams and reservoirs in order to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of such dams. Much of the impetus for the Legislature's passage of the Dam and Reservoir Safety Act of 2007 was due to the breach of Ka Loko Reservoir on March 14, 2006, in which almost 400 million gallons of water was released from the Ka Loko Reservoir into Kilauea Bay. Seven lives were lost along with personal property including homes, vehicles, and vegetation along the path of destruction. Similar to the Ka Loko Reservoir, the Department has determined that more than 120 of the 134 regulated dams in the State are classified as high-hazard and could result in the loss of a life should these structures fail (see Exhibit 9).

Section 179D-9, HRS directs the Department to adopt the necessary administrative rules not later than one and one half year after July 1, 2007. Due to the total revision of Chapter 179D, HRS by the State Legislature and the numerous changes, additions and deletions to the existing HAR necessary to implement the new requirements, penalties and fees allowed under Chapter 179D, HRS it was determined that Chapter 13-190 be repealed and that proposed chapter 13-190.1 be adopted. The proposed HARs are presented in various forms in Exhibit 1, 2, & 3. A summary of the proposed changes from the existing administrative rules are attached at Exhibit 4. The existing administrative rules (Chapter 13-190) are attached as Exhibit 5

Approved by the Board of
Land & Natural Resources
at the meeting held on

11/22/10

Page 1 of 8

ITEM L-5
ATTACHMENT 1

Natural Resources has the authority to require fees pursuant to Chapter 179D-6(8), HRS. Dam owners and the State of Hawaii both have obligations to ensure public safety due to the hazard potential of these dams and reservoirs and to reduce the risk of another dam failure.

A summary of the proposed fees are provided in Exhibit 10.

Dam owners had similar comments regarding fees after the first round of comments were received earlier this year. Staff evaluated its fee schedule at that time and reduced the Certificate to Impound fee from \$12,000 to \$400 every 5 years, which is reflected in this final version of the proposed rules. Upon receiving similar comments at the public hearings, staff once again evaluated the actual costs needed to run the Dam Safety Program against the amount of fees anticipated to be collected annually. Exhibit 7 identifies the actual cost of the program since FY 2008 and incorporates the collection of fees starting from FY 2011. Since 2009, just 3 years after the Ka Loko Disaster, the legislature eliminated all general funds previously appropriated for the dam safety program. Therefore, Exhibit 7 shows that fees are needed to support the program. The Department is unable to effectively perform the duties and meet the obligations mandated by the law without these fees.

After the failure of the Ka Loko Dam, the State provided funding in the amount of \$1.2 million to conduct a Phase I Investigation of each of the regulated dams. The reports from these Phase I investigations, which were distributed to the dam owners, provided an assessment of the conditions of each dam and recommendations for remedial actions to correct deficiencies observed during the inspection.

Additionally, to assist the dam owners, the Department has formulated an emergency action plan template, developed evacuation mapping and provided training for owners to complete this plan as required by the new dam and reservoir safety act of 2007.

Action:

The fee schedules have not been revised, however, staff recommends several incentives to assist dam owners, which are described below:

A pro-rated credit system against a dam owner's annual fee was initially proposed as an incentive for owners to repair their dams to make them safe. After reevaluation of this credit program, staff believes this would be unfair to dam owners who have already completed their repairs, as they would not benefit from this program. It would also be difficult for the Department to determine appropriate credits. As an alternative incentive program to assist dam owners, staff proposes that any complete application that is received and accepted by the Department within three (3) years after the adoption date of these administrative rules, the application fee will be assessed accordingly:

1. An application fee of one (1) percent (in lieu of 2%) of the estimated cost of construction, including engineering costs for the construction, enlargement, alteration, repair, or alteration to a dam. This fee percentage will also apply to removal of a dam which estimated cost of construction exceeds \$1million.

2. An application fee of one-half (1/2) percent (in lieu of 2%) of the estimated cost of construction, including engineering costs for the removal of a dam whose estimated cost of construction does not exceed \$1 million.

Adjustments to the fee will be assessed based on actual construction cost as described in Subchapter 8 of the proposed rules.

Staff believes this incentive program gives sufficient time for dam owners to plan, budget and secure funding required for their projects. This will also allow dam owners to retain and use the fee savings toward the necessary repair costs to remedy deficiencies at their dams.

2. DEFINITION OF DAM/JURISDICTIONAL DAMS

Summary of comments received are as follows:

- Take out significant hazard classification as Department has too much discretion in determining which dams are in the significant hazard category.
- Definition of dams confusing, clarify what dams are being regulated.
- Asked that definition of appurtenant works be amended by adding to the end of the definition "that affects the structural integrity of the dam or reservoir", this is to ensure that i.e. hydroelectric works and penstock are not included in the definition.

Discussion:

There were some added clarifications in the purpose and applicability section of the draft HAR that was distributed for public hearings and the similar section within Chapter 179D HRS that outlined the definition and jurisdiction of dams under the Department. There was concern that the Department could regulate almost any structure with no lower threshold. In particular there was concern regarding the definitions of a "significant hazard" dam. This definition is quoted directly from the Chapter 179D HRS and therefore remains unchanged in the proposed rules.

Action(s):

These added clarifications were removed to help clarify the Board's jurisdiction over dams, with the exception to allow the Board to include structures outside those specifically defined in the chapter if they are determined to be a high hazard. Staff revised the definition of an "appurtenant works" to limit them only to those that affect the structural integrity of the dam or reservoir, as commented.

3. VARIANCE

Summary of comments received are as follows:

- Variance should be given only by Board and not by the Department
- Who decides when Department gives variance and not have to go to Board?

Discussion:

A variance provision in the rules was added to give flexibility to the dam owners. Any major variance requested would go to the Board, and staff does not believe that all variances should be presented to the Board.

Action:

No action taken.

4. **DAM SAFETY STANDARDS**

Summary of comments received are as follows:

- Using the Probable Maximum Flood (PMF) is unnecessary, the standard cannot be met, data shows that rain fall will never approach PMF, even 1000-year storm standard is lower.
- PMF is not a proper legal standard and is based on old out dated report, not used by Feds anymore.
- PMF standard will make dams unsustainable, no way that dams can be upgraded to meet such standards, the standards will make all dams not eligible for certificate to impound.

Discussion:

The PMF is the commonly accepted standard used by the dam safety community (Federal and State) throughout the nation. The PMF is utilized as a conservative design storm event that is based on the probable maximum precipitation (PMP) possible for any geographic region. Although this figure is conservative, it is utilized due to the high risk associated with dams and reservoirs. Unlike any other flood control or drainage project, the failure of a dam or reservoir often results in the loss of life and the enormous damage to the surrounding infrastructure and environment.

As conservative as the PMF is believed to be, the PMF event is possible and has occurred in the past. The National Weather Service published Technical Report Number 25 in 1980 that compared greatest observed rainfalls with PMP used to calculate the PMF. Section 6.1 of this report identified storms that exceeded PMP (Smethport, PA July 17-18, 1942, Cherry Creek, CO may 30-31, 1935). The U.S. Bureau of Reclamation published a paper on another storm (Prescott, AZ September 22-23, 1983) in the American Meteorological Society's Monthly Weather Review, (Dec. 1986) pages 2344-2351: Rainfall Characteristics of the Prescott, Arizona, Storm of 22-23 September 1983.

Hawaii dams are capable of meeting these standards, as 23 regulated dams currently are capable of passing the PMF event.

Action(s):

No action taken.

5. **ENGINEERING REQUIREMENTS**

Summary of comments received are as follows:

- Need to clarify the type of engineers necessary, confusing with the use of owner's engineer, design engineer.
- Does rule require that engineer be on site at all times during construction, or can others help with daily reports?
- Requiring independent engineer to review would be extremely expensive for any owner.
- Requirement to have engineer for minor construction is cost prohibitive.

- Surveys to be done also expensive and not sure whether they are needed both before and after construction of a dam.
- Wanted to know if representatives from outer islands be able to take the place of engineer in daily logs or does engineer have to be there.
- Requires Hawaii licensed engineer, cannot use mainland licensed engineer?

Discussion:

There were questions regarding the term “engineer”, which was used to describe different roles throughout the permitting and construction sections. Concerns were raised as to the requirements for this engineer and possible duplication of efforts and redundant costs items. The Department reviewed these sections to clarify the term “engineer” and define each engineer’s roles and responsibilities as intended in the draft HARs.

Because of the specific concerns and requirements of dams and their design, engineers should have knowledge of dams and be licensed in the State of Hawaii. Construction engineers are specified to ensure that conformance to the plans and specification are met at a high standard of quality to provide the best assurance to minimize the potential for a dam failure.

Mainland engineers can apply to the State Department of Commerce and Consumer Affairs (DCCA) for licensing reciprocity.

Action(s):

1. The rules were revised to clarify the type of engineer roles: design engineer, construction engineer, and department engineers. The plain reference to engineer is defined in the rules as a licensed professional engineer registered in the State of Hawaii.
2. Section 190.1 -30 (1)(C) states that, “The construction engineer may assign some inspection tasks to a duly authorized agent, under the construction engineer’s supervision.” The construction engineer is not required to be on site at all times during construction. Similar requirements are stipulated in DCCA’s administrative rules for professional engineers, architects and land surveyors; Chapter 16-115(2).
3. A survey is required as the elevations on a dam structure have a critical impact on their performance. It also provides a reference for future evaluation of the structure’s performance.
4. The engineer requires a Hawaii Professional Engineer’s license.

6. INSPECTIONS

Summary of comments received are as follows:

- Are guidelines for inspections going to be part of rules?
- Can owners have personnel qualified to do self inspection?

Discussion:

The Department currently has existing dam safety guidelines covering the construction and inspection of dams; and interim guidelines for owners regarding alterations, repairs and removal of dams available on our website. These guidelines are currently being updated and will be made available to owners when finalized.

Owners are encouraged to train their personnel on the proper inspection and operation of dams and reservoirs. DLNR conducted a training seminar on the proper maintenance and operation of dams on Oahu in 2008. Owners are responsible to conduct inspection of their facilities in addition to any inspection conducted by the department.

Action:

No action taken.

7. **REMOVAL OF DAMS**

Summary of comments received are as follows:

- Can requirements be lessened to make it easier to remove dams?
- Can width of removal be less than 1/3 of height of dam? 1/3 seems excessive.
- Asks that section 13-190.1-20(d)(2) add change the term shall to may, as some requirements may not be required for certain types of work.

Discussion:

Staff believes that the question on dam removal requirements is one that can be addressed by using the variance provision provided for in the rules. It is difficult to make blanket exceptions in the rules as some removals may be more involved and present a hazard to the public if done inadequately. Some provisions in the general permit requirement section are likely not required for removals.

The rules had a specific requirement for the bottom width of a dam breach section as no shorter than 1/3 the dam height. This is to mitigate against possible clogging of the breach due to slope failure into the breach. Owners argued that in some cases, locally this would entail excavating out the entire embankment section and possibly some of the existing hillside. The Department felt that although this was a good rule of thumb, the intent could be mitigated through proper side slope requirements and stability calculations.

Action:

Staff revised the rules to allow for only required items for removal projects, thereby lessening the requirements for removal projects. Staff removed the 1/3 dam height to bottom width requirement. Staff believes that all other requirements are needed to ensure proper application for all types of removal work.

8. **MULTIPLE OWNERS**

Summary of comments received are as follows:

- Joint and several liability is not fair to small landowners who may own a portion of dam not involved in problem, would involve litigation.
- Joint and several liability oversteps the statutory authority of the division.
- Does not encourage dam owner that is really responsible to do work, let state do it and all the other owners are also liable for costs.
- Suggest using a variety of factors in determining responsibility for costs.
- There will be problems in determining owners when there is a condo situation, i.e. where there are multiple owners of one unit.

Discussion:

Staff considered a variety of ways to allocate costs between common owners and believes it is the responsibility of the owners to decide how to allocate costs among themselves.

Action taken:

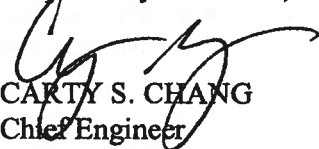
Staff deleted the joint and several liability references in the rule and will simply charge all owners for costs incurred when no action is taken.

RECOMMENDATION:

That the Board of Land and Natural Resources:

1. Approve the Repeal of Hawaii Administrative Rules, Title 13, Subtitle 7, Chapter 190 and adopt Proposed Amendments to the Hawaii Administrative Rules, Title 13, Subtitle 7, Chapter 190.1.
2. Approve the incentive program as described in the submittal.

Respectfully submitted,


CARTY S. CHANG
Chief Engineer

APPROVED FOR SUBMITTAL:


LAURA H. THIELEN, Chairperson

Exhibit List

- . Exhibit 1 HAR, Chapter13-190.1 (Proposed Standard format)
- . Exhibit 2 HAR, Chapter13-190.1 (Proposed Ramseyer format)
- . Exhibit 3 HAR, Chapter13-190.1 (Proposed with highlighted revisions and comments from Board Approved Public Hearing Version)
- . Exhibit 4 Highlight of significant changes to HAR Title 13, Chapter 190, Dams and Reservoirs (Proposed New Chapter 13-190.1)
- . Exhibit 5 HAR, Chapter13-190 (existing)
- . Exhibit 6 HRS, Chapter 179D
- . Exhibit 7 Summary of Dam & Reservoir Safety Program Operating Expenses & Budget
- . Exhibit 8 Jurisdictional Size Chart
- . Exhibit 9 Chart of Regulated Dams in Hawaii
- . Exhibit 10 Summary of Fees in proposed HAR Chapter 13-190.1

DEPARTMENT OF LAND AND NATURAL RESOURCES

Repeal of Chapter 13-190 and Adoption of Chapter 13-190.1
HAWAII ADMINISTRATIVE RULES

(adoption date)

SUMMARY

1. Chapter 13-190, consisting of §§13-190-1 to 13-190-42 is repealed.
2. Chapter 13-190.1, Hawaii Administrative Rules, entitled "Dams and Reservoirs", is adopted.

Exhibit 1

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUBTITLE 7

WATER AND LAND DEVELOPMENT

CHAPTER 190

DAMS AND RESERVOIRS

Repealed

§§13-190-1 to 13-190-42 Repealed. [R

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HAWAII ADMINISTRATIVE RULES

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUBTITLE 7

WATER AND LAND DEVELOPMENT

CHAPTER 190.1

DAMS AND RESERVOIRS

Subchapter 1 General Provisions

- §13-190.1-1 Purpose and applicability
- §13-190.1-2 Definitions
- §13-190.1-3 Exempt structures
- §13-190.1-4 Minimum design requirements
- §13-190.1-5 Violations; penalties
- §13-190.1-5.1 Criminal violations; penalties
- §13-190.1-6 Administrative and judicial review
- §13-190.1-7 Inspections
- §13-190.1-8 Change in ownership
- §13-190.1-9 Variances
- §13-190.1-10 Severability

Subchapter 2 Certificate of Approval to Impound

- §13-190.1-11 Certificates of approval to impound
- §13-190.1-12 Applications for certificate of approval to impound
- §13-190.1-13 Notice
- §13-190.1-14 Application review process
- §13-190.1-15 Noncompliance
- §13-190.1-16 Transferability

Subchapter 3 Construction, Enlargement, Repair, Alteration, or Removal of Dams and Reservoirs

§13-190.1-1

- §13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- §13-190.1-21 Additional requirements for removal of dam or reservoir
- §13-190.1-22 Supervision of plans preparation and observation of construction
- §13-190.1-23 Permit application approval
- §13-190.1-24 Revocation of approval

Subchapter 4 Construction, Inspection, and Completion

- §13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- §13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- §13-190.1-32 Complaints as to unsafe conditions during construction

Subchapter 5 Maintenance, Operation, and Emergency Work

- §13-190.1-40 Maintenance and operation
- §13-190.1-40.1 Operation and maintenance plan
- §13-190.1-41 Emergency work
- §13-190.1-41.1 Emergency action by department
- §13-190.1-42 Emergency action plan

Subchapter 6 Remedies

- §13-190.1-43 Liens
- §13-190.1-44 Injunctive relief
- §13-190.1-45 Department action when multiple owners cannot mutually agree

Subchapter 7 Entry Upon Property

§13-190.1-46 Entry upon property

Subchapter 8 Fees

§13-190.1-50 Dam permit application fees for
construction, repair, alteration, or
removal

§13-190.1-51 Certificate of approval to impound fee

§13-190.1-52 Annual fees

SUBCHAPTER 1

GENERAL PROVISIONS

§13-190.1-1 Purpose and applicability. (a) The purpose of this chapter is to establish rules for the inspection and regulation of the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of the dams or reservoirs.

(b) This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height, unless such a barrier, due to its location or other physical characteristics, is a high hazard.

(c) The board shall have jurisdiction of all dams and reservoirs until the department has completed its statewide inspections and has established and implemented rules and criteria for a five-year dams and reservoirs inspection and classification process and the board declares which dams or reservoirs are to be removed from its jurisdiction. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-2)

§13-190.1-2

§13-190.1-2 Definitions. As used in this chapter unless otherwise provided:

"Alteration" means a change to an existing dam or reservoir from the originally approved construction plans and specifications or current condition.

"Application approval" means authorization in writing issued by the board to an owner who has applied to the board for permission to construct, enlarge, repair, alter, remove, maintain, or operate a dam or reservoir and which specifies the conditions or limitations under which work is to be performed by the owner or under which approval is granted.

"Appurtenant works" or "appurtenance" means any structure, such as spillways in the dam or separate therefrom, the reservoir and its rim, including artificial or natural barriers that function as the rim, low level outlet works, and water conduits, such as tunnels, pipelines, or penstocks, through the dam or its abutment that is anticipated to affect the structural integrity of the dam or reservoir.

"Board" means the board of land and natural resources.

"Certificate of approval to impound" means authorization in writing issued by the board to an owner of an existing dam or reservoir, or an owner who has completed construction, enlargement, repair, or alteration of a dam or reservoir, that specifies the conditions or limitations under which the dam or reservoir is to be maintained and operated.

"Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water and:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to a maximum water storage elevation;

- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height;
- (3) Was included in circular C 122 (Revised) entitled "Dams within the jurisdiction of the State of Hawaii" dated September 1998;
- (4) Any facility that has two or more reservoirs that operate or function as a single facility or are connected together with an uncontrolled conduit, which shall be construed to be one dam or reservoir. The highest height of any of the embankments and the combined maximum storage volume shall be used as the criteria for determining if the structure is a dam under this chapter; or
- (5) Is a natural structure that retains water and has been altered by the addition of an outlet works and has a maximum storage volume greater than fifty acre-feet.

"Department" means the department of land and natural resources.

"Design water level" means the water elevation that a dam is designed to store, including the flood surcharge, that a dam is designed to impound without overtopping the dam crest. The design water level shall not include freeboard.

"Emergency" means, but is not limited to, breaches and all conditions leading to or causing a breach, overtopping, or any other condition in a dam and its appurtenant structures that may be construed as unsafe or threatening to life or property.

"Engineer" means a registered professional engineer, licensed by the State of Hawaii, and who has experience with dam design and construction.

"Enlargement" means any change in or addition to an existing dam or reservoir which raises or may raise the maximum water storage elevation of the reservoir.

"Freeboard" means the vertical distance above the maximum water surface during the peak discharge in the emergency spillway during the inflow design flood (IDF) to the lowest point on the crest of the dam at which water would flow over the dam at a section not designed for overflow.

"Hazard potential" means the possible adverse incremental consequences that result from the release of water or stored contents due to the failure of the dam or reservoir or operational failures of the dam, reservoir, or appurtenances. The hazard potential classification of a dam or reservoir shall not reflect in any way on the current condition of the dam or reservoir and its appurtenant works, including the dam's or reservoir's safety, structural integrity, or flood routing capacity.

"High hazard" means a dam's or reservoir's failure will result in probable loss of human life.

"Inflow design flood" is the flood hydrograph used in the design or evaluation of a dam, its appurtenant works particularly for sizing the spillway and outlet works, with which the upper limit of the inflow design flood is the probable maximum flood.

"Low hazard" means a dam's or reservoir's failure would result in no probable loss of human life and low economic loss or environmental loss, or both. Economic losses are principally limited to the owner's property.

"Maximum water storage elevation" means the maximum water surface elevation that can be hydrologically attained in the reservoir, or at the dam crest elevation if hydrologic loading is unknown.

"Operator" means any person who controls, manages, maintains, or supervises the condition and functions of a dam or reservoir.

"Outlet works" means a tunnel or pipe/conduit (low level outlet) that is used to drain the reservoir and often used to regulate flow to downstream users.

"Owner" means any person who has a right, title, or interest in or to the dam or reservoir or to the property upon which the dam or appurtenant works is located or proposed to be located.

"Person" means any natural person, partnership, firm, association, organization, corporation, county, county authority, trust, receiver or trustee, limited liability company, limited liability partnership, or company, or any state department, agency, or political subdivision, or any other commercial or legal entity. Whenever used in a section prescribing and imposing a penalty or sanction, the term "person" shall include the members of an association or organization, and the officers of a corporation, company, municipality, or municipal authority.

"Physical clear access" means a roadway or path that allows timely access for inspection to a dam, reservoir, and its appurtenant works. If by a roadway, the roadway shall be maintained in an accessible condition by a four-wheel-drive vehicle even during inclement weather conditions.

"Probable" means more likely than not to occur, reasonably expected, realistic.

"Removal" means complete removal or partial removal of the dam or reservoir embankment or structure to restore the approximate original topographic contours of the valley.

"Repair" means construction to an existing dam or appurtenant works that does not significantly change the reservoir's storage capacity or alter significantly the existing structure as it exists. Repair shall not apply to routine maintenance not affecting the safety of the dam or appurtenant works.

"Reservoir" means any basin which contains or will contain water impounded by a dam, including appurtenant works.

"Significant hazard" means a dam's or reservoir's failure will result in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams or reservoirs are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

§13-190.1-2

"Spillway" means a device which conveys flood waters from the reservoir past the dam without endangering its safety or integrity.

"Spillway crest" means the lowest point in the spillway above which water can flow over or through the spillway.

"Storage capacity" means the maximum volume of water and material which could be impounded by a dam when the water level is at the top of the dam or at the highest elevation which could be hydrologically attained, if this elevation is below the top of dam.
[Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-3)

§13-190.1-3 Exempt structures.

Structures exempt from these rules include:

- (1) A transportation structure such as a highway or road fill that exists solely for transportation purposes;
- (2) Refuse embankments (e.g., solid waste disposal facilities); and
- (3) Structures that store water only below the lowest point of the natural ground, unless the structure retains more than fifteen acre-feet and an outlet works is constructed to release water. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-4 Minimum design requirements. (a)

Regulated dams and reservoirs shall incorporate the following minimum design requirements:

- (1) Embankment slopes that are not steeper than 2.5 horizontal to 1 vertical unless a specific design for a steeper slope shows that the embankment is stable and capable of being safely maintained;
- (2) An embankment crest that has a minimum width of ten feet;

- (3) Earthen spillways that are constructed in natural ground; and
- (4) A low level outlet shall be designed to drain the reservoir by gravity flow.
- (b) Significant and high hazard dams shall also have a stability analysis of the structure demonstrating the stability of the embankment slopes for various loading conditions and minimum factors of safety generated by a methodology accepted by the department.
- (c) Regulated dam spillways shall safely pass the appropriate inflow design flood, as shown in the following table:

Hazard Classification	Size Classification	Inflow design flood
Low	Small	100 year
	Intermediate	100 year
	Large	½ PMF
Significant	Small	½ PMF
	Intermediate	½ PMF
	Large	PMF
High	All Sizes	PMF

Category	Impoundment	
	Storage (Acre-feet)	Height (feet)
Small	<1000 and ≥50	<40 and ≥25
Intermediate	≥1,000 and <50,000	≥40 and <100
Large	≥50,000	≥100

Note: "PMF" or "Probable Maximum Flood", is defined as the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the region. The PMF is derived from the 24-hour probable maximum precipitation (PMP), which information is available from the National Weather Service, NOAA, Publication HMR-39, "Hydrometeorological Report No. 39 - Probable Maximum

§13-190.1-4

Precipitation in the Hawaiian Islands", or current standard. $\frac{1}{2}$ PMF = PMF divided by two. "100 year" is defined as the flood associated with the 1 per cent probability storm event that is derived from the 24-hour 100-year precipitation rate, which is identified in the US Weather Bureau Technical Paper No. 43 Rainfall-Frequency Atlas of the Hawaiian Islands and as updated by NOAA Atlas 14, Volume 4 Precipitation-Frequency Atlas of the United States, Hawaiian Islands, or current standard.

(d) Freeboard shall be the greater of the following:

- (1) Two feet above the water level during the peak spillway flow associated with the inflow design flood;
- (2) Sum of the wave run-up and reservoir setup resulting from a 100 miles per hour wind speed during the peak spillway flow associated with the inflow design flood.
[Eff. _____] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-5 Violations; penalties. (a) Except as otherwise provided by law, the board may set, charge, and collect administrative penalties and recover administrative fees and costs, including attorney's fees and costs, or bring legal action to recover administrative penalties, fees, and costs, including attorney's fees and costs, or payment for damages or for the cost to correct damages resulting from a violation of chapter 179D, HRS, this chapter, or any order or condition adopted, issued, or required under this chapter. The administrative penalty shall not exceed \$25,000 per day of a violation, and each day during which the violation continues shall constitute an additional, separate, and distinct violation. Proceedings under this section shall be conducted pursuant to the administrative rules for the department.

(b) With the assistance of the attorney general, the board may seek an injunction and damages in the enforcement of this chapter.

(c) All penalties, fees, and costs collected pursuant to this section or other rules adopted by the board pursuant to chapter 179D, HRS, shall be deposited in the dam and reservoir safety special fund. [Eff.] (Auth: HRS §§179D-6, 179D-8) (Imp: HRS §179D-8)

§13-190.1-5.1 Criminal violations; penalties.
Criminal sanctions regarding violations of this chapter and chapter 179D, HRS, are as provided in section 179D-8, HRS. [Eff.] (Auth: HRS §179D-8) (Imp: HRS §179D-8)

§13-190.1-6 Administrative and judicial review.

(a) The findings and orders of the board, and the board's approval or disapproval of an application issued by the State are final, conclusive, and binding upon all owners, state agencies, and other government agencies, regulatory or otherwise, as to the safety of design, construction, enlargement, repair, alteration, removal, maintenance, or operation of any dam or reservoir, and the certificate of approval to impound. The board's approval of an application or a certificate of approval to impound will not be considered final if it can be demonstrated to the board that the board's approval of the relevant application or certificate of approval was based on one or more misrepresentations or other relevant data.

(b) Any person aggrieved or adversely affected by an order or action of the board is entitled to administrative and judicial review in accordance with chapter 91, HRS, and the department's applicable administrative rules on administrative and judicial review in effect at the time, provided, however, that the order or action shall remain in force until

§13-190.1-6

modified or set aside on appeal. [Eff.]
(Auth: HRS §179D-8) (Imp: HRS §179D-7)

§13-190.1-7 Inspections. Any inspections done pursuant to this chapter shall use the current guidelines developed by the department. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-8 Change in ownership. Changes in ownership of a dam shall be filed with the department by the transferring owner within seven days of recordation with the bureau of conveyances of the State of Hawaii. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-9 Variances. The board or department may, upon a showing of good cause, grant a variance from any provision of this chapter, including, without limitation, an extension of time to comply with any such provision. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-10 Severability. If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 2

CERTIFICATE OF APPROVAL TO IMPOUND

§13-190.1-11 Certificates of approval to impound. No owner of a dam or reservoir shall impound water without a valid certificate of approval to impound water at the dam or reservoir. A certificate of approval to impound shall be valid for five years from the date of issuance, unless otherwise stated by the department, and provided all conditions of the certificate are fulfilled and maintained to the satisfaction of the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-12 Applications for certificate of approval to impound. (a) Every owner of a dam or reservoir that is a regulated structure as defined in section 13-190.1-2 shall file an application for a certificate of approval to impound.

(b) All applications shall be submitted with supporting information as required by the department.

(c) Each application shall also be accompanied by application fees as required by subchapter 8.

(d) During the application process for the initial certificate of approval to impound, the owner or operator of a dam or reservoir that was completed prior to July 6, 2007, shall be allowed to impound water, unless the board determines that the dam or reservoir may pose a danger to the health and safety of persons or property. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-13 Notice. (a) The board shall give notice to file an application for certificate of approval to impound to owners of dams or reservoirs known to the department, who have failed to file such applications as required by this chapter.

§13-190.1-13

(b) The notice provided for in this section shall be delivered by certified mail to the owner at the owner's last address of record in the office of the county tax assessor for the county in which the dam or reservoir is located.

(c) Service of the notice shall be complete upon the mailing of the notice.

(d) All owners shall submit an application for certificate of approval to impound water within ninety days from the date of the notice, unless the owner has filed a request for exemption. An owner who fails to submit an application for certificate of approval to impound within ninety days from the date of notice shall be deemed in violation of these rules and subject to penalties consistent with sections 13-190.1-5 and 13-190.1-5.1. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-27)

§13-190.1-14 Application review process. (a) The department shall inspect the dams and reservoirs, unless the data, records, and inspection reports on file with the department are found adequate to enable a determination of whether or not the certificate of approval to impound should be issued.

(b) The department shall require owners of the dams and reservoirs to perform at their expense any work, tests, or investigation as may reasonably be required to disclose information sufficient to enable the board to determine whether to issue certificates of approval to impound, or to issue orders directing further work at the owner's expense necessary to safeguard life and property.

(c) The board shall issue a certificate of approval to impound for dams and reservoirs that do not have severe deficiencies that affect the structural safety or operational integrity of a facility or that may threaten the safety of the dam.

(d) In order to protect public safety, the department shall require an owner or operator to lower the water level of, or to drain the dam or reservoir,

or impose conditions on a certificate to impound application approval.

(e) Upon inspection, review of investigation findings, or satisfactory correction of severe deficiencies, if the department finds that the dam and reservoir are safe to impound water, a certificate of approval to impound shall be issued.

(f) The department shall not issue a certificate of approval to impound when a dam or reservoir is determined by the department to be unsafe to impound water. Upon finding that the dam or reservoir is unsafe to impound water, the department shall issue a written notice to the owner. After receipt of the notice, the owner shall no longer cause or allow the dam or reservoir to impound water unless consent is obtained from the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-15 Noncompliance. The board may order the suspension, revocation, or restriction of any certificate of approval to impound, for any act or failure to comply with chapter 179D, HRS, these rules, or orders issued pursuant to chapter 179D, HRS, or with any of the conditions contained in or attached to the application approval or certificate of approval to impound. [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-21)

§13-190.1-16 Transferability. Certificates of approval to impound water are not transferable from one person to another without written approval from the board; and:

- (1) The existing holder of the certificate to impound requests a transfer in writing to the department; and
- (2) The new or prospective dam owner submits in writing to the department:

§13-190.1-16

- (A) Proof that the person is or will become the owner of the dam;
- (B) The date of change in ownership; and
- (C) An acknowledgment of receipt of a copy of the certificate of approval to impound that is in effect, and of the person's awareness of the terms, including and without limitation, any conditions or restrictions on the operation imposed by the department.
[Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §§179D-6, 179D-21)

SUBCHAPTER 3

CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION, OR
REMOVAL OF DAMS AND RESERVOIRS

§13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works.

(a) No person shall construct, enlarge, repair, alter, or remove any dam or reservoir until a dam permit application form has been filed, approval of the construction plans and specifications is obtained from the board, and a written application approval is issued. Owners proposing routine maintenance not affecting the safety of the structure are exempted from the requirements of this subchapter. All submittals shall be in accordance with this chapter. The department guidelines shall assist but not limit evaluation of the application.

(b) Nothing in this chapter grants an exemption from any applicable federal, state, or county governmental requirements.

(c) The applicant shall notify in writing, the county engineer or appropriate person within the county, for which the dam or reservoir is located, of the submittal of a permit application for the construction, enlargement, repair, alteration, or

removal of a dam or reservoir. A copy of this notification letter shall be submitted to the department by the applicant.

(d) A separate application shall be filed with the department for each regulated dam or reservoir and for each separate project. The applicant shall submit to the department, three hard copies and an electronic copy on disk of the application package. The application package shall consist of the following:

- (1) The department's dam permit application form. Each application shall be made on forms furnished by the department and shall be signed by the dam owner or an authorized representative of the dam owner. If there are multiple owners of the property where the dam is located, a property map shall be provided showing the dam with the property lines identified for each owner. A notarized letter of concurrence and agreement from the owners of all property on which the proposed project is being conducted is required. Each application shall include at a minimum the following:
 - (A) Name and address of the applicant;
 - (B) Name and address of the owner or owners and their associated tax map key numbers of the properties upon which the works are to be constructed, enlarged, repaired, altered, or removed;
 - (C) Description of the location, type, size, purpose, and height of the proposed, enlarged, repaired, altered, or removed dam, and the reservoir and appurtenant works;
 - (D) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
 - (E) Plans for installation of any permanent instrumentation at the dam or appurtenant structures;

- (F) Area of the drainage basin, rainfall and stream flow records, and flood-flow records and estimates (as applicable);
 - (G) Relevant construction drawings, plans, and specifications signed and sealed by the design engineer, licensed in the State of Hawaii; and the name and address of the design engineer who prepared the plans and specifications;
 - (H) Proposed times of commencement and completion of the proposed activity; and
 - (I) A listing of all sources of inflow to the reservoir (as applicable);
- (2) Design reports. A design report shall be submitted with the application package (as applicable to the proposed activity). The report shall include information sufficient to evaluate the design of the new or to be enlarged, repaired, altered, or removed dam and the appurtenances, including references and page numbers, to support any assumptions or criteria used in the design. The report shall include calculations and be sufficiently detailed to accurately define the final design of the proposed dam project as represented in the construction plans. The report shall include but not be limited to the following items, as applicable for the proposed activity:
- (A) Hydraulic and hydrologic report;
 - (B) Geotechnical report;
 - (C) Seepage analysis;
 - (D) Spillway analysis;
 - (E) Foundation evaluation;
 - (F) Analysis of the downstream effects;
 - (G) Anticipated construction sequence needed to complete the project;
 - (H) Anticipated permit and approvals required; and
 - (I) Other reports as necessary;

- (3) Construction plans and specifications. Construction plans and specifications shall meet the following requirements:
- (A) The plans shall show the design of the dam, dam enlargement, repair, alteration, or removal, and each appurtenant structure, in sufficient detail so that the contractor or builder is able to construct the proposed structure from the plans and specifications;
 - (B) The front cover sheet of the plan shall include a site map of the dam, reservoir area, and appurtenances, the name of the dam facility and the state dam inventory identification (if available), the county and island in which the dam is located, tax map key numbers of all parcels the dam or reservoir is situated on, project location and vicinity maps, and an index of sheets;
 - (C) Drawings shall be prepared in an appropriate scale so details are legible with an overall size of 24-inches high and 36-inches wide or 22-inches high and 34-inches wide;
 - (D) Spillway and outlet discharge rating curves and tables, and reservoir area-capacity curves and tables, shall be placed on the drawings, as applicable;
 - (E) The front cover of the specifications shall show the title name and state inventory identification number of the dam and the county in which the dam is located;
 - (F) The general conditions shall include statements that the plans and specifications cannot be significantly changed without prior written approval of the department and the design engineer of record;

- (G) The specifications shall provide that the owner's construction engineer will monitor the construction of the project. The construction engineer monitoring the construction for the owner is responsible for the quality of construction, compliance with the approved design and specifications, review and approval of all construction change orders, and preparation of the project completion documents;
- (H) The following items, at a minimum, shall be included in the construction plans, as applicable:
 - (i) Elevation view along longitudinal axis of dam and foundation;
 - (ii) Cross-sectional view of dam at location of maximum height;
 - (iii) Cross-sectional views and profiles of spillway(s), outlet facilities, and other appurtenances;
 - (iv) Steel reinforcement placement and bar sizing for concrete construction must be shown in at least one section or profile; and
 - (v) The plan for diversion and control of water during construction; and
- (I) The following items shall be included in the specifications, as applicable:
 - (i) The type, class, or description of all materials to be used;
 - (ii) The requirements for fill placement, moisture conditioning, and minimum level of compaction of all earth zones; and
 - (iii) The requirements, procedures, and minimum standards for

- concrete construction or structural details;
- (4) Construction quality assurance plan. An approved quality assurance plan describing all aspects of construction supervision and protocol for change requests, approvals, and field inspection;
 - (5) Detailed cost estimate. A detailed cost estimate for the construction of the dam project including the engineering fees;
 - (6) Filing fee. The filing fee shall be pursuant to section 13-190.1-50; and
 - (7) The following items shall be submitted either with the application package or during construction:
 - (A) An emergency action plan;
 - (B) An operation and maintenance plan to accomplish the annual maintenance, including record keeping documents;
 - (C) An instrumentation plan regarding instruments that evaluate the performance of the dam;
 - (D) Proposed construction schedule. A proposed construction schedule shall be provided with the construction package. The schedule should identify key benchmarks and milestones and any long lead items; and
 - (E) Construction emergency action plan. Prior to the start of construction, the applicant shall submit a copy of an approved emergency action plan for use during the construction, modification, or alteration of the dam and reservoir. This plan shall address possible deficiencies and concerns that may arise at specific phases of the work. The plan shall also include applicable operations, maintenance, and inspection work that should be followed during the construction phase. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-21 Additional requirements for removal of dam or reservoir. (a) No person shall remove any dam, reservoir, or appurtenant works until written approval is obtained from the board. The application for removal shall include, but not be limited to, the following information:

- (1) The current height and storage of the dam;
- (2) The current hazard classification;
- (3) The proposed flow through channel width and side slopes;
- (4) A description of and quantitative analyses of the flow through conditions during the 100-year, 24-hour storm event including provision for erosion protection;
- (5) Evaluation of all potential effects on life, property, and environment downstream; and
- (6) For a partial removal of a dam that will still store water, the relevant deficiencies identified in the initial investigation or inspection reports shall be addressed.

(b) Plans for removal of a dam or reservoir, shall meet the following requirements:

- (1) The dam shall be excavated down to the level of the natural ground or to sufficient cut depth to prevent silt previously deposited in the reservoir or material excavated for the channel from washing downstream. The plan shall address sediment that has been previously deposited in the reservoir;
- (2) The channel shall be of sufficient width to pass the 100-year, 24-hour flood with maximum depth of five feet of water anywhere in the channel at any time during the flood. Results of analyses demonstrating the 100-year, 24-hour flood can be safely passed within the breached section while maintaining five feet or less of water in the remaining reservoir shall be submitted for review;

- (3) Regardless of the hydraulic requirements, the bottom width of the channel shall be a minimum of fifteen feet;
- (4) The side slopes of the channel shall be excavated to a slope that is stable, but not steeper than 2:1 (horizontal:vertical). Slope stability analysis that provides an adequate factor of safety for steeper slopes may be accepted by the department but in no case steeper than 1:1;
- (5) A detailed flood study for the 100-year storm frequency events shall be performed for the existing conditions and proposed removed or partially removed dam;
- (6) If the partially removed dam will store more than 2 million gallons (6 acre-feet) of water, the plan shall provide a dam break inundation map of the downstream community at risk from the altered dam structure, assuming full water level at the time of failure;
- (7) Transitions to downstream channels shall be investigated and appropriate provisions made to mitigate against possible damage or flooding;
- (8) The exposed slopes within the 100-year, 24-hour storm depth shall be protected with riprap, vegetation, or other suitable means to prevent headcutting, downcutting, and lateral slope erosion; and
- (9) The reservoir shall be emptied before removal of the dam. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-22 Supervision of plans preparation and observation of construction. (a) The design engineer shall supervise the preparation of all plans and specifications for the initial construction, enlargement, alteration, repair, or removal of dams and reservoirs.

§13-190.1-22

(b) The observation of the construction shall be conducted by the construction engineer, as referenced in subchapter 4. Requirements for documentation of construction are provided in subchapter 4.

(c) The design engineer and construction engineer may be assisted by other specialists, under the design or construction engineer's direction, as required. [Eff. _____] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-23 Permit application approval. (a) The permit application will be reviewed for compliance with the requirements provided in this chapter and in general accordance with standard practice for dam safety. If an application is incomplete or defective, it shall be returned to the applicant. The application shall be corrected and returned to the board within ninety days or such further time as may be given by the department in order to retain its validity. If the application is not returned within the required time limit, it shall be deemed automatically rejected.

(b) After the department has determined that the application is complete and the plans and specifications conform to this chapter and generally accepted engineering practice, the board shall approve the plans and specifications and issue an application approval with any conditions determined to be appropriate by the board.

(c) Actual construction, enlargement, repair, alteration, or removal shall be commenced within the time frame set by the board in the application approval; otherwise, the application approval becomes void. The department may, upon written application and for good cause shown, extend an owner's time for commencing construction, enlargement, repair, alteration, or removal of a dam or reservoir.

(d) Actual construction, enlargement, repair, alteration, or removal of a dam or reservoir shall be completed with five years of issuance of the

application approval unless an extension authorized in writing by the board is issued. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-24 Revocation of approval. (a) The board shall consider the revocation of the application approval in whole or in part for any of the following:

- (1) Material false statement in the application or in any report or statement of fact required pursuant to this chapter;
- (2) Violation of this chapter;
- (3) Violation of the approved plans and specifications;
- (4) Non-compliance of any conditions as set by the board; or
- (5) Discovery of unforeseen unsafe conditions.

(b) In any proceeding for revocation, the board shall give prior written notice to the affected owner of the facts or conditions which warrant the action and provide the applicant or owner an opportunity for a hearing. [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

SUBCHAPTER 4

CONSTRUCTION, INSPECTION, AND COMPLETION

§13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works.

For the actual construction work for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works, the owner or applicant, or both, shall be responsible for providing and complying with the following:

- (1) Construction engineer's observation of construction.

- (A) Prior to the start of any work on the dam or reservoir, the owner or applicant shall provide a construction engineer, to ensure compliance with the approved plans and specifications, including any approved change orders and the construction quality assurance plan;
 - (B) The construction engineer shall have ultimate responsibility for the supervision of all inspection tasks and compliance with approved plans and specifications; and
 - (C) The construction engineer may assign some inspection tasks to a duly authorized agent, under the construction engineer's supervision;
- (2) A construction quality assurance plan. A construction quality assurance plan shall be prepared and submitted to the department at least thirty days prior to the start of construction, which details the minimum requirements of the construction engineer's observation of construction. The minimum components of this plan shall include the following as applicable:
- (A) Listing of parties and their roles and responsibility;
 - (B) Names and qualifications of the engineer(s) and staff to be used on the project;
 - (C) Anticipated construction observation schedule for the construction engineer and staff;
 - (D) Schedule of observations and inspections (with reference to specification sections), such as the observation of the foundation or other inspections, as deemed appropriate by the department or design engineer;

- (E) Schedule of required submittals, including shop drawings (with reference to specification section);
 - (F) Schedule of construction material tests (with reference to specification section); and
 - (G) Schedule of construction performance tests (with reference to specification section);
- (3) Construction records. The construction engineer shall maintain a record of construction that, at a minimum, shall include: daily activity and progress reports; all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion; all geologic information obtained; and construction problems and remedies;
- (4) Construction schedule;
- (5) Construction emergency action plan;
- (6) Labor and material bonds. Where the project construction estimate exceeds \$500,000 (including design), the owner shall furnish evidence of a bond for labor and materials for the approved construction or alteration work, unless otherwise allowed by the board;
- (7) General liability insurance. Insurance coverage must be maintained for the minimum amounts stipulated by the department, with a provision identifying the department as an additional insured, and evidence of insurance provided to the department prior to the start of construction;
- (8) Change order requirements. When unforeseen site conditions or material availability require that the construction work differ significantly from the approved plans and specifications, a change order, including details, must be provided by the construction engineer to the department:

- (A) No change shall be executed until approved by the department;
 - (B) Major changes must be submitted in writing with supporting documentation, and approved in writing by the department;
 - (C) If the department determines that the proposed construction change order represents a significant modification of the application approval that could have an effect on structural integrity or safe operations of the project, then approval of the change order by the board or department shall be required;
 - (D) If board approval of the proposed construction change order is required, no action can be taken by the owner to make the construction change until approval is given by the board; and
 - (E) Minor changes may be transmitted verbally by the construction engineer and approved by the department verbally, provided documentation of the change is provided to the department within ten days of the approval;
- (9) A pre-construction meeting shall be held subsequent to submitting the construction observation and quality assurance plan, but not later than fourteen days prior to start of construction. All parties actively involved in the construction should be requested to attend, such as the dam owner, the design engineer, the construction engineer, the contractor, and the department. At a minimum, the following should be discussed:
- (A) Project personnel and roles:
 - (i) Project communication protocol between the owner, construction engineer, and the department shall be established at the pre-construction meeting; and

- (ii) The names of the contractors and any principals in charge shall be furnished to the department at the meeting;
 - (B) Project schedule;
 - (C) Special issues:
 - (i) The means used to divert and carry inflows into the reservoir;
 - (ii) Reservoir filling requirements; and
 - (iii) Special permitting requirements;
 - (D) The contractor's quality control plan, developed by the contractor shall be thoroughly explained, including but not limited to the following:
 - (i) Identification of the firm that will conduct the construction material tests in the field and in the laboratory;
 - (ii) Schedule of required submittals, including shop drawings (including reference to specification section);
 - (iii) Schedule of construction material tests (including reference to specification section);
 - (iv) Schedule of construction performance tests (including reference to specification section);
 - (v) Schedule of notifications to the engineer and the department; and
 - (vi) Plan for addressing construction difficulties.
 - (E) Change order procedures;
 - (F) Maintenance of records;
 - (G) Notifications and submittals; and
 - (H) Construction progress reports;
- (10) Reservoir filling plan.
- (A) A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for

- observation, and a schedule for inspecting and monitoring the dam;
- (B) Upon written request by the owner and for good cause shown, the department may temporarily approve storage of water prior to full compliance with the acceptance of construction. Only a partial reservoir filling will be granted and final acceptance of the construction for full use will not be granted until all the construction completion documents have been satisfactorily completed. The written request shall include:
- (i) A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
 - (ii) A draft emergency action plan; and
 - (iii) A draft operation and maintenance plan;
- (11) Completed project documentation.
- (A) Submission of required documentation as detailed in section 13-190.1-31;
 - (B) Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required by the department;
- (12) Notifications to the department. The construction engineer shall notify the department of the following:
- (A) The date of the start of construction;
 - (B) Notice for inspection(s). The construction engineer shall give the department at least ten days advance notice of initial materials placement on the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance

- requested by the department in the approval of the plan for construction observation, to allow for observation by the department;
- (C) Notice of substantial completion shall be issued by the construction engineer to the department stating that the permitted improvements are functionally complete such that filling of the reservoir can be accomplished;
 - (D) Notice of final inspection. The construction engineer shall give the department fifteen days advance written notice prior to the project's final construction inspection;
 - (E) Notice of start of reservoir filling. The construction engineer shall provide notice at least ten days prior to initiating filling of the reservoir, unless otherwise agreed upon at final inspection. Filling of the reservoir shall not commence until concurrence is received from the department;
- (13) Suspension of construction or revocation of permit.
- (A) Unsafe conditions. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application approval for construction, enlargement, repair, alteration, or removal shall be revoked;
 - (B) Violation of application approval. If at any time during construction, enlargement, repair, alteration, or removal of a dam or reservoir the department finds that the work is not being done in accordance with approved plans and specifications, the department shall give a written notice thereof to the owner.

§13-190.1-30

- (i) The written notice shall state the specific violations or deficiencies and shall order the immediate compliance with the approved plans and specifications;
- (ii) The department may order that no further work be done until compliance has been effected and confirmed by the department or its designated representative;
- (iii) If the owner fails to comply with the department's written notice or the approved plans and specifications, the board shall revoke the application approval and compel the owner to remove the incomplete structure sufficiently to eliminate any safety hazard to life or property. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works. Upon completion of the construction for a new, enlarged, repaired, altered, or dam removal project, the following items, as a minimum, shall be addressed and submitted to the department, as applicable to the project:

- (1) The construction engineer's certification that to the best of the engineer's knowledge, information, and belief, the project is complete and was constructed in conformance with the approved plans, specifications, and approved change orders, and all punch list items identified at the final construction inspection have been resolved, including a description of the actions taken to address the deficiencies;

- (2) Construction completion documents. The following construction documents shall be provided to the department within sixty days of the final construction inspection in order for the project to be deemed complete:
- (A) Written notification to the department that the project is complete and conforms with the approved plans, specifications, and approved change orders;
 - (B) As constructed, record, or as built drawings that describe the dam or reservoir as actually constructed;
 - (C) A final construction report containing the following information, if applicable: a summary of construction, including problems encountered and solutions implemented to resolve the problems; a summary of construction material tests and geologic observations; photographs of construction from the exposed foundation to completion of construction;
 - (D) Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features as required by the department;
 - (E) A record of the location of permanent monuments and instrumentation as well as installation details and initial surveys and readings, as applicable;
 - (F) A log of the recorded water levels and other readings in the schedule for the first filling of the reservoir and refilling specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
 - (G) A long-term instrumentation monitoring plan that shall include the frequency of monitoring; the data recording format;

- graphical presentation of data; and the parties who will perform the work;
- (H) An emergency action plan in a format accepted by the department in accordance with subchapter 5;
 - (I) An operation and maintenance manual for the dam and its appurtenant structures developed in accordance with subchapter 5;
 - (J) Compliance with subchapter 2;
 - (K) An affidavit showing the actual cost of the construction, including all engineering costs;
 - (L) An additional fee or refund request based on the actual cost of construction, computed in accordance with subchapter 8;
- (3) Acceptance of construction. Construction for which application approval has been provided shall not be deemed complete nor shall storage of water be permitted until the department furnishes to the owner a written statement of acceptance, unless temporary approval of storage is granted by the department. The acceptance shall specify any limitation upon, or requirements for use of the facility. The department shall furnish the acceptance or denial within sixty days of receipt of satisfactorily completed construction completion documents; and
- (4) A report documenting the filling of the reservoir and identifying the fill rates, water level elevations held, and inspection and monitoring findings. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-32 Complaints as to unsafe conditions during construction. (a) Upon receipt of a written complaint alleging that the person or property of the

complainant is endangered by the construction, enlargement, repairs, alterations, removal, maintenance, or operation of any dam or reservoir, the department shall contact the owner and the department or department representative shall conduct an inspection unless the data, records, and inspection reports on file with the department are sufficiently adequate to determine whether the complaint is valid or invalid.

(b) If an unsafe condition exists, the department shall notify the owner to take action necessary to render the condition safe, including breaching or removal of any dam found beyond repair. If the owner is unavailable or unresponsive, the board may commence action under section 13-190.1-41. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 5

MAINTENANCE, OPERATION, AND EMERGENCY WORK

§13-190.1-40 Maintenance and operation. (a) Owners shall provide for the adequate and timely maintenance, operation, and inspection of their dams and reservoirs and shall be responsible for any engineering and geologic investigations which may be required to ensure public safety. Owners shall keep available and in good order records of original construction and any modifications, and shall report to the department their maintenance, operation, and engineering activities, including at a minimum, but not limited to, horizontal and vertical controls, seepage measurements, piezometric data collection, and geologic investigations.

(b) The owner of a dam or reservoir shall fully and promptly advise the department of any flood, incidents, or circumstance which may adversely affect the dam or reservoir.

§13-190.1-40

(c) The department shall make inspections of dams and reservoirs either with its own engineers or by consulting engineers of its selection, not less than once every five years. The department shall require owners to perform at their expense any necessary remedial work and work reasonably required to disclose information sufficient to enable the department to determine conditions of dams and reservoirs in regard to their safety, including the installation, maintenance, and monitoring of instrumentation.

(d) All costs incurred by the department to conduct the inspection may be charged to the owner. The department shall present a bill for the expenses to the owner, and if the owner neglects for ninety days thereafter to pay it, the bill and costs become a lien upon the lands and property of the owner so liable for the payment of the bill, and must be collected as delinquent taxes against the lands and property are collected. All funds collected shall be deposited into the dam and reservoir safety special fund. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-30)

§13-190.1-40.1 Operation and maintenance plan.

(a) Owners and operators shall maintain an up-to-date operation and maintenance plan including an inspection and monitoring program with written reports submitted to the department on a yearly basis. The inspection and monitoring program shall contain the actions required to maintain and keep the structure, its appurtenant works, and access in a state of repair and operating condition that would be required by the exercise of due care with regard for the safety of persons or property, using sound and accepted engineering principles, guidelines, and these rules.

(b) An operation and maintenance plan shall include the following:

(1) Facility information and site map:

(A) Dam name;

- (B) State dam inventory identification number;
 - (C) Owner's name;
 - (D) Stream;
 - (E) Location;
 - (F) Dam type; and
 - (G) Dam height, crest length, and crest width;
- (2) List of responsible parties, name, title, and telephone numbers, for the following:
 - (A) Operation;
 - (B) Maintenance;
 - (C) Inspection; and
 - (D) Monitoring of instrumentation;
 - (3) List of hydraulic elements controlling inflow to or outflow reservoir, including gates, valves spillways, stoplogs, structures, etc. and the location and dimensions of structures;
 - (4) Rules and procedures for reservoir operation, including how the reservoir level is controlled, proposed reservoir levels for given times of year, periods of drawdown, and filling and operation during floods;
 - (5) List of items requiring periodic maintenance, and procedures for performing maintenance, including type of maintenance performed, frequency, method, and record keeping;
 - (6) List of instrumentation, frequency of monitoring, and method of record keeping;
 - (7) List of equipment to be periodically test operated, including gates, valves, hoists, and frequency of test operations;
 - (8) Frequency of routine inspections and monitoring, for example, weekly, monthly, quarterly; and a list of key elements inspected;
 - (9) Checklists, logbook, inspection forms for applicable items;
 - (10) Copy of the latest inspection report; and

§13-190.1-40.1

- (11) Appendices for any additional information.
[Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-41 Emergency work. (a) Owners and operators of dams and reservoirs have the primary responsibility for determining when an emergency involving a dam or reservoir exists. When the owner or operator of a dam or reservoir suspects an emergency exists, the owner or operator shall immediately implement the emergency action plan required by section 13-190.1-42, and take additional actions necessary to safeguard life, health, and property.

(b) If, in the opinion of the department, conditions of any dam or reservoir are so dangerous to the health and safety of life or property as to not permit time for issuance and enforcement of an order relative to construction, modification, maintenance, or repair of the dam or reservoir, or the dam or reservoir is threatened by any large flood or other natural disaster, the department may immediately employ remedial measures necessary to protect life and property.

(c) The department shall provide coordination and assistance to the proper state or county agency or agencies to maintain control of any dam or reservoir that, pursuant to subsection (b), has been determined to be dangerous to life or property until the dam or reservoir is deemed safe, or until any emergency conditions that precipitated taking control of the dam or reservoir, pursuant to subsection (b), have been abated. The department may determine the proper time at which to relinquish control of the dam or reservoir.

(d) Any necessary and reasonable costs and expenses incurred by the department in fulfilling the duties mandated by subsections (b) and (c) in connection with a remedial or emergency action shall

be recoverable by the department from the owner of any dangerous or threatened dam or reservoir.

(e) Any owner failing or refusing, after written notice has been given, to pay the reasonable costs and expenses incurred by the department, in accordance with subsection (d), shall be, upon complaint by the department to the attorney general, subject to reasonable attorney's fees incurred in the recovery of the costs and expenses.

(f) All moneys collected by the department pursuant to subsection (d) shall be credited to the dam and reservoir safety special fund.

(g) If a condition arises that in the opinion of the department may pose a danger to the health and safety of persons or property and sufficient time permits, the board may issue orders reciting the existence of the condition and require any actions the board deems necessary. Any person to whom an order is directed may challenge the order, but shall immediately comply with the order, pending disposition of the person's challenge. The board shall give precedence to a hearing on the challenge over all other pending matters.

(h) In the case of an emergency where the board or department declares that repairs, breaching of the dam, or other actions, are immediately necessary to safeguard life and property, the department shall initiate remedial action at the owner's expense if the owner fails to act. The department shall be notified at once of any emergency repairs or other work instituted by the owner. [Eff.] (Auth: HRS §179D-6); (Imp: HRS §179D-24; HRS §179D-30)

§13-190.1-41.1 Emergency action by department.

(a) In applying the remedial means provided for in this chapter, the department may in an emergency with its own forces, or by other means at its disposal, do any or all of the following:

- (1) Take full charge and control of any dam or reservoir;

§13-190.1-41.1

- (2) Lower the water level by releasing water from the reservoir;
- (3) Completely or partially drain the reservoir;
- (4) Perform any necessary remedial or protective work at the site; or
- (5) Take such other steps as may be essential to safeguard life and property.

(b) The department shall continue in full charge and control of such dam or reservoir and its appurtenances until they are rendered safe or the emergency occasioning the action has ceased and the owner or operator is able to take back such operations. The department's take over of the dam, the reservoir, or their appurtenances shall not relieve the owner of a dam or reservoir of legal liability to the department or third parties for those circumstances which caused an emergency situation. The department's 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 value that may be caused by the department's work.

[Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-24)

§13-190.1-42 Emergency action plan. (a) Owners of high and significant hazard dams shall prepare, maintain, and implement an emergency action plan for each dam or reservoir for immediate defensive action to alert and evacuate the affected population and to mitigate damages to property.

(b) The emergency action plan shall be submitted to the department.

(c) The emergency action plan shall contain at a minimum the following:

- (1) Guidance for determining emergency event levels;
- (2) A notification procedure for informing the department and local emergency response agencies;
- (3) An anticipated evacuation area;

- (4) Listing of official emergency action governmental plan holders;
 - (5) Directions to the facility;
 - (6) A location map and site map; and
 - (7) Testing, training, and updated information for the plan.
- (d) The owner shall submit a copy of the emergency action plan to the emergency response agencies in the appropriate county and other parties involved in the plan for review.
- (e) The owner of a dam or reservoir shall be responsible for the production, distribution, maintenance, and testing of the emergency action plan with all governmental plan holders. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-30)

SUBCHAPTER 6

REMEDIES

§13-190.1-43 Liens. (a) Costs of construction, enlargement, repair, alteration, or removal work done by the department or its agents to render a dam, reservoir, or appurtenances safe shall constitute a statutory lien against all property of the owner. Notwithstanding any other law to the contrary, the lien shall be considered prior and superior to all other mortgages, liens, or encumbrances of record even if those other mortgages, liens, or encumbrances were filed before the lien pursuant to this subsection becomes due.

(b) Liens pursuant to subsection (a) may be perfected and foreclosed in advance of or after completion of construction, enlargement, repair, alteration, or removal. If perfected in advance, the lien shall be perfected by the filing of an affidavit of the board setting forth the estimate of the costs of construction, enlargement, repair, alteration, or removal within the county in which the dam or reservoir is located in the same manner as prescribed

§13-190.1-43

for mechanic's liens. When the affidavit is filed, the amount set forth in the affidavit shall be a lien in that amount against all property of the owner. If the actual cost of construction, enlargement, repair, alteration, or removal exceeds the estimated cost, the board may amend the affidavit setting forth the additional estimated cost. If the estimated cost exceeds the actual costs of construction, enlargement, repair, alteration, or removal at completion, the board shall file an amended affidavit at completion. If a lien is perfected in advance and the construction, enlargement, repair, alteration, or removal is not commenced within two years from the date of perfection, the lien shall be void. The board shall file a satisfaction of lien upon payment of the costs of construction, enlargement, repair, alteration, or removal by the owner. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-26)

§13-190.1-44 Injunctive relief. Whenever in the judgment of the department any person has engaged in or is about to engage in any act or practice that constitutes or will constitute an unlawful action under chapter 179D, HRS, the department may apply to the circuit court of the county in which the unlawful act or practice has been or is about to be engaged in, or in which jurisdiction is appropriate, for an order enjoining the act or practice, or for an order requiring compliance with this chapter. Upon a showing by the department that a person has engaged in or is about to engage in any unlawful act or practice, a permanent or temporary injunction, restraining order, or other order shall be granted without the necessity of showing lack of an adequate remedy at law. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

§13-190.1-45 Department action when multiple owners cannot mutually agree. If multiple owners of a dam or reservoir facility cannot mutually agree on a unified course of action for repair or remediation of a dam facility, the department shall issue and enforce actions to ensure public safety. Costs incurred may be recoverable by the department from the owners. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

SUBCHAPTER 7

ENTRY UPON PROPERTY

§13-190.1-46 Entry upon property. (a) The department shall have the right to direct and conduct investigations as it may reasonably deem necessary, to carry out its duties as prescribed by statute. For this purpose, the agents or employees of the department or any authorized representatives may enter at reasonable times, without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier dealt with in chapter 179D, HRS. If an emergency situation arises as determined by the department, the agents or employees of the department, or any authorized representatives, shall have the right to enter without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of the dam and to take any emergency remedial actions, without a search warrant or liability for trespass.

(b) It shall be unlawful for any person to refuse entry or access to any authorized representative of the department who requests entry for purposes of inspection and who presents appropriate credentials. It shall also be unlawful to obstruct, hamper, or interfere with any representative while in the process of carrying out the representative's official duties.

(c) Notwithstanding any other provision of law to the contrary, the board and its agents, engineers, other employees, or authorized representatives, for the purposes of enforcing chapter 179D, HRS, may enter upon any land or water in the State that is the subject of an inspection, investigation, or remedial actions without a search warrant or liability for trespass. [Eff. _____] (Auth: HRS §179D-6)
(Imp: HRS §179D-22)

SUBCHAPTER 8

FEEES

§13-190.1-50 Dam permit application fees for construction, repair, alteration, or removal. (a) The applicant or owner shall submit with the application for construction, enlargement, alteration, repair, or removal of a dam or reservoir, an application fee in the amount equal to two per cent of the estimated cost of construction, including engineering costs.

(b) For the purposes of this subchapter, the estimated cost of the construction, enlargement, alteration, repair, or removal shall include the following:

- (1) The cost of all labor and materials entering into the construction of the dam and appurtenant works or reservoir;
- (2) The cost of preliminary investigations and surveys;
- (3) The cost of the construction plans properly chargeable to the cost of the dam or reservoir; and
- (4) Any and all other items entering directly into the cost of the construction, enlargement, alteration, repair, or removal.

(c) The costs of right-of-way, detached powerhouses, electrical generating machinery, and roads and railroads affording access to the dam or

reservoir shall not be included among the items used in the determination of cost.

(d) An application shall not be considered by the department until the application fee is received.

(e) In the event the actual cost exceeds the estimated cost by more than fifteen per cent, a further fee shall be required by the board before final approval and shall be two per cent of the amount the actual cost exceeded the estimated cost of the construction, enlargement, alteration, repair, or removal. No further fee shall be required, if such fee is to be computed at less than twenty dollars. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-51 Certificate of approval to impound fee. The owner shall submit with the application for a certificate of approval to impound payment of a fee in the amount of four hundred dollars. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-52 Annual fees. (a) An annual fee shall be paid by the owner of the dam, on or before December 31 of each year, for the following calendar year, based upon a fixed rate and height of the dam. The annual fee shall be five hundred dollars per dam, plus one hundred ten dollars per foot of height.

(b) Any owner who fails to pay any annual fee or any part of any annual fee required to be paid within the time required shall pay a penalty of ten per cent of the annual fee or part of the annual fee, plus interest at the rate of one-half of one per cent per month, or for each fraction of a month, from the date on which the annual fee or the part of the annual fee became due and payable to the department until the date of payment.

(c) For the purposes of this section, "height of the dam" means the vertical distance, to the nearest foot, from the natural bed of the stream or

§13-190.1-52

watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest elevation of the outside limit of the barrier, as determined by the department, if it is not across a stream channel or watercourse, to the maximum water storage elevation. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

DEPARTMENT OF LAND AND NATURAL RESOURCES

The repeal of Chapter 13-190 and the adoption of Chapter 13-190.1, Hawaii Administrative Rules, on the summary Page dated _____, were adopted on _____, following public hearings held on Kauai on October 12, 2010; on Oahu on October 13, 2010; on Maui on October 14, 2010; and on Hawaii on October 15, 2010; and after public notice was given in the Honolulu Star Advertiser on September 10, 17, & 24, 2010 and on October 1, 2010, Hawaii Tribune Herald on October 1 & 8, 2010, and Maui News and Kauai News on September 27, 2010 and on October 6, 2010.

The repeal of chapter 13-190 and the adoption of chapter 13-190.1 shall take effect ten days after filing with the Office of the Lieutenant Governor.

LAURA H. THIELEN, Chairperson
Board of Land and Natural Resources

APPROVED AS TO FORM:

Deputy Attorney General

Dated: _____

APPROVED:

LINDA LINGLE, Governor
State of Hawaii

Date Filed

DEPARTMENT OF LAND AND NATURAL RESOURCES

Repeal of Chapter 13-190 and Adoption of Chapter 13-190.1
HAWAII ADMINISTRATIVE RULES

(adoption date)

1. Chapter 190 of Title 13, Hawaii
Administrative Rules, entitled "Dams and Reservoirs",
is repealed.

2. Chapter 190.1 of Title 13, Hawaii
Administrative Rules, entitled "Dams and Reservoirs",
is adopted to read as follows: _____

Exhibit 2

"HAWAII ADMINISTRATIVE RULES

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUBTITLE 7

WATER AND LAND DEVELOPMENT

CHAPTER 190.1

DAMS AND RESERVOIRS

Subchapter 1 General Provisions

- §13-190.1-1 Purpose and applicability
- §13-190.1-2 Definitions
- §13-190.1-3 Exempt structures
- §13-190.1-4 Minimum design requirements
- §13-190.1-5 Violations; penalties
- §13-190.1-5.1 Criminal violations; penalties
- §13-190.1-6 Administrative and judicial review
- §13-190.1-7 Inspections
- §13-190.1-8 Change in ownership
- §13-190.1-9 Variances
- §13-190.1-10 Severability

Subchapter 2 Certificate of Approval to Impound

- §13-190.1-11 Certificates of approval to impound
- §13-190.1-12 Applications for certificate of approval to impound
- §13-190.1-13 Notice
- §13-190.1-14 Application review process
- §13-190.1-15 Noncompliance
- §13-190.1-16 Transferability

Subchapter 3 Construction, Enlargement, Repair, Alteration, or Removal of Dams and Reservoirs

- \$13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-21 Additional requirements for removal of dam or reservoir
- \$13-190.1-22 Supervision of plans preparation and observation of construction
- \$13-190.1-23 Permit application approval
- \$13-190.1-24 Revocation of approval

Subchapter 4 Construction, Inspection, and Completion

- \$13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-32 Complaints as to unsafe conditions during construction

Subchapter 5 Maintenance, Operation, and Emergency Work

- \$13-190.1-40 Maintenance and operation
- \$13-190.1-40.1 Operation and maintenance plan
- \$13-190.1-41 Emergency work
- \$13-190.1-41.1 Emergency action by department
- \$13-190.1-42 Emergency action plan

Subchapter 6 Remedies

- \$13-190.1-43 Liens
- \$13-190.1-44 Injunctive relief
- \$13-190.1-45 Department action when multiple owners cannot mutually agree

§13-190.1-1

Subchapter 7 Entry Upon Property

§13-190.1-46 Entry upon property

Subchapter 8 Fees

§13-190.1-50 Dam permit application fees for
construction, repair, alteration, or
removal
§13-190.1-51 Certificate of approval to impound fee
§13-190.1-52 Annual fees

SUBCHAPTER 1

GENERAL PROVISIONS

§13-190.1-1 Purpose and applicability. (a) The purpose of this chapter is to establish rules for the inspection and regulation of the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of the dams or reservoirs.

(b) This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height, unless such a barrier, due to its location or other physical characteristics, is a high hazard.

(c) The board shall have jurisdiction of all dams and reservoirs until the department has completed its statewide inspections and has established and implemented rules and criteria for a five-year dams and reservoirs inspection and classification process and the board declares which dams or reservoirs are to be removed from its jurisdiction. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-2)

§13-190.1-2 Definitions. As used in this chapter unless otherwise provided:

"Alteration" means a change to an existing dam or reservoir from the originally approved construction plans and specifications or current condition.

"Application approval" means authorization in writing issued by the board to an owner who has applied to the board for permission to construct, enlarge, repair, alter, remove, maintain, or operate a dam or reservoir and which specifies the conditions or limitations under which work is to be performed by the owner or under which approval is granted.

"Appurtenant works" or "appurtenance" means any structure, such as spillways in the dam or separate therefrom, the reservoir and its rim, including artificial or natural barriers that function as the rim, low level outlet works, and water conduits, such as tunnels, pipelines, or penstocks, through the dam or its abutment that is anticipated to affect the structural integrity of the dam or reservoir.

"Board" means the board of land and natural resources.

"Certificate of approval to impound" means authorization in writing issued by the board to an owner of an existing dam or reservoir, or an owner who has completed construction, enlargement, repair, or alteration of a dam or reservoir, that specifies the conditions or limitations under which the dam or reservoir is to be maintained and operated.

"Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water and:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to a maximum water storage elevation;

- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height;
- (3) Was included in circular C 122 (Revised) entitled "Dams within the jurisdiction of the State of Hawaii" dated September 1998;
- (4) Any facility that has two or more reservoirs that operate or function as a single facility or are connected together with an uncontrolled conduit, which shall be construed to be one dam or reservoir. The highest height of any of the embankments and the combined maximum storage volume shall be used as the criteria for determining if the structure is a dam under this chapter; or
- (5) Is a natural structure that retains water and has been altered by the addition of an outlet works and has a maximum storage volume greater than fifty acre-feet.

"Department" means the department of land and natural resources.

"Design water level" means the water elevation that a dam is designed to store, including the flood surcharge, that a dam is designed to impound without overtopping the dam crest. The design water level shall not include freeboard.

"Emergency" means, but is not limited to, breaches and all conditions leading to or causing a breach, overtopping, or any other condition in a dam and its appurtenant structures that may be construed as unsafe or threatening to life or property.

"Engineer" means a registered professional engineer, licensed by the State of Hawaii, and who has experience with dam design and construction.

"Enlargement" means any change in or addition to an existing dam or reservoir which raises or may raise the maximum water storage elevation of the reservoir.

"Freeboard" means the vertical distance above the maximum water surface during the peak discharge in the emergency spillway during the inflow design flood (IDF) to the lowest point on the crest of the dam at which water would flow over the dam at a section not designed for overflow.

"Hazard potential" means the possible adverse incremental consequences that result from the release of water or stored contents due to the failure of the dam or reservoir or operational failures of the dam, reservoir, or appurtenances. The hazard potential classification of a dam or reservoir shall not reflect in any way on the current condition of the dam or reservoir and its appurtenant works, including the dam's or reservoir's safety, structural integrity, or flood routing capacity.

"High hazard" means a dam's or reservoir's failure will result in probable loss of human life.

"Inflow design flood" is the flood hydrograph used in the design or evaluation of a dam, its appurtenant works particularly for sizing the spillway and outlet works, with which the upper limit of the inflow design flood is the probable maximum flood.

"Low hazard" means a dam's or reservoir's failure would result in no probable loss of human life and low economic loss or environmental loss, or both. Economic losses are principally limited to the owner's property.

"Maximum water storage elevation" means the maximum water surface elevation that can be hydrologically attained in the reservoir, or at the dam crest elevation if hydrologic loading is unknown.

"Operator" means any person who controls, manages, maintains, or supervises the condition and functions of a dam or reservoir.

"Outlet works" means a tunnel or pipe/conduit (low level outlet) that is used to drain the reservoir and often used to regulate flow to downstream users.

"Owner" means any person who has a right, title, or interest in or to the dam or reservoir or to the property upon which the dam or appurtenant works is located or proposed to be located.

"Person" means any natural person, partnership, firm, association, organization, corporation, county, county authority, trust, receiver or trustee, limited liability company, limited liability partnership, or company, or any state department, agency, or political subdivision, or any other commercial or legal entity. Whenever used in a section prescribing and imposing a penalty or sanction, the term "person" shall include the members of an association or organization, and the officers of a corporation, company, municipality, or municipal authority.

"Physical clear access" means a roadway or path that allows timely access for inspection to a dam, reservoir, and its appurtenant works. If by a roadway, the roadway shall be maintained in an accessible condition by a four-wheel-drive vehicle even during inclement weather conditions.

"Probable" means more likely than not to occur, reasonably expected, realistic.

"Removal" means complete removal or partial removal of the dam or reservoir embankment or structure to restore the approximate original topographic contours of the valley.

"Repair" means construction to an existing dam or appurtenant works that does not significantly change the reservoir's storage capacity or alter significantly the existing structure as it exists. Repair shall not apply to routine maintenance not affecting the safety of the dam or appurtenant works.

"Reservoir" means any basin which contains or will contain water impounded by a dam, including appurtenant works.

"Significant hazard" means a dam's or reservoir's failure will result in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams or reservoirs are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

"Spillway" means a device which conveys flood waters from the reservoir past the dam without endangering its safety or integrity.

"Spillway crest" means the lowest point in the spillway above which water can flow over or through the spillway.

"Storage capacity" means the maximum volume of water and material which could be impounded by a dam when the water level is at the top of the dam or at the highest elevation which could be hydrologically attained, if this elevation is below the top of dam. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-3)

§13-190.1-3 Exempt structures.

Structures exempt from these rules include:

- (1) A transportation structure such as a highway or road fill that exists solely for transportation purposes;
- (2) Refuse embankments (e.g., solid waste disposal facilities); and
- (3) Structures that store water only below the lowest point of the natural ground, unless the structure retains more than fifteen acre-feet and an outlet works is constructed to release water. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-4 Minimum design requirements. (a)

Regulated dams and reservoirs shall incorporate the following minimum design requirements:

- (1) Embankment slopes that are not steeper than 2.5 horizontal to 1 vertical unless a specific design for a steeper slope shows that the embankment is stable and capable of being safely maintained;
- (2) An embankment crest that has a minimum width of ten feet;

(3) Earthen spillways that are constructed in natural ground; and

(4) A low level outlet shall be designed to drain the reservoir by gravity flow.

(b) Significant and high hazard dams shall also have a stability analysis of the structure demonstrating the stability of the embankment slopes for various loading conditions and minimum factors of safety generated by a methodology accepted by the department.

(c) Regulated dam spillways shall safely pass the appropriate inflow design flood, as shown in the following table:

Hazard Classification	Size Classification	Inflow design flood
Low	Small	100 year
	Intermediate	100 year
	Large	½ PMF
Significant	Small	½ PMF
	Intermediate	½ PMF
	Large	PMF
High	All Sizes	PMF

Category	Impoundment	
	Storage (Acre-feet)	Height (feet)
Small	<1000 and ≥50	<40 and ≥25
Intermediate	≥1,000 and <50,000	≥40 and <100
Large	≥50,000	≥100

Note: "PMF" or "Probable Maximum Flood", is defined as the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the region. The PMF is derived from the 24-hour probable maximum precipitation (PMP), which information is available from the National Weather Service, NOAA, Publication HMR-39, "Hydrometeorological Report No. 39 - Probable Maximum

Precipitation in the Hawaiian Islands", or current standard. $\frac{1}{2}$ PMF = PMF divided by two. "100 year" is defined as the flood associated with the 1 per cent probability storm event that is derived from the 24-hour 100-year precipitation rate, which is identified in the US Weather Bureau Technical Paper No. 43 Rainfall-Frequency Atlas of the Hawaiian Islands and as updated by NOAA Atlas 14, Volume 4 Precipitation-Frequency Atlas of the United States, Hawaiian Islands, or current standard.

(d) Freeboard shall be the greater of the following:

- (1) Two feet above the water level during the peak spillway flow associated with the inflow design flood;
- (2) Sum of the wave run-up and reservoir setup resulting from a 100 miles per hour wind speed during the peak spillway flow associated with the inflow design flood.
[Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-5 Violations; penalties. (a) Except as otherwise provided by law, the board may set, charge, and collect administrative penalties and recover administrative fees and costs, including attorney's fees and costs, or bring legal action to recover administrative penalties, fees, and costs, including attorney's fees and costs, or payment for damages or for the cost to correct damages resulting from a violation of chapter 179D, HRS, this chapter, or any order or condition adopted, issued, or required under this chapter. The administrative penalty shall not exceed \$25,000 per day of a violation, and each day during which the violation continues shall constitute an additional, separate, and distinct violation. Proceedings under this section shall be conducted pursuant to the administrative rules for the department.

§13-190.1-5

(b) With the assistance of the attorney general, the board may seek an injunction and damages in the enforcement of this chapter.

(c) All penalties, fees, and costs collected pursuant to this section or other rules adopted by the board pursuant to chapter 179D, HRS, shall be deposited in the dam and reservoir safety special fund. [Eff. _____] (Auth: HRS §§179D-6, 179D-8) (Imp: HRS §179D-8)

§13-190.1-5.1 Criminal violations; penalties.

Criminal sanctions regarding violations of this chapter and chapter 179D, HRS, are as provided in section 179D-8, HRS. [Eff. _____] (Auth: HRS §179D-8) (Imp: HRS §179D-8)

§13-190.1-6 Administrative and judicial review.

(a) The findings and orders of the board, and the board's approval or disapproval of an application issued by the State are final, conclusive, and binding upon all owners, state agencies, and other government agencies, regulatory or otherwise, as to the safety of design, construction, enlargement, repair, alteration, removal, maintenance, or operation of any dam or reservoir, and the certificate of approval to impound. The board's approval of an application or a certificate of approval to impound will not be considered final if it can be demonstrated to the board that the board's approval of the relevant application or certificate of approval was based on one or more misrepresentations or other relevant data.

(b) Any person aggrieved or adversely affected by an order or action of the board is entitled to administrative and judicial review in accordance with chapter 91, HRS, and the department's applicable administrative rules on administrative and judicial review in effect at the time, provided, however, that the order or action shall remain in force until

modified or set aside on appeal. [Eff.]
(Auth: HRS §179D-8) (Imp: HRS §179D-7)

§13-190.1-7 Inspections. Any inspections done pursuant to this chapter shall use the current guidelines developed by the department. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-8 Change in ownership. Changes in ownership of a dam shall be filed with the department by the transferring owner within seven days of recordation with the bureau of conveyances of the State of Hawaii. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-9 Variances. The board or department may, upon a showing of good cause, grant a variance from any provision of this chapter, including, without limitation, an extension of time to comply with any such provision. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-10 Severability. If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-11

SUBCHAPTER 2

CERTIFICATE OF APPROVAL TO IMPOUND

§13-190.1-11 Certificates of approval to impound. No owner of a dam or reservoir shall impound water without a valid certificate of approval to impound water at the dam or reservoir. A certificate of approval to impound shall be valid for five years from the date of issuance, unless otherwise stated by the department, and provided all conditions of the certificate are fulfilled and maintained to the satisfaction of the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-12 Applications for certificate of approval to impound. (a) Every owner of a dam or reservoir that is a regulated structure as defined in section 13-190.1-2 shall file an application for a certificate of approval to impound.
(b) All applications shall be submitted with supporting information as required by the department.
(c) Each application shall also be accompanied by application fees as required by subchapter 8.
(d) During the application process for the initial certificate of approval to impound, the owner or operator of a dam or reservoir that was completed prior to July 6, 2007, shall be allowed to impound water, unless the board determines that the dam or reservoir may pose a danger to the health and safety of persons or property. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-13 Notice. (a) The board shall give notice to file an application for certificate of approval to impound to owners of dams or reservoirs known to the department, who have failed to file such applications as required by this chapter.

(b) The notice provided for in this section shall be delivered by certified mail to the owner at the owner's last address of record in the office of the county tax assessor for the county in which the dam or reservoir is located.

(c) Service of the notice shall be complete upon the mailing of the notice.

(d) All owners shall submit an application for certificate of approval to impound water within ninety days from the date of the notice, unless the owner has filed a request for exemption. An owner who fails to submit an application for certificate of approval to impound within ninety days from the date of notice shall be deemed in violation of these rules and subject to penalties consistent with sections 13-190.1-5 and 13-190.1-5.1. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-27)

§13-190.1-14 Application review process. (a) The department shall inspect the dams and reservoirs, unless the data, records, and inspection reports on file with the department are found adequate to enable a determination of whether or not the certificate of approval to impound should be issued.

(b) The department shall require owners of the dams and reservoirs to perform at their expense any work, tests, or investigation as may reasonably be required to disclose information sufficient to enable the board to determine whether to issue certificates of approval to impound, or to issue orders directing further work at the owner's expense necessary to safeguard life and property.

(c) The board shall issue a certificate of approval to impound for dams and reservoirs that do not have severe deficiencies that affect the structural safety or operational integrity of a facility or that may threaten the safety of the dam.

(d) In order to protect public safety, the department shall require an owner or operator to lower the water level of, or to drain the dam or reservoir,

§13-190.1-14

or impose conditions on a certificate to impound application approval.

(e) Upon inspection, review of investigation findings, or satisfactory correction of severe deficiencies, if the department finds that the dam and reservoir are safe to impound water, a certificate of approval to impound shall be issued.

(f) The department shall not issue a certificate of approval to impound when a dam or reservoir is determined by the department to be unsafe to impound water. Upon finding that the dam or reservoir is unsafe to impound water, the department shall issue a written notice to the owner. After receipt of the notice, the owner shall no longer cause or allow the dam or reservoir to impound water unless consent is obtained from the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-15 Noncompliance. The board may order the suspension, revocation, or restriction of any certificate of approval to impound, for any act or failure to comply with chapter 179D, HRS, these rules, or orders issued pursuant to chapter 179D, HRS, or with any of the conditions contained in or attached to the application approval or certificate of approval to impound. [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-21)

§13-190.1-16 Transferability. Certificates of approval to impound water are not transferable from one person to another without written approval from the board; and:

- (1) The existing holder of the certificate to impound requests a transfer in writing to the department; and
- (2) The new or prospective dam owner submits in writing to the department:

- (A) Proof that the person is or will become the owner of the dam;
- (B) The date of change in ownership; and
- (C) An acknowledgment of receipt of a copy of the certificate of approval to impound that is in effect, and of the person's awareness of the terms, including and without limitation, any conditions or restrictions on the operation imposed by the department.
[Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §§179D-6, 179D-21)

SUBCHAPTER 3

CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF DAMS AND RESERVOIRS

§13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works.

(a) No person shall construct, enlarge, repair, alter, or remove any dam or reservoir until a dam permit application form has been filed, approval of the construction plans and specifications is obtained from the board, and a written application approval is issued. Owners proposing routine maintenance not affecting the safety of the structure are exempted from the requirements of this subchapter. All submittals shall be in accordance with this chapter. The department guidelines shall assist but not limit evaluation of the application.

(b) Nothing in this chapter grants an exemption from any applicable federal, state, or county governmental requirements.

(c) The applicant shall notify in writing, the county engineer or appropriate person within the county, for which the dam or reservoir is located, of the submittal of a permit application for the construction, enlargement, repair, alteration, or

removal of a dam or reservoir. A copy of this notification letter shall be submitted to the department by the applicant.

(d) A separate application shall be filed with the department for each regulated dam or reservoir and for each separate project. The applicant shall submit to the department, three hard copies and an electronic copy on disk of the application package. The application package shall consist of the following:

- (1) The department's dam permit application form. Each application shall be made on forms furnished by the department and shall be signed by the dam owner or an authorized representative of the dam owner. If there are multiple owners of the property where the dam is located, a property map shall be provided showing the dam with the property lines identified for each owner. A notarized letter of concurrence and agreement from the owners of all property on which the proposed project is being conducted is required. Each application shall include at a minimum the following:
 - (A) Name and address of the applicant;
 - (B) Name and address of the owner or owners and their associated tax map key numbers of the properties upon which the works are to be constructed, enlarged, repaired, altered, or removed;
 - (C) Description of the location, type, size, purpose, and height of the proposed, enlarged, repaired, altered, or removed dam, and the reservoir and appurtenant works;
 - (D) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
 - (E) Plans for installation of any permanent instrumentation at the dam or appurtenant structures;

- (F) Area of the drainage basin, rainfall and stream flow records, and flood-flow records and estimates (as applicable);
 - (G) Relevant construction drawings, plans, and specifications signed and sealed by the design engineer, licensed in the State of Hawaii; and the name and address of the design engineer who prepared the plans and specifications;
 - (H) Proposed times of commencement and completion of the proposed activity; and
 - (I) A listing of all sources of inflow to the reservoir (as applicable);
- (2) Design reports. A design report shall be submitted with the application package (as applicable to the proposed activity). The report shall include information sufficient to evaluate the design of the new or to be enlarged, repaired, altered, or removed dam and the appurtenances, including references and page numbers, to support any assumptions or criteria used in the design. The report shall include calculations and be sufficiently detailed to accurately define the final design of the proposed dam project as represented in the construction plans. The report shall include but not be limited to the following items, as applicable for the proposed activity:
- (A) Hydraulic and hydrologic report;
 - (B) Geotechnical report;
 - (C) Seepage analysis;
 - (D) Spillway analysis;
 - (E) Foundation evaluation;
 - (F) Analysis of the downstream effects;
 - (G) Anticipated construction sequence needed to complete the project;
 - (H) Anticipated permit and approvals required; and
 - (I) Other reports as necessary;

- (3) Construction plans and specifications. Construction plans and specifications shall meet the following requirements:
- (A) The plans shall show the design of the dam, dam enlargement, repair, alteration, or removal, and each appurtenant structure, in sufficient detail so that the contractor or builder is able to construct the proposed structure from the plans and specifications;
 - (B) The front cover sheet of the plan shall include a site map of the dam, reservoir area, and appurtenances, the name of the dam facility and the state dam inventory identification (if available), the county and island in which the dam is located, tax map key numbers of all parcels the dam or reservoir is situated on, project location and vicinity maps, and an index of sheets;
 - (C) Drawings shall be prepared in an appropriate scale so details are legible with an overall size of 24-inches high and 36-inches wide or 22-inches high and 34-inches wide;
 - (D) Spillway and outlet discharge rating curves and tables, and reservoir area-capacity curves and tables, shall be placed on the drawings, as applicable;
 - (E) The front cover of the specifications shall show the title name and state inventory identification number of the dam and the county in which the dam is located;
 - (F) The general conditions shall include statements that the plans and specifications cannot be significantly changed without prior written approval of the department and the design engineer of record;

- (G) The specifications shall provide that the owner's construction engineer will monitor the construction of the project. The construction engineer monitoring the construction for the owner is responsible for the quality of construction, compliance with the approved design and specifications, review and approval of all construction change orders, and preparation of the project completion documents;
- (H) The following items, at a minimum, shall be included in the construction plans, as applicable:
 - (i) Elevation view along longitudinal axis of dam and foundation;
 - (ii) Cross-sectional view of dam at location of maximum height;
 - (iii) Cross-sectional views and profiles of spillway(s), outlet facilities, and other appurtenances;
 - (iv) Steel reinforcement placement and bar sizing for concrete construction must be shown in at least one section or profile; and
 - (v) The plan for diversion and control of water during construction; and
- (I) The following items shall be included in the specifications, as applicable:
 - (i) The type, class, or description of all materials to be used;
 - (ii) The requirements for fill placement, moisture conditioning, and minimum level of compaction of all earth zones; and
 - (iii) The requirements, procedures, and minimum standards for

- concrete construction or
structural details;
- (4) Construction quality assurance plan. An approved quality assurance plan describing all aspects of construction supervision and protocol for change requests, approvals, and field inspection;
 - (5) Detailed cost estimate. A detailed cost estimate for the construction of the dam project including the engineering fees;
 - (6) Filing fee. The filing fee shall be pursuant to section 13-190.1-50; and
 - (7) The following items shall be submitted either with the application package or during construction:
 - (A) An emergency action plan;
 - (B) An operation and maintenance plan to accomplish the annual maintenance, including record keeping documents;
 - (C) An instrumentation plan regarding instruments that evaluate the performance of the dam;
 - (D) Proposed construction schedule. A proposed construction schedule shall be provided with the construction package. The schedule should identify key benchmarks and milestones and any long lead items; and
 - (E) Construction emergency action plan. Prior to the start of construction, the applicant shall submit a copy of an approved emergency action plan for use during the construction, modification, or alteration of the dam and reservoir. This plan shall address possible deficiencies and concerns that may arise at specific phases of the work. The plan shall also include applicable operations, maintenance, and inspection work that should be followed during the construction phase. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-21 Additional requirements for removal of dam or reservoir. (a) No person shall remove any dam, reservoir, or appurtenant works until written approval is obtained from the board. The application for removal shall include, but not be limited to, the following information:

- (1) The current height and storage of the dam;
- (2) The current hazard classification;
- (3) The proposed flow through channel width and side slopes;
- (4) A description of and quantitative analyses of the flow through conditions during the 100-year, 24-hour storm event including provision for erosion protection;
- (5) Evaluation of all potential effects on life, property, and environment downstream; and
- (6) For a partial removal of a dam that will still store water, the relevant deficiencies identified in the initial investigation or inspection reports shall be addressed.

(b) Plans for removal of a dam or reservoir, shall meet the following requirements:

- (1) The dam shall be excavated down to the level of the natural ground or to sufficient cut depth to prevent silt previously deposited in the reservoir or material excavated for the channel from washing downstream. The plan shall address sediment that has been previously deposited in the reservoir;
- (2) The channel shall be of sufficient width to pass the 100-year, 24-hour flood with maximum depth of five feet of water anywhere in the channel at any time during the flood. Results of analyses demonstrating the 100-year, 24-hour flood can be safely passed within the breached section while maintaining five feet or less of water in the remaining reservoir shall be submitted for review;

§13-190.1-21

- (3) Regardless of the hydraulic requirements, the bottom width of the channel shall be a minimum of fifteen feet;
- (4) The side slopes of the channel shall be excavated to a slope that is stable, but not steeper than 2:1 (horizontal:vertical). Slope stability analysis that provides an adequate factor of safety for steeper slopes may be accepted by the department but in no case steeper than 1:1;
- (5) A detailed flood study for the 100-year storm frequency events shall be performed for the existing conditions and proposed removed or partially removed dam;
- (6) If the partially removed dam will store more than 2 million gallons (6 acre-feet) of water, the plan shall provide a dam break inundation map of the downstream community at risk from the altered dam structure, assuming full water level at the time of failure;
- (7) Transitions to downstream channels shall be investigated and appropriate provisions made to mitigate against possible damage or flooding;
- (8) The exposed slopes within the 100-year, 24-hour storm depth shall be protected with riprap, vegetation, or other suitable means to prevent headcutting, downcutting, and lateral slope erosion; and
- (9) The reservoir shall be emptied before removal of the dam. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-22 Supervision of plans preparation and observation of construction. (a) The design engineer shall supervise the preparation of all plans and specifications for the initial construction, enlargement, alteration, repair, or removal of dams and reservoirs.

(b) The observation of the construction shall be conducted by the construction engineer, as referenced in subchapter 4. Requirements for documentation of construction are provided in subchapter 4.

(c) The design engineer and construction engineer may be assisted by other specialists, under the design or construction engineer's direction, as required. [Eff. _____] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-23 Permit application approval. (a) The permit application will be reviewed for compliance with the requirements provided in this chapter and in general accordance with standard practice for dam safety. If an application is incomplete or defective, it shall be returned to the applicant. The application shall be corrected and returned to the board within ninety days or such further time as may be given by the department in order to retain its validity. If the application is not returned within the required time limit, it shall be deemed automatically rejected.

(b) After the department has determined that the application is complete and the plans and specifications conform to this chapter and generally accepted engineering practice, the board shall approve the plans and specifications and issue an application approval with any conditions determined to be appropriate by the board.

(c) Actual construction, enlargement, repair, alteration, or removal shall be commenced within the time frame set by the board in the application approval; otherwise, the application approval becomes void. The department may, upon written application and for good cause shown, extend an owner's time for commencing construction, enlargement, repair, alteration, or removal of a dam or reservoir.

(d) Actual construction, enlargement, repair, alteration, or removal of a dam or reservoir shall be completed with five years of issuance of the

§13-190.1-23

application approval unless an extension authorized in writing by the board is issued. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-24 Revocation of approval. (a) The board shall consider the revocation of the application approval in whole or in part for any of the following:

- (1) Material false statement in the application or in any report or statement of fact required pursuant to this chapter;
- (2) Violation of this chapter;
- (3) Violation of the approved plans and specifications;
- (4) Non-compliance of any conditions as set by the board; or
- (5) Discovery of unforeseen unsafe conditions.

(b) In any proceeding for revocation, the board shall give prior written notice to the affected owner of the facts or conditions which warrant the action and provide the applicant or owner an opportunity for a hearing. [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

SUBCHAPTER 4

CONSTRUCTION, INSPECTION, AND COMPLETION

§13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works.

For the actual construction work for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works, the owner or applicant, or both, shall be responsible for providing and complying with the following:

- (1) Construction engineer's observation of construction.

- (A) Prior to the start of any work on the dam or reservoir, the owner or applicant shall provide a construction engineer, to ensure compliance with the approved plans and specifications, including any approved change orders and the construction quality assurance plan;
 - (B) The construction engineer shall have ultimate responsibility for the supervision of all inspection tasks and compliance with approved plans and specifications; and
 - (C) The construction engineer may assign some inspection tasks to a duly authorized agent, under the construction engineer's supervision;
- (2) A construction quality assurance plan. A construction quality assurance plan shall be prepared and submitted to the department at least thirty days prior to the start of construction, which details the minimum requirements of the construction engineer's observation of construction. The minimum components of this plan shall include the following as applicable:
- (A) Listing of parties and their roles and responsibility;
 - (B) Names and qualifications of the engineer(s) and staff to be used on the project;
 - (C) Anticipated construction observation schedule for the construction engineer and staff;
 - (D) Schedule of observations and inspections (with reference to specification sections), such as the observation of the foundation or other inspections, as deemed appropriate by the department or design engineer;

- (E) Schedule of required submittals, including shop drawings (with reference to specification section);
 - (F) Schedule of construction material tests (with reference to specification section); and
 - (G) Schedule of construction performance tests (with reference to specification section);
- (3) Construction records. The construction engineer shall maintain a record of construction that, at a minimum, shall include: daily activity and progress reports; all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion; all geologic information obtained; and construction problems and remedies;
- (4) Construction schedule;
- (5) Construction emergency action plan;
- (6) Labor and material bonds. Where the project construction estimate exceeds \$500,000 (including design), the owner shall furnish evidence of a bond for labor and materials for the approved construction or alteration work, unless otherwise allowed by the board;
- (7) General liability insurance. Insurance coverage must be maintained for the minimum amounts stipulated by the department, with a provision identifying the department as an additional insured, and evidence of insurance provided to the department prior to the start of construction;
- (8) Change order requirements. When unforeseen site conditions or material availability require that the construction work differ significantly from the approved plans and specifications, a change order, including details, must be provided by the construction engineer to the department:

- (A) No change shall be executed until approved by the department;
 - (B) Major changes must be submitted in writing with supporting documentation, and approved in writing by the department;
 - (C) If the department determines that the proposed construction change order represents a significant modification of the application approval that could have an effect on structural integrity or safe operations of the project, then approval of the change order by the board or department shall be required;
 - (D) If board approval of the proposed construction change order is required, no action can be taken by the owner to make the construction change until approval is given by the board; and
 - (E) Minor changes may be transmitted verbally by the construction engineer and approved by the department verbally, provided documentation of the change is provided to the department within ten days of the approval;
- (9) A pre-construction meeting shall be held subsequent to submitting the construction observation and quality assurance plan, but not later than fourteen days prior to start of construction. All parties actively involved in the construction should be requested to attend, such as the dam owner, the design engineer, the construction engineer, the contractor, and the department. At a minimum, the following should be discussed:
- (A) Project personnel and roles:
 - (i) Project communication protocol between the owner, construction engineer, and the department shall be established at the pre-construction meeting; and

- (ii) The names of the contractors and any principals in charge shall be furnished to the department at the meeting;
 - (B) Project schedule;
 - (C) Special issues:
 - (i) The means used to divert and carry inflows into the reservoir;
 - (ii) Reservoir filling requirements; and
 - (iii) Special permitting requirements;
 - (D) The contractor's quality control plan, developed by the contractor shall be thoroughly explained, including but not limited to the following:
 - (i) Identification of the firm that will conduct the construction material tests in the field and in the laboratory;
 - (ii) Schedule of required submittals, including shop drawings (including reference to specification section);
 - (iii) Schedule of construction material tests (including reference to specification section);
 - (iv) Schedule of construction performance tests (including reference to specification section);
 - (v) Schedule of notifications to the engineer and the department; and
 - (vi) Plan for addressing construction difficulties.
 - (E) Change order procedures;
 - (F) Maintenance of records;
 - (G) Notifications and submittals; and
 - (H) Construction progress reports;
- (10) Reservoir filling plan.
- (A) A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for

- observation, and a schedule for inspecting and monitoring the dam;
- (B) Upon written request by the owner and for good cause shown, the department may temporarily approve storage of water prior to full compliance with the acceptance of construction. Only a partial reservoir filling will be granted and final acceptance of the construction for full use will not be granted until all the construction completion documents have been satisfactorily completed. The written request shall include:
- (i) A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
 - (ii) A draft emergency action plan; and
 - (iii) A draft operation and maintenance plan;
- (11) Completed project documentation.
- (A) Submission of required documentation as detailed in section 13-190.1-31;
 - (B) Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required by the department;
- (12) Notifications to the department. The construction engineer shall notify the department of the following:
- (A) The date of the start of construction;
 - (B) Notice for inspection(s). The construction engineer shall give the department at least ten days advance notice of initial materials placement on the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance

- requested by the department in the approval of the plan for construction observation, to allow for observation by the department;
- (C) Notice of substantial completion shall be issued by the construction engineer to the department stating that the permitted improvements are functionally complete such that filling of the reservoir can be accomplished;
 - (D) Notice of final inspection. The construction engineer shall give the department fifteen days advance written notice prior to the project's final construction inspection;
 - (E) Notice of start of reservoir filling. The construction engineer shall provide notice at least ten days prior to initiating filling of the reservoir, unless otherwise agreed upon at final inspection. Filling of the reservoir shall not commence until concurrence is received from the department;
- (13) Suspension of construction or revocation of permit.
- (A) Unsafe conditions. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application approval for construction, enlargement, repair, alteration, or removal shall be revoked;
 - (B) Violation of application approval. If at any time during construction, enlargement, repair, alteration, or removal of a dam or reservoir the department finds that the work is not being done in accordance with approved plans and specifications, the department shall give a written notice thereof to the owner.

- (i) The written notice shall state the specific violations or deficiencies and shall order the immediate compliance with the approved plans and specifications;
- (ii) The department may order that no further work be done until compliance has been effected and confirmed by the department or its designated representative;
- (iii) If the owner fails to comply with the department's written notice or the approved plans and specifications, the board shall revoke the application approval and compel the owner to remove the incomplete structure sufficiently to eliminate any safety hazard to life or property. [Eff.

] (Auth: HRS
§179D-6) (Imp: HRS §179D-6)

§13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works. Upon completion of the construction for a new, enlarged, repaired, altered, or dam removal project, the following items, as a minimum, shall be addressed and submitted to the department, as applicable to the project:

- (1) The construction engineer's certification that to the best of the engineer's knowledge, information, and belief, the project is complete and was constructed in conformance with the approved plans, specifications, and approved change orders, and all punch list items identified at the final construction inspection have been resolved, including a description of the actions taken to address the deficiencies;

- (2) Construction completion documents. The following construction documents shall be provided to the department within sixty days of the final construction inspection in order for the project to be deemed complete:
- (A) Written notification to the department that the project is complete and conforms with the approved plans, specifications, and approved change orders;
 - (B) As constructed, record, or as built drawings that describe the dam or reservoir as actually constructed;
 - (C) A final construction report containing the following information, if applicable: a summary of construction, including problems encountered and solutions implemented to resolve the problems; a summary of construction material tests and geologic observations; photographs of construction from the exposed foundation to completion of construction;
 - (D) Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features as required by the department;
 - (E) A record of the location of permanent monuments and instrumentation as well as installation details and initial surveys and readings, as applicable;
 - (F) A log of the recorded water levels and other readings in the schedule for the first filling of the reservoir and refilling specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
 - (G) A long-term instrumentation monitoring plan that shall include the frequency of monitoring; the data recording format;

- graphical presentation of data; and the parties who will perform the work;
- (H) An emergency action plan in a format accepted by the department in accordance with subchapter 5;
 - (I) An operation and maintenance manual for the dam and its appurtenant structures developed in accordance with subchapter 5;
 - (J) Compliance with subchapter 2;
 - (K) An affidavit showing the actual cost of the construction, including all engineering costs;
 - (L) An additional fee or refund request based on the actual cost of construction, computed in accordance with subchapter 8;
- (3) Acceptance of construction. Construction for which application approval has been provided shall not be deemed complete nor shall storage of water be permitted until the department furnishes to the owner a written statement of acceptance, unless temporary approval of storage is granted by the department. The acceptance shall specify any limitation upon, or requirements for use of the facility. The department shall furnish the acceptance or denial within sixty days of receipt of satisfactorily completed construction completion documents; and
- (4) A report documenting the filling of the reservoir and identifying the fill rates, water level elevations held, and inspection and monitoring findings. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-32 Complaints as to unsafe conditions during construction. (a) Upon receipt of a written complaint alleging that the person or property of the

§13-190.1-32

complainant is endangered by the construction, enlargement, repairs, alterations, removal, maintenance, or operation of any dam or reservoir, the department shall contact the owner and the department or department representative shall conduct an inspection unless the data, records, and inspection reports on file with the department are sufficiently adequate to determine whether the complaint is valid or invalid.

(b) If an unsafe condition exists, the department shall notify the owner to take action necessary to render the condition safe, including breaching or removal of any dam found beyond repair. If the owner is unavailable or unresponsive, the board may commence action under section 13-190.1-41. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 5

MAINTENANCE, OPERATION, AND EMERGENCY WORK

§13-190.1-40 Maintenance and operation. (a) Owners shall provide for the adequate and timely maintenance, operation, and inspection of their dams and reservoirs and shall be responsible for any engineering and geologic investigations which may be required to ensure public safety. Owners shall keep available and in good order records of original construction and any modifications, and shall report to the department their maintenance, operation, and engineering activities, including at a minimum, but not limited to, horizontal and vertical controls, seepage measurements, piezometric data collection, and geologic investigations.

(b) The owner of a dam or reservoir shall fully and promptly advise the department of any flood, incidents, or circumstance which may adversely affect the dam or reservoir.

(c) The department shall make inspections of dams and reservoirs either with its own engineers or

by consulting engineers of its selection, not less than once every five years. The department shall require owners to perform at their expense any necessary remedial work and work reasonably required to disclose information sufficient to enable the department to determine conditions of dams and reservoirs in regard to their safety, including the installation, maintenance, and monitoring of instrumentation.

(d) All costs incurred by the department to conduct the inspection may be charged to the owner. The department shall present a bill for the expenses to the owner, and if the owner neglects for ninety days thereafter to pay it, the bill and costs become a lien upon the lands and property of the owner so liable for the payment of the bill, and must be collected as delinquent taxes against the lands and property are collected. All funds collected shall be deposited into the dam and reservoir safety special fund. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-30)

§13-190.1-40.1 Operation and maintenance plan.

(a) Owners and operators shall maintain an up-to-date operation and maintenance plan including an inspection and monitoring program with written reports submitted to the department on a yearly basis. The inspection and monitoring program shall contain the actions required to maintain and keep the structure, its appurtenant works, and access in a state of repair and operating condition that would be required by the exercise of due care with regard for the safety of persons or property, using sound and accepted engineering principles, guidelines, and these rules.

(b) An operation and maintenance plan shall include the following:

- (1) Facility information and site map:
 - (A) Dam name;
 - (B) State dam inventory identification number;

§13-190.1-40.1

- (C) Owner's name;
 - (D) Stream;
 - (E) Location;
 - (F) Dam type; and
 - (G) Dam height, crest length, and crest width;
- (2) List of responsible parties name, title, and telephone numbers, for the following:
 - (A) Operation;
 - (B) Maintenance;
 - (C) Inspection; and
 - (D) Monitoring of instrumentation;
 - (3) List of hydraulic elements controlling inflow to or outflow reservoir, including gates, valves spillways, stoplogs, structures, etc. and the location and dimensions of structures;
 - (4) Rules and procedures for reservoir operation, including how the reservoir level is controlled, proposed reservoir levels for given times of year, periods of drawdown, and filling and operation during floods;
 - (5) List of items requiring periodic maintenance, and procedures for performing maintenance, including type of maintenance performed, frequency, method, and record keeping;
 - (6) List of instrumentation, frequency of monitoring, and method of record keeping;
 - (7) List of equipment to be periodically test operated, including gates, valves, hoists, and frequency of test operations;
 - (8) Frequency of routine inspections and monitoring, for example, weekly, monthly, quarterly; and a list of key elements inspected;
 - (9) Checklists, logbook, inspection forms for applicable items;
 - (10) Copy of the latest inspection report; and
 - (11) Appendices for any additional information.
- [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-41 Emergency work. (a) Owners and operators of dams and reservoirs have the primary responsibility for determining when an emergency involving a dam or reservoir exists. When the owner or operator of a dam or reservoir suspects an emergency exists, the owner or operator shall immediately implement the emergency action plan required by section 13-190.1-42, and take additional actions necessary to safeguard life, health, and property.

(b) If, in the opinion of the department, conditions of any dam or reservoir are so dangerous to the health and safety of life or property as to not permit time for issuance and enforcement of an order relative to construction, modification, maintenance, or repair of the dam or reservoir, or the dam or reservoir is threatened by any large flood or other natural disaster, the department may immediately employ remedial measures necessary to protect life and property.

(c) The department shall provide coordination and assistance to the proper state or county agency or agencies to maintain control of any dam or reservoir that, pursuant to subsection (b), has been determined to be dangerous to life or property until the dam or reservoir is deemed safe, or until any emergency conditions that precipitated taking control of the dam or reservoir, pursuant to subsection (b), have been abated. The department may determine the proper time at which to relinquish control of the dam or reservoir.

(d) Any necessary and reasonable costs and expenses incurred by the department in fulfilling the duties mandated by subsections (b) and (c) in connection with a remedial or emergency action shall be recoverable by the department from the owner of any dangerous or threatened dam or reservoir.

(e) Any owner failing or refusing, after written notice has been given, to pay the reasonable costs and

§13-190.1-41

expenses incurred by the department, in accordance with subsection (d), shall be, upon complaint by the department to the attorney general, subject to reasonable attorney's fees incurred in the recovery of the costs and expenses.

(f) All moneys collected by the department pursuant to subsection (d) shall be credited to the dam and reservoir safety special fund.

(g) If a condition arises that in the opinion of the department may pose a danger to the health and safety of persons or property and sufficient time permits, the board may issue orders reciting the existence of the condition and require any actions the board deems necessary. Any person to whom an order is directed may challenge the order, but shall immediately comply with the order, pending disposition of the person's challenge. The board shall give precedence to a hearing on the challenge over all other pending matters.

(h) In the case of an emergency where the board or department declares that repairs, breaching of the dam, or other actions, are immediately necessary to safeguard life and property, the department shall initiate remedial action at the owner's expense if the owner fails to act. The department shall be notified at once of any emergency repairs or other work instituted by the owner. [Eff.] (Auth: HRS §179D-6); (Imp: HRS §179D-24; HRS §179D-30)

§13-190.1-41.1 Emergency action by department.

(a) In applying the remedial means provided for in this chapter, the department may in an emergency with its own forces, or by other means at its disposal, do any or all of the following:

- (1) Take full charge and control of any dam or reservoir;
- (2) Lower the water level by releasing water from the reservoir;
- (3) Completely or partially drain the reservoir;

- (4) Perform any necessary remedial or protective work at the site; or
 - (5) Take such other steps as may be essential to safeguard life and property.
- (b) The department shall continue in full charge and control of such dam or reservoir and its appurtenances until they are rendered safe or the emergency occasioning the action has ceased and the owner or operator is able to take back such operations. The department's take over of the dam, the reservoir, or their appurtenances shall not relieve the owner of a dam or reservoir of legal liability to the department or third parties for those circumstances which caused an emergency situation. The department's 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 value that may be caused by the department's work.
- [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-24)

§13-190.1-42 Emergency action plan. (a) Owners of high and significant hazard dams shall prepare, maintain, and implement an emergency action plan for each dam or reservoir for immediate defensive action to alert and evacuate the affected population and to mitigate damages to property.

(b) The emergency action plan shall be submitted to the department.

(c) The emergency action plan shall contain at a minimum the following:

- (1) Guidance for determining emergency event levels;
- (2) A notification procedure for informing the department and local emergency response agencies;
- (3) An anticipated evacuation area;
- (4) Listing of official emergency action governmental plan holders;
- (5) Directions to the facility;

§13-190.1-42

- (6) A location map and site map; and
- (7) Testing, training, and updated information for the plan.

(d) The owner shall submit a copy of the emergency action plan to the emergency response agencies in the appropriate county and other parties involved in the plan for review.

(e) The owner of a dam or reservoir shall be responsible for the production, distribution, maintenance, and testing of the emergency action plan with all governmental plan holders. [Eff.

](Auth: HRS §179D-6) (Imp: HRS §179D-30)

SUBCHAPTER 6

REMEDIES

§13-190.1-43 Liens. (a) Costs of construction, enlargement, repair, alteration, or removal work done by the department or its agents to render a dam, reservoir, or appurtenances safe shall constitute a statutory lien against all property of the owner. Notwithstanding any other law to the contrary, the lien shall be considered prior and superior to all other mortgages, liens, or encumbrances of record even if those other mortgages, liens, or encumbrances were filed before the lien pursuant to this subsection becomes due.

(b) Liens pursuant to subsection (a) may be perfected and foreclosed in advance of or after completion of construction, enlargement, repair, alteration, or removal. If perfected in advance, the lien shall be perfected by the filing of an affidavit of the board setting forth the estimate of the costs of construction, enlargement, repair, alteration, or removal within the county in which the dam or reservoir is located in the same manner as prescribed for mechanic's liens. When the affidavit is filed, the amount set forth in the affidavit shall be a lien in that amount against all property of the owner. If

the actual cost of construction, enlargement, repair, alteration, or removal exceeds the estimated cost, the board may amend the affidavit setting forth the additional estimated cost. If the estimated cost exceeds the actual costs of construction, enlargement, repair, alteration, or removal at completion, the board shall file an amended affidavit at completion. If a lien is perfected in advance and the construction, enlargement, repair, alteration, or removal is not commenced within two years from the date of perfection, the lien shall be void. The board shall file a satisfaction of lien upon payment of the costs of construction, enlargement, repair, alteration, or removal by the owner. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-26)

§13-190.1-44 Injunctive relief. Whenever in the judgment of the department any person has engaged in or is about to engage in any act or practice that constitutes or will constitute an unlawful action under chapter 179D, HRS, the department may apply to the circuit court of the county in which the unlawful act or practice has been or is about to be engaged in, or in which jurisdiction is appropriate, for an order enjoining the act or practice, or for an order requiring compliance with this chapter. Upon a showing by the department that a person has engaged in or is about to engage in any unlawful act or practice, a permanent or temporary injunction, restraining order, or other order shall be granted without the necessity of showing lack of an adequate remedy at law. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

§13-190.1-45 Department action when multiple owners cannot mutually agree. If multiple owners of a dam or reservoir facility cannot mutually agree on a

§13-190.1-45

unified course of action for repair or remediation of a dam facility, the department shall issue and enforce actions to ensure public safety. Costs incurred may be recoverable by the department from the owners. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

SUBCHAPTER 7

ENTRY UPON PROPERTY

§13-190.1-46 Entry upon property. (a) The department shall have the right to direct and conduct investigations as it may reasonably deem necessary, to carry out its duties as prescribed by statute. For this purpose, the agents or employees of the department or any authorized representatives may enter at reasonable times, without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier dealt with in chapter 179D, HRS. If an emergency situation arises as determined by the department, the agents or employees of the department, or any authorized representatives, shall have the right to enter without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of the dam and to take any emergency remedial actions, without a search warrant or liability for trespass.

(b) It shall be unlawful for any person to refuse entry or access to any authorized representative of the department who requests entry for purposes of inspection and who presents appropriate credentials. It shall also be unlawful to obstruct, hamper, or interfere with any representative while in the process of carrying out the representative's official duties.

(c) Notwithstanding any other provision of law to the contrary, the board and its agents, engineers,

other employees, or authorized representatives, for the purposes of enforcing chapter 179D, HRS, may enter upon any land or water in the State that is the subject of an inspection, investigation, or remedial actions without a search warrant or liability for trespass. [Eff. _____] (Auth: HRS §179D-6)
(Imp: HRS §179D-22)

SUBCHAPTER 8

FEEES

§13-190.1-50 Dam permit application fees for construction, repair, alteration, or removal. (a) The applicant or owner shall submit with the application for construction, enlargement, alteration, repair, or removal of a dam or reservoir, an application fee in the amount equal to two per cent of the estimated cost of construction, including engineering costs.

(b) For the purposes of this subchapter, the estimated cost of the construction, enlargement, alteration, repair, or removal shall include the following:

- (1) The cost of all labor and materials entering into the construction of the dam and appurtenant works or reservoir;
- (2) The cost of preliminary investigations and surveys;
- (3) The cost of the construction plans properly chargeable to the cost of the dam or reservoir; and
- (4) Any and all other items entering directly into the cost of the construction, enlargement, alteration, repair, or removal.

(c) The costs of right-of-way, detached powerhouses, electrical generating machinery, and roads and railroads affording access to the dam or reservoir shall not be included among the items used in the determination of cost.

§13-190.1-50

(d) An application shall not be considered by the department until the application fee is received.

(e) In the event the actual cost exceeds the estimated cost by more than fifteen per cent, a further fee shall be required by the board before final approval and shall be two per cent of the amount the actual cost exceeded the estimated cost of the construction, enlargement, alteration, repair, or removal. No further fee shall be required, if such fee is to be computed at less than twenty dollars. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-51 Certificate of approval to impound fee. The owner shall submit with the application for a certificate of approval to impound payment of a fee in the amount of four hundred dollars. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-52 Annual fees. (a) An annual fee shall be paid by the owner of the dam, on or before December 31 of each year, for the following calendar year, based upon a fixed rate and height of the dam. The annual fee shall be five hundred dollars per dam, plus one hundred ten dollars per foot of height.

(b) Any owner who fails to pay any annual fee or any part of any annual fee required to be paid within the time required shall pay a penalty of ten per cent of the annual fee or part of the annual fee, plus interest at the rate of one-half of one per cent per month, or for each fraction of a month, from the date on which the annual fee or the part of the annual fee became due and payable to the department until the date of payment.

(c) For the purposes of this section, "height of the dam" means the vertical distance, to the nearest foot, from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest

elevation of the outside limit of the barrier, as determined by the department, if it is not across a stream channel or watercourse, to the maximum water storage elevation." [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

3. The repeal of chapter 13-190 and the adoption of chapter 13-190.1, Hawaii Administrative Rules, shall take effect ten days after filing with the Office of the Lieutenant Governor.

I certify that the foregoing are copies of the rules drafted in the Ramseyer format, pursuant to the requirements of section 91-4.1, Hawaii Revised Statutes, which were adopted on _____, and filed with the Office of the Lieutenant Governor.

LAURA H. THIELEN, Chairperson
Board of Land and Natural Resources

APPROVED AS TO FORM:

Deputy Attorney General

DEPARTMENT OF LAND AND NATURAL RESOURCES

Repeal of Chapter 13-190 and Adoption of Chapter 13-190.1
HAWAII ADMINISTRATIVE RULES

(adoption date)

1. Chapter 190 of Title 13, Hawaii
Administrative Rules, entitled "Dams and Reservoirs",
is repealed.

2. Chapter 190.1 of Title 13, Hawaii
Administrative Rules, entitled "Dams and Reservoirs",
is adopted to read as follows:



Exhibit 3

HAWAII ADMINISTRATIVE RULES

TITLE 13

DEPARTMENT OF LAND AND NATURAL RESOURCES

SUBTITLE 7

WATER AND LAND DEVELOPMENT

CHAPTER 190.1

DAMS AND RESERVOIRS

Subchapter 1 ~~General~~ Provisions

- \$13-190.1-1 Purpose and applicability
- \$13-190.1-2 Definitions
- \$13-190.1-3 Exempt structures
- \$13-190.1-4 Minimum design requirements
- ~~\$13-190.1-4.1 Additional design requirements~~
- \$13-190.1-5 Violations; penalties
- \$13-190.1-5.1 Criminal violations; penalties
- \$13-190.1-6 Administrative and judicial review
- \$13-190.1-7 Inspections
- \$13-190.1-8 Change in ownership
- \$13-190.1-9 Variances
- \$13-190.1-10 Severability

Subchapter 2 Certificate of Approval to Impound

- \$13-190.1-11 Certificate of approval to impound
- \$13-190.1-12 Applications for certificate of approval to impound
- \$13-190.1-13 Notice
- \$13-190.1-14 Application review process
- \$13-190.1-15 Noncompliance
- \$13-190.1-16 Transferability

Subchapter 3 Construction, Enlargement, Repair, Alteration, or Removal of Dams and Reservoirs

Comment [MSOffice1]: Blue Highlighted comments are format and clarity comments provided by the Legislative Reference Bureau (LRB)

- \$13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-21 Additional Specific requirements for removal of dam or reservoir
- \$13-190.1-22 Supervision of plans preparation and observation of construction inspection
- \$13-190.1-23 Permit application approval
- \$13-190.1-24 Revocation of approval

Subchapter 4 Construction, Inspection, and Completion

- \$13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works
- \$13-190.1-32 Complaints as to unsafe conditions during construction

Subchapter 5 Maintenance, Operation, and Emergency Work

- \$13-190.1-40 Maintenance and operation
- \$13-190.1-40.1 Operation and maintenance plan
- \$13-190.1-41 Emergency work
- \$13-190.1-41.1 Emergency action by department
- \$13-190.1-42 Emergency action plan

Subchapter 6 Remedies

- \$13-190.1-43 Liens
- \$13-190.1-44 Injunctive relief
- \$13-190.1-45 Department action when multiple owners cannot mutually agree

Subchapter 7 Entry Upon Property

\$13-190.1-46 Entry upon property

Subchapter 8 Fees

\$13-190.1-50 Dam permit application fees for construction, repair, alteration, or removal
\$13-190.1-51 Certificate of approval to impound fees
\$13-190.1-52 Annual fees

SUBCHAPTER 1

GENERAL PROVISIONS

\$13-190.1-1 Purpose and applicability. (a) The purpose of this chapter is to establish rules for the inspection and regulation of the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of the dams or reservoirs.

~~(b) This chapter shall not apply to the design and construction of dams, reservoirs, and appurtenant works which already existed on June 6, 1987 but shall apply to their operation, maintenance, enlargement, alteration, repair, and removal.~~

(c) This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height, unless such a barrier, due to its location or other physical characteristics, is a high hazard. ~~or significant hazard potential dam.~~

Comment [MSOffice2]: Received comment that this was confusing. It is a carry over from previous rules and does not provide any clarity. Recommend removal.

Comment [MSOffice3]: Received Comment that this was too inclusive and did not provide a lower threshold. Recommend limiting to only high hazard barriers.

(d) The board shall have jurisdiction of all dams and reservoirs until the department has completed its statewide inspections and has established and implemented rules and criteria for a five-year dams and reservoirs inspection and classification process and the board declares which dams or reservoirs are to be removed from its jurisdiction. [REDACTED]
(Auth: HRS §179D-6) (Imp: HRS §179D-2)

§13-190.1-2 Definitions. As used in this chapter unless otherwise provided:

"Alteration" means a change to an existing dam or reservoir from the originally approved construction plans and specifications or current condition.

"Application approval" means authorization in writing issued by the board to an owner who has applied to the board for permission to construct, enlarge, repair, alter, remove, maintain, or operate a dam or reservoir and which specifies the conditions or limitations under which work is to be performed by the owner or under which approval is granted.

"Appurtenant works" or "appurtenance" means any structure, such as spillways in the dam or separate therefrom, the reservoir and its rim, including artificial or natural barriers that function as the rim, low level outlet works, and water conduits, such as tunnels, pipelines, or penstocks, through the dam or its abutment that is anticipated to affect the structural integrity of the dam or reservoir.

"Board" means the board of land and natural resources.

"Certificate of approval to impound" means authorization in writing issued by the board to an owner of an existing dam or reservoir, or an owner who has completed construction, enlargement, repair, or alteration of a dam or reservoir, that specifies the conditions or limitations under which the dam or reservoir is to be maintained and operated.

Comment [MSOffice4]: Typo, corrected to be consistent with HRS.

Comment [MSOffice5]: Received a comment requesting a limit on appurtenant works to only those that affected the structural integrity of the dam.

"Dam" means any artificial barrier, including appurtenant works, which impounds or diverts water and:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to a maximum water storage elevation;
- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter shall not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height;
- (3) Was included in circular C 122 (Revised) entitled "Dams within the jurisdiction of the State of Hawaii" dated September 1998;
- (4) Any facility that has two or more reservoirs that operate or function as a single facility or are connected together with an uncontrolled conduit, which shall be construed to be one dam or reservoir. The highest height of any of the embankments and the combined maximum storage volume shall be used as the criteria for determining if the structure is a dam under this chapter; or
- (5) Is a natural structure that retains water and has been altered by the addition of an outlet works and has a maximum storage volume greater than fifty acre-feet.

"Department" means the department of land and natural resources.

"Design water level" means the water elevation that a dam is designed to store, including the flood surcharge, that a dam is designed to impound without overtopping the dam crest. The design water level shall not include freeboard.

"Emergency" means, but is not limited to, breaches and all conditions leading to or causing a breach, overtopping, or any other condition in a dam and its appurtenant structures that may be construed as unsafe or threatening to life or property.

"Engineer" means a registered professional engineer, licensed by the State of Hawaii, and who has experience with dam design and construction.

"Enlargement" means any change in or addition to an existing dam or reservoir which raises or may raise the maximum water storage elevation of the reservoir.

"Freeboard" means the vertical distance above the maximum water surface during the peak discharge in the emergency spillway during the inflow design flood (IDF) to the lowest point on the crest of the dam at which water would flow over the dam at a section not designed for overflow.

"Hazard potential" means the possible adverse incremental consequences that result from the release of water or stored contents due to the failure of the dam or reservoir or operational failures of the dam, reservoir, or appurtenances. The hazard potential classification of a dam or reservoir shall not reflect in any way on the current condition of the dam or reservoir and its appurtenant works, including the dam's or reservoir's safety, structural integrity, or flood routing capacity.

"High hazard" means a dam's or reservoir's failure will result in probable loss of human life.

"Inflow design flood" is the flood hydrograph used in the design or evaluation of a dam, its appurtenant works particularly for sizing the spillway and outlet works, with which the upper limit of the inflow design flood is the probable maximum flood.

"Low hazard" means a dam's or reservoir's failure would result in no probable loss of human life and low economic loss or environmental loss, or both. Economic losses are principally limited to the owner's property.

"Maximum water storage elevation" means the maximum water surface elevation that can be

hydrologically attained in the reservoir, or at the dam crest elevation if hydrologic loading is unknown.

"Operator" means any person who controls, manages, maintains, or supervises the condition and functions of a dam or reservoir.

"Outlet works" means a tunnel or pipe/conduit (low level outlet) that is used to drain the reservoir and often used to regulate flow to downstream users.

"Owner" means any person who has a right, title, or interest in or to the dam or reservoir or to the property upon which the dam or appurtenant works is located or proposed to be located.

"Person" means any natural person, partnership, firm, association, organization, corporation, county, county authority, trust, receiver or trustee, limited liability company, limited liability partnership, or company, or any state department, agency, or political subdivision, or any other commercial or legal entity. Whenever used in a section prescribing and imposing a penalty or sanction, the term "person" shall include the members of an association or organization, and the officers of a corporation, company, municipality, or municipal authority.

"Physical clear access" means a roadway or path that allows timely access for inspection to a dam, reservoir, and its appurtenant works. If by a roadway, the roadway shall be maintained in an accessible condition by a four-wheel-drive vehicle even during inclement weather conditions.

"Probable" means more likely than not to occur, reasonably expected, realistic.

"Removal" means complete removal or partial removal of the dam or reservoir embankment or structure to restore the approximate original topographic contours of the valley.

"Repair" means construction to an existing dam or appurtenant works that does not significantly change the reservoir's storage capacity or alter significantly the existing structure as it exists. Repair shall not apply to routine maintenance not affecting the safety of the dam or appurtenant works.

"Reservoir" means any basin which contains or will contain water impounded by a dam, including appurtenant works.

"Significant hazard" means a dam's or reservoir's failure will result in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams or reservoirs are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure.

"Spillway" means a device which conveys flood waters from the reservoir past the dam without endangering its safety or integrity.

"Spillway crest" means the lowest point in the spillway above which water can flow over or through the spillway.

"Storage capacity" means the maximum volume of water and material which could be impounded by a dam when the water level is at the top of the dam or at the highest elevation which could be hydrologically attained, if this elevation is below the top of dam. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-3)

§13-190.1-3 Exempt structures.

Structures exempt from these rules include:

- (1) A transportation structure such as a highway or road fill that exists solely for transportation purposes;
- (2) Refuse embankments (e.g., solid waste disposal facilities); and
- (3) Structures that store water only below the lowest point of the natural ground, unless the structure retains more than ~~five~~ acre-feet and an outlet works is constructed to ~~develop~~ release water. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

Comment [MSOffice6]: Revised for clarity

§13-190.1-4 Minimum design requirements. (a)
 Regulated dams and reservoirs shall incorporate the following minimum design requirements:

- (1) Embankment slopes that are not steeper than 2.5 horizontal to 1 vertical unless a specific design for a steeper slope shows that the embankment is stable and capable of being safely maintained;
- (2) An embankment crest that has a minimum width of ten feet;
- (3) Earthen spillways that are constructed in natural ground; and
- (4) A low level outlet shall be designed to drain the reservoir by gravity flow. ~~{Eff. }~~

~~{Auth: HRS §179D-6} (Imp: HRS §179D-6)~~

~~§13-190.1-4.1 Additional design requirements.~~

~~(b)(a)~~ Significant and high hazard dams shall also have a stability analysis of the structure demonstrating the stability of the embankment slopes for various loading conditions and minimum factors of safety generated by a methodology accepted by the department.

~~(c)(b)~~ Regulated dam spillways shall safely pass the appropriate inflow design flood, as shown in the following table:

Hazard Classification	Size Classification	Inflow design flood
Low	Small	100 year
	Intermediate	100 year
	Large	½ PMF
Significant	Small	½ PMF
	Intermediate	½ PMF
	Large	PMF
High	All Sizes	PMF

Comment [MSOffice7]: Received general comment to simplify requirements. Did not change content of original rule.

Category	Impoundment	
	Storage (Acre-feet)	Height (feet)
Small	<1000 and ≥50	<40 and ≥25
Intermediate	≥1,000 and <50,000	≥40 and <100
Large	≥50,000	≥100

Comment [MSOffice8]: Corrected typos in the chart to be consistent with existing guidelines and national classification limits.

Note: PMF or Probable Maximum Flood, is defined as the flood that may be expected from the most severe combination of critical meteorologic and hydrologic conditions that are reasonably possible in the region. The PMF is derived from the 24-hour probable maximum precipitation (PMP), which information is available from the National Weather Service, NOAA, Publication HMR-39, "Hydrometeorological Report No. 39 - Probable Maximum Precipitation in the Hawaiian Islands", or current standard. $\frac{1}{2}$ PMF = PMF divided by two. "100 year" is defined as the flood associated with the 1 percent probability storm event that is derived from the 24-hour 100-year precipitation rate, which is identified in the US Weather Bureau Technical Paper No. 43 Rainfall-Frequency Atlas of the Hawaiian Islands and as updated by NOAA Atlas 14, Volume 4 Precipitation-Frequency Atlas of the United States, Hawaiian Islands, or current standard.

~~(d)~~(e) Freeboard shall be the greater of the following:

- (1) Two feet above the water level during the peak spillway flow associated with the inflow design flood;
- (2) Sum of the wave run-up and reservoir setup resulting from a 100 miles per hour wind speed during the peak spillway flow associated with the inflow design flood.
[Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-5 Violations; penalties. (a) Except as otherwise provided by law, the board may set, charge, and collect administrative penalties and recover administrative fees and costs, including attorney's fees and costs, or bring legal action to recover administrative penalties, fees, and costs, including attorney's fees and costs, or payment for damages or for the cost to correct damages resulting from a violation of chapter 179D, HRS, this chapter, or any order or condition adopted, issued, or required under this chapter. The administrative penalty shall not exceed \$25,000 per day of a violation, and each day during which the violation continues shall constitute an additional, separate, and distinct violation. Proceedings under this section shall be conducted pursuant to the administrative rules for the department ~~in effect at the time~~.

(b) With the assistance of the attorney general, the board may seek an injunction and damages in the enforcement of this chapter.

(c) All penalties, fees, and costs collected pursuant to this section or other rules adopted by the board pursuant to chapter 179D, HRS, shall be deposited in the dam and reservoir safety special fund. [Eff.] (Auth: HRS §§179D-6, 179D-8) (Imp: HRS §179D-8)

§13-190.1-5.1 Criminal violations; penalties. Criminal sanctions regarding violations of this chapter and chapter 179D, HRS, are as provided in section 179D-8, HRS. [Eff.] (Auth: HRS §179D-8) (Imp: HRS §179D-8)

§13-190.1-6 Administrative and judicial review. (a) The findings and orders of the board, and the board's approval or disapproval of an application issued by the state are final, conclusive, and binding upon all owners, state agencies, and other government

agencies, regulatory or otherwise, as to the safety of design, construction, enlargement, repair, alteration, removal, maintenance, ~~the~~ operation of any dam or reservoir, and the certificate of approval to impound. The board's approval of an application or a certificate of approval to impound will not be considered final if it can be demonstrated to the board that the board's approval of the relevant application or certificate of approval was based on one or more misrepresentations or other relevant data.

(b) Any person aggrieved or adversely affected by an order or action of the board is entitled to administrative and judicial review in accordance with chapter 91, HRS, and the department's applicable administrative rules on administrative and judicial review in effect at the time, provided, however, that the order or action shall remain in force until modified or set aside on appeal. [Eff.]
(Auth: HRS §179D-8) (Imp: HRS §179D-7)

§13-190.1-7 Inspections. Any inspections done pursuant to this chapter shall use the current guidelines developed by the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-8 Change in ownership. Changes in ownership of a dam shall be filed with the department by the transferring owner within seven days of recordation with the bureau of conveyances of the State of Hawaii. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-9 Variations. The board or department may, upon a showing of good cause, grant a variance from any provision of this chapter, including, without

limitation, an extension of time to comply with any such provision. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-10 Severability. If any portion of these rules is found to be invalid, the remaining portion of the rules shall remain in force. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 2

CERTIFICATE OF APPROVAL TO IMPOUND

§13-190.1-11 Certificates of approval to impound. No owner of a dam or reservoir shall impound water without a valid certificate of approval to impound water at the dam or reservoir. A certificate of approval to impound shall be valid for five years from the date of issuance, unless otherwise stated by the department, and provided all conditions of the certificate are fulfilled and maintained to the satisfaction of the department. [Eff. _____] (Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-12 Applications for certificate of approval to impound. (a) Every owner of a dam or reservoir that is a regulated structure as defined in section 13-190.1-2 shall file an application for a certificate of approval to impound.

(b) All applications shall be submitted with supporting information as required by the department.

(c) Each application shall also be accompanied by application fees as required by subchapter 8.

(d) During the application process for the initial certificate of approval to impound, the owner

or operator of a dam or reservoir that was completed and unaltered prior to July 6, 2007, shall be allowed to impound water, unless the board determines that the dam or reservoir may pose a danger to the health and safety of persons or property. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

Comment (MSOffice9): Received comment that requested deletion of "unaltered" as this may include dams that have received a DLNR Dam Safety Permit for the alteration and repairs.

§13-190.1-13 Notice. (a) The board shall give notice to file an application for certificate of approval to impound to owners of dams or reservoirs known to the department who have failed to file such applications as required by this chapter.

(b) The notice provided for in this section shall be delivered by certified mail to the owner at the owner's last address of record in the office of the county tax assessor for the county in which the dam or reservoir is located.

(c) Service of the notice shall be complete upon the mailing of the notice.

(d) All owners shall submit an application for certificate of approval to impound water within ~~thirty~~ days from the date of the notice, unless the owner has filed a request for exemption. An owner who fails to submit an application for certificate of approval to impound within ~~thirty~~ days from the date of notice shall be deemed in violation of these rules and subject to penalties consistent with sections 13-190.1-5 and 13-190.1-5.1. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-27)

§13-190.1-14 Application review process. (a) The department shall inspect the dams and reservoirs, unless the data, records, and inspection reports on file with ~~the department~~ are found adequate to enable a determination of whether or not the certificate of approval to impound should be issued.

(b) The department shall require owners of the dams and reservoirs to perform at their expense any

work, tests, or investigation as may reasonably be required to disclose information sufficient to enable the board to determine whether to issue certificates of approval to impound, or to issue orders directing further work at the owner's expense necessary to safeguard life and property.

(c) The ~~board department~~ shall issue a certificate of approval to impound for dams and reservoirs that do not have severe deficiencies that affect the structural safety or operational integrity of a facility or that may threaten the safety of the dam.

(d) In order to protect public safety, the department shall require an owner or operator to lower the water level of, or to drain, the dam or reservoir or impose conditions on a certificate to impound application approval.

(e) Upon inspection, review of investigation findings, or satisfactory correction of severe deficiencies, ~~if~~ the department finds that the dam and reservoir are safe to impound water, a certificate of approval to impound shall be issued.

(f) The department shall not issue a certificate of approval to impound when a dam or reservoir is determined by the department to be unsafe to impound water. Upon finding that the dam or reservoir is unsafe to impound water, the department shall issue a written notice to the owner. After receipt of the notice, the owner shall no longer cause or allow the dam ~~or~~ reservoir to impound water unless consent is obtained from the department. [Eff.]
(Auth: HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-15 Noncompliance. The board may order the suspension, revocation, or restriction of any certificate of approval to impound, for any act or failure to comply with chapter 179D, HRS, ~~or with~~ these rules, or orders issued pursuant to chapter 179D, HRS, or with any of the conditions contained in or attached to the application approval or certificate

Comment [MSOffice10]: Revised for Clarity and grammar.

of approval to impound. [Eff.] (Auth:
HRS §179D-6) (Imp: HRS §179D-21)

§13-190.1-16 Transferability. Certificates of approval to impound water are not transferable from one person to another without written approval from the board; and unless:

- (1) §13-190.1-16 The existing holder of the certificate to impound requests a transfer in writing to the department; and §13-190.1-16
 - (2) §13-190.1-16 The new or prospective dam owner submits in writing to the department:
 - (A) §13-190.1-16 Proof that §13-190.1-16 person is or will become the owner of the dam;
 - (B) §13-190.1-16 The date of change in ownership; and
 - (C) §13-190.1-16 An acknowledgment of receipt of a copy of the certificate of approval to impound that is in effect, and of the §13-190.1-16 awareness of the terms, including and without limitation, any conditions or restrictions on the operation imposed by the department.
- [Eff.] (Auth: HRS §179D-6) (Imp: HRS §§179D-6, 179D-21)

SUBCHAPTER 3

CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION, OR REMOVAL OF DAMS AND RESERVOIRS

§13-190.1-20 General requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works.

- (a) No person shall construct, enlarge, repair, alter, or remove any dam or reservoir until a dam permit application form has been filed, approval of the construction plans and specifications is obtained

from the board, and a written application approval is issued. Owners proposing routine maintenance not affecting the safety of the structure are exempted from the requirements ~~of this subchapter~~. All submittals shall be in accordance with this chapter. The department guidelines shall assist but not limit evaluation of the application.

(b) Nothing in this chapter grants an exemption from any applicable federal, state, or county governmental requirements.

(c) The applicant shall notify in writing, the county engineer or appropriate person within the county, for which the dam or reservoir is located, of the submittal of a permit application for the construction, enlargement, repair, alteration, or removal of a dam or reservoir. A copy of this notification letter shall be submitted to the department by the applicant. A copy of the application package, including plans and specifications, shall be submitted to the appropriate agency of the county in which the dam or reservoir exists for notification and applicable approvals and a copy of the notification shall be submitted to the department by the applicant.

(d) A separate application shall be filed with the department for each regulated dam or reservoir and for each separate project. The applicant shall submit to the department, ~~hard~~ hard copies and an electronic copy on disk of the application package. The application package shall consist of the following:

- (1) ~~the department's~~ ~~PLAN~~ dam permit application form. Each application shall be made on forms furnished by the department and shall be signed by the dam owner or an authorized representative of the dam owner. If there are multiple owners of the property where the dam is located, a property map shall be provided showing the dam with the property lines identified for each owner. A notarized letter of concurrence and agreement from the owners of all property on which the proposed project is being

Comment [MSOffice11]: Received a general comment to clarify and reduce permit requirements.

conducted is required. Each application shall include at a minimum the following:

- (A) Name and address of the applicant;
 - (B) Name and address of the owner or owners and their associated tax map key numbers of the properties upon which the works are to be constructed, enlarged, repaired, altered, or removed;
 - (C) Description of the location, type, size, purpose, and height of the proposed, enlarged, repaired, altered, or removed dam, and the reservoir and appurtenant works;
 - (D) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
 - (E) Plans for installation of any permanent instrumentation at the dam or appurtenant structures;
 - (F) Area of the drainage basin, rainfall and stream flow records, and flood-flow records and estimates (as applicable);
 - (G) Relevant construction drawings, plans, and specifications signed and sealed by the design engineer, licensed in the state of Hawaii; and the name and address of the design engineer who prepared the plans and specifications;
 - (H) Proposed times of commencement and completion of the proposed activity;
 - (I) A listing of all sources of inflow to the reservoir (as applicable).
- (2) Design reports. A design report shall be submitted with the application package (as applicable to the proposed activity). The report shall include information sufficient to evaluate the design of the new or to be enlarged, repaired, altered, or removed dam and the appurtenances, including references and page numbers, to support any assumptions

Comment [MSOffice12]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

or criteria used in the design. The report shall include calculations and be sufficiently detailed to accurately define the final design of the proposed dam project as represented in the construction plans. The report shall include but not be limited to the following items, as applicable for the proposed activity:

- (A) Hydraulic and hydrologic report;
 - (B) Geotechnical report;
 - (C) Seepage analysis;
 - (D) Spillway analysis;
 - (E) Foundation evaluation;
 - (F) Analysis of the downstream effects;
 - (G) Anticipated construction sequence needed to complete the project;
 - (H) Anticipated permit and approvals required;
 - (I) Other reports as necessary;
- (3) Construction plans and specifications. Construction plans and specifications shall meet the following requirements:
- (A) The plans shall show the design of the dam, dam enlargement, repair, alteration, or removal, and each appurtenant structure, in sufficient detail so that the contractor or builder is able to construct the proposed structure from the plans and specifications;
 - (B) The front cover sheet of the plan shall include a site map of the dam, reservoir area, and appurtenances, the name of the dam facility and the state dam inventory identification (if available), the county and island in which the dam is located, tax map key of all parcels the dam or reservoir is situated on, project location and vicinity maps, and an index of sheets.

Comment (MSOffice13): Received comment requesting reducing permit requirements as not all of the reports may need to be completed, dependant on the proposed project scope.

- (C) Drawings shall be prepared in an appropriate scale so details are legible with an overall size of 24-inches high and 36-inches wide or 22-inches high and 34-inches wide.
- (D) Spillway and outlet discharge rating curves and tables, and reservoir area-capacity curves and tables, shall be placed on the drawings, as applicable.
- (E) The front cover of the specifications shall show the title name and state inventory identification number of the dam and the county in which the dam is located.
- (F) The general conditions shall include statements that the plans and specifications cannot be significantly changed without prior written approval of the department and the design engineer of record.
- (G) The specifications shall provide that the owner's construction engineer will monitor the construction of the project. The construction engineer monitoring the construction for the owner is responsible for the quality of construction, compliance with the approved design and specifications, review and approval of all construction change orders, and preparation of the project completion documents.
- (H) The following items, at a minimum, shall be included in the construction plans, as applicable:
- (i) Elevation view along longitudinal axis of dam and foundation;
 - (ii) Cross-sectional view of dam at location of maximum height;
 - (iii) Cross-sectional views and profiles of spillway(s), outlet

Comment [MSOffice14]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice15]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice16]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

- facilities, and other appurtenances;
- (iv) Steel reinforcement placement and bar sizing for concrete construction must be shown in at least one section or profile; and
 - (v) The plan for diversion and control of water during construction.
- (I) The following items shall be included in the specifications, as applicable:
- (i) The type, class, or description of all materials to be used;
 - (ii) The requirements for fill placement, moisture conditioning, and minimum level of compaction of all earth zones; and
 - (iii) The requirements, procedures, and minimum standards for concrete construction or structural details.
- ~~(4)(K)~~ Construction quality assurance plan. An approved quality assurance plan describing all aspects of construction supervision and protocol for change requests, approvals, and field inspection.
- ~~(5)(N)~~ Detailed cost estimate. A detailed cost estimate for the construction of the dam project including the engineering fees.
- ~~(6)(O)~~ Filing fee. The filing fee shall be pursuant to section 13-190.1-50, and
- ~~(7)(J)~~ The following items shall be submitted either with the application package or during construction:
- ~~(A)(i)~~ An emergency action plan.
 - ~~(B)(ii)~~ An operation and maintenance plan to accomplish the annual maintenance, including record keeping documents.

(C)~~(iii)~~ An instrumentation plan regarding instruments that evaluate the performance of the dam.

(D)~~(L)~~ Proposed construction schedule. A proposed construction schedule shall be provided with the construction package. The schedule should identify key benchmarks and milestones and any long lead items.

(E)~~(M)~~ Construction emergency action plan. Prior to the start of construction, the applicant shall submit a copy of an approved emergency action plan for use during the construction, modification, or alteration of the dam and reservoir. This plan shall address possible deficiencies and concerns that may arise at specific phases of the work. The plan shall also include applicable operations, maintenance, and inspection work that should be followed during the construction phase.

~~(F) Proof of financial responsibility. A long term budget plan and evidence of financing, prepared using standard accounting principles that demonstrate that the applicant has the financial capability to construct, operate, and maintain the dam in a safe manner. If the applicant does not have evidence that can be verified by an independent audit of the applicant's financial capability to construct, operate, and maintain the dam in a safe manner, the department may require a performance bond for entire cost of the proposed construction work. [Eff.~~

]

(Auth: HRS §179D-6)

(Imp: HRS §179D-6)

Comment [MSOffice17]: Received comment requesting reducing permit requirements. This would be extra costs and not relevant to the department.

§13-190.1-21 Additional Specific requirements for removal of dam or reservoir. (a) ~~In addition to the requirements in section 13-190.1-20,~~ No person shall remove any dam, reservoir, or appurtenant works until written approval is obtained from the board. The application for removal shall include, but not be limited to, the following information:

- (1) The current height and storage of the dam;
- (2) The current hazard classification;
- (3) The proposed flow through channel width and side slopes;
- (4) A description of and quantitative analyses of the flow through conditions during the 100-year, 24-hour storm event including provision for erosion protection;
- (5) Evaluation of all potential effects ~~of dam removal~~ on life, property, and environment downstream; ~~and~~
- (6) For a partial removal of a dam that will still store water, the relevant deficiencies identified in the initial investigation or inspection reports shall be addressed.

~~(7) Hydrology and hydraulics report.~~

(b) Plans for removal of a dam or reservoir, shall meet the following requirements described below:

- (1) The dam shall be excavated down to the level of the natural ground or to sufficient cut depth to prevent silt previously deposited in the reservoir or material excavated for the channel from washing downstream. The plan shall address sediment that has been previously deposited in the reservoir;
- (2) The channel shall be of sufficient width to pass the 100-year, 24-hour flood with maximum depth of five feet of water anywhere in the channel at any time during the flood. Results of analyses demonstrating the 100-year, 24-hour flood can be safely passed within the breached section while maintaining five feet or less of water in the remaining reservoir shall be submitted for review.

Comment [MSOffice18]: Received comment that permit section is confusing. Made revision to clarify and simplify.

Comment [MSOffice19]: Received comment that permit section is confusing. Made revision to clarify and simplify.

Comment [MSOffice20]: Received comment requesting reducing permit requirements and duplication of effort. This is required elsewhere.

- (3) Regardless of the hydraulic requirements, the bottom width of the channel shall be ~~at least one-third the structural height of the dam, with an absolute~~ a minimum of fifteen feet.
- (4) The side slopes of the channel shall be excavated to a slope that is stable, but not steeper than 2:1 (horizontal:vertical). Slope stability analysis that provides an adequate factor of safety for steeper slopes may be accepted by the Department but in no case steeper than 1:1.
- (5) A detailed flood study for the ~~10-year, 50-year, and~~ 100-year storm frequency events shall be performed for the existing conditions and proposed removed or partially removed dam.
- (6) If the partially removed dam will store more than 2 million gallons (6 acre-feet) of water, ~~the plan shall~~ provide a dam break inundation map of the downstream community at risk from the altered dam structure, assuming full water level at the time of failure.
- (7) Transitions to downstream channels shall be investigated and appropriate provisions made to mitigate against possible damage or flooding.
- (8) The exposed slopes within the 100-year, 24-hour storm depth shall be protected with riprap, vegetation, or other suitable means to prevent headcutting, downcutting, and lateral slope erosion; ~~and~~
- (9) The reservoir shall be emptied before removal of the dam.
- ~~(10) The removal shall be performed under the purview of an engineer, and~~
- ~~(11) The engineer shall submit written notice of completion of the removal of the dam and as-constructed plans, and comply with subchapter 4, [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)~~

Comment [MSOffice21]: Received comment requesting reducing permit requirements. This comment may be hard to achieve dependant on the physical characteristic of the dam.

Comment [MSOffice22]: Received comment requesting reducing permit requirements. Extra lower storm frequencies are for typical flooding and not normally a dam safety issue.

Comment [MSOffice23]: Received comment requesting reducing permit requirements and duplication of effort. This is stated elsewhere.

§13-190.1-22 Supervision of plans preparation and observation of construction inspection. (a) The design ~~an~~ engineer shall supervise the preparation of all plans and specifications for the initial construction, enlargement, alteration, repair, or removal of dams and reservoirs ~~and of~~

(b) The observation inspection of the construction shall be conducted by the construction engineer, as referenced in subchapter 4. Requirements for documentation of construction are ~~never provided~~ in subchapter 4. ~~7-24~~

(c) The design engineer and construction engineer may be assisted by other specialists, under ~~the design or construction~~ engineer's direction, as required. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-23 Permit application approval. (a) The permit application will be reviewed for compliance with the requirements ~~presented herein provided in~~ ~~this chapter~~ and in general accordance with standard practice for dam safety. If an application is incomplete or defective, it shall be returned to the applicant. The application shall be corrected and returned to the board within ~~ninety~~ days or such further time as may be given by the department in order to retain its validity. If the application is not returned within the required time limit, it shall be deemed automatically rejected.

(b) After the department has determined that the application is complete and the plans and specifications conform to ~~the rules of~~ this chapter and generally accepted engineering practice, the board shall approve the plans and specifications and issue an application approval with any conditions determined to be appropriate by the board.

Comment [MSOffice24]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice25]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice26]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice27]: Received comment requesting reducing permit requirements. This revision limits and provides clarity to dam safety.

~~(e) The application approval shall be valid for five years from the date of issuance.~~

(c)(d) Actual construction, enlargement, repair, alteration, or removal shall be commenced within the time frame set by the board in the application approval; otherwise, the application approval becomes void. The department may, upon written application and for good cause shown, extend an owner's time for commencing construction, enlargement, repair, alteration, or removal of a dam or reservoir.

(d)(e) Actual construction, enlargement, repair, alteration, or removal of a dam or reservoir shall be completed with five years of issuance of the application approval unless an extension authorized in writing by the board is issued.

~~(f) Written notice shall be provided to the department as required in subchapter 4, before the commencement of construction, enlargement, repair, alteration, or removal of a dam or reservoir. [Eff.~~

)] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

Comment [MSOffice28]: Received comment requesting reducing permit requirements and duplication of effort. This is stated in (d) of this section.

Comment [MSOffice29]: Received comment requesting reducing permit requirements and duplication of effort. This is stated elsewhere.

§13-190.1-24 Revocation of approval. (a) The board shall consider the revocation of the application approval in whole or in part for any of the following:

- (1) Material false statement in the application or in any report or statement of fact required pursuant to this chapter;
- (2) Violation of this chapter;
- (3) Violation of the approved plans and specifications;
- (4) Non-compliance of any conditions as set by the board; or
- (5) Discovery of unforeseen unsafe conditions.

(b) In any proceeding for revocation, the board shall give prior written notice to the affected owner of the facts or conditions which warrant the action and provide the applicant or owner an opportunity for

a hearing. [Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

SUBCHAPTER 4

CONSTRUCTION, INSPECTION, AND COMPLETION

§13-190.1-30 General construction requirements for construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works. ~~(a)~~ For the actual construction work for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works, the owner or applicant, or both, shall be responsible for providing and complying with the following:

- (1) Construction engineer's observation of construction.
 - (A) Prior to the start of any work on the dam or reservoir, the owner or applicant shall provide a construction engineer, to ensure compliance with the approved plans and specifications, including any approved change orders and the construction quality assurance plan.
 - (B) The construction engineer shall have ultimate responsibility for the supervision of all inspection tasks and compliance with approved plans and specifications, and
 - (C) The construction engineer may assign some inspection tasks to a duly authorized agent, under the construction engineer's supervision.
- ~~(1) Engineer's observation of construction. A professional engineer with proficiency in engineering and knowledge of dam technology shall perform construction observation services in accordance with the construction~~

Comment (MSOffice30): Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities. Restated for clarity.

~~quality assurance plan. The engineer shall observe the construction of the project. It is the engineer's responsibility to observe the progress and quality of the construction and to determine, in general, whether the construction is proceeding in accordance with the approved plans and specifications and that the integrity of the design concept as reflected in the construction documents has been implemented and preserved by the contractor. The engineer observing the construction shall endeavor to prevent defects and deficiencies in the construction of the dam and appurtenant structures, and shall disapprove or reject work failing to conform to the approved plans and specifications. To assure independent review and proper quality assurance, in cases where the engineer has a contractual relationship with the general construction contractor to provide engineering services, the owner shall provide an independent, third party engineer to perform the engineering quality assurance observations, unless otherwise allowed by the board.~~

- ~~(2) Inspection during construction. The owner shall, at its own expense, perform work or tests necessary to ensure proper compliance with the approved plans and specifications.~~
- (2) A construction quality assurance plan. A construction quality assurance plan shall be prepared and submitted to the department at least thirty days prior to the start of construction, that details the minimum requirements of the construction engineer's observation of construction. The minimum components of this plan shall include the following as applicable:
- (A) Listing of parties and their roles and responsibility.
 - ~~(B) Plan for construction observation.~~

Comment [MSOffice31]: Received comment requesting reducing permit requirements and duplication of effort. Eliminated this third party engineer.

Comment [MSOffice32]: Received comment that permit requirements were confusing and repeated. Moved this time frame here from another section to simplify and clarify this requirement in one place.

Comment [MSOffice33]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice34]: Received comment requesting reducing permit requirements and duplication of effort. This requirement is covered adequately elsewhere.

- (B) Names and qualifications of the engineer(s) and staff to be used on the project;
- (C) Anticipated construction observation schedule for the construction engineer and staff;
- (D) Schedule of observations and inspections (with reference to specification sections), such as the observation of the foundation or other inspections, as deemed appropriate by the department or design engineer;
 - ~~(iii) For dams on rock foundations, a schedule for observations of the foundation by a geologist, ^{or} engineering geologist, and~~
 - ~~(iv) A schedule for inspection of the gate installation by the gate manufacturer or its representative unless waived by the department;~~
- (E) Schedule of required submittals, including shop drawings (with reference to specification section);
- (F) Schedule of construction material tests (with reference to specification section); and
- (G) Schedule of construction performance tests (with reference to specification section);
- ~~(H) Change order procedure; and~~
- ~~(I) Preliminary schedule for notification to the department for the start of construction;~~
- ~~(3) A construction quality control and testing plan. The owner/applicant shall require that the contractor provide an overview and plan of its means to assure that the work will conform to the minimum requirements of the plans and specifications along with any anticipated construction difficulties. The following shall be included as part of the plan:~~

Comment (MSOffice35): Received comment requesting reducing permit requirements to reduce costs. Limited these observations and requirements to only those specified by design engineer or department. Not required for all permits.

- ~~(A) Identification of the firm that will conduct the construction material tests in the field and in the laboratory;~~
- ~~(B) Schedule of required submittals, including shop drawings (including reference to specification section);~~
- ~~(C) Schedule of construction material tests (including reference to specification section);~~
- ~~(D) Schedule of construction performance tests (including reference to specification section);~~
- ~~(E) Schedule of notifications to the engineer and the department; and~~
- ~~(F) Plan for addressing construction difficulties.~~

- ~~(3)~~ ~~(4)~~ **Maintain** construction records. The construction engineer in charge shall maintain a record of construction that, ~~(b)~~ **at** a minimum, shall include: daily activity and progress reports; all test results pertaining to construction; photographs sufficient to provide a record of foundation conditions and various stages of the construction through completion; all geologic information obtained; and construction problems and remedies;
- (4) ~~(5)~~ **Anticipated** Construction schedule;
- (5) ~~(6)~~ Construction emergency action plan;
- (6) ~~(7)~~ Labor and material bonds. Where the project construction estimate exceeds \$500,000 (including design), the owner shall furnish **evidence of a bond for labor and materials for the approved construction or alteration work, unless otherwise allowed by the board;**
- (7) ~~(8)~~ **Maintenance of** ~~(b)~~ **General liability insurance.** Insurance coverage must be maintained for the minimum amounts stipulated by the department, with a provision identifying the department ~~(b)~~ **as an additional insured, and evidence of insurance provided to the**

Comment [MSOffice36]: Received comment that permit requirements were confusing and duplicated. Moved these items to section 13-190.1-30(9)(D)

Comment [MSOffice37]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice38]: Received comment requesting reducing permit requirements. Reduced requirement on owner or applicant to state that only evidence or proof of bonding is required.

Comment [MSOffice39]: Received comment requesting reducing permit requirements. Reduced requirement on owner or applicant to state that only evidence or proof of insurance is required.

department prior to the start of construction;

- (8)~~(9)~~ Change order requirements. When unforeseen site conditions or material availability require that the construction work differ significantly from the approved plans and specifications, a change order, including details, must be provided by the construction engineer to the department.
- (A) No change shall be executed until approved by the department.
 - (B) Major changes must be submitted in writing with supporting documentation, and approved in writing by the department.
 - (C) If the department determines that the proposed construction change order represents a significant modification of the application approval that could have an effect on structural integrity or safe operations of the project, then approval of the change order by the board or department shall be required.
 - (D) If board approval of the proposed construction change order is required, no action can be taken by the owner to make the construction change until approval is given by the board, and
 - (E) Minor changes may be transmitted verbally by the construction engineer and approved by the department verbally, provided documentation of the change is provided to the department within ten days of the approval.
- (9)~~(10)~~ A pre-construction meeting shall be held subsequent to submitting the construction observation and quality assurance plan, but not later than days ~~two weeks~~ prior to start of construction. All parties actively involved in the construction should be requested to attend, such as the dam

Comment [MSOffice40]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice41]: Received comment with concern over possible construction delays and wanted clarification on major change order. Clarified section to allow department to advise on minor changes.

Comment [MSOffice42]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice43]: Received comment with concern over possible construction delays and wanted clarification on major change order. Clarified section to allow department to advise on minor changes.

owner, the ~~owner's~~ design engineer, the ~~construction~~ engineer ~~observing the~~ ~~construction~~, the general contractor, and the department. At a minimum, the following should be discussed:

- (A) Project personnel and roles:
 - (i) Project communication protocol between the owner, construction engineer, and the department shall be established at the pre-construction meeting; and
 - (ii) The name of the contractors and any principals in charge shall be furnished to the department at the meeting;
- (B) Project schedule;
- (C) Special issues:
 - (i) The means used to divert and carry inflows into the reservoir;
 - (ii) Reservoir filling requirements; and
 - (iii) Special permitting requirements;
- (D) The contractor's construction quality control plan, developed by the contractor shall be thoroughly explained, including but not limited to the following: required documentation:
 - (i) Identification of the firm that will conduct the construction material tests in the field and in the laboratory;
 - (ii) Schedule of required submittals, including shop drawings (including reference to specification section);
 - (iii) Schedule of construction material tests (including reference to specification section);
 - (iv) Schedule of construction performance tests (including reference to specification section);

Comment [MSOffice44]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice45]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

- (v) Schedule of notifications to the engineer and the department; and
- (vi) Plan for addressing construction difficulties.

Comment [MSOffice46]: Moved from Section 13-190.1-30(3)

- (E) Change order procedures;
- (F) Maintenance of records;
- (G) Notifications and submittals; and
- (H) Construction progress reports;
- (10) ~~(11)~~ Reservoir filling plan.
 - (A) A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
 - (B) Upon written request by the owner and for good cause shown, the department may temporarily approve storage of water prior to full compliance with the acceptance of construction. Only a partial reservoir filling will be granted and final acceptance of the construction for full use will not be granted until all the construction completion documents have been satisfactorily completed. The written request shall include:
 - ~~(11)~~ A schedule for the filling of the reservoir specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam; ~~(11)(b) HRS § 179D-6; (Imp: HRS § 179D-5)~~
 - (ii) A draft emergency action plan; and
 - (iii) A draft operation and maintenance plan;
- (11) ~~(12)~~ Completed project documentation;
- Submission of required documentation as detailed in section 13-190.1-31;

Comment [MSOffice47]: Moved from submittal section to here for clarity.

- b. Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features, when required as specified by the department;
- (12) ~~(13) Submittals to the department. The following shall be submitted to the department unless otherwise stated in the permit documents:~~
- ~~(A) Engineer's construction quality assurance plan shall be submitted to the department at least thirty days prior to the start of construction. The department shall provide written comments, or concurrence of the construction observation and quality assurance plan. Construction shall not commence without concurrence of the observation plan by the department.~~
- ~~(B) Proposed construction observation schedule for the engineer observing the construction and staff:~~
- ~~(i) For dams on rock foundations, a schedule for observations of the foundation by a geologist, or engineering geologist.~~
- ~~(ii) A schedule for inspection of the gate installation by the gate manufacturer or its representative unless waived by the department.~~
- ~~(C) Names, qualifications, and contact information of the engineer(s) and staff to be used on the project:~~
- ~~(i) Identification of the owner's engineer responsible for observing the construction along with description of the engineer's qualifications and professional license seal.~~
- ~~(ii) The name of the contractors and any principals in charge shall be~~

Comment [MSOffice48]: Received comments that permitting requirements are confusing. Moved to 15-190.1-30(2) for clarity.

Also deleted other portions of this item as it is repeated elsewhere.

~~furnished to the department at the pre-construction meeting.~~

- ~~(D) Construction progress reports. Construction progress report and updated construction schedule shall be submitted to the department periodically, as directed, or as requested by the department to determine that conformity with the approved plans and specifications is being achieved. A summary report shall be submitted at the end of construction.~~
- ~~(E) Reservoir filling and monitoring schedule, along with draft emergency action plan and draft operation and maintenance manual and any other relevant documents to demonstrate operational readiness, should be submitted along with the notice of substantial completion from the engineer observing the construction.~~
- ~~(F) Summary response to final inspection and final punch list of items to be completed.~~
- ~~(G) Project completion documentation including topographic survey.~~
- ~~(H) Other submittals as identified in the application approval.~~

~~(13)(14) Notifications to the department. The construction engineer shall notify the department shall receive of the following:~~

- ~~(A) The date of the start of construction.~~
- ~~(B) Engineer's construction quality assurance plan shall be submitted to the department at least ~~thirty~~ days prior to the start of construction. The department shall provide written comments, or concurrence with the quality assurance plan, which shall include a detailed construction observation plan to be followed by the~~

Comment [MSOffice49]: Moved to section 13-190.1-30(9)(D)

Comment [MSOffice50]: Moved to section 13-190.1-31(1)

Comment [MSOffice51]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice52]: Moved to Section 13-190.1-30(2)

- ~~engineer observing the construction. Construction shall not commence without concurrence of the quality assurance and construction observation plan by the department.~~
- (C) ~~Pre construction meeting. Subsequent to submitting the construction observation plan, but not later than two weeks prior to commencement of construction, a meeting shall be held between the dam owner, owner's engineer, general contractor, and department.~~
- (D) Notice for inspection(s). The ~~construction~~ ^{construction} engineer ~~observing the construction~~ shall give the department at least ~~ten~~ days advance notice of initial materials placement on the dam's foundation, in the cutoff trench, outlet backfill, outlet foundation, and any appurtenance requested by the department in the approval of the plan for construction observation, to allow for observation by the department.
- (E) Notice of substantial completion shall be issued by the ~~construction~~ ^{construction} engineer ~~observing the construction~~ to the department stating that the permitted improvements are functionally complete such that filling of the reservoir can be accomplished.
- (F) Notice of final inspection. The ~~construction~~ ^{construction} engineer ~~observing the construction~~ shall give the department ~~fifteen~~ days advance written notice prior to the project's final construction inspection.
- (G) Notice of start of reservoir filling. ~~The construction engineer shall provide. This notice must given at least ten~~ days prior to initiating filling of the reservoir, unless otherwise agreed upon

Comment [MSOffice53]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice54]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice55]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

Comment [MSOffice56]: Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities. Edited for clarity.

at final inspection. Filling of the reservoir shall not commence until concurrence is received from the department.

(14) ~~(15)~~ Suspension of construction or revocation of permit.

(A) Unsafe conditions. If conditions are revealed which will not permit the construction, enlargement, repair, alteration, or removal of a safe dam or reservoir, the application approval for construction, enlargement, repair, alteration, or removal shall be revoked.

(B) Violation of application approval. If at any time during construction, enlargement, repair, alteration, or removal of a dam or reservoir the department finds that the work is not being done in accordance with approved plans and specifications, the department shall give a written notice thereof to the owner.

- (i) The written notice shall state the specific violations or deficiencies and shall order the immediate compliance with the approved plans and specifications.
- (ii) The department may order that no further work be done until such compliance has been effected and confirmed by the department or its designated representative.
- (iii) If the owner fails to comply with the department's written notice or the approved plans and specifications, the board shall ~~take action to~~ revoke the application approval and compel the owner to remove the incomplete structure sufficiently to

eliminate any safety hazard to
life or property. [Eff.
] (Auth: HRS
§179D-6) (Imp: HRS §179D-6)

§13-190.1-31 Construction completion and acceptance for the construction, enlargement, repair, alteration, or removal of a dam, reservoir, or appurtenant works. ~~§13-190.1-31~~ Upon completion of the construction for a new, enlarged, repaired, altered, or dam removal project, the following items, as a minimum, shall be addressed and submitted to the department and addressed, as applicable to the project:

- (1) ~~Completion of construction. Upon completion of a new, enlarged, repaired, altered, or removed dam, the applicant or owner shall provide written notification of completion to the department by the responsible~~ The construction engineer's certification that engineer observing the construction for the owner certifying to the best of the engineer's knowledge, information, and belief, ~~that~~ the project is complete and was constructed in conformance with the approved plans, and specifications, and approved change orders, and all punch list items identified at the final construction inspection have been resolved, including a description of the actions taken to address the deficiencies;
- (2) Construction completion documents. The ~~owner or owner's engineer shall provide the following construction documents shall be provided documentation~~ to the department within sixty days of the final construction inspection in order for the project to be deemed complete:
 - (A) ~~Written notification to the department by the engineer observing the construction~~

Comment (MSOffice57): Received comment that permitting requirements were confusing. Moved here from Section 13-190.1-30(12) for clarity.

Comment (MSOffice58): Received a comment to clarify the reference to an "engineer", and define the engineer's responsibilities.

that the project is complete and ~~in~~
~~general~~ conforms with the approved plans,
specifications, and approved change
orders;

- (B) As constructed, record, or as built drawings that describe the dam or reservoir as actually constructed;
- (C) A final construction report containing the following information, if applicable: a summary of construction, ~~including~~ problems encountered and solutions implemented to resolve the problems; a summary of construction material tests and geologic observations; photographs of construction from the exposed foundation to completion of construction;
- (D) Topographic survey of completed work including all monuments, inverts, crest alignment, spillways, and significant appurtenant features as required specified by the department;
- (E) A record of the location of permanent monuments and instrumentation as well as installation details and initial surveys and readings, as applicable;
- (F) A log of the recorded water levels and other readings in the schedule for the first filling of the reservoir and refilling specifying the fill rates, water level elevations to be held for observation, and a schedule for inspecting and monitoring the dam;
- (G) A long-term instrumentation monitoring plan that shall include the frequency of monitoring; the data recording format; graphical presentation of data; and the parties who will perform the work;
- (H) An emergency action plan in a format accepted by the department in accordance with ~~Subchapter~~ Subchapter 5;
- (I) An operation and maintenance manual for the dam and its appurtenant structures

Comment [MSOffice59]: Received a comment to limit permit requirements to only those required for specific projects. Reprised for consistency with that stated elsewhere.

- developed in accordance with ~~§~~ subchapter 5;
- (J) Compliance with subchapter 2;
 - (K) An affidavit showing the actual cost of the construction ~~and a detailed accounting of the costs~~, including all engineering costs;
 - (L) An additional fee or refund request based on the actual cost of construction, computed in accordance with ~~§~~ subchapter 8;
- (3) Acceptance of construction. Construction for which application approval has been provided shall not be deemed complete nor shall storage of water be permitted until the department furnishes to the owner a written statement of acceptance, unless temporary approval of storage is granted by the department. The acceptance shall specify any limitation upon, or requirements for use of the facility. The department shall furnish the acceptance or denial within ~~sixty~~ days of receipt of satisfactorily completed construction completion documents; ~~and~~
- (4) A ~~schedule report~~ documenting the filling of the reservoir and identifying the fill rates, water level elevations held, and inspection and monitoring findings. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

Comment [MSOffice60]: Clarify for consistency.

§13-190.1-32 Complaints as to unsafe conditions during construction. (a) Upon receipt of a written complaint alleging that the person or property of the complainant is endangered by the construction, enlargement, repairs, alterations, removal, maintenance, or operation of any dam or reservoir, the department shall contact the owner and the department or department representative shall conduct an inspection unless the data, records, and inspection

reports on file with the department are sufficiently adequate to determine whether the complaint is valid or invalid.

(b) If an unsafe condition exists, the department shall notify the owner to take action necessary to render the condition safe, including breaching or removal of any dam found beyond repair. If the owner is unavailable or unresponsive, the board may commence action under ~~section~~ 13-190.1-41 ~~emergency work~~.
[Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 5

MAINTENANCE, OPERATION, AND EMERGENCY WORK

§13-190.1-40 Maintenance and operation. (a) Owners shall provide for the adequate and timely maintenance, operation, and inspection of their dams and reservoirs and shall be responsible for any engineering and geologic investigations which may be required to ensure public safety. Owners shall keep available and in good order records of original construction and any modifications, and shall report to the department their maintenance, operation, and engineering activities, including at a minimum, but not limited to, horizontal and vertical controls, seepage measurements, piezometric data collection, and geologic investigations.

(b) The owner of a dam or reservoir shall fully and promptly advise the department of any flood, incidents, or circumstance which may adversely affect the dam or reservoir.

(c) The department shall make inspections of dams and reservoirs either with its own engineers or by consulting engineers of its selection, not less than once every five years. The department shall require owners to perform at their expense any necessary remedial work and work reasonably required to disclose information sufficient to enable the

department to determine conditions of dams and reservoirs in regard to their safety, including the installation, maintenance, and monitoring of instrumentation.

(d) All costs incurred by the department to conduct the inspection may be charged to the owner. The department shall present a bill for the expenses to the owner, and if the owner neglects for ~~thirty~~ days thereafter to pay it, the bill and costs become a lien upon the lands and property of the owner so liable for the payment of the bill, and must be collected as delinquent taxes against the lands and property are collected. All funds collected shall be deposited into the dam and reservoir safety special fund. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-30)

§13-190.1-40.1 Operation and maintenance plan.

(a) Owners and operators shall maintain an up-to-date operation and maintenance plan including an inspection and monitoring program with written reports submitted to the department on a yearly basis. The inspection and monitoring program shall contain the actions required to maintain and keep the structure, its appurtenant works, and access in a state of repair and operating condition that would be required by the exercise of due care with regard for the safety of persons or property, using sound and accepted engineering principles, guidelines, and these rules.

(b) An operation and maintenance plan shall include the following:

- (1) Facility information and site map:
 - (A) Dam name;
 - (B) State dam inventory identification number;
 - (C) Owner's name;
 - (D) Stream;
 - (E) Location;
 - (F) Dam type; ~~and~~

- (G) Dam height, crest length, and crest width;
- (2) List of responsible parties, name, title, and telephone numbers, for the following:
- (A) Operation;
 - (B) Maintenance;
 - (C) Inspection; and
 - (D) Monitoring of instrumentation;
- (3) List of hydraulic elements controlling inflow to or outflow reservoir, including gates, valves spillways, stoplogs, structures, etc. and the location and dimensions of structures;
- (4) Rules and procedures for reservoir operation, including how the reservoir level is controlled, proposed reservoir levels for given times of year, periods of drawdown, and filling and operation during floods;
- (5) List of items requiring periodic maintenance, and procedures for performing maintenance, including type of maintenance performed, frequency, method, and record keeping;
- (6) List of instrumentation, frequency of monitoring, and method record keeping;
- (7) List of equipment to be periodically test operated, including gates, valves, hoists, and frequency of test operations;
- (8) Frequency of routine inspections and monitoring, for example, weekly, monthly, quarterly, and a list of key elements inspected;
- (9) Checklists, logbook, inspection forms for applicable items;
- (10) Copy of the latest inspection report; and
- (11) Appendices for any additional information.
[Eff.] (Auth: HRS §179D-6)
(Imp: HRS §179D-6)

§13-190.1-41 Emergency work. (a) Owners and operators of dams and reservoirs have the primary responsibility for determining when an emergency involving a dam or reservoir exists. When the owner or operator of a dam or reservoir suspects an emergency exists, the owner or operator shall immediately implement the emergency action plan required by section 13-190.1-42, and take additional actions necessary to safeguard life, health, and property.

(b) If, in the opinion of the department, conditions of any dam or reservoir are so dangerous to the health and safety of life or property as to not permit time for issuance and enforcement of an order relative to construction, modification, maintenance, or repair of the dam or reservoir, or the dam or reservoir is threatened by any large flood or other natural disaster, the department may immediately employ remedial measures necessary to protect life and property.

(c) The department shall provide coordination and assistance to the proper state or county agency or agencies to maintain control of any dam or reservoir that, pursuant to subsection (b), has been determined to be dangerous to life or property until the dam or reservoir is deemed safe, or until any emergency conditions that precipitated taking control of the dam or reservoir, pursuant to subsection (b), have been abated. The department may determine the proper time at which to relinquish control of the dam or reservoir.

(d) Any necessary and reasonable costs and expenses incurred by the department in fulfilling the duties mandated by subsections (b) and (c) in connection with a remedial or emergency action shall be recoverable by the department from the owner of any dangerous or threatened dam or reservoir.

(e) Any owner failing or refusing, after written notice has been given, to pay the reasonable costs and expenses incurred by the department, in accordance with subsection (d), shall be, upon complaint by the department to the attorney general, subject to

reasonable attorney's fees incurred in the recovery of the costs and expenses.

(f) All moneys collected by the department pursuant to subsection (d) shall be credited to the dam and reservoir safety special fund.

(g) If a condition arises that in the opinion of the department may pose a danger to the health and safety of persons or property and sufficient time permits, the board may issue orders reciting the existence of the condition and require any actions the board deems necessary. Any person to whom an order is directed may challenge the order, but shall immediately comply with the order, pending disposition of the person's challenge. The board shall give precedence to a hearing on the challenge over all other pending matters.

(h) In the case of an emergency where the board or department declares that repairs, breaching of the dam, or other actions, are immediately necessary to safeguard life and property, the department shall initiate remedial action at the owner's expense if the owner fails to act. The department shall be notified at once of any emergency repairs or other work instituted by the owner. [Eff.] (Auth: HRS §179D-6); (Imp: HRS §179D-24; HRS §179D-30)

§13-190.1-41.1 Emergency action by department.

(a) In applying the remedial means provided for in this chapter, the department may in an emergency with its own forces, or by other means at its disposal, do any or all of the following:

- (1) Take full charge and control of any dam or reservoir;
- (2) Lower the water level by releasing water from the reservoir;
- (3) Completely or partially drain the reservoir;
- (4) Perform any necessary remedial or protective work at the site; or
- (5) Take such other steps as may be essential to safeguard life and property.

(b) The department shall continue in full charge and control of such dam ~~and or~~ reservoir and its appurtenances until they are rendered safe or the emergency occasioning the action has ceased and the owner or operator is able to take back such operations. The department's take over of the dam, the reservoir, or their appurtenances shall not relieve the owner of a dam or reservoir of legal liability to the department or third parties for those circumstances which caused an emergency situation. The department's 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 value that may be caused by the department's work.
[Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-24)

§13-190.1-42 Emergency action plan. (a) Owners of high and significant hazard dams shall prepare, maintain, and implement an emergency action plan for each dam or reservoir for immediate defensive action to alert and evacuate the affected population and to mitigate damages to property.

(b) The emergency action plan shall be submitted to the department.

(c) The emergency action plan shall contain at a minimum the following:

- (1) Guidance for determining emergency event levels;
- (2) A notification procedure for informing the department and local emergency response agencies;
- (3) An anticipated evacuation area;
- (4) Listing of official emergency action governmental plan holders;
- (5) Directions to the facility;
- (6) A location map and site map; and
- (7) Testing, training, and updated information for the plan.

(d) The owner shall submit a copy of the emergency action plan to the emergency response agencies in the appropriate county and other parties involved in the plan for review.

(e) The owner of a dam or reservoir shall be responsible for the production, distribution, maintenance, and testing of the emergency action plan with all governmental plan holders. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-30)

SUBCHAPTER 6

REMEDIES

§13-190.1-43 Liens. (a) Costs of construction, enlargement, repair, alteration, or removal work done by the department or its agents to render a dam, reservoir, or appurtenances safe shall constitute a statutory lien against all property of the owner. Notwithstanding any other law to the contrary, the lien shall be considered prior and superior to all other mortgages, liens, or encumbrances of record even if those other mortgages, liens, or encumbrances were filed before the lien pursuant to this subsection becomes due.

(b) Liens pursuant to subsection (a) may be perfected and foreclosed in advance of or after completion of construction, enlargement, repair, alteration, or removal. If perfected in advance, the lien shall be perfected by the filing of an affidavit of the board setting forth the estimate of the costs of construction, enlargement, repair, alteration, or removal within the county in which the dam or reservoir is located in the same manner as prescribed for mechanic's liens. When the affidavit is filed, the amount set forth in the affidavit shall be a lien in that amount against all property of the owner. If the actual cost of construction, enlargement, repair, alteration, or removal exceeds the estimated cost, the board may amend the affidavit setting forth the

additional estimated cost. If the estimated cost exceeds the actual costs of construction, enlargement, repair, alteration, or removal at completion, the board shall file an amended affidavit at completion. If a lien is perfected in advance and the construction, enlargement, repair, alteration, or removal is not commenced within two years from the date of perfection, the lien shall be void. The board shall file a satisfaction of lien upon payment of the costs of construction, enlargement, repair, alteration, or removal by the owner. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-26)

§13-190.1-44 Injunctive relief. Whenever in the judgment of the department any person has engaged in or is about to engage in any act or practice that constitutes or will constitute an unlawful action under Chapter 179D, HRS, the department may apply to the circuit court of the county in which the unlawful act or practice has been or is about to be engaged in, or in which jurisdiction is appropriate, for an order enjoining the act or practice, or for an order requiring compliance with this chapter. Upon a showing by the department that a person has engaged in or is about to engage in any unlawful act or practice, a permanent or temporary injunction, restraining order, or other order shall be granted without the necessity of showing lack of an adequate remedy at law. [Eff.

] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

§13-190.1-45 Department action when multiple owners cannot mutually agree. If multiple owners of a dam or reservoir facility cannot mutually agree on a unified course of action for repair or remediation of a dam facility, the department shall issue and enforce actions to ensure public safety. Costs incurred may

~~shall~~ be recoverable by the department from the owners. ~~Owners shall be jointly and severally liable for all costs incurred by the department.~~ [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-23)

Comment [MSOffice61]: Received comment to allow department the option of pursuing reimbursement and not require action

Comment [MSOffice62]: Received comment concerned with this statement. Removed from rule.

SUBCHAPTER 7

ENTRY UPON PROPERTY

§13-190.1-46 Entry upon property. (a) The department shall have the right to direct and conduct investigations as it may reasonably deem necessary, to carry out its duties as prescribed by statute. For this purpose, the agents or employees of the department or any authorized representatives may enter at reasonable times, without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier dealt with in chapter 179D, HRS. If an emergency situation arises as determined by the department, the agents or employees of the department, or any authorized representatives, shall have the right to enter without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of the dam and to take any emergency remedial actions, without a search warrant or liability for trespass.

(b) It shall be unlawful for any person to refuse entry or access to any authorized representative of the department who requests entry for purposes of inspection and who presents appropriate credentials. It shall also be unlawful to obstruct, hamper, or interfere with any representative while in the process of carrying out the representative's official duties.

(c) Notwithstanding any other provision of law to the contrary, the board and its agents, engineers, other employees, or authorized representatives, for the purposes of enforcing chapter 179D, HRS, may enter

upon any land or water in the State that is the subject of an inspection, investigation, or remedial actions without a search warrant or liability for trespass. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-22)

SUBCHAPTER 8

FEES

§13-190.1-50 Dam permit application fees for construction, repair, alteration, or removal. (a) The applicant or owner shall submit with the application for construction, enlargement, alteration, repair, or removal of a dam or reservoir, an application fee in the amount equal to two per cent of the estimated cost of construction, including engineering costs.

(b) For the purposes of this subchapter, the estimated cost of the construction, enlargement, alteration, repair, or removal shall include the following:

- (1) The cost of all labor and materials entering into the construction of the dam and appurtenant works or reservoir;
 - (2) The cost of preliminary investigations and surveys;
 - (3) The cost of the construction plans properly chargeable to the cost of the dam or reservoir;
 - (4) Any and all other items entering directly into the cost of the construction, enlargement, alteration, repair, or removal.
- (c) The costs of right-of-way, detached powerhouses, electrical generating machinery, and roads and railroads affording access to the dam or reservoir shall not be included among the items used in the determination of cost.

(d) An application shall not be considered by the department until the application fee is received.

Comment [MSOffice63]: Revised for clarity and consistency.

(e) In the event the actual cost exceeds the estimated cost by more than ~~fifteen per cent~~, a further fee shall be required by the board before final approval and shall be two per cent of the amount the actual cost exceeded the estimated cost of the construction, enlargement, alteration, repair, or removal. No further fee shall be required, if such fee is to be computed at less than twenty dollars. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-51 Certificate of approval to impound fee. The owner shall submit with the application for a certificate of approval to impound payment of a fee in the amount of four hundred ~~and 00/100~~ dollars. [Eff.] (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190.1-52 Annual fees. (a) An annual fee shall be paid by the owner of the dam, on or before December 31 of each year, for the following calendar year, based upon a fixed rate and height of the dam. The annual fee shall be ~~five hundred dollars~~ per dam, plus ~~one hundred ten dollars~~ per foot of height.

(b) Any owner who fails to pay any annual fee or any part of any annual fee required to be paid within the time required shall pay a penalty of ~~ten per cent~~ of the annual fee or part of the annual fee, plus interest at the rate of one-half of ~~one per cent~~ per month, or for each fraction of a month, from the date on which the annual fee or the part of the annual fee became due and payable to the department until the date of payment.

(c) For the purposes of this section, "height of the dam" means the vertical distance, to the nearest foot, from the natural bed of the stream or watercourse at the downstream toe of the barrier, as determined by the department, or from the lowest elevation of the outside limit of the barrier, as

determined by the department, if it is not across a stream channel or watercourse, to the maximum water storage elevation. [Eff.] (Auth: HRS \$179D-6) (Imp: HRS \$179D-6)

3. The repeal of chapter 13-190 and the adoption of chapter 13-190.1, Hawaii Administrative Rules, shall take effect ten days after filing with the Office of the Lieutenant Governor.

I certify that the foregoing are copies of the rules drafted in the Ramseyer format, pursuant to the requirements of section 91-4.1, Hawaii Revised Statutes, which were adopted on _____, and filed with the Office of the Lieutenant Governor.

LAURA H. THIELEN, Chairperson
Board of Land and Natural Resources

APPROVED AS TO FORM:

Deputy Attorney General

The following is a highlight of significant changes to HAR Title 13, Chapter 190, Dams and Reservoirs (New Chapter 13-190.1).

§13-190.1-2: Definitions have been added and amended to reflect the changes to Hawaii Revised Statutes (HRS) Chapter 179D. Added to or amended to the current definitions are: "Application Approval"; Adds Appurtenance to the definition of "Appurtenance" to the definition of "Appurtenant Works"; Adds a definition for "Emergency"; "Certificate of Approval to Impound"; Amends the definition of "Dam"; "Emergency"; Adds a definition for "Freeboard"; Adds the definition of "Hazard Potential"; Amends the definition of "High Hazard" and "Low Hazard"; Adds a definition for "Inflow Design Flood"; Adds a definition for "Outlet Works"; Adds a definition for "Removal"; Adds a definition for "Operator"; Amends definition of "Owner" and "Person"; Adds a definition for "Physical Clear Access"; Adds a definition for "Probable"; Adds a definition for "Significant hazard"; and Adds a definition for "Spillway"

§13-190.1-3: Amends subsection 1 to more clearly define what type of highways or road fills are exempt.

§13-190.1-4: Adds a minimum design criteria to be followed.

§13-190.1-4.1: Adds additional design requirements.

§13-190.1-5: Amended subsection to increase the maximum fine from \$500 to \$25,000 a day, and allows the Board to recover administrative fees and costs, including attorney's fees and costs and to bring legal action to recover those costs.

§13-190.1-5.1: Adds criminal penalties to the rules as allowed under HRS §179D-8 for persons who knowingly after written notice to comply, violates any rule, regulation, order, condition or provision of this chapter or Chapter 179D, HRS or knowingly obstructs, hinders, or prevents the department or its agents from performing their duties. The violation shall be charged as a Class C felony.

§13-190.1-6: Adds language that clarifies that the Board's approval or disapproval of an application are conclusive and binding except in the case where it can be demonstrated that the approval of a certificate to impound was based on or more misrepresentation. Further that the appeal of a

Board decision will be based on the applicable administrative rules in effect at that time and the orders remain in effect until modified or set aside on appeal.

§13-190.1-7: Adds a section for inspections and refers to the guidelines that will be followed for inspections.

§13-190.1-8: Adds a Change in Ownership provision that requires that a change in ownership be filed within 7 days of recordation with the Bureau of Conveyances.

§13-190.1-9: Adds a variance provision which allows the Board or department to grant a variance from any provisions of these rules.

§13-190.1-10: Adds a severability provision.

§13-190.1-11: New section added which requires a certificate of Approval to Impound Water for all dams and reservoirs.

§13-190.1-121: New section that requires all regulated dams constructed before July 6, 2007 to file an application for a certificate to impound water with all information as required by the Board and accompanied by the fee as set by these rules. Rule also allows owner to continue to impound water during the application process unless it is determined by the Board that the dam may pose a danger to the health and safety of persons or property.

§13-190.1-13: New section which sets forth the notice that the department shall give to all owners and requires that owners respond within 90 days of the notice.

§13-190.1-14: New section which sets forth the Application Review process, which require the department to make inspections and file reports from which it will be determined whether or not a dam should receive a certificate. The section further allows the department to require owners to do tests or investigations to disclose information sufficient to enable the board to determine whether or not to issue a certificate. The department can require that the dam water level be lowered or drained and impose conditions on the certificate.

§13-190.1-16: Allows the Board to suspend, revoke, or both any application approval to impound for any act or failure

to comply with HRS Chapter 179D or any conditions contained or attached to the approval or Certificate to Impound.

§13-190.1-17: Transfer of Certificates to Impound must be approved by the Board under certain conditions.

§13-190.1-20 to §13-190.1-24: These sections sets forth the requirements for Construction, Enlargement, Repair, alteration, or removal of dams. This section requires at a minimum:

- (A) Name and address of the applicant;
- (B) Name and address of the owner or owners and their associated Tax Map Keys of the properties upon which the works are to be constructed, enlarged, repaired, altered, or removed and a legal description of the land;
- (C) Description of the location, type, size, purpose, and height of the proposed, enlarged, repaired, altered or removed dam, and reservoir and appurtenant works;
- (D) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
- (E) Plans for installation of any permanent instrumentation at the dam or appurtenant structures;
- (F) Area of the drainage basin, rainfall and stream flow records, and flood-flow records and estimates (as applicable);
- (G) Relevant construction drawings, plans, and specifications signed and sealed by the design engineer, licensed in the state of Hawaii; and the name and address of the engineer who prepared the plans and specifications.
- (H) Proposed times of commencement and completion of the proposed activity;
- (I) A listing of all sources of inflow to the reservoir (as applicable).

The Board under these sections also requires a design report to be submitted and the details that should be covered in the design report. It also requires that the applicant submit an emergency action plan, an operation and

maintenance plan and instrumentation plan, along with proposed construction schedule a construction emergency action plan, detailed cost estimate, and a filing fee. The rule also contains specific requirements for the removal of a dam or reservoir.

§13-190.1-21: Sets forth specific requirements for the removal of a dam or reservoir.

§13-190.1-22: Requires that an engineer be in charge of the preparations of all plans and specifications.

§13-190.1-23: Sets forth the permit application approval process and states that the permit is valid for 5 years, and may be extended.

§13-190.1-24: Sets forth the causes that a permit maybe revoked.

§13-190.1-30 to §13-190.1-32: These sections set forth the construction requirements and the inspection and completion requirements. These requirements include the submittal of a general plan of construction, from which the department shall provided comments, a preconstruction meeting, a requirement that a professional engineer supervise or direct the construction in accordance with the plans, that the owner perform work or tests to ensure compliance with the plans, keep construction records, submit progress reports, give notice of at least 10 days before the initial placement of materials for the foundation. Change orders that differ significantly from the approved plans must be approved by the department, if it is determined that the change orders represents a significant modification that could have an effect on structural integrity, then the change order must be approved by the board.

15 days advance notice must be given before the final construction inspection. Unsafe conditions are revealed during the inspection than the permit shall be revoked. If violations occur during construction, the department shall give written notice stating the violation and may order the immediate compliance with approved plans and the stoppage of all work. A project over \$500,000 shall require bonding for labor and materials and the state may require that it be named as an additionally insured.

Upon completion, notice shall be given to the department and construction completion documents shall be given to the department within 60 days of the final construction inspection in order for the project to be deemed complete. Acceptance by the department shall be in writing and the department upon written request by the owner and for good cause shown, may allow the storage of water prior to the full compliance with the acceptance of construction.

§13-190.1-40: Amends the rule by allowing the Department to require inspections of dams not less than once every five (5) years, without requiring notice, and may bill the owner for all costs incurred for the inspection. The department will send a bill to the owner who shall have 30 days to pay. All non-paid bills become a lien upon the lands and property of the owner and may be collected as delinquent taxes against the land.

§13-190.1-40.1: Adds a requirement for owners to maintain an operation and maintenance plan which should include an inspection and monitoring program with written reports available to the Board on a yearly basis. The plan must contain the actions taken to maintain and keep the structure, appurtenant works and access in a state of repair and operating condition that would be required in the exercise of due care with regard for the safety of persons or property using sound and accepted engineering principles and guidelines and the rules.

§13-190.1-41: Adds new rule which places primary responsibility for determining when an emergency exists on the owner or operator, the owner shall immediately implement the emergency preparedness plan and notify any persons who may be endangered and also notify emergency management organizations and take additional actions necessary to safeguard life and property.

Allows if in the opinion of the department conditions are so dangerous to the health and safety of life or property that there is not time for issuance and enforcement of an order, the department may immediately employ remedial measures necessary to protect life and property. The department shall provide coordination and assistance to the proper state or county agencies to maintain control of any dam until the dam or reservoir is deemed safe. The department may determine proper time at which to relinquish control. Any necessary and reasonable costs and expenses

incurred in connection with a remedial or emergency action shall be recoverable from the owner and if the owner does not pay, the owner is subject to reasonable attorney fees and costs.

If time allows the Board may issue orders reciting the existence of the condition and require any actions the board deems necessary. An owner may contest the order but shall immediately comply with the order, pending disposition of the challenge. The Board shall give precedence to a hearing on the challenge over all other pending matters.

§13-190.1-41.1: New rule which allows the department to do any of the following in an emergency:

- 1) Take full charge and control of any dam or reservoir;
- (2) Lower the water level by releasing water from the reservoir;
- (3) Completely drain the reservoir;
- (4) Perform any necessary remedial or protective work at the site; or
- (5) Take such other steps as may be essential to safeguard life and property.

The department shall be in full charge and control of the dam until they are rendered safe or the emergency has ceased and the owner is able to take back the operations. The department's take over does not relieve the owner of a dam of legal liability to the department or third parties for those items which are causing an emergency situation. Further the department's assumption of control shall not constitute a taking and the department shall not be liable for diminution in value that may be caused by the department's work.

§13-190.1-42: Amends the Emergency Action Plan by requiring that the plan be submitted to the Board for acceptance.

§13-190.1-43: Adds new section which shall consider the costs of construction, enlargement, repair, alteration, or removal work done to render a dam, reservoir, or appurtenances safe, a statutory lien against all property of the owner. The lien shall be considered prior and superior to all other mortgages, liens or encumbrances or record. Liens may be perfected by the filing of an affidavit of the Board setting forth the estimate of the

costs of construction within the county in which the dam is located in the same manner as prescribed for mechanic's liens. The Board may amend the affidavit if actual costs exceed the estimate. The Board shall file a satisfaction of lien upon payment of the costs of construction.

§13-190.1-44: Adds new section which allows the Department to apply to the circuit courts if in their judgment any person has or is about to engage in any act or practices that constitute or will constitute an unlawful action under Chapter 179D, HRS.

§13-190.1-45: Adds new section which allows the department to issue an order to ensure public safety when multiple owners of a dam cannot agree as to a unified course of action for repair and maintenance.

§13-190.1-46: Adds a new section which gives the department the right to conduct investigations as it reasonably deems necessary to carry out its duties as prescribed by statute. The agents or employees of the department or any authorized representatives may enter at reasonable times, without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier dealt with in chapter 179D, HRS; provided that if an emergency situation arises as determined by the department, the agents or employees of the department, or any authorized representatives shall have the right to enter without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier subject to chapter 179D, HRS and to take any remedial actions, without a search warrant or liability for trespass.

The section makes it unlawful for any person to refuse entry or access to any authorized representative of the department who requests entry for purposes of inspection and who presents appropriate credentials. It shall also be unlawful to obstruct, hamper, or interfere with any representative while in the process of carrying out the representative's official duties.

The section also allows the board and its agents for the purposes of enforcing chapter 179D, HRS, to enter upon any land or water in the State that is the subject of an inspection, investigation, or remedial actions without a search warrant or liability for trespass.

\$13-190.1-50: Adds a new section setting forth the filing fees for applications based upon the estimated cost of construction at a rate of 2% of the estimated cost of construction. If the actual costs exceed the estimated costs by more than 15%, a further fee shall be required by the Board before final approval, so long as the computed fee is more than \$20.00.

\$13-190.1-51: Adds new section setting a fee of \$400 for a certificate to impound. Each certificate shall be valid for five years.

\$13-190.1-52: Adds new section for an annual fee based on a fixed rate and height of the dam. The fee shall be \$500 for each dam plus \$110 per foot of height. Any late payment shall pay a penalty of 10% of the annual fee plus interest at the rate of ½ percent per month.

HAWAII ADMINISTRATIVE RULES
TITLE 13
DEPARTMENT OF LAND AND NATURAL RESOURCES
SUBTITLE 7
WATER AND LAND DEVELOPMENT
CHAPTER 190
DAMS AND RESERVOIRS

Subchapter 1 General Provisions

- \$13-190-1 Purpose and applicability
- \$13-190-2 Definitions
- \$13-190-3 Exempt structures
- \$13-190-4 Violations; penalties
- \$13-190-5 Administrative and judicial review

Subchapter 2 Construction, Enlargement, Repair,
Alteration, or Removal of Dams and
Reservoirs

- \$13-190-20 Construction or enlargement of dam or
reservoir
- \$13-190-21 Repair or alteration of dam, reservoir,
or appurtenant works; removal of
dam or reservoir
- \$13-190-22 Supervision of plans preparation and
construction inspection
- \$13-190-23 Approval of plans and specifications
- \$13-190-24 Revocation of approval

Subchapter 3 Construction, Inspection, and
Completion

- \$13-190-30 Inspection during progress of work
- \$13-190-31 Completion of new or enlarged dam or
reservoir
- \$13-190-32 Completion of repair or alteration of
dam or reservoir
- \$13-190-33 Completion of removal of dam or
reservoir
- \$13-190-34 Complaints as to unsafe conditions

Subchapter 4 Maintenance, Operation, and
Emergency Work

\$13-190-40	Maintenance and operation
\$13-190-41	Emergency work
\$13-190-42	Emergency preparedness plan

SUBCHAPTER 1

GENERAL PROVISIONS

\$13-190-1 Purpose and applicability. (a) The purpose of this chapter is to establish rules governing the design, construction, operation, maintenance, enlargement, alteration, repair, and removal of dams, reservoirs, and appurtenant works in the State.

(b) This chapter shall not apply to the design and construction of dams, reservoirs, and appurtenant works which already existed on June 6, 1987, but shall apply to their operation, maintenance, enlargement, alteration, repair, and removal.

(c) This chapter does not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-2, 179D-5)

\$13-190-2 Definitions. As used in this chapter unless otherwise provided:

Alteration means a change to an existing dam or reservoir from the originally approved construction plans and specifications or current condition.

Appurtenant works means the ancillary features of a dam, such as the spillway, reservoir and its rim, powerhouse outlet, tunnel, pipeline, and penstock.

Board means the board of land and natural resources.

Dam means any artificial barrier, including appurtenant works, which impounds or diverts water, and which:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the

- barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse, to a maximum water storage elevation; or
- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter does not apply to any artificial barrier which is less than six feet in height regardless of storage capacity or which has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height.

Day means calendar days including Saturdays, Sundays and holidays.

Department means the department of land and natural resources.

Design water level means the maximum water elevation, including the flood surcharge, that a dam is designed to withstand.

Engineer means a registered professional engineer, licensed by the State of Hawaii.

Enlargement means any change in or addition to an existing dam or reservoir which raises or may raise the maximum water storage elevation of the reservoir.

High hazard means a dam's failure would most probably result in the loss of lives and extensive property damage.

Low hazard means a dam's failure would result in only minimal property damage.

Maximum water storage elevation means the maximum water surface elevation of the reservoir at the crest of the spillway or, if no spillway exists, at the crest of the dam.

Moderate hazard means a dam's failure would possibly result in the loss of life and appreciable property damage.

Owner means any person who owns, controls, operates, maintains, manages, or proposes to construct a dam or reservoir.

Person means any individual, firm, association, organization, partnership, estate, trust, corporation, company, or any governmental unit.

Repair means construction to an existing dam that does not significantly change the reservoir's storage capacity. Repair shall not be deemed to apply to routine maintenance not affecting the safety of the structure.

Reservoir means any basin which contains or will contain water impounded by a dam.

Spillway crest means the lowest level at which water can flow over or through the spillway.

Storage capacity means the total reservoir storage in acre-feet at the maximum water storage elevation. Eff. APR 19 1990 (Auth: HRS 179D-6) (Imp: HRS §179D-3)

§13-190-3 Exempt structures. Structures exempt from these rules include:

- (1) Highways and roadfills (except those designed or modified with the purpose of impounding water for uses other than flood detention);
- (2) Dams smaller than those defined in section 13-190-2.
- (3) Dams for which no loss of human life is expected and damage will occur only to the owner's property in the event of failure of the dam;
- (4) Refuse embankments (e.g., solid waste disposal facilities); and
- (5) Structures that store water only below the lowest point of the natural ground, unless an outlet works is constructed to develop water.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-4 Violations; penalties. Any person violating any provision of this chapter shall be liable for a civil penalty not to exceed \$500 for each day during which said violation continues. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-8)

§13-190-5 Administrative and judicial review. Any person aggrieved or adversely affected by an order or action of the board is entitled to administrative and judicial review in accordance with chapter 91, HRS. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-7)

SUBCHAPTER 2

CONSTRUCTION, ENLARGEMENT, REPAIR, ALTERATION,

OR REMOVAL OF DAMS AND RESERVOIRS

§13-190-20 Construction or enlargement of dam or reservoir. (a) No person shall construct any dam or reservoir or enlarge any dam or reservoir until an application to undertake the work has been filed and written approval of the construction plans and specifications is obtained from the board.

(b) A separate application shall be filed with the board for each reservoir and dam.

(c) Each application shall be made on forms furnished by the department and shall include the following:

- (1) Name and address of the applicant;
- (2) Name and address of the owner or owners of the land upon which the works are to be constructed or enlarged, and a legal description of the land;
- (3) Description of the location, type, size, and height of the proposed dam and reservoir and appurtenant works;
- (4) Storage capacity and reservoir surface areas for maximum water storage elevation and design water level;
- (5) Plans for any permanent instrument installations in the dam;
- (6) Area of the drainage basin, rainfall and streamflow records, and flood-flow records and estimates (as accurately as may be readily obtained);
- (7) Relevant construction drawings, plans, and specifications;
- (8) Proposed times of commencement and completion of the proposed activity;
- (9) Name and address of the person who prepared the plans and specifications;
- (10) Name and address of the person who will construct or enlarge the proposed dam or reservoir and appurtenant works; and
- (11) Other information as may be necessary for the board to determine the merits of the proposed construction or enlargement of the dam or reservoir and appurtenant works, including any hazards to the public health, safety, or welfare, and the desirability of issuing a permit.

(d) A non-refundable filing fee of \$25 shall accompany each application; provided that no fee shall be required of any federal, state, or county agency. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-21 Repair or alteration of dam, reservoir, or appurtenant works; removal of dam or reservoir. (a) Before commencing the repair or alteration of an existing dam, reservoir, or appurtenant works, or the alteration or removal of a dam or reservoir so that it no longer constitutes a dam or reservoir as defined in this chapter, the owner shall file an application for the work and secure the written approval of the board; provided that owners proposing routine maintenance not affecting the safety of the structure are exempted from this requirement.

(b) Each application shall include such pertinent information and data concerning the dam, reservoir, or appurtenant works as may be required by the board, as follows:

- (1) Proposed times of commencement and completion of remedial construction;
- (2) Names and addresses of applicant and contractor;
- (3) Changes which the work covered in the application is proposed to effect, with appropriate references to the existing dam or reservoir;
- (4) Relevant construction plans and specifications; and
- (5) Other information appropriate for a thorough consideration of the safety of such work, as may be required by the board.

(c) A non-refundable application fee of \$25 shall accompany each application; provided that no fee shall be required of any federal, state, or county agency.

(d) The requirements of this section may be waived where appropriate. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-22 Supervision of plans preparation and construction inspection. An engineer shall be in charge of the preparation of all plans and specifications for the initial construction, enlargement, alteration, repair, or removal of dams and

reservoirs and of the inspection of the construction. The engineer may be assisted by other specialists as required. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-23 Approval of plans and specifications.

(a) The board shall act upon an application and shall take into consideration the:

- (1) Cost and magnitude of the project;
- (2) Engineering and physical features involved;
- (3) Existing conditions; and
- (4) Public interest affected.

(b) If an application is incomplete, it shall be returned to the applicant. The application shall be corrected and returned to the board within 60 days or such further time as may be given by the board in order to retain its validity. If the application is not returned within the required time limit, it shall be deemed automatically rejected.

(c) If the construction, alteration, or repair of a dam or reservoir is not commenced within five years of the date of approval of the application, the board's approval shall be deemed automatically void.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-24 Revocation of approval.

(a) An approval of the plans and specifications for any construction, enlargement, alteration, repair, or removal of any dam or reservoir or its appurtenant works may be revoked in whole or in part for any:

- (1) Material false statement in the application or in any report or statement of fact required pursuant to this chapter;
- (2) Violation of this chapter; or
- (3) Violation of the approved plans and specifications.

(b) In any proceeding for revocation, the board shall give prior written notice to the affected owner of the facts or conditions which warrant the action and provide the owner an opportunity for a hearing.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

SUBCHAPTER 3

CONSTRUCTION, INSPECTION, AND COMPLETION

§13-190-30 Inspection during progress of work.

(a) During the construction, enlargement, repair, alteration, or removal of any dam or reservoir, the owner shall:

- (1) Perform, at its own expense, work or tests necessary to insure proper compliance with the approved plans and specifications;
- (2) Provide adequate supervision by an engineer during construction; and
- (3) Provide any information requested by the board to determine that conformity with the approved plans and specifications is being achieved.

The department may make, through its own engineers or by consulting engineers of its selection, periodic inspections at State expense for the purpose of ascertaining compliance with the approved plans and specifications.

(b) After any tests, inspections, or investigations, or at any time as the work progresses, or at any time prior to completion of the project, the department may order the owner to revise, modify, or change its plans and specifications for safety reasons; provided that the owner may request a hearing before the board to review the order.

(c) If conditions are revealed which will not permit the construction of a safe dam or reservoir, the board's approval for construction shall be revoked.

(d) If at any time during the construction, enlargement, repair, or alteration of any dam or reservoir the department finds that the work is not being done in accordance with approved plans and specifications, it shall give a written notice thereof to the owner. The written notice shall state the specific violations and shall order the immediate compliance with the approved plans and specifications. The department may order that no further work be done until such compliance has been effected and confirmed by the department or its designated representative.

(e) If the owner fails to comply with the approved plans and specifications the board shall take action to revoke its approval and compel the owner to

remove the incomplete structure sufficiently to eliminate any safety hazard to life or property.
Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-31 Completion of new or enlarged dam or reservoir. (a) Upon completion of a new or enlarged dam or reservoir, the owner shall provide written notification of completion to the department signed by the responsible engineer supervising construction for the owner, certifying that the project was constructed in conformance with the approved plans and specifications, accompanied by supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually constructed, which shall include a record of the following:

- (1) All geological boreholes and grout holes and grouting;
- (2) Permanent location points, benchmarks, and instruments embedded in the structure;
- (3) Tests of concrete or other material used in the construction of the dam and reservoir;
- (4) Seepage flows and embedded instrument readings after a year of operation; and
- (5) Construction problems encountered and solutions implemented.

(b) Supplementary drawings and descriptive matter for the enlargement of a dam or reservoir shall only apply to any new construction not already shown in the original plans on file with the department.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-32 Completion of repair or alteration of dam or reservoir. (a) Upon completion of the repair or alteration of any dam or reservoir, the owner shall provide a notice of completion to the department and thereafter shall file with the department a completion report, signed by the responsible engineer supervising the work for the owner, attesting that the repairs or alterations were completed in accordance with the approved plans and specifications, accompanied by supplementary drawings or descriptive matter showing or describing the dam or reservoir as actually repaired or altered, together with all applicable maps, data,

records, and information required by the department.
Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-33 Completion of removal of dam or reservoir. (a) Upon completion of the removal of a dam or reservoir, the owner shall file with the department a report regarding the manner in which the work was performed and the conditions existing after the removal of the dam. No filing shall be required for the routine drawdown of reservoirs for normal operations and maintenance not affecting the safety of the structure.

(b) The report shall show that a sufficient portion of the dam has been removed to permit the safe flow of water down the watercourse across which the dam was situated and that adequate provisions have been made by the owner to prevent any damage downstream that may result from the remaining portion of the dam due to subsequent flooding. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179-D-6)

§13-190-34 Complaints as to unsafe conditions.

(a) Upon receipt of a written complaint alleging that the person or property of the complainant is endangered by the construction, enlargement, repairs, alterations, maintenance, or operation of any dam or reservoir, the department shall contact the owner and conduct an inspection unless the data, records, and inspection reports on file with the department are sufficiently adequate to determine whether the complaint is valid.

(b) In determining whether an existing dam or reservoir or proposed dam or reservoir constitutes or would constitute a danger to life or property, the department shall evaluate the possibility that the dam or reservoir might be endangered by overtopping, seepage, settlement, erosion, cracking, earth movement, earthquakes, and failure of bulkheads, flashboard, gates, and conduits which exist or which might occur in any area in the vicinity of the dam or reservoir.

(c) If an unsafe condition exists, the department shall notify the owner to take action necessary to render the condition safe, including breaching or removal of any dam found beyond repair.

Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-

6)

SUBCHAPTER 4

MAINTENANCE, OPERATION, AND EMERGENCY WORK

§13-190-40 Maintanance and operation. (a) Owners shall provide for the adequate and timely maintenance, operation, and inspection of their dams and reservoirs and shall be responsible for any engineering and geologic investigations which may be required to insure public safety. Owners or their agents shall keep available and in good order records of original construction and any modifications, and shall report to the department their maintenance, operation and engineering activities, including piezometric data collection and geologic investigations.

(b) The owner of a dam or reservoir or his agent shall fully and promptly advise the department of any sudden or unprecedented flood or unusual or alarming circumstance or occurrence existing or anticipated which may adversely affect the dam or reservoir.

(c) Upon reasonable notice to the owners of dams and reservoirs, the department, from time to time, but not less than once every five years, either with its own engineers or by consulting engineers of its selection, shall make inspections of dams and reservoirs at State expense for the purpose of determining their safety, but shall require owners to perform at their expense work reasonably required to disclose information sufficient to enable the department to determine conditions of dams and reservoirs in regard to their safety, including the installation, maintenance, and monitoring of necessary instrumentation. Eff. APR 19 1990 (Auth: HRS §179D-6) (Imp: HRS §179D-6)

§13-190-41 Emergency work. (a) In case of an emergency where the department declares that repairs, breaching of the dam, or other actions are immediately necessary to safeguard life and property, the work shall be initiated by the owner, or by the department through its authorized agent at the owner's expense if the owner fails to do so. The department shall be notified at once of any emergency repairs or other work instituted by the owner.

(b) Where appropriate, the repairs, breaching, or other emergency work shall conform to an order issued by the department.

(c) The following emergency actions not impairing the safety of the dam may be taken by the owner without prior notification or approval of the department:

- (1) Stockpiling materials such as riprap, earthfill, sand, sandbags, and plastic sheeting;
- (2) Lowering the reservoir level by making releases through the outlet or a gated spillway, by pumping or by siphoning; however, when large releases are to be made, the department shall be notified. Lowering the water level by excavating the spillway or embankment is prohibited unless failure is imminent. In this situation, the department shall be notified as soon as reasonably possible of any emergency condition that exists and any emergency action taken;
- (3) Armoring eroded areas by placing sandbags, riprap, plastic sheeting, or other available material;
- (4) Plugging leakage entrances on the upstream slope;
- (5) Increasing freeboard by placing sandbags or temporary earthfill on the dam;
- (6) Diverting floodwaters to prevent them from entering the reservoir basin;
- (7) Constructing training berms to control floodwaters;
- (8) Placing sandbag ring dikes around boils at the downstream toe to provide back pressure; and
- (9) Removing obstructions from outlet or spillway flow areas. Eff. APR 19 1990 (Auth: HRS §179D-6) (IMP: HRS §179D-6)

§13-190-42 Emergency preparedness plan. (a) Owners of high hazard dams shall prepare, maintain, and implement an emergency preparedness plan for each dam or reservoir for immediate defensive action to alert and evacuate the affected population and to mitigate damages to property. The emergency preparedness plan shall contain as a minimum the following:

- (1) The identification of equipment, labor, and material available for implementation of the plan;
 - (2) A notification procedure for informing the department and the civil defense office of the affected county;
 - (3) A dam failure inundation map.
 - (4) A procedure for warning the affected population if failure of the dam is imminent.
- (b) The owner shall submit a copy of the emergency preparedness plan to the affected county civil defense office and other emergency coordinators involved in the plan for review.

(c) The owner shall annually review and update the emergency preparedness plan as necessary.

Eff. APR 19 1990 (Auth: HRS §179D-6) (IMP: HRS §179D-6)

DEPARTMENT OF LAND AND NATURAL RESOURCES

Chapter 13-190, Hawaii Administrative Rules, on the Summary Page dated October 27, 1989 was adopted on October 27, 1989, following public hearings held on Oahu on April 24, 1989; on Hawaii on April 25, 1989; on Maui on April 26, 1989; and on Kauai on April 27, 1989; after public notice was given in the Honolulu Star Bulletin, Hawaii Tribune Herald, Maui News and the Garden Island on March 28, 1989.

The adoption of chapter 13-190 shall take effect

ten days after filing with the Office of the Lieutenant Governor.

William W. Paty
Chairperson and Member
Board of Land and Natural Resources

Member
Board of Land and Natural Resources

APPROVED:

John Waihee
Governor
State of Hawaii

Dated: _____

APPROVED AS TO FORM:

Deputy Attorney General

Filed

"The Hawaii Dam and Reservoir Safety Act of 2007"

**CHAPTER 179D, HRS
DAMS AND RESERVOIRS**

Part I. General Provisions Section

- 179D-1 Short title
- 179D-2 Declaration of purpose
- 179D-3 Definitions
- 179D-4 Liability for damages
- 179D-5 Repealed
- 179D-6 General powers and duties of the board of land and natural resources
- 179D-7 Administrative and judicial review
- 179D-8 Violations; penalties
- 179D-9 Enactment of rules

Part II. Dam and Reservoir Safety

- 179D-21 Certificate of approval to impound
- 179D-22 Entry upon property
- 179D-23 Injunctive relief
- 179D-24 Emergency actions
- 179D-25 Establishment of dam and reservoir safety special fund
- 179D-26 Liens
- 179D-27 Dams and reservoirs completed prior to July 6, 2007
- 179D-28 Dams and reservoirs under construction, enlargement, repair, alteration, or removal before July 6, 2007
- 179D-29 Annual report
- 179D-30 Dam and reservoir owners; general requirements and responsibilities

PART I. GENERAL PROVISIONS

Note: Sections 179D-1 to 179D-9 designated as Part I by L 2007, c 262, §2.

§179D-1 Short title. This chapter shall be known and may be cited as the "Hawaii Dam and Reservoir Safety Act of 2007". [L 1987, c 199, pt of §1; am L 2007, c 262, §3]

§179D-2 Declaration of purpose. The purpose of this chapter is to provide for the inspection and regulation of construction, enlargement, repair, alteration, maintenance, operation, and removal of all dams or reservoirs to protect the health, safety, and welfare of the citizens of the State by reducing the risk of failure of the dams or reservoirs. The legislature finds and declares that the inspection and regulation of all dams or reservoirs are properly a matter of regulation under the police powers of the State, unless specifically exempted.

The board shall have jurisdiction of all dams and reservoirs until the department has completed its statewide inspections and has established and implemented rules and criteria for a five year dams and reservoirs inspection and classification processes and the board declares which dams or reservoirs are to be removed from its jurisdiction. [L 1987, c 199, pt of §1; am L 2007, c 262, §4]

§179D-3 Definitions. The following terms, whenever used and referred to in this chapter, shall have the following meanings, unless a different meaning clearly appears in the context:

"Application approval" means authorization in writing issued by the board to an owner who has applied to the board for permission to construct, enlarge, repair, alter, remove, maintain, or operate a dam or reservoir and that specifies the conditions or limitations under which work is to be performed by the owner or under which approval is granted.

"Appurtenant works" or "appurtenance" means any structure, such as spillways in the dam or separate therefrom, the reservoir and its rim, low level outlet works, and water conduits, such as tunnels, pipelines, or penstocks, through the dam or its abutment.

"Board" means the board of land and natural resources.

"Certificate of approval to impound" means authorization in writing issued by the board to an owner of an existing dam or reservoir, or an owner who has completed construction, enlargement, repair, or alteration of a dam or reservoir, that specifies the conditions or limitations under which the dam or reservoir is to be maintained and operated.

"Dam" means any artificial barrier, including appurtenant works that impounds or diverts water and that:

- (1) Is twenty-five feet or more in height from the natural bed of the stream or watercourse measured at the downstream toe of the barrier, or from the lowest elevation of the outside limit of the barrier if it is not across a stream channel or watercourse to a maximum water storage elevation;
- (2) Has an impounding capacity at maximum water storage elevation of fifty acre-feet or more. This chapter shall not apply to any artificial barrier that is less than six feet in height regardless of storage capacity or that has a storage capacity at maximum water storage elevation less than fifteen acre-feet regardless of height; or
- (3) Meets additional criteria or is specifically exempt as determined pursuant to rules adopted by the board.

"Department" means the department of land and natural resources.

"Emergency" includes but is not limited to breaches and all conditions leading to or causing a breach, overtopping, or any other condition in a dam or reservoir and its appurtenant works that may be construed as unsafe or threatening to life and property.

"Enlargement" means any change in or addition to an existing dam or reservoir that raises or may raise the water storage elevation of the water impounded by the dam or reservoir.

"Hazard potential" means the possible adverse incremental consequences that result from the release of water or stored contents due to the failure of the dam or reservoir or the misoperation of the dam, reservoir, or appurtenances. The hazard potential classification of a dam or reservoir shall not reflect in any way on the current condition of the dam or reservoir and its appurtenant works, including the dam's or reservoir's safety, structural integrity, or flood routing capacity.

"High hazard" means a dam's or reservoir's failure will result in probable loss of human life.

"Low hazard" means a dam's or reservoir's failure will result in no probable loss of human life and low economic loss or environmental loss, or both. Economic losses are principally limited to the owner's property.

"Operator" means any person who controls, manages, maintains, or supervises the condition and functions of a dam or reservoir.

"Owner" means any person who has a right, title, or interest in or to the dam or reservoir or to the property upon which the dam, reservoir, or appurtenant works is located or proposed to be located.

"Person" means any natural person, partnership, firm, association, organization, corporation, county, county authority, trust, receiver or trustee, limited liability company, limited liability partnership, or company, or any state department, agency, or political subdivision, or any other commercial or legal entity. Whenever used in a section prescribing and imposing a penalty or sanction, the term "person" includes the members of an association or organization, and the officers of a corporation, company, county, or county authority.

"Physical clear access" means a roadway or path that allows timely access for inspection to a dam, reservoir, and its appurtenant works. If by a roadway, the roadway shall be maintained in an accessible condition by a four-wheel drive vehicle even during inclement weather conditions.

"Probable" means more likely than not to occur; reasonably expected; realistic.

"Removal" means complete or partial elimination of the dam or reservoir embankment or structure to restore the approximate original topographic contours of the valley.

"Reservoir" means any basin that contains or will contain water impounded by a dam, including appurtenant works.

"Significant hazard" means a dam's or reservoir's failure will result in no probable loss of human life but can cause major economic loss, environmental damage, disruption of lifeline facilities, or impact other concerns. Significant hazard potential classification dams or reservoirs are often located in predominantly rural or agricultural areas but could be located in areas with population and significant infrastructure. [L 1987, c 199, pt of §1; am L 2007, c 262, §5]

§179D-4 Liability for damages.

- (a) Nothing contained in this chapter shall be construed to constitute a waiver of any immunity of the State and no action or failure to act under this chapter shall be construed to create any liability in the State, board, department, or its officers or employees, for the recovery of damages caused by the action or failure to act.
- (b) Nothing in this chapter and no order, action, or advice of the State, board, department, or any representative thereof, 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 a dam or reservoir; provided that an owner or operator of a dam or reservoir shall not be liable for damages as a result of only natural causes such as earthquakes of an average recurrence interval of one thousand years, hurricanes, or extraordinary rains of an average recurrence interval in excess of two hundred fifty years.
- (c) The State assumes no ownership obligations, responsibilities, or liability for any action pursuant to section 179D-24. [L 1987, c 199, pt of §1; am L 2007, c 262, §6]

§179D-5 REPEALED. L 2007, c 262, §11.

§179D-6 General powers and duties of the board of land and natural resources.

- (a) All dams or reservoirs in the State shall be under the jurisdiction of the board until the board declares which dams or reservoirs are to be removed from its jurisdiction.
- (b) The board shall administer the dam and reservoir safety program established by this chapter. In carrying out this chapter, the board shall cooperate, advise, consult, contract, and enter into cooperative agreements with the United States government or any of its agencies, other state agencies, and the county governments or any of their agencies. In the performance of its duties, the board shall:
 - (1) Establish by rules adopted under chapter 91, policies, requirements, or standards governing the design, construction, operation, maintenance, enlargement, alteration, repair, removal, and inspection of dams, reservoirs, and appurtenant works for the protection of life and property from structural failure of dams and reservoirs;
 - (2) Conduct investigations and the collection of data, including technological advances made in dam and reservoir safety practices elsewhere, as may be needed for the proper review and study of the various features of the design, construction, repair, removal, inspection, operation, maintenance, alteration, and enlargement of dams, reservoirs, and appurtenant works. The board may require submittal of reports of investigations from all owners;
 - (3) Conduct investigations and require reports from all owners to be made from time to time, including watershed investigations and studies, as may be necessary to keep abreast of developments affecting stream runoff and as required to facilitate its decisions;
 - (4) Be authorized to enter upon such private property of the dam or reservoir as may be necessary in making, at the owner's expense, any investigation or inspection required or authorized by this chapter. The entry shall not constitute a cause of action in favor of the owner of the land, except for damages resulting from wilful acts or negligence by the board or its agents;

- (5) Require the owners to apply for, and obtain from the board written approval of plans and specifications on the construction of any new dam or reservoir or the enlargement of any dam or reservoir prior to commencement of any work;
- (6) Require the owners to file an application and secure the written approval of the board before commencing the repair, alteration, or removal of a dam or reservoir, including the alteration or removal of a dam or reservoir so that it no longer constitutes a dam or reservoir as defined in this chapter. Repairs shall not be deemed to apply to routine maintenance not affecting the safety of the structure;
- (7) Require owners to secure the written approval of the board to impound water;
- (8) Require fees to cover the board's costs in carrying out the administration of dam and reservoir safety;
- (9) Cooperate with all public and private agencies created for the purpose of enhancing dam and reservoir safety activities and training, assist these organizations and agencies in coordinating the use of their facilities, and participate in the exchange of ideas, knowledge, and data with these organizations and agencies;
- (10) Prepare, publish, and issue printed pamphlets, bulletins, or advisories, or conduct training as the board deems necessary for the dissemination of information to the public;
- (11) Appoint and remove agents and employees, including hearing officers, specialists, and consultants, as necessary to carry out the purposes of this chapter, who may be engaged by the board without regard to the requirements of chapter 76;
- (12) Catalog and maintain an inventory of all regulated dams and reservoirs in the State pursuant to this chapter without regard to chapter 91;
- (13) Establish similar or consistent hazard potential classifications in conjunction with other applicable state or federal guidelines for all regulated dams and reservoirs in the State pursuant to this chapter without regard to chapter 91;
- (14) Examine and approve or disapprove applications for approval of construction, enlargement, repair, alteration, or removal of a dam or reservoir and applications for certificates of approval to impound;
- (15) Order the suspension, revocation, or both, of any application approval or certificate of approval to impound for any act or failure to comply with this chapter or with any rules or orders adopted pursuant to this chapter, or with any of the conditions contained in or attached to the application approval or certificate of approval to impound;
- (16) Issue orders requiring the adoption by an owner of remedial measures necessary for the safety of life or public or private property, or for carrying out this chapter or rules issued under this chapter;
- (17) Order the immediate cessation of any act that is started or continued without an application approval or certificate of approval to impound as required by this chapter;

- (18) Enter private property and immediately take actions necessary to provide protection to life or property at the owner's expense, including removal of the dam or reservoir. The entry shall not constitute a cause of action in favor of the owner of the land, except for damages resulting from wilful acts or gross negligence by the board or its agents;
- (19) Recover from the owner, in the name of the State, the expenses incurred in taking any action required by the owner of the dam or reservoir in the same manner debts are recoverable by law;
- (20) Assess civil penalties for violation of this chapter or any rule or standard adopted or order issued by the board pursuant to this chapter;
- (21) Place liens, as needed, on the owner's property, to be collected as delinquent taxes against the lands and property, if the owner neglects to pay any costs, expenses, or penalties chargeable to the owner under this chapter or any rule, order, or condition adopted, issued, or required under this chapter;
- (22) With the assistance of the attorney general, institute and prosecute all court actions that may be necessary to obtain the enforcement of any order issued by the board in carrying out this chapter; and
- (23) Take any and all other actions as may be necessary to carry out this chapter. [L 1987, c 199, pt of § 1; am L 2007, c 262, §7]

§179D-7 Administrative and judicial review.

- (a) The findings and order of the board, and the board's approval or disapproval of an application issued by the State are final, conclusive, and binding upon all owners, state agencies, and other government agencies, regulatory or otherwise, as to the safety of design, construction, enlargement, repair, alteration, removal, maintenance, and operation of any dam or reservoir. The board's approval of an application or a certificate of approval to impound shall not be considered final if it can be demonstrated to the board that the board's approval of the relevant application or certificate of approval was based on one or more misrepresentations.
- (b) Any person who is aggrieved or adversely affected by an order or action of the board shall be entitled to administrative and judicial review in accordance with chapter 91; provided that the order or action shall remain in force until modified or set aside on appeal. [L 1987, c 199, pt of § 1; am L 2007, c 262, §8]

§179D-8 Violations; penalties.

- (a) Except as otherwise provided by law, the board may set, charge, and collect administrative penalties and recover administrative fees and costs, including attorney's fees and costs, or bring legal action to recover administrative penalties, fees, and costs, including attorney's fees and costs, or payment for damages or for the cost to correct damages resulting from a violation of this chapter or any rule, order, or condition adopted, issued, or required under this chapter. The administrative penalty shall not exceed \$25,000 per day of a violation, and each day during which the violation continues shall constitute an additional, separate, and distinct violation. The board shall effectuate rules, procedures, and fee schedules to carry out the purposes of this section.

- (b) Any person who negligently or after written notice to comply, violates this chapter or any rule, order, or condition adopted, issued, or required under this chapter, or knowingly obstructs, hinders, or prevents the department's agents or employees from performing duties under this chapter, shall be guilty of a class C felony, and upon conviction thereof, shall be punished as follows:
 - (1) For a first conviction, by a mandatory fine of not less than \$2,500 but not more than \$25,000 per day of violation, imprisonment, or both; and
 - (2) For a second or subsequent conviction, by a mandatory fine of not less than \$5,000 but not more than \$50,000 per day of violation, imprisonment, or both.
- (c) Any criminal action against a person for any violation of this chapter shall not preclude the State from pursuing civil legal action to recover administrative penalties, fees, and costs against that person. Any civil action against a person to recover administrative penalties, fees, and costs for any violation of this chapter or any rule, order, or condition adopted, issued, or required under this chapter shall not preclude the State from pursuing any criminal action against that person.
- (d) With the assistance of the attorney general, the board may seek an injunction and damages in the enforcement of this chapter.
- (e) All penalties, fees, and costs collected pursuant to this section or rules adopted by the board pursuant to this chapter, shall be deposited in the dam and reservoir safety special fund. [L 1987, c 199, pt of §1; am L 2007, c 262, §9]

§179D-9 Enactment of rules. The department shall adopt the necessary rules not later than one and one-half years after July 1, 2007. [L 1987, c 199, pt of §1; am L 2007, c 262, §10]

[PART II.] DAM AND RESERVOIR SAFETY

[§179D-21] Certificate of approval to impound. No owner of a dam or reservoir shall impound water without a valid certificate of approval to impound water at the dam or reservoir. [L 2007, c 262, pt of §1]

[§179D-22] Entry upon property.

- (a) The department shall have the right to direct and conduct investigations as it may reasonably deem necessary to carry out its duties as prescribed in this part. For this purpose, the agents or employees of the department or any authorized representatives may enter at reasonable times, without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier dealt with in this chapter; provided that if an emergency situation arises as determined by the department, the agents or employees of the department, or any authorized representatives shall have the right to enter without prior notice, any property, public or private, for the purpose of investigating the condition, construction, or operation of any dam, reservoir, or other artificial barrier subject to this chapter, and to take any remedial actions, without a search warrant or liability for trespass.
- (b) It shall be unlawful for any person to refuse entry or access to any authorized representative of the department who requests entry for purposes of inspection and who presents appropriate credentials. It shall also be unlawful to obstruct, hamper, or interfere with any representative while in the process of carrying out the representative's official duties.
- (c) Notwithstanding any other provision of law to the contrary, the board and its agents, engineers, and other employees, for the purposes of enforcing this chapter, may enter upon any land or water in the State that is the subject of an inspection, investigation, or remedial actions without a search warrant or liability for trespass. [L 2007, c 262, pt of §1]

[§179D-23] Injunctive relief. Whenever in the judgment of the department any person has engaged in or is about to engage in any act or practice that constitutes or will constitute an unlawful action under this chapter, the department may apply to the circuit court of the county in which the unlawful act or practice has been or is about to be engaged in, or in which jurisdiction is appropriate, for an order enjoining the act or practice, or for an order requiring compliance with this chapter. Upon a showing by the department that a person has engaged in or is about to engage in any unlawful act or practice, a permanent or temporary injunction, restraining order, or other order shall be granted without the necessity of showing lack of an adequate remedy at law. [L 2007, c 262, pt of §1]

[§179D-24] Emergency actions.

- (a) If, in the opinion of the department, conditions of any dam or reservoir are so dangerous to the health and safety of life or property as to not permit time for issuance and enforcement of an order relative to construction, modification, maintenance, or repair of the dam or reservoir, or the dam or reservoir is threatened by any large flood or other natural disaster, the department may immediately employ remedial measures necessary to protect life and property.
- (b) The department shall provide coordination and assistance to the proper state or county agency or agencies to maintain control of any dam or reservoir that, pursuant to subsection (a), has been determined to be dangerous to life or property until the dam or reservoir is deemed safe, or until any emergency conditions that precipitated taking control of the dam

- or reservoir, pursuant to subsection (a), have been abated. The department may determine the proper time at which to relinquish control of the dam or reservoir.
- (c) Any necessary and reasonable costs and expenses incurred by the department in fulfilling the duties mandated by subsections (a) and (b) in connection with a remedial or emergency action shall be recoverable by the department from the owner of any dangerous or threatened dam or reservoir.
 - (d) Any owner failing or refusing, after written notice has been given, to pay the reasonable costs and expenses incurred by the department pursuant to subsection (c) shall be, upon complaint by the department to the attorney general, subject to reasonable attorney fees incurred in the recovery of the costs and expenses.
 - (e) All moneys collected by the department pursuant to subsection (c) shall be credited to the dam and reservoir safety special fund created in section 179D-25.
 - (f) If a condition arises that in the opinion of the department may pose a danger to the health and safety of persons or property and sufficient time permits, the board may issue orders reciting the existence of the condition and require any actions the board deems necessary. Any person to whom an order is directed, may challenge the order, but shall immediately comply with the order, pending disposition of the person's challenge. The board shall give precedence to a hearing on the challenge over all other pending matters.
 - (g) The legislature finds and declares that emergency actions under this section are in the public interest and for the public health, safety, and general welfare of the State, and authorizes the board to take any necessary actions. [L 2007, c 262, pt of §1]

[§179D-25] Establishment of dam and reservoir safety special fund.

- (a) There is established in the department a special fund, to be designated the dam and reservoir safety special fund. The fund shall be administered by the board. The following shall be deposited into the dam and reservoir safety special fund:
 - (1) Appropriations by the legislature;
 - (2) All fees and administrative charges collected under this chapter or any rule adopted thereunder;
 - (3) Moneys collected as fines or penalties imposed under this chapter or any rule adopted thereunder;
 - (4) Moneys derived from public or private sources to benefit dam and reservoir safety;
 - (5) Moneys collected in full or partial satisfaction of liens created under this chapter;
 - (6) Any moneys collected from the sale of retail items by the department relating to dam and reservoir safety;
 - (7) Any other moneys collected pursuant to this chapter or any rules adopted thereunder; and
 - (8) Moneys derived from interest, dividends, or other income from other sources.
- (b) The board may expend moneys from the dam and reservoir safety special fund for:
 - (1) Conducting investigations, research, and the collection of data, including technological advances made in dam and reservoir safety practices elsewhere;
 - (2) Conducting investigations, monitoring, and inspection programs and activities, and enforcement;
 - (3) Preparing and disseminating information to the public concerning activities authorized under this chapter;
 - (4) Training and providing educational activities for department staff and dam and reservoir owners;
 - (5) Employing any necessary remedial measures to protect persons and property in accordance with this chapter;
 - (6) The costs and expenses of the coordination, assistance, control, regulation, abatement, and inspection provided by this chapter; and

- (7) Other purposes for the administration of the dam and reservoir safety program under this chapter or any rule adopted thereunder, including but not limited to funding permanent or temporary positions that may be appointed without regard to chapter 76.

The board shall provide coordination and assistance to the proper state or county agency or agencies to control any dam, reservoir, and appurtenances subject to section 179D-24 until they have been rendered safe or the emergency has terminated.

- (c) Moneys on balance in the dam and reservoir safety special fund at the close of each fiscal year shall remain in that fund and shall not be transferred or lapsed to the credit of the general fund. [L 2007, c 262, pt of § 1]

[§179D-26] Liens.

- (a) Costs of construction, enlargement, repair, alteration, or removal work done to render a dam, reservoir, or appurtenances safe shall constitute a statutory lien against all property of the owner. Notwithstanding any other law to the contrary, the lien shall be considered prior and superior to all other mortgages, liens, or encumbrances of record even if those other mortgages, liens, or encumbrances were filed before the lien pursuant to this subsection becomes due.
- (b) Liens pursuant to subsection (a) may be perfected and foreclosed in advance of construction, enlargement, repair, alteration, or removal or after completion of the construction, enlargement, repair, alteration, or removal. If perfected in advance, the lien shall be perfected by the filing of an affidavit of the board setting forth the estimate of the costs of construction, enlargement, repair, alteration, or removal within the county in which the dam or reservoir is located in the same manner as prescribed for mechanic's liens. When the affidavit is filed, the amount set forth in the affidavit shall be a lien in that amount against all property of the owner. If the actual cost of construction, enlargement, repair, alteration, or removal exceeds the estimated cost, the board may amend the affidavit setting forth the additional estimated cost. If the estimated cost exceeds the actual costs of construction, enlargement, repair, alteration, or removal at completion, the board shall file an amended affidavit at completion. If a lien is perfected in advance and the construction, enlargement, repair, alteration, or removal is not commenced within two years from the date of perfection, the lien shall be void. The board shall file a satisfaction of lien upon payment of the costs of construction, enlargement, repair, alteration, or removal by the owner. [L 2007, c 262, pt of § 1]

[§179D-27] Dams and reservoirs completed prior to July 6, 2007.

- (a) Every owner of a dam or reservoir that falls within the definition of a dam or reservoir in this chapter and was completed prior to July 6, 2007 shall file with the board a separate application for a certificate of approval to impound and any other supporting information as required by the board for each dam or reservoir. Each application shall also be accompanied by application fees as required by the board. During the application process for a certificate of approval to impound, the owner or operator of a dam or reservoir may continue to impound water, unless the board determines that the dam or reservoir may pose a danger to the health and safety of persons or property.
- (b) The board shall give notice to file an application for certificate of approval to impound to owners of dams or reservoirs who have failed to file such applications as required by this chapter.
- (c) The notice provided for in this section shall be delivered by certified mail to the owner at the owner's last address of record in the office of the county tax assessor in which the dam or reservoir is located. The mailing shall constitute service.

- (d) The board shall make inspections of any dams and reservoirs, unless the data, records, and inspection reports on file with it are found adequate to enable a determination of whether or not the certificate of approval to impound should be issued.
- (e) The board shall require owners of the dams and reservoirs to perform at their expense any work or tests as may reasonably be required to disclose information sufficient to enable the board to determine whether to issue certificates of approval to impound, or to issue orders directing further work at the owner's expense necessary to safeguard life and property. For this purpose, the board may require an owner or operator to lower the water level of, or to drain, the dam or reservoir.
- (f) If, upon inspection or upon completion to the satisfaction of the board of all work that may be ordered, the board finds that the dam and reservoir are safe to impound water, a certificate of approval to impound shall be issued. The board may find that the dam or reservoir will not safely impound water and may refuse to issue a certificate of approval to impound. Upon finding that the dam or reservoir is unsafe to impound water, the board shall issue a written notice to the owner. After receipt of the notice, the owner shall no longer cause or allow the dam and reservoir to impound water. [L 2007, c 262, pt of §1]

Revision Note: "July 6, 2007" substituted for "effective date of this Act" and "the effective date of this Act" respectively.

[§179D-28] Dams and reservoirs under construction, enlargement, repair, alteration, or removal before July 6, 2007.

- (a) Any dam or reservoir that falls within the definitions of a dam or reservoir in this chapter and which the board finds was under construction, enlargement, repair, alteration, or removal, and based on its findings not more than ninety per cent constructed, enlarged, repaired, altered, or removed on July 6, 2007, except as provided in subsection (b), shall be subject to the same provisions in this section as a dam or reservoir commenced after that date. Every owner of a dam or reservoir subject to this section shall file an application with the board for the board's written application approval of the plans and specifications for the dam or reservoir.
- (b) Construction, enlargement, repair, alteration, or removal work on the dam or reservoir may proceed; provided an application for approval of the plans and specifications is filed; until:
 - (1) An application approval is received by the owner approving the dam or reservoir; or
 - (2) An order is received by the owner specifying how the construction, enlargement, repair, alteration, or removal must be performed to render the dam or reservoir safe.

After receipt of an application approval or order specifying how construction, enlargement, repair, alteration, or removal of the dam or reservoir must be performed, work thereafter must be in accordance with the application approval or order. [L 2007, c 262, pt of §1]

Revision Note: "July 6, 2007" substituted for "effective date of this Act" and "the effective date of this Act" respectively.

[§179D-29] Annual report. The department shall submit an annual report to the governor and the legislature by January 5 of each year concerning the activities of the department relating to this chapter for the preceding fiscal year. The report shall include but not be limited to information on the following:

- (1) Approvals of plans and specifications for the construction of dams and reservoirs and for alterations, modifications, repairs, removal, and enlargements of any dams and reservoirs;
- (2) A listing of dam and reservoir safety inspections made;

- (3) Use of appropriated funds;
- (4) Rules adopted or amended;
- (5) Enforcement orders and proceedings;
- (6) Dam and reservoir failures and department evaluations of the reasons for the failure, if known; and
- (7) Any other available data regarding the effectiveness of the State's dam and reservoir safety program. [L 2007, c 262, pt of §1]

[§179D-30] Dam and reservoir owners; general requirements and responsibilities. Dam and reservoir owners subject to regulation under this chapter shall, among other general requirements and responsibilities:

- (1) Maintain an operation and maintenance plan, including an owner or operator, as the case may be, inspection and monitoring program, with written, regularly scheduled reports to the board, to maintain and keep the structure, its appurtenant works, and access in the state of repair and operating condition required by the exercise of due care, with regard for the safety of persons or property, sound and accepted engineering principles, and the rules adopted by the board;
- (2) Establish an emergency action plan for high and significant hazard potential dams and reservoirs and provide this plan to the board, state and county civil defense agencies, and other necessary parties, with regard for the safety of persons or property, sound and accepted engineering principles, and the rules adopted by the board;
- (3) Cooperate with the board's agents, engineers, and employees in carrying out this chapter;
- (4) Facilitate access by any necessary state agencies or authorized representative, to the dam, reservoir, or appurtenances. Access by a four-wheeled-drive vehicle to the dam or reservoir site, and appurtenances if required by the board, shall be maintained at all times; provided that if vehicular access to the dam or reservoir site cannot be maintained during periods of inclement weather, the dam or reservoir owner for high and significant hazard potential dams or reservoirs shall have redundant early warning systems in place, as approved by the board; and
- (5) Furnish upon request the plans, specifications, operating and maintenance data, or other information that is pertinent to the dam and reservoir structure and appurtenances as indicated in this chapter. [L 2007, c 262, pt of § 1]

Summary of Dam & Reservoir Safety Operating Expenses & Budget

Operating Expenses :	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Payroll Expenses	226,178	409,850	377,890	368,829	406,333
Other Expenses	2,224,451	876,488	332,911	527,289	672,204
Total Operating Expenses	2,450,629	1,286,338	710,801	896,118	1,078,537

Comments
FY '08 & '09 General Funds plus Fringes FY '10 & '11 DLNR Land Development SF, less Furlough amounts FY '12 Assume Land Dev. SF maintained without Furloughs
Assessments, inspections, travel costs, gage monitoring, permit review, consultant services

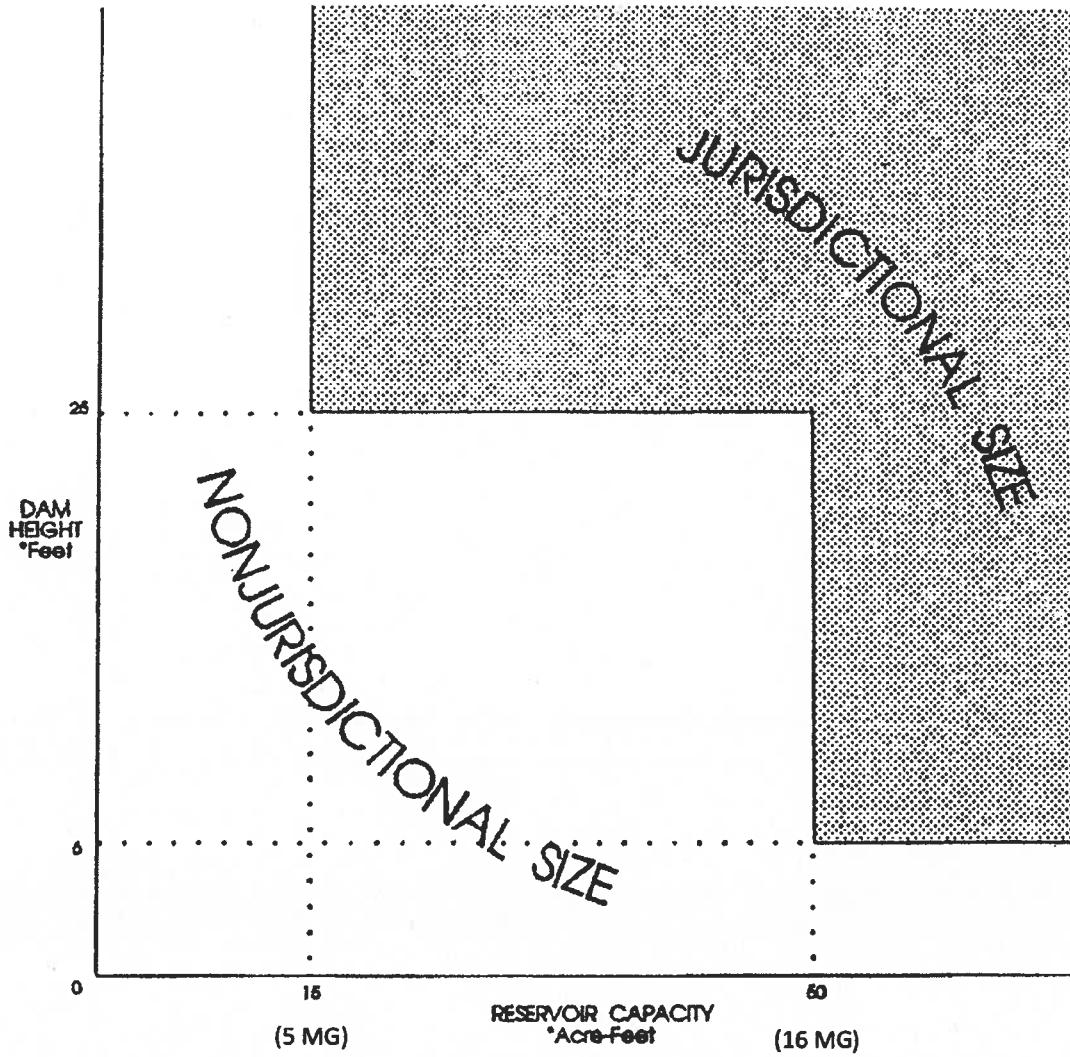
Revenues:	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012
Recurring Funding (All sources)	371,879	414,380	466,557	452,496	490,000
One-time Transfers & Appropriations	2,203,460	898,740	300,000	-	-
Estimated Fees					
Annual Fees	-	-	-	550,000	550,000
Impoundment Certificate Fees	-	-	-	10,000	10,000
Permit Fees	75	125	125	150	30,000
Total Revenue	2,575,414	1,313,245	766,682	1,012,646	1,080,000

Comments
FY '08 & '09 General Fund, & Fed. Grants FY '10 & '11 DLNR Land Dev. SF (including Furlough), & Grants FY '12 Assume Land Dev. SF (without Furloughs), & Grants
Act 118 Emergency Response Funding (carry over FY'08 & '09 Initial \$ 1.0 Million DRSSF Funding & Land Dev. SF Supplement
\$500/dam plus \$110 / foot height (less breached reservoirs) 25 Cert. to Impound apps. @ \$ 400/ea

Net Operating Amount	124,785	26,907	55,881	116,528	1,463
Dam and Reservoir Special Fund Balance	639,785	549,111	565,096	681,624	683,086

\$ 700k Reserve Goal for Emergency inspection and remediation

PROVISIONS OF HAWAII DAM SAFETY ACT
AFFECTING JURISDICTION OVER DAMS AND RESERVOIRS



Source: Guidelines for the Design and Construction
of Small Embankment Dams,
State of Hawaii, June 1992

Exhibit 8

Chart of Regulated Dams in Hawaii

Hazard * Potential Classification	Statewide ***			Kauai County **			City & County of Honolulu			Maui County			Hawaii County		
	Total Dams	State Owned	County Owned	Total Dams	State Owned	County Owned	Total Dams	State Owned	County Owned	Total Dams	State Owned	County Owned	Total Dams	State Owned	County Owned
High	121	16	17	46	8	3	16	1	2	50	2	9	9	5	3
Significant	3	2	0	1	1	0	0	0	0	1	0	0	1	1	0
Low	10	6	1	7	4	0	0	0	0	2	1	1	1	1	0
Total	134	24	18	54	13	3	16	1	2	53	3	10	11	7	3

Notes:

- * Hazard Classification is based on the Pacific Disaster Center (PDC) Inundation Studies Initiated in 2006
- ** Two Dams on Kauai are owned by both the State (DLNR) and the Kauai County (these dams are counted for both the State and the County)
- *** Lalakea Reservoir (HA-0026), E-13 Reservoir (HA-0027), Puu Ka Ele Reservoir (KA-0028), and Happy Valley Flood Prevention (MA-0125) are excluded as the dams are to be removed from jurisdiction

Summary of Fees in Proposed HAR Chapter 13-190.1:

Three fees are described in the HAR, two of which are new and one is updated from the previous rules. These fees are required for the department to continue meeting the obligations of Chapter 179D HRS and are summarized as follows:

Annual fees

Annual fee shall be five hundred dollars (\$500.00) per dam, plus one hundred ten dollars (\$110.00) per foot of height. Paid before December 31 for the following calendar year.

For Example:

<u>Height of Dam</u>	<u>Annual Fee</u>
15	\$ 2,000
25	\$ 3,000
40	\$ 4,500
50	\$ 5,500
110	\$ 11,500

- *Majority of the dams are between 24-50 feet in height. Three are above 70 feet in height (two above 100 ft). Average annual fee for the dams in the inventory is \$ 4,400 / year.*
- *Budgeted revenues would be about \$ 550,000 / year, dependant on how many dams are breached in the couple of year s. This is based on an inventory of about 125 dams.*
- *Fees to be used to supplement general program operations including staff payroll and engineering services including but not limited to dam owner technical assistance, permit reviews, owner/operator training, dam assessments, and emergency monitoring / management systems. Initially, some of the fees will be saved in order to build up an emergency response reserve for use in emergencies.*

Certificate of Approval to Impound Fee

Four hundred dollars (\$400.00) per application. Each certificate shall be valid for five years.

- *As each certificate is valid for five years, the average annual cost for this certificate is \$80/year.*
- *Fees to be used for staff inspection costs for reviewing and assessing the physical and operational condition of the dam and reservoir facility and any traveling expenses.*

Dam Permit Application fees:

An application fee equal to two per cent of the estimated cost of construction including engineering costs.

For Example:

<u>Estimate of Construction</u>	<u>2% Fee</u>
\$ 100,000	\$ 2,000
\$ 500,000	\$ 10,000
\$ 1,000,000	\$ 20,000
\$ 2,000,000	\$ 40,000
\$ 5,000,000	\$ 100,000

- Fees to be used for compensation of expenditures, primarily consisting of professional services utilized in permit review, inspection, testing, travel expenses and related costs.
- Inspection during construction if critical to ensure that the assumptions used in the design are consistent with actual conditions. Additional testing and observations may be conducted by the Department to verify these beyond those undertaken by the contractor or owner.
- Below is a summary of recent applications reviewed and the estimated costs expended by the Department.

Dam Permit Project	Estimated Construction	DLNR Expense	Status
<i>Waikoloa no. 2 - Earthquake Repairs</i>	<i>\$ 2,045,000</i>	<i>31,025</i>	<i>Construction</i>
<i>Lalakea - Dam Removal</i>	<i>+/- \$ 700,000</i>	<i>5,020</i>	<i>Closed</i>
<i>Ponoholo Dam - New Construction</i>		<i>7,105</i>	<i>In-Review</i>
<i>Opaeula No. 1 - Remediation / Spillway</i>	<i>+/- 4,000,000</i>	<i>25,838</i>	<i>Construction</i>
<i>Opaeula No. 2 - Re mediation</i>	<i>+/- 2,500,000</i>	<i>15,750</i>	<i>Design</i>