

JAN 24 2007

A BILL FOR AN ACT

RELATING TO DAM SAFETY.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF HAWAII:

1 SECTION 1. On March 14, 2006, just before dawn, Ka Loko
2 dam on the island of Kauai breached. Almost 400,000,000 gallons
3 of water -- 1,600,000 tons -- came crashing down from the Ka
4 Loko reservoir into Kilauea bay, taking trees, cars, buildings,
5 and human lives with it. It was a great human tragedy and an
6 ecological disaster.

7 The legislature finds that a subsequent investigation began
8 approximately August 1, 2006, and concluded with a report
9 published January 7, 2007: Report of the Independent Civil
10 Investigation of the March 14, 2006, Breach of Ka Loko Dam.
11 Among its findings, the report notes that a significant portion
12 of Hawaii's contemporary surface water system is made up of
13 antique earthen dams and waterways from the plantation era. The
14 majority of dams in Hawaii were developed to support the
15 sugarcane industry, but many small farmers still utilize water
16 from these old reservoirs today. While the sugar industry could
17 afford to devote significant resources to maintaining the



1 irrigation systems vital to its success, that industry is now
2 largely gone and the water systems have suffered as a result.

3 The purpose of this Act is to implement recommendations
4 from the report.

5 SECTION 2. The Hawaii Revised Statutes is amended by
6 adding a new chapter to title 12 to be appropriately designated
7 and to read as follows:

8 **"CHAPTER**

9 **HAWAII DAM AND RESERVOIR SAFETY**

10 **PART I. GENERAL PROVISIONS**

11 **§ -1 Short title.** This chapter shall be known and may
12 be cited as the "Hawaii Dam and Reservoir Safety Act of 2007".

13 **§ -2 Declaration of purpose.** (a) The purpose of this
14 chapter is to provide for governing the design, construction,
15 operation, maintenance, enlargement, alteration, and repair of
16 dams, reservoirs, and appurtenant works in the State.

17 (b) This chapter shall not apply to the design and
18 construction of dams, reservoirs, and appurtenant works that
19 already existed on February 1, 2007, but shall apply to their
20 operation, maintenance, enlargement, alteration, repair, and
21 removal.



1 (c) This chapter shall not apply to any artificial barrier
2 that is less than six feet in height regardless of storage
3 capacity, or that has a storage capacity at maximum water
4 storage elevation less than fifteen acre-feet regardless of
5 height, unless the barrier, due to its location or other
6 physical characteristics, is a high hazard or moderate hazard
7 potential dam.

8 **§ -3 Definitions.** As used in this chapter unless
9 otherwise provided:

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

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

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



1 "Authorization" means written acknowledgement from the
2 department to proceed with proposed actions.

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

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

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

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

17 (2) Has an impounding capacity at maximum water storage
18 elevation of fifty acre-feet or more.

19 "Dam rehabilitation loan program" means a low interest
20 revolving dam rehabilitation loan program.

21 "Day" means calendar days, including Saturdays, Sundays,
22 and holidays.



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

3 "Design water level" means the maximum water elevation,
4 including the flood surcharge, which a dam is designed to
5 withstand.

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

10 "Engineer" means a qualified professional engineer who has
11 a background in civil engineering and:

- 12 (1) Is a licensed engineer;
- 13 (2) Is competent in areas related to dam investigation,
14 design, construction, and operation for the type of
15 dam being investigated, designed, constructed, or
16 operated;
- 17 (3) Has at least five years of relevant experience in
18 areas such as investigation, design, construction,
19 enlargement, repair, alteration, maintenance,
20 operation, or removal of dams;
- 21 (4) Understands adverse dam incidents, failures, and the
22 potential causes and consequences of failures; and



1 (5) Continues with necessary training to keep abreast of
2 the state of the practice in dam safety engineering.

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

6 "Hazard potential" means the possible adverse incremental
7 consequences that result from the release of water or stored
8 contents due to failure of the dam or mis-operation of the dam
9 or appurtenances. The hazard potential classification of a dam
10 does not reflect in any way on the current condition of the dam
11 and its appurtenant structures, such as safety structural
12 integrity and flood routing capacity.

13 "High hazard" means a dam's failure will probably cause
14 loss of human life.

15 "Low hazard" means a dam's failure will result in no
16 probable loss of human life and low economic or environmental
17 losses; provided that economic losses are principally limited to
18 the owner's property.

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



1 "Moderate hazard" means a dam's failure will result in no
2 probable loss of human life but may result in major economic
3 loss, environmental damage, disruption of lifeline facilities,
4 or impact other concerns. Moderate hazard potential
5 classification dams are often located in predominantly rural or
6 agricultural areas but could be located in areas with population
7 and significant infrastructure.

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

11 "Person" includes any natural person, partnership, firm,
12 association, organization, corporation, municipality, municipal
13 authority, trust, receiver or trustee, limited liability
14 company, limited liability partnership, or company or any state
15 department, agency, or political subdivision, or any other
16 commercial or legal entity. Whenever used in a section
17 prescribing and imposing a penalty or sanction the term "person"
18 includes the members of an association or organization, and the
19 officers of a corporation, company, county or county authority.

20 "Probable" means more likely than not to occur; reasonably
21 expected; realistic.



1 "Removal" means complete elimination of the dam embankment
2 or structure to restore the approximate original topographic
3 contours of the valley.

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

8 "Reservoir" means any basin that contains or will contain
9 water impounded by a dam.

10 "Spillway" means a device that safely diverts the flood of
11 a dam without endangering its safety or integrity.

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

14 "Storage capacity" means the total reservoir storage
15 acre-feet at the maximum water storage elevation.

16 **§ -4 Exempt structures.** Structures exempt from this
17 chapter include:

- 18 (1) Highways and roadfills (except those designed or
19 modified with the purpose of impounding water for uses
20 other than flood detention);
21 (2) Dams smaller than those defined in section -3;



- 1 (3) Dams for which no loss of human life is expected and
2 damage will occur only to the owner's property in the
3 event of failure of the dam;
- 4 (4) Refuse embankments (e.g., solid waste disposal
5 facilities); and
- 6 (5) Structures that store water only below the lowest
7 point of the natural ground, unless an outlet works is
8 constructed to develop water.

9 **§ -5 Violations; penalties.** (a) Any person who
10 violates any provision of this chapter shall be liable for a
11 civil penalty not to exceed \$10,000 per day of the violation,
12 and each day during which the violation continues shall
13 constitute an additional, separate, and distinct offense.

14 (b) Any person who intentionally, knowingly, or after
15 written notice to comply, violates this chapter or knowingly
16 obstructs, hinders, or prevents the department's agents or
17 employees from performing duties under this chapter, shall be
18 guilty of a misdemeanor and shall be subject to a fine of not
19 less than \$2,500 nor more than \$25,000 per day of violation. A
20 second or subsequent offense under this subsection shall subject
21 the violator to a fine, of not less than \$5,000 nor more than
22 \$50,000 per day of violation.



1 **§ -6 Administrative and judicial review.** (a) The
2 findings and orders of the board, and the board's approval or
3 disapproval of an application issued by the State are final,
4 conclusive, and binding upon all owners, state agencies, and
5 other government agencies, regulatory or otherwise, as to the
6 safety of design, construction, enlargement, repair, alteration,
7 removal, maintenance, and operation of any dam or reservoir.
8 The board's approval of an application or a certificate of
9 approval to impound will not be considered final if it can be
10 demonstrated to the board that the board's approval of the
11 relevant application or certificate of approval was based on one
12 or more misrepresentations.

13 (b) Any person aggrieved or adversely affected by an order
14 or action of the board is entitled to administrative and
15 judicial review in accordance with chapter 91; provided that the
16 order or action shall remain in force until modified or set
17 aside on appeal.

18 **PART II. DAM MAINTENANCE**

19 **§ -11 Construction or enlargement of a dam or**
20 **reservoir.** (a) No person shall construct any dam or reservoir
21 or enlarge any dam or reservoir until an application to
22 undertake the work has been filed and written approval of the



1 construction plans and specifications is obtained from the
2 board.

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

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

- 7 (1) Name and address of the applicant;
- 8 (2) Name and address of the owner or owners of the land
9 upon which the works are to be constructed or
10 enlarged, and a legal description of the land;
- 11 (3) Description of the location, type, size, purpose, and
12 height of the proposed dam, reservoir, and appurtenant
13 works;
- 14 (4) Storage capacity and reservoir surface areas for
15 maximum water storage elevation and design water
16 level;
- 17 (5) Plans for any permanent instrument installations in
18 the dam;
- 19 (6) Area of the drainage basin, rainfall and streamflow
20 records, and flood-flow records and estimates, as
21 accurately as may be readily obtained;



- 1 (7) Relevant construction drawings, plans, and
2 specifications signed and sealed by the design
3 engineer;
- 4 (8) Proposed times of commencement and completion of the
5 proposed activity;
- 6 (9) Name and address of the person who prepared the plans
7 and specifications;
- 8 (10) Name and address of the person who will construct or
9 enlarge the proposed dam or reservoir and appurtenant
10 works;
- 11 (11) A listing of all sources of inflow to the reservoir;
- 12 (12) An assessment of the consequences of dam failure on
13 downstream areas, including:
- 14 (A) An estimation of the magnitude of the dam break
15 flood hydrographs resulting from hypothetical dam
16 failures occurring within the reservoir at normal
17 storage elevation and maximum storage elevation;
- 18 (B) A general description of the areas downstream of
19 the dam that could be affected by floodwater from
20 a dam failure;
- 21 (C) If there is the potential for loss of life, an
22 inundation map delineating the maximum a real



1 extent of flooding that could be produced by a
 2 dam failure. Inundation mapping shall extend to
 3 a point downstream where the inundation from the
 4 dam failure is within the one hundred year
 5 floodplain for the affected watercourse; and
 6 (D) The downstream hazard classification (high,
 7 moderate, or low) that reflects the current
 8 conditions of development in downstream areas.

9 (13) The "estimated cost", as defined in section -41(b)
 10 of this chapter, of the dam or reservoir or
 11 enlargement;

12 (14) Proof of financial responsibility;

13 (15) An emergency preparedness plan; and

14 (16) Other information that may be necessary for the board
 15 to determine the merits of the proposed construction
 16 or enlargement of the dam, reservoir, and appurtenant
 17 works, including any hazards to the public health,
 18 safety, or welfare, and the desirability of issuing a
 19 permit.

20 (d) To be approved, the relevant construction drawings,
 21 plans, and specifications shall contain sufficient detail to
 22 describe the proposed construction work.



- 1 (1) The following items, as a minimum, shall be included
2 as part of the construction plans:
- 3 (A) Project location and vicinity maps;
 - 4 (B) Site map of dam, reservoir, and appurtenances;
 - 5 (C) Sectional view along longitudinal axis of dam and
6 foundation;
 - 7 (D) Cross-sectional view of dam at location of
8 maximum height;
 - 9 (E) Cross-sectional views and profiles of
10 spillway(s), outlet facilities, and other
11 appurtenances;
 - 12 (F) Steel reinforcement placement and bar sizing for
13 concrete construction shall be shown in at least
14 one section or profile; and
 - 15 (G) The plan for diversion and control of water
16 during construction.
- 17 (2) The following items, as a minimum, shall be included
18 as part of the construction specifications:
- 19 (A) Type, class, or description of all materials to
20 be used;



1 (B) The requirements for fill placement, moisture
2 conditioning, and minimum level of compaction of
3 all earthen zones; and

4 (C) The requirements, procedures, and minimum
5 standards for concrete construction and
6 structural details.

7 (e) The board, when in its judgment it is necessary, shall
8 also require the following:

9 (1) Data concerning subsoil and rock foundation conditions
10 and the materials involved in the construction or
11 enlargement of the dam or reservoir;

12 (2) Investigations of, and reports on, subsurface
13 conditions exploratory pits, trenches and adits,
14 drilling, coring, and geophysical tests to measure in
15 place and in the laboratory the properties and
16 behavior of foundation materials at the dam and
17 reservoir site;

18 (3) Investigations and reports on the geology of the dam
19 or reservoir site, possible geologic hazards, seismic
20 activity, faults, weak seams and joints, availability
21 and quality of construction materials, and other
22 pertinent features;



1 (4) Separate emergency preparedness plans for construction
2 and post construction periods; and

3 (5) Other appropriate information as may be necessary.

4 (f) A nonrefundable filing fee in accordance with part V
5 shall accompany each application; provided that no fee shall be
6 required of any federal, state, or county agency.

7 (g) Dams and reservoirs that are ninety per cent or more
8 constructed or enlarged on the effective date of this chapter as
9 determined by the board and that are subject to this chapter
10 shall not be required to pay a filing fee but shall submit an
11 application for approval pursuant to this section. Application
12 approvals of dams and reservoirs that are made subject to this
13 chapter that are found by the board to have been less than
14 ninety per cent constructed, enlarged, repaired, altered, or
15 removed on the effective date of this chapter shall be
16 accompanied by fees reduced by the percentage of construction or
17 enlargement found by the board to have been completed on that
18 date.

19 **§ -12 Repair or alteration of dam, reservoir, or**
20 **appurtenant works; removal of dam or reservoir.** (a) Before
21 commencing the repair or alteration of an existing dam,
22 reservoir, or appurtenant works, or the removal of a dam or



1 reservoir so that it no longer constitutes a dam or reservoir as
2 defined in this chapter, the owner shall file an application for
3 the work and secure the written approval of the board; provided
4 that owners proposing routine maintenance not affecting the
5 safety of the structure are exempted from this requirement.

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

- 9 (1) Proposed times of commencement and completion of
10 remedial construction;
- 11 (2) Names and addresses of applicant and contractor;
- 12 (3) Changes that the work covered in the application is
13 proposed to effect, with appropriate references to the
14 existing dam or reservoir;
- 15 (4) Relevant construction plans and specifications signed
16 and sealed by the design engineer;
- 17 (5) The "estimated cost," as defined in sections -41(b)
18 of this chapter, of the repair, alteration, or removal
19 of the dam or reservoir;
- 20 (6) Proof of financial responsibility;
- 21 (7) An emergency preparedness plan; and



1 (8) Other information appropriate for a thorough
2 consideration of the safety of the work, as may be
3 required by the board.

4 (c) To be approved, the relevant construction drawings,
5 plans, and specifications shall contain sufficient detail to
6 describe the proposed construction work.

7 (1) The following items, as a minimum, shall be included
8 as part of the construction plans:

- 9 (A) Project location and vicinity maps;
- 10 (B) Site map of dam, reservoir, and appurtenances;
- 11 (C) Sectional view along longitudinal axis of dam and
12 foundation;
- 13 (D) Cross-sectional view of dam at location of
14 maximum height;
- 15 (E) Cross-sectional views and profiles of
16 spillway(s), outlet facilities, and other
17 appurtenances;
- 18 (F) Steel reinforcement placement and bar sizing for
19 concrete construction shall be shown in at least
20 one section or profile; and
- 21 (G) The plan for diversion and control of water
22 during construction; and



1 (2) The following items, as a minimum, shall be included
2 as part of the construction specifications:

3 (A) Type, class, or description of all materials to
4 be used;

5 (B) The requirements for fill placement, moisture
6 conditioning, and minimum level of compaction of
7 all earthen zones; and

8 (C) The requirements, procedures, and minimum
9 standards for concrete construction and
10 structural details.

11 (d) The board, when in its judgment it is necessary, shall
12 also require the following:

13 (1) Data concerning subsoil and rock foundation conditions
14 and the materials involved in the construction or
15 enlargement of the dam or reservoir;

16 (2) Investigations of, and reports on, subsurface
17 conditions, exploratory pits, trenches and adits,
18 drilling, coring, and geophysical tests to measure in
19 place and in the laboratory the properties and
20 behavior of foundation materials at the dam and
21 reservoir site;



1 (3) Investigations and reports on the geology of the dam
2 or reservoir site, possible geologic hazards, seismic
3 activity, faults, weak seams and joints, availability
4 and quality of construction materials, and other
5 pertinent features;

6 (4) Separate emergency preparedness plans for construction
7 and post construction periods; and

8 (5) Other appropriate information as may be necessary.

9 (e) A non-refundable application fee in accordance with
10 part 5 shall accompany each application; provided that no fee
11 shall be required of any federal, state, or county agency.

12 (f) The requirements of this section may be waived by the
13 board where appropriate.

14 (g) Dams and reservoirs that are ninety per cent or more
15 repaired, altered, or removed on the effective date of this
16 chapter as determined by the board and that are subject to this
17 chapter shall not be required to pay a filing fee but shall
18 submit an application for approval pursuant to this section.
19 Application approvals of dams and reservoirs that are made
20 subject to these rules that are found by the board to have been
21 less than ninety per cent constructed, enlarged, repaired,
22 altered, or removed on the effective date of this chapter shall



1 be accompanied by fees reduced by the percentage of
2 construction, enlargement, repair, alteration, or removal found
3 by the board to have been completed on that date.

4 **§ -13 Supervision of plans preparation and construction**
5 **inspection.** An engineer shall be in charge of the preparation
6 of all plans and specifications for the initial construction,
7 enlargement, alteration, repair, or removal of dams and
8 reservoirs and of the inspection of the construction. The
9 engineer may be assisted by other specialists as required.

10 **§ -14 Application approval.** (a) The board shall act
11 upon an application and shall take into consideration the:

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

16 (b) If an application is incomplete or defective, it shall
17 be returned to the applicant. The application shall be
18 corrected and returned to the board within sixty days or a
19 further time as may be given by the board in order to retain its
20 validity. If the application is not returned within the
21 required time limit, it shall be deemed automatically rejected.



1 (c) After the board has determined that the application is
2 complete and the plans and specifications conform to accepted
3 engineering practice, the board will issue an application
4 approval.

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

12 (e) Written notice shall be provided to the board at least
13 ten days before construction, enlargement, repair, alteration,
14 or removal is to begin and other notices shall be given to the
15 board as it may require.

16 **§ -15 Revocation of approval.** (a) An application
17 approval for any construction, enlargement, alteration, repair,
18 or removal of any dam or reservoir or its appurtenant works may
19 be revoked in whole or in part for any:

20 (1) Material false statement in the application or in any
21 report or statement of fact required pursuant to this
22 chapter;



1 (2) Violation of this chapter; or

2 (3) Violation of the approved plans and specifications.

3 (b) In any proceeding for revocation, the board shall give
4 prior written notice to the affected owner of the facts or
5 conditions that warrant the action and provide the owner an
6 opportunity for a hearing.

7 **§ -16 Construction change orders.** (a) All dam projects
8 subject to this chapter shall be constructed in accordance with
9 the application approval. Any proposed changes to the
10 application approval that could have an effect on structural
11 integrity or safe operations of the project shall first be
12 presented to the board for a determination if an approval is
13 required.

14 (b) If the board determines that the proposed construction
15 change order represents a significant modification of the
16 application approval that could have an effect on structural
17 integrity or safe operations of the project, then approval of
18 the change order will be required.

19 (c) If board approval of the proposed construction change
20 order is required, no action shall be taken by the owner to make
21 the construction change until approval is given by the board.

22 **PART III. CONSTRUCTION REQUIREMENTS**



1 **§ -21 Inspection during progress of work.** (a) During
2 the construction, enlargement, repair, alteration, or removal of
3 any dam or reservoir, the owner shall:

4 (1) Perform, at its own expense, work or tests necessary
5 to insure proper compliance with the approved plans
6 and specifications;

7 (2) Provide adequate supervision by an engineer during
8 construction; and

9 (3) Provide any information requested by the board to
10 determine that conformity with the approved plans and
11 specifications is being achieved. The department,
12 through its own engineers or by consulting engineers
13 of its selection, may make periodic inspections at
14 state expense for the purpose of ascertaining
15 compliance with the approved plans and specifications.

16 (b) After any tests, inspections, or investigations, or at
17 any time as the work progresses, or at any time prior to
18 completion of the project, the department may order the owner to
19 revise, modify, or change its plans and specifications for
20 safety reasons; provided that the owner may request a hearing
21 before the board to review the order.

1 (c) If conditions are revealed that will not permit the
2 construction, enlargement, repair, alteration, or removal of a
3 safe dam or reservoir, the application approval for
4 construction, enlargement, repair, alteration, or removal shall
5 be revoked.

6 (d) If at any time during the construction, enlargement,
7 repair, alteration, or removal of any dam or reservoir the
8 department finds that the work is not being done in accordance
9 with approved plans and specifications, it shall give a written
10 notice thereof to the owner. The written notice shall state the
11 specific violations and shall order the immediate compliance
12 with the approved plans and specifications. The department may
13 order that no further work be done until compliance has been
14 effected and confirmed by the department or its designated
15 representative.

16 (e) If the owner fails to comply with the department's
17 written notice or the approved plans and specifications the
18 board shall take action to revoke its approval and compel the
19 owner to remove the incomplete structure sufficiently to
20 eliminate any safety hazard to life or property.

21 **§ -22 Completion of new or enlarged dam or reservoir.**

22 (a) Upon completion of a new or enlarged dam or reservoir, the



1 owner shall provide written notification of completion to the
2 department signed by the responsible engineer supervising
3 construction for the owner, certifying that the project was
4 constructed in conformance with the approved plans and
5 specifications, accompanied by supplementary drawings or
6 descriptive matter showing or describing the dam or reservoir as
7 actually constructed, which shall include a record of the
8 following:

- 9 (1) All geological boreholes and grout holes and grouting;
- 10 (2) Permanent location points, benchmarks, and instruments
11 embedded in the structure;
- 12 (3) Tests of concrete or other material used in the
13 construction of the dam and reservoir;
- 14 (4) Seepage flows and embedded instrument readings after a
15 year of operation; and
- 16 (5) Construction problems encountered and solutions
17 implemented.

18 (b) Supplementary drawings and descriptive matter for the
19 enlargement of a dam or reservoir shall only apply to any new
20 construction not already shown in the original plans on file
21 with the department.



1 **§ -23 Completion of repair or alteration of dam or**
2 **reservoir.** Upon completion of the repair or alteration of any
3 dam or reservoir, the owner shall provide a notice of completion
4 to the department and thereafter shall file with the department
5 a completion report, signed by the responsible engineer
6 supervising the work for the owner, attesting that the repairs
7 or alterations were completed in accordance with the approved
8 plans and specifications, accompanied by supplementary drawings
9 or descriptive matter showing or describing the dam or reservoir
10 as actually repaired or altered, together with all applicable
11 maps, data, records, and information required by the department.

12 **§ -24 Completion of removal of dam or reservoir.** (a)
13 Upon completion of the removal of a dam or reservoir, the owner
14 shall file with the department a report regarding the manner in
15 which the work was performed and the removal of the dam. No
16 filing routine drawdown of reservoirs maintenance not affecting
17 the conditions existing after shall be required for the normal
18 operations and safety of the structure.

19 (b) The report shall show that a sufficient portion of the
20 dam has been removed to permit the safe flow of water down the
21 watercourse across or around which the dam was situated and that
22 adequate provisions have been made by the owner to prevent any



1 damage downstream that may result from the remaining portion of
2 the dam due to subsequent flooding.

3 **§ -25 Certificates of approval to impound.** (a) Each
4 dam owner shall hold a valid certificate of approval to impound
5 in order to legally impound water under the laws of this State.

6 (b) An application for a certificate of approval to
7 impound for any dam not having an application approval to
8 construct, enlarge, alter, or repair a dam or reservoir shall be
9 made on forms available from the board. An application for a
10 certificate of approval to impound is not required for dams
11 already having an application approval to construct, enlarge,
12 alter, or repair. Any dam owner who is notified by the board of
13 the need to apply for a certificate for approval to impound
14 shall submit such application within thirty days of the
15 notification.

16 (c) A certificate of approval to impound shall be issued
17 by the board upon a finding by the board that the dam and
18 reservoir are safe to impound water within the limitations
19 prescribed in the application approval. No water shall be
20 impounded by a dam or reservoir prior to issuance of a valid
21 certificate of approval to impound; provided that pending
22 issuance of a new or revised certificate of approval to impound,



1 the owner of the dam or reservoir shall not cause the dam or
2 reservoir to impound water beyond the limitations or conditions
3 prescribed in the existing certificate of approval to impound.

4 (d) The board shall revoke, suspend, or amend any
5 certificate of approval to impound whenever it determines that
6 the dam or reservoir constitutes a danger to life and property.
7 Upon the board's revocation of a certificate to impound, the
8 owner of the dam shall take action within time limits specified
9 by the board to alleviate the hazard associated with the dam.

10 (e) Certificates of approval to impound are not
11 transferable from one person to another or from one dam to
12 another.

13 **§ -26 Complaints as to unsafe conditions.** (a) Upon
14 receipt of a written complaint alleging that the person or
15 property of the complainant is endangered by the construction,
16 enlargement, repairs, alterations, maintenance, or operation of
17 any dam or reservoir, the department shall contact the owner and
18 conduct an inspection unless the data, records, and inspection
19 reports on file with the department are sufficiently adequate to
20 determine whether the complaint is valid.

21 (b) In determining whether an existing dam or reservoir or
22 proposed dam or reservoir constitutes or would constitute a



1 danger to life or property, the department shall evaluate the
2 possibility that the dam or reservoir might be endangered by
3 overtopping, seepage, settlement, erosion, cracking, earth
4 movement, earthquakes, and failure of bulkheads, flashboard,
5 gates, and conduits that exist or that might occur in any area
6 in the vicinity of the dam or reservoir.

7 (c) If an unsafe condition exists, the department shall
8 notify the owner to take action necessary to render the
9 condition safe, including breaching or removal of any dam found
10 beyond repair. If the owner is unavailable or unresponsive, the
11 board may commence action under section -32.

12 PART IV. MAINTENANCE AND OPERATION

13 § -31 Maintenance and operation. (a) Owners shall
14 provide for the adequate and timely maintenance, operation, and
15 inspection of their dams and reservoirs and shall be responsible
16 for any engineering and geologic investigations that may be
17 required to ensure public safety. Owners or their agents shall
18 keep available and in good order records of original
19 construction and any modifications, and shall report to the
20 department their maintenance, operation, and engineering
21 activities, including horizontal and vertical controls, seepage



1 measurements, piezometric data collection, and geologic
2 investigations.

3 (b) The owner of a dam or reservoir or the owner's agent
4 shall fully and promptly advise the department of any sudden or
5 unprecedented flood or unusual or alarming circumstance or
6 occurrence existing or anticipated that may adversely affect the
7 dam or reservoir.

8 (c) The department, from time to time and without prior
9 notice to the owners of dams and reservoirs, but not less than
10 once every three years for high hazard and moderate hazard dams,
11 and not less than once every five years for low hazard dams,
12 either with its own engineers or by consulting engineers of its
13 selection, shall make inspections of dams and reservoirs at the
14 owner's expense for the purpose of determining their safety.
15 The department shall require owners to perform at their expense
16 any necessary remedial work and work reasonably required to
17 disclose information sufficient to enable the department to
18 determine conditions of dams and reservoirs in regard to their
19 safety, including the installation, maintenance, and monitoring
20 of necessary instrumentation. As part of the inspection, the
21 department shall periodically review the classification of the



1 dams by evaluating the consequences of failure applying the
2 definitions of section -3.

3 (d) All costs incurred by the department to conduct the
4 inspection shall be charged to the owner. The department shall
5 present a bill for the expenses to the owner, and if the owner
6 neglects for thirty days thereafter to pay it, the bill and
7 costs become a lien upon the lands and property of the owner so
8 liable for the payment of the bill, and shall be collected as
9 delinquent taxes against the lands and property are collected.

10 **§ -32 Emergency work.** (a) Owners of dams and
11 reservoirs have the primary responsibility for determining when
12 an emergency involving a dam or reservoir exists. When the
13 owner of a dam or reservoir determines an emergency exists, the
14 owner shall immediately implement the emergency preparedness
15 plan required by section -33, notify any persons who may be
16 endangered if the dam should fail, notify emergency management
17 organizations, and take additional actions necessary to
18 safeguard life, health, and property.

19 (b) In case of an emergency where the department declares
20 that repairs, breaching of the dam, or other actions are
21 immediately necessary to safeguard life and property, the work
22 shall be initiated by the owner, or by the department through



1 its authorized agent at the owner's expense if the owner fails
2 to do so. The department shall be notified at once of any
3 emergency repairs or other work instituted by the owner.

4 (c) In applying the remedial means provided for in this
5 section, the department in an emergency with its own forces, or
6 by other means at its disposal, may do any or all of the
7 following:

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

9 (2) Lower the water level by releasing water from the
10 reservoir;

11 (3) Completely drain the reservoir;

12 (4) Perform any necessary remedial or protective work at
13 the site; or

14 (5) Take such other steps as may be essential to safeguard
15 life and property.

16 (d) The department shall continue in full charge and
17 control of the dam and reservoir and its appurtenances until
18 they are rendered safe or the emergency occasioning the action
19 has ceased and the owner is able to take back the operations.
20 The department's take-over of the dam, the reservoir, or their
21 appurtenances shall not relieve the owner of a dam or reservoir
22 of legal liability to the department or third parties for those



1 items that are causing an emergency situation. The department's
2 assumption of control over the dam shall not constitute a
3 takings and the department shall not be liable to the dam owner
4 or others for diminution in value that may be caused by the
5 department's work.

6 (e) The cost and expense of the remedial means provided in
7 this part, including cost of any work done to render a dam and
8 reservoir or its appurtenances safe, shall be collected by
9 presentation of bills to owners in the same manner as other
10 debts to the State are recoverable. If the bills are not
11 promptly paid by the owners, the cost shall be recovered by the
12 state from the owner by action brought by the department in a
13 court of appropriate jurisdiction, shall become a lien upon the
14 lands and property of the owner so liable for the payment of the
15 bill, and shall be collected as delinquent taxes against the
16 lands and property are collected.

17 (f) Where appropriate, the repairs, breaching, or other
18 emergency work shall conform to an order issued by the
19 department.

20 (g) The following emergency actions not impairing the
21 safety of the dam may be taken by the owner without prior
22 notification or approval of the department:



- 1 (1) Stockpiling materials such as riprap, earthfill, sand,
2 sandbags, and plastic sheeting;
- 3 (2) Lowering the reservoir level by making releases
4 through the outlet or a gated spillway, by pumping or
5 by siphoning; provided that, when large releases are
6 to be made, the department shall be notified.
7 Lowering the water level by excavating the spillway or
8 embankment is prohibited unless failure is imminent.
9 In this situation, the department shall be notified as
10 soon as reasonably possible of any emergency condition
11 that exists and any emergency action taken;
- 12 (3) Armoring eroded areas by placing sandbags, riprap,
13 plastic sheeting, or other available material;
- 14 (4) Plugging leakage entrances on the upstream slope;
- 15 (5) Increasing freeboard by placing sandbags or temporary
16 earthfill on the dam;
- 17 (6) Diverting floodwaters to prevent them from entering
18 the reservoir basin;
- 19 (7) Constructing training berms to control floodwaters;
- 20 (8) Placing sandbag ring dikes around boils at the
21 downstream toe to provide back pressure; and



1 (9) Removing obstructions from outlet or spillway flow
2 areas.

3 **§ -33 Emergency preparedness plan.** (a) Owners of high
4 hazard and moderate hazard dams shall prepare, maintain, and
5 implement an emergency preparedness plan for each dam or
6 reservoir for immediate defensive action to alert and evacuate
7 the affected population and mitigate damages to property. The
8 emergency preparedness plan shall be submitted to the board for
9 review and acceptance. The board may issue an acceptance after
10 determining the emergency preparedness plan is substantially
11 complete. The emergency preparedness plan shall contain as a
12 minimum the following:

- 13 (1) The identification of equipment, labor, and material
14 available for implementation of the plan;
- 15 (2) A notification procedure for informing the department
16 and the civil defense office of the affected county;
- 17 (3) A dam failure inundation map; and
- 18 (4) A procedure for warning the affected population if
19 failure of the dam is imminent.

20 (b) The owner shall submit a copy of the emergency
21 preparedness plan to the affected county civil defense office



1 and other emergency coordinators involved in the plan for
2 review.

3 (c) The owner shall annually review and update the
4 emergency preparedness plan as necessary.

5 § -34 **Change in ownership.** Changes in ownership of a
6 dam shall be immediately filed with the department.

7 **PART V. FEES**

8 § -41 **Filing fees.** (a) The owner shall submit with the
9 application for construction, enlargement, alteration, repair or
10 removal an amount equal to \$3 for each \$1,000 or fraction
11 thereof of the estimated cost of construction including
12 engineering costs, but the maximum fee shall not exceed \$3,000,
13 nor shall the minimum fee be less than \$100.

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

17 (1) The cost of all labor and materials entering into the
18 construction of the dam and appurtenant works or
19 reservoir;

20 (2) The cost of preliminary investigations and surveys;

21 (3) The cost of the construction plant properly chargeable
22 to the cost of the dam or reservoir; and



1 (4) Any and all other items entering directly into the
2 cost of the construction, enlargement, alteration,
3 repair or removal.

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

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

10 (e) If the actual cost exceeds the estimated cost by more
11 than fifteen per cent, a further fee shall be required by the
12 board before final approval and shall be one hundred fifteen
13 per cent of the amount by which the original fee is less than
14 it would have been had the cost it was based upon been the same
15 as the actual cost. No further fee shall be required, however
16 if such fee is to be computed at less than \$20.

17 § -42 **Annual fees.** (a) An annual fee shall be paid by
18 the owner of the dam on or before December 31, 2007, and on or
19 before December 31 of each succeeding year, based upon a fixed
20 rate and height of the dam. The annual fee shall be \$
21 per dam, plus \$ per foot of height.



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

8 (c) For the purposes of this section, "height of the dam"
9 means the vertical distance, to the nearest foot, from the
10 natural bed of the stream or watercourse at the downstream toe
11 of the barrier, as determined by the department, or from the
12 lowest elevation of the outside limit of the barrier, as
13 determined by the department, if it is not across a stream
14 channel or watercourse, to the maximum possible water storage
15 elevation."

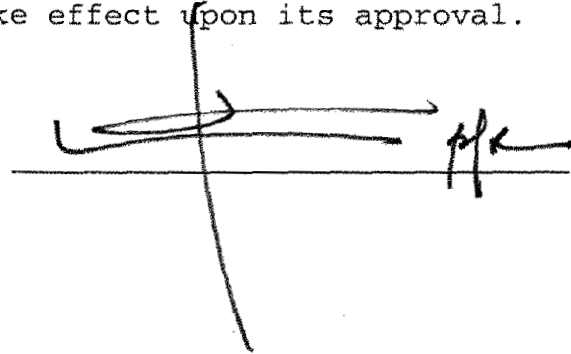
16 SECTION 3. If any provision of this Act, or the
17 application thereof to any person or circumstance is held
18 invalid, the invalidity does not affect other provisions or
19 applications of the Act, which can be given effect without the
20 invalid provision or application, and to this end the provisions
21 of this Act are severable.

S.B. NO. 1945

1 SECTION 4. This Act shall take effect upon its approval.

2

INTRODUCED BY: _____

A handwritten signature, possibly 'PK', is written over a horizontal line. A large, vertical, handwritten scribble or mark is drawn over the signature and extends upwards and downwards.

Report Title:

Dam Safety

Description:

Creates a new chapter on dam safety; extensive provisions related to Hawaii dams, reservoirs, and appurtenant works.

