

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

December 8, 2023

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

Authorize the Chairperson to Set New Rehabilitation Schedule and Make a Finding of Violation and Issue Fines on the Owners of Waiakalua Reservoir if Deadlines are Missed for the Removal or Rehabilitation of the Waiakalua Reservoir (KA-0010)  
Kilauea, Kauai.

(The Waiakalua Reservoir owners are Ms. Beverly Harter, He Makana Ka Wai; Mr. V. Stephen Hunt, Hunt Kilauea LLC; Ms. Jeanette Healy, Victor Mission Trust LLC; Mr. William Flaherty, William L. Flaherty, Trust; Ms. Theresa Drake; Mr. Matthew Miller, Mr. Raymond and Lori Miller, and Marisha Huber; Mr. Thomas Atkin, Thomas R Atkin Revocable Living Trust; and Mr. Frederic North, Frederic & Peggy North Rev living Trust and Maile Wai Properties II LLC.) Tax Map Keys (4) 5-1-005: 25 CPR 001, 002, 003, 004, 005 and (4) 5-1-005: 26 and (4) 5-1-005: 27 and (4) 5-1-005: 28 CPR 001,002, 003, 004, 005 and (4) 5-1-005: 29 CPR 001, 002, 003, 004.

**Summary**

The Department of Land and Natural Resources (Department) requests the Board of Land and Natural Resources (Board) authorize the Chairperson to set new rehabilitation schedule and issue associated fines for the owners of Waiakalua Reservoir (KA-0010). The eight (8) private dam owners have met deadlines set by the Board on March 11, 2022 (Exhibit A), with the plan to reduce the dam size such that the revised dam and reservoir would not fall under regulation by the Department. The dam owners are now considering a change of scope to rehabilitate the structure to meet current regulations and have the facility continue to be regulated by the Department. The recommended new proposed schedule would allow additional time for the owners to complete the engineering studies and cost estimate for the revised scope of work, and to determine the feasibility of the design and construction.

The Department recommends authorizing the Chairperson to set a new schedule for the owners to accomplish a feasibility analysis and proceed with either the removal, reduction, or rehabilitation of the dam with automatic penalties for missing deadlines. The Department also recommends the Board delegate the Chairperson to administer future schedule amendments and penalties based on the chosen scope for the dam.

**Background**

Waiakalua Reservoir was constructed in the 1920s as an irrigation reservoir for downstream sugar cane fields. Currently, it is used primarily for recreational purposes.

The reservoir is filled with water from the Waiakalua Stream. Kaloko dam and reservoir historically supplies a major portion of water to Waiakalua stream, but with the reduced pool in Kaloko Reservoir since 2006, less water has been supplied from the Kaloko dam. The contributing watershed area for Waiakalua Reservoir is approximately 0.43 square miles (275.2 acres) based on USGS digital elevation model data.

Waiakalua Reservoir is classified as a high hazard potential dam, as a failure of the dam will result in probable loss of human life. The overall condition of the dam is currently rated as poor, meaning a dam safety deficiency is recognized for normal operating conditions which may realistically occur. Remedial action is necessary. The dam is currently under a Department ordered water level restriction of 9 feet.

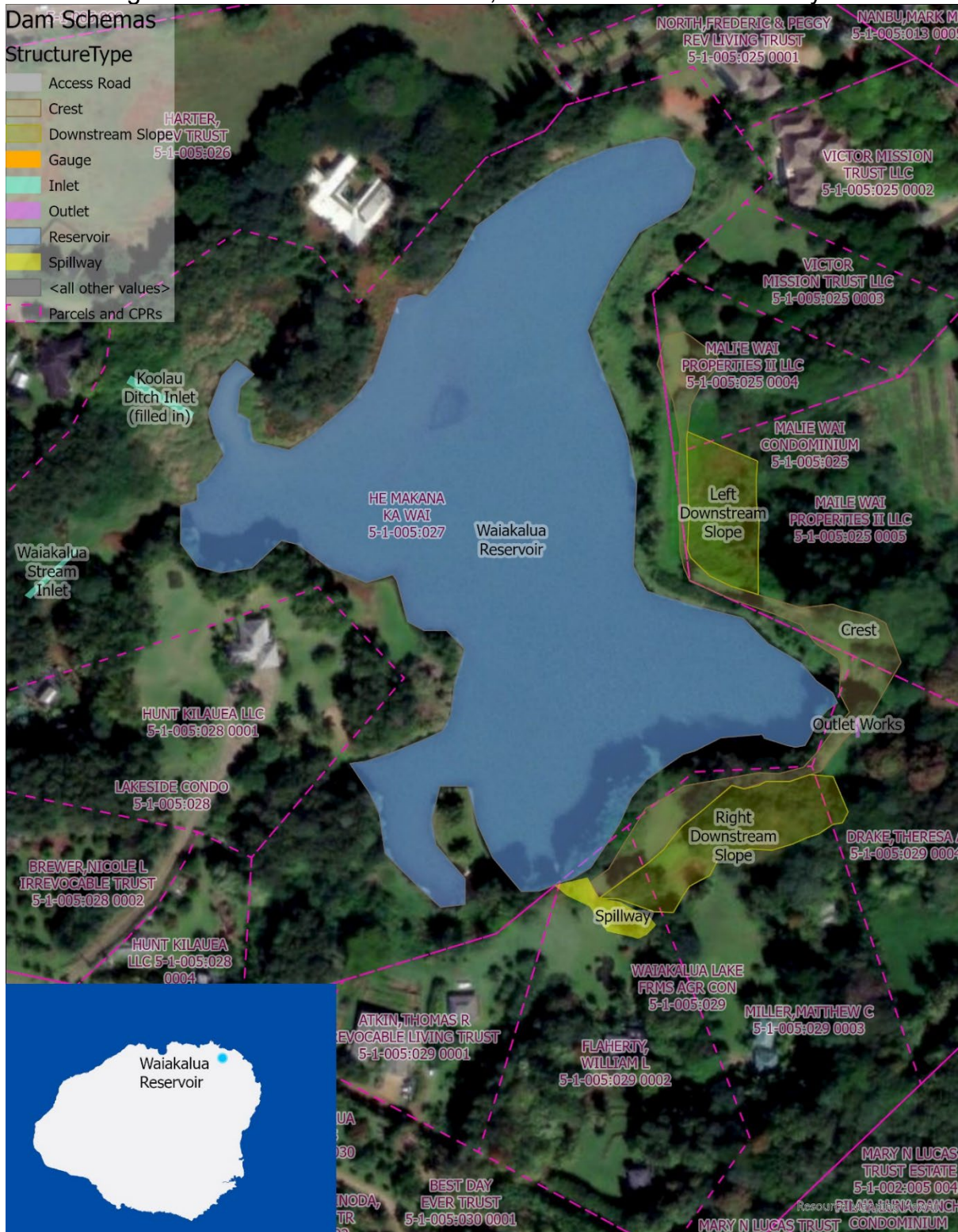
The dam and reservoir are owned by 8 private property owners, and there is no organizational structure to define responsibility of the various owners or organize their efforts to meet requirements set forth in Hawaii Administrative Rules (HAR) §13-190.1 and Hawaii Revised Statutes (HRS) §179D for dam owners. This has historically resulted in non-unified attempts of the various owners to cover the operations, maintenance, and any necessary improvements to the structure. However, since this structure was brought before the board in 2022, the owners have unified to hire consultants to do studies necessary for the design of a rehabilitated dam, and they have mostly removed the large trees from the dam embankment, which was a massive outstanding maintenance task. They have also continuously monitored and reported seepage and kept the level of the water under the required 9 feet. On 3/1/2023, the owners submitted a permit package as required by the Department and the Board. The owners have since contemplated changing the scope of the work from a dam reduction project to a rehabilitation of the regulated structure at full storage capacity. The geotechnical firm that was working on the project has declined to continue with the project now that the scope is substantially more than what was originally contracted, requiring the owners to seek a new consultant and possibly additional geotechnical investigations to support the design.

A screening level risk analysis (SLRA) was performed with the owners, the owner's consultants and Department consultants which concluded that if the water level was maintained at the restricted level, and continual monitoring was done for any changes in seepage, that the risk of failure was very low, and the probability of life loss was also low. While the SLRA does not mean that the requirements for meeting the safety standards have changed, it does indicate the relative risk at this point in time, assuming the owners continue with on-going maintenance, monitoring and reporting as required by the Department.

Dam Features:

Embankment	Earthen	Length	1800 feet
Height	26 feet	Maximum Storage	220 acre-feet

Figure 1. Dam/Reservoir Features, location and TMK/Owner layout



**Primary Safety Issues**

Waiakalua Reservoir is in poor overall condition based on the following ongoing deficiencies. Here is a listing of PRIORITY 1 RECOMMENDATIONS from the last Phase I Inspection in 2021 with report finalized in 2023.

	Recommendation	Current Status and Comments
1	Maintain and Monitor seepage area at toe regularly.	This is currently being done.
2	Improve Vegetative Maintenance and Erosion protection.	This is ongoing, but there have been substantial improvements since 2021 including removal of trees on the embankment.
3	Perform a Hydrologic and Hydraulic Analyses.	This was completed in 2022, but now the spillway needs to be redesigned to meet the design flood (see recommendation 6)
4	Perform Geotechnical Investigation and slope stability study.	This was completed in 2022, but additional information was needed to inform the fixes needed for the dam to meet the factors of safety required.
5	Perform seepage evaluation.	This was completed in 2022 and there were some recommendations that need to be addressed.
6	Spillway Assessment and repair	The spillway was assessed with the H&H, but the repair has not been addressed.
7	Survey and calibrate staff gage to key features.	A full survey was performed at the end of 2022, but it has not been used to calibrate to key features in the EAP.
8	Develop an O&M manual for the dam	Not Done
9	Assess outlet works tunnel condition	Not Done

Most of the primary safety issues are in the process of being addressed, and it is important that the momentum towards addressing them continues.

**Enforcement Actions**

The Department has issued five Notice of Deficiency (NOD) letters to the Owners dating back to 2009, which can be seen in Attachment A of the March 11, 2022, Board submittal (Exhibit A). The Department’s Civil Resource Violation System was used to assess fines for missing some NOD deadlines.

The owner response became more proactive in early 2022. Since that time, the owners have met the deadlines issued by the Board at its meeting on March 11, 2022 (See Table 2). A permit application was submitted by the 3/1/2023 deadline, however some components of the application were incomplete, and the Department has notified the owners of these items. The Owners have requested a revision to the schedule so that they are able to conduct the required studies (including more extensive geotechnical analysis and costs estimate), evaluate the feasibility of the rehabilitation project, and update the dam safety permit application for the new scope of work.

Table 2. Previous Deadlines set by the Board

<b>Task</b>	<b>Deadline issued by the Board March 2022</b>	<b>Status/Comments</b>
Submit technical Studies	7/1/2022	Completed
Submit permit application	3/1/2023	Completed but more information needed.
Complete clearing	5/1/2023	Completed per photos (not verified in person)
Start construction	6 months from date Board approves the dam safety permit	Not yet applicable, since dam safety permit has not been approved.

**Recommendation:**

1. Authorize the Chairperson to set the following schedule and milestone violations for the owners of Waiakalua Reservoir (KA-0010) evaluation and remediation plan along with the indicated milestone dates and automatic penalty amounts:

<b>Milestone</b>	<b>Deliverable to the Department</b>	<b>Milestone Due Date</b>	<b>Penalty of missed milestone</b>
1	Development and submission of a conceptual remediation plan which addresses all current deficiencies. This must include, but is not limited to: <ul style="list-style-type: none"> <li>• Meeting stability requirements and minimum factors of safety for various loading conditions generated by a methodology accepted by the Department</li> <li>• Addresses seepage by adding a seepage collection filter system</li> <li>• Removal and remediation of structure at existing rootball locations</li> <li>• Modification of spillway to pass inflow design flood in natural ground with discharge alignment away from the toe of the dam</li> <li>• Outlet modifications if inspection of outlet shows they are necessary.</li> </ul> Provide cost estimates for 3 options (Remediation/Reduction/Removal) with the remediation and reduction cost reflecting applicable considerations noted above	8/1/2024	\$10,000

<b>Milestone</b>	<b>Deliverable to the Department</b>	<b>Milestone Due Date</b>	<b>Penalty of missed milestone</b>
2	Submit final decision on direction (removal/reduction/remediation to Department)	60 days from completion of Milestone 1	\$10,000
3	Submit Complete Dam Safety Permit package to Department dam safety (including all applicable items listed on the Application Package checklist in the Dam Safety Permit application form). If the owners choose to phase their work, the permit application must also include scope and schedule for future phases to address all the known deficiencies.	9 months from completion of Milestone 2	\$20,000
5	Provide the Department with evidence that a full grading permit application has been submitted to the County of Kauai which includes the work in permit package submitted to the Department.	60 days from completion of Milestone 3	\$10,000
6	Start Construction of the permitted work.	6 months from date Board approves the dam safety permit or the County approves the grading permit (whichever is later)	\$20,000

2. Authorize the Chairperson to issue all fines for missed schedule milestones and require that the Owner pay all fines issued by the Chairperson within 30 calendar days of the fine being issued. In the event the Owner fails to pay fines within the time allotted, the Owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid. In the event that any of the above fines should go into effect, the owners of Waiakalua Reservoir (KA-0010) will be jointly and severally liable for payment of those fines.

3. Authorize the Chairperson to administer future removal or rehabilitation schedule amendments/penalties associated with this Waiakalua Reservoir (KA-0010).

Respectfully submitted,



CARTY S. CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:



Dawn N.S. Chang, Chairperson  
Board of Land and Natural Resources

EXHIBIT A – Board Submittal Approved on 3/11/2022

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

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

March 11, 2022

03-11-22

As Amended

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

**STAFF REPORT**

**Regarding:** Authorization for the Chairperson to extend the Notice of Deficiency deadlines for Waiakalua Dam (KA-0010) and to make a finding of violations sufficient to support a specified fine on the owners and to order further restriction of reservoir level if extended deadlines are missed. Kilauea, Kauai, Tax Map Keys (4) 5-1-005: 25 CPR 001, 002, 003, 004, 005 and (4) 5-1-005: 26 and (4) 5-1-005: 27 and (4) 5-1-005: 28 CPR 001,002, 003, 004, 005 and (4) 5-1-005: 29 CPR 001, 002, 003, 004

**Dam Owners:**

- Ms. Beverly Harter, He Makana Ka Wai
- Mr. Darrell Holowaychuck, Malie Wai Properties/Farms
- Mr. V. Stephen Hunt
- Ms. Jeanette Healy, Victor Mission Trust LLC
- Mr. William Flaherty, William L. Flaherty, Trust
- Ms. Theresa Drake
- Mr. Matthew Miller, Mr. Raymond and Lori Miller, and Marisha Huber
- Mr. Thomas Atkin
- Mr. Frederic North

**Location:** Kilauea, Kauai  
**TMKS:** (4) 5-1-005: 25 CPR 001, 002, 003, 004, 005 and (4) 5-1-005: 26 and (4) 5-1-005: 27 and (4) 5-1-005: 28 CPR 001,002, 003, 004, 005 and (4) 5-1-005: 29 CPR 001, 002, 003, 004

**Background on Dam**

Waiakalua was constructed in the 1920s as an irrigation reservoir for downstream sugar cane fields. Currently, it is used primarily for recreational purposes for the owners. The reservoir is filled with water from the Waiakalua Stream and Koolau Ditch. Kaloko Reservoir supplies water to Waiakalua stream, but with the reduced pool in Kaloko Reservoir since 2006, less water has been supplied from Kaloko. The contributing watershed area for Waiakalua Reservoir is approximately 0.43 square miles (275.2 acres) based on USGS digital elevation model data.

Waiakalua is classified as a high hazard potential dam, as a failure of the dam will result in probable loss of human life. The overall condition of the dam is currently rated as poor, meaning a dam safety deficiency is recognized for normal operating conditions which may realistically occur. Remedial action is necessary. The dam is currently under a water level restriction of 9 feet on the staff gage.



The dam and reservoir facility is divided between 9 private property owners, and there is no organizational structure to define responsibility of the various owners or organize their efforts to meet requirements set forth in Hawaii Administrative Rules (HAR) §13-190.1 and Hawaii Revised Statutes (HRS) §179D for dam owners. This has resulted in non-unified attempts of the various owners to cover the operations, maintenance, and any necessary improvements to the structure. Therefore, operation, maintenance, and improvements have mostly been localized to the properties of a few owners and have not holistically addressed the structural deficiencies of the dam. This lack of clear responsibility and unified effort poses elevated safety risks beyond that already posed by structural deficiencies, as there is no single operator or point of contact that is reliably able to do maintenance or take emergency actions for the entire structure.

**Dam Features:**

Embankment	Earthen
Height	26 feet
Length	1800 feet
Maximum Storage	220 acre-feet

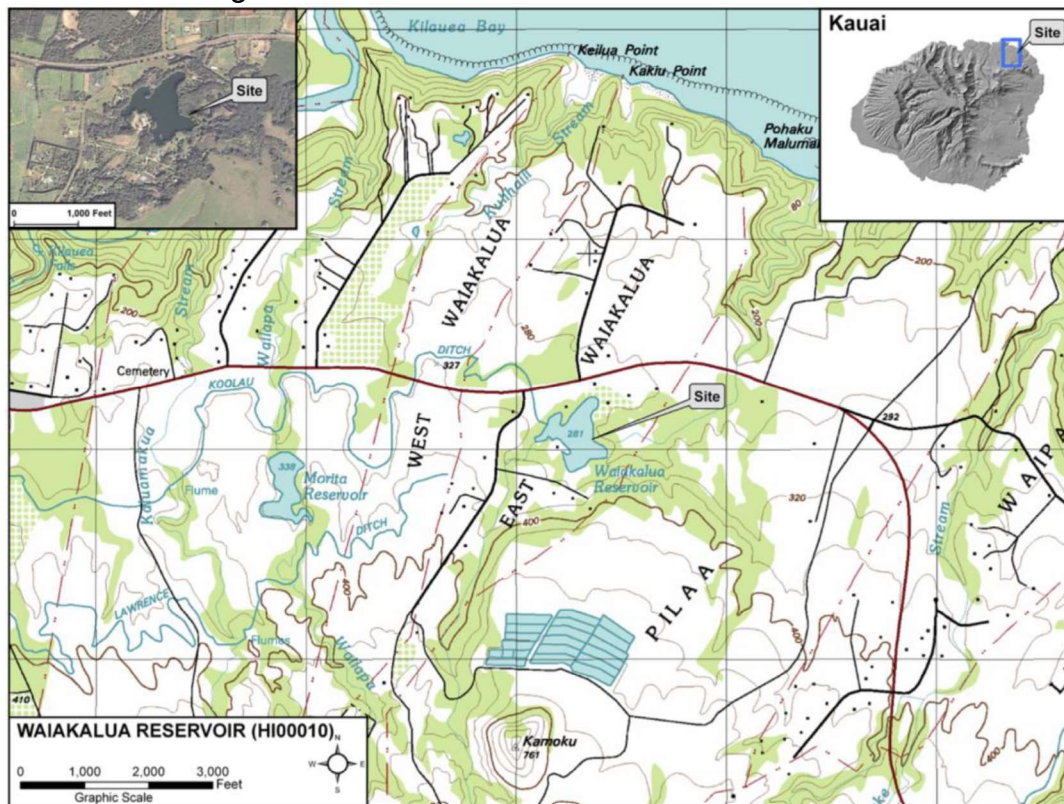


Figure 1. Location Map

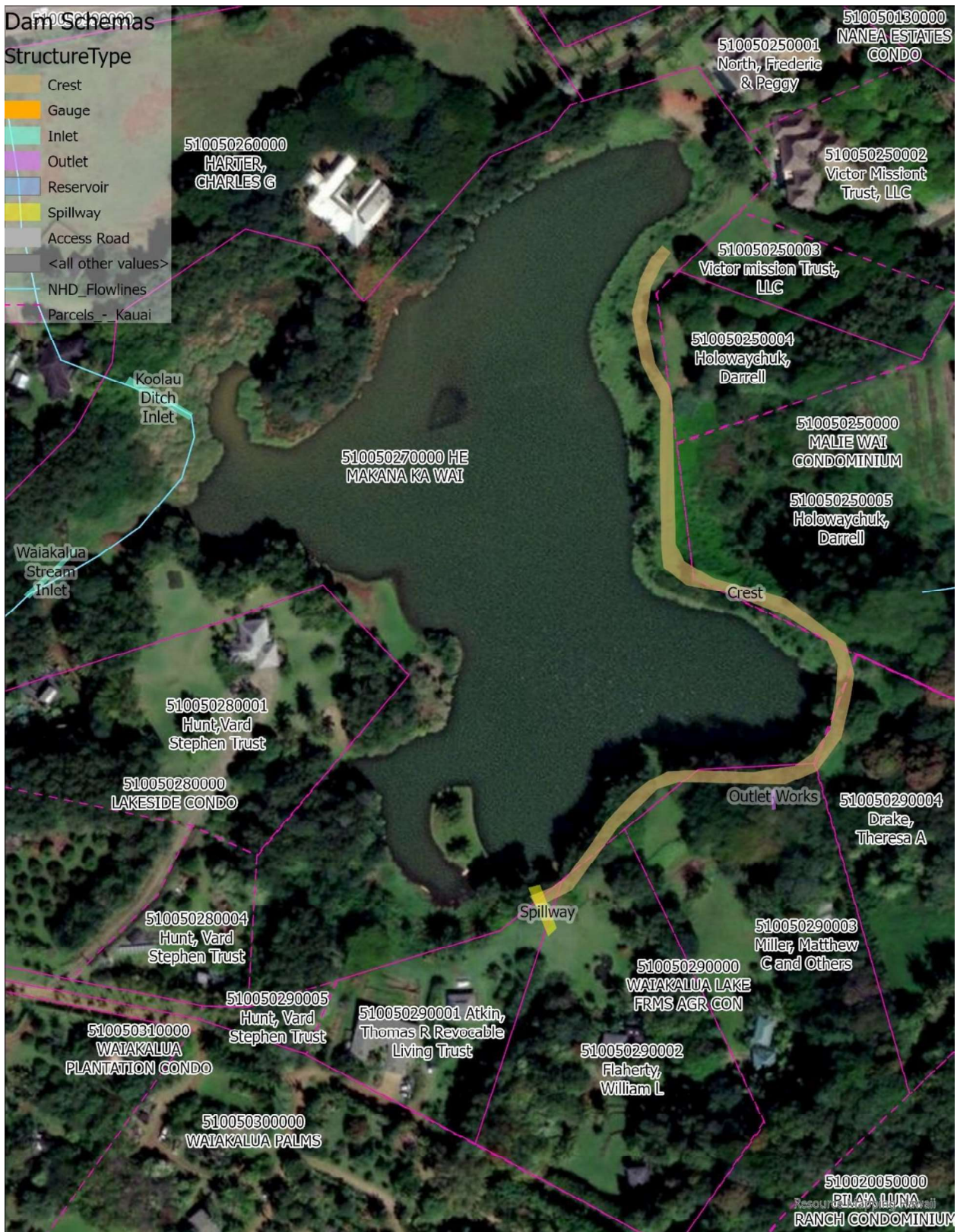


Figure 2. Dam/Reservoir Features and TMK/Owner layout

## **Primary Safety Issues**

Waiakalua Reservoir has a poor overall condition based on many ongoing deficiencies. Here is a listing of PRIORITY 1 RECOMMENDATIONS from the last Phase I Inspection in 2009:

1. Monitor seepage area at toe regularly
2. Repair outlet works and clear vegetation
3. Clear the vegetation and stumps from the slopes, toe and abutment areas once the situation regarding the impact of this removal to the embankment has been evaluated. Clearing the vegetation will allow for a more thorough inspection
4. Conduct seepage studies
5. Evaluate slope stability
6. Perform a hydrologic and hydraulic study
7. Repair or replace the spillway control structure and the erosion area on the downstream side of the control structure
8. Further investigate the possible sinkholes on the upstream slope
9. Determine the source of water that fills the ponds on the downstream toe
10. Clear excessive vegetation and debris from the spillway discharge channel
11. Update the EAP
12. Develop an O&M manual for the dam
13. Maintain a log of visits, operations, and maintenance at the dam

Attempts to monitor seepage or do stability studies have been mostly thwarted by overgrown vegetation. In addition, a hydrologic and hydraulic study has not been done.

## **Enforcement Actions and Owner Responses**

The DLNR has issued five Notice of Deficiency (NOD) letters to the Owners dating back to 2009. The NODs continued to present similar instructions, but in most cases, the NOD mandates were only partially completed, or not even begun. Table 1 Summarizes the requirements set out in the different NODs and other letters to the owners, and the letters referenced are also included in Attachment A. Four CRVS actions were taken for this structure since 2020, as detailed in Table 2.

Table 1. Summary of Enforcement Letters sent by the Department. All letters except the 7/2/2021 letter were NODs.

<b>Letter Date</b>	<b>Water Level</b>	<b>Operations and Maintenance</b>	<b>Remediation and Improvements</b>	
<b>4/21/2009</b>	Expose inoperable gate	Remove inoperable gate and install staff gage Weekly reports	Hire engineer to assess the seepage and slope stability and submit proposed remediation	<b>Dam Safety Directives</b>
<b>6/24/2014</b>	Lower water Level to 9 ft and maintain	Clear and gain access to measurement weir by 7/1/2014 Take daily reservoir level and seepage readings and report	Retain the services of a professional engineer to assess the seepage and slope stability	
<b>9/9/2014</b>		Clear Downstream Channel Continue weekly reports Investigate exit tunnel	Provide a timeline for contracting engineering services to evaluate the stability of the dam	
<b>12/2/2015</b>	Lower water level to 9 feet and maintain	Clear and maintain access to the seepage measurement weir Take daily reservoir level and seepage readings and report	Retain engineer to assess the seepage and slope stability of the embankment and provide remediation schedule	
<b>7/2/2021</b>		Clear of debris and high vegetation and develop vegetative maintenance plan	8/31/2021 -Pursue completing necessary stability studies to set schedule	
<b>9/27/2021</b>	Keep water level at 9 feet	10/1/2021 - Submit Daily seepage logs once per month 11/1/2021 - Clear and maintain clear pathways to critical location 2/1/2022 - Prepare vegetative maintenance plan 2/1/2023 - Complete clearing of vegetation on the facility	12/1/2021 - Submit Schedule of Technical studies 4/1/2022 - Submit technical studies to the Department 12/1/2022 - Submit Permit Application 12/1/2023 - Start Construction	
<b>Owner Response History</b>	Mostly followed water level directives (with few lapses)	Vegetation cleared in certain areas/lots, but never comprehensive, and cleared areas not maintained. Observations and reporting of problem areas intermittent, and often blocked by vegetation. As of 2/8/2022, the owners cleared a path to seepage area, and have a maintenance contract for quarterly clearing of area.	Seepage study done in 2009 by SRG that did not provide information effects on slope stability. Owners retained 5K ENV in 2021 as a consultant to manage the required technical studies and provide design recommendations. Technical studies ongoing, and updates provided to DLNR.	<b>Owner Response</b>

Table 2. CRVS issued to date

	Jan 2022	Feb 2022	Apr 2020	Apr 2021
<b>CRVS Issued</b>	Failure to provide reports of seepage measurements	Failure to provide vegetative removal plan	Failure to submit Annual Dam Fees	Failure to submit Annual Dam Fees
<b>Amount</b>	\$500	\$500	\$422.98	\$41.06

**Owner Timeline Extension Requests**

In a letter to DLNR dated 1/31/2022, the owners of Waiakalua Reservoir asked for a 3-month extension for all the NOD deadlines set in the most recent NOD letter. Table 3 summarizes the extended the milestone deadlines. The reasons given for the requested extension is that behind-the-scenes concurrence of the nine owners has taken longer than expected. In addition, delays directly associated with the pandemic has slowed work done by maintenance contractor and engineering consultants.

Table 3—Extension of Deadlines Requested by Owners

Task	Original Due Date	Requested Extension Date
Submit technical Studies	4/1/2022	7/1/2022
Submit permit application	12/1/2022	3/1/2023
Complete clearing	2/1/2023	5/1/2023
Start construction	12/1/2023	3/1/2024

The owners also requested an extension on the vegetative removal plan which was denied and a CRVS is currently being processed for \$500.

**Discussion**

DLNR engineering division dam safety section staff believes that the difficulty with addressing deficiencies has been lack of concurrence, acknowledged responsibility, and participation from the owners. There has also been owner turnover since 2009.

The owners have been informed of the reservoir’s deficiencies and the regulatory requirements in multiple reports and notices back to 2009. Even though the deficiencies have not been adequately addressed to date, it is the view of the staff that the primary purpose of enforcement actions is to bring dam structures into compliance with safety requirements as quickly as possible. While the 3-month delay requested by the owners may not be warranted, it may still be the most expeditious path to improving the safety of the structure. Imposing large fines immediately might stop the momentum of the owner concurrence and consultant studies while not providing any significant acceleration of progress toward dam safety. Therefore, we recommend that the owner’s request for 3-month delay in the deadlines outlined in Table 3 be granted. However, based on history of inaction, we recommend pre-approving enforcement actions should the new deadlines be missed.

## Recommendations:

1. That the Board of Land and Natural Resources (Board) authorize the Chairperson to extend the Notice of Deficiency deadlines for Waiakalua Dam (KA-0010) for remedial actions as follows:

Task	Original Due Date	Requested Extension Date
Submit technical Studies	4/1/2022	7/1/2022
Submit permit application	12/1/2022	3/1/2023
Complete clearing	2/1/2023	5/1/2023
Start construction	12/1/2023	6 months from date Board approves the dam safety permit

2. In the event that the Owners miss any of the above deadlines, the Board authorize the Chairperson to further restrict the water level in the reservoir down to 5 ft or other level deemed necessary on the staff gage pursuant to HRS §179D-27(e).
3. In the event that the owners miss the **7/1/2022 deadline to submit technical studies**, pursuant to HRS §179D and HAR §13-190.1, the Board find that the Owners of Waiakalua Dam (KA-0010) are in violation of HRS §179D-30(5), and HAR §13-190.1-40(a) and (c) for failing to do studies to determine the stability of the dam and failing to assess whether the spillway is capable of handling the PMF event.
  - a. The Owners will be fined \$5,000 if they fail to submit the proposed technical studies by 7/1/2022, pursuant to HRS §179D-8(b).
  - b. The owners will pay all fines within 60 days of 7/1/2022 if technical studies are not submitted by 5 pm HST on 7/1/2022.
  - c. In the event that the owners fail to comply with the Board order to pay fines within the time allotted, the owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid.
4. In the event that the owners miss the **3/1/2023 deadline to submit permit application**, pursuant to HRS §179D and HAR §13-190.1, the Board find that the Owners of Waiakalua Dam (KA-0010) are in violation of HRS 179D-6(b)(17) and HAR §13-190.1-4 for failure to address minimum design requirements.
  - a. The Owners will be fined \$20,000 if they fail to submit the permit application by 3/1/2023, pursuant to HRS §179D-8(b).
  - b. The owners will pay all fines within 60 days of 3/1/2023 if the permit application is not submitted by 5 pm HST on 3/1/2023.
  - c. In the event that the owners fail to comply with the Board order to pay fines within the time allotted, the owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid.
5. In the event that the owners miss the **5/1/2023 deadline to clear all vegetation from dam as outlined in their vegetative removal plan and their permit application**, pursuant to HRS §179D and HAR §13-190.1, the Board find that the Owners of Waiakalua Dam (KA-0010) are in violation of HRS 179D-6(b)(17), and HAR 13-190.1-40(a), (c) and HAR §13-190.1-40(a) for failing to do necessary work to allow the department to determine condition of the dam and failing to timely maintain the reservoir to keep it in a safe condition.

- a. The Owners will be fined \$20,000 if they fail to clear vegetation per their accepted vegetative removal plan by 5/1/2023, pursuant to HRS §179D-8(b).
  - b. The owners will pay all fines within 60 days of 5/1/2023 if the vegetation has not been cleared as outlined in the accepted vegetative removal plan.
  - c. In the event that the owners fail to comply with the Board order to pay fines within the time allotted, the owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid.
6. In the event that the owners do not have a fully executed **construction contract to do the permitted work within six (6) months** from the date the Board approves the permit, pursuant to HRS §179D and HAR §13-190.1, the staff recommends the Board find that the Owners of Waiakalua Dam (KA-0010) are in violation of HRS §179D-6(b)(17) and HAR §13-190.1-4 for failure to address minimum design requirements.
- a. The Owners will be fined \$20,000 if they fail to obtain a construction contract within six months of permit approval, pursuant to HRS §179D-8(b).
  - b. The owners will pay all fines within 60 days of missing the deadline if a construction contract has not been obtained within six (6) months of permit approval.
  - c. In the event that the owners fail to comply with the Board order to pay fines within the time allotted, the owner shall be fined an additional \$5,000 per day until the ordered fine amount is paid.

Respectfully submitted,



CARTY S. CHANG  
Chief Engineer

APPROVED FOR SUBMITTAL:



SUZANNE D. CASE, Chairperson  
Board of Land and Natural Resources

ATTACHMENT A - Enforcement Letters

NOD Letter Dated 4/21/2009  
NOD Letter Dated 6/24/2014  
NOD Letter Dated 9/9/2014  
NOD Letter Dated 12/2/2015  
Inspection Notification Letter Dated 7/2/2021  
NOD Letter Dated 9/27/2021

***“BLNR Meeting: March 11, 2022; L-1: Approved as amended. See attached page.”***

**AMENDMENT**  
**for**  
**THE MEETING OF THE BOARD OF LAND AND NATURAL RESOURCES**

**Meeting Date:** March 11, 2022

**Agenda Item:** L-1

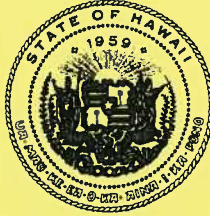
**Regarding:** Authorization for the Chairperson to extend the Notice of Deficiency deadlines for Waiakalua Dam (KA-0010) and to make a finding of violations sufficient to support a specified fine on the owners and to order further restriction of reservoir level if extended deadlines are missed.

**Approved as Amended.** The Board Submittal amended to add the following item:

In the event that any of the stipulated fines should go into effect, the owners of Waiakalua Reservoir (KA-0010) will be jointly and severally liable for payment of those fines.



LINDA LINGLE  
GOVERNOR OF HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

APR 21 2009

LAURA H. THIELEN  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

RUSSELL Y. TSUJI  
FIRST DEPUTY

KEN C. KAWAHARA  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

CERTIFIED MAIL  
RETURN RECEIPT REQUESTED

7007 2560 0000 9256 6753

Mr. Ming Fang, President  
Kilauea Farms Community Association  
4535 Waiakalua Street  
Kilauea, Hawaii 96754

Dear Mr. Fang:

**NOTICE OF DAM SAFETY DEFICIENCY  
WAIAKALUA RESERVOIR (HI00010)  
KAUAI, HAWAII**

Pursuant to report from one of the dam owners regarding seepage at the toe near the left side of the embankment, our staff engineer, Jimmy Leung, conducted a visual inspection of Waiakalua Reservoir (HI00010) on April 17, 2009. During the inspection, extensive seepage was observed at the downstream toe of the embankment near the left abutment with indication that soil fines are being carried out by this seepage. The water elevation at the time of inspections is slightly above the sill elevation of the spillway.

Based on the above observation and finding, the following is issued for your immediate action:

1. Lower the water level in this reservoir immediately to a level that can expose the inoperable gate.
2. Remove the inoperable gate to allow the reservoir to remain drained through the gate opening.
3. Install a staff gauge so that the water level may be reported in a controlled manner.
4. Weekly reports to be submitted to our office (fax. (808)587-0283 or e-mail jimmy.m.leung@hawaii.gov) and the Kauai County Civil Defense Agency (Mark Marshall, fax. (808)241-1860 or e-mail m.marshall@kauai.gov).
5. Retain the services of a professional engineer to assess the seepage and slope stability of the embankment and submit proposed remediation activities to our office.

Please note that you must address the deficiencies noted in our previous letter dated December 9, 2008 (attached for your convenience). This reservoir is to remain drained until all deficiencies are addressed in a satisfactory manner. Please also find enclosed a copy of the Final – Phase I Dam Safety Inspection Report conducted by Kleinfelder, Inc. with an adobe acrobat file on CD for your information and use. You may combine your responses as applicable.

Enclosed is a blank data sheet that you may use to compile your data and to report to our office. Please fill in the key elevation at the top of the page so that we may reference the field measurement readings.

If you have any questions, you may contact Mr. Jimmy Leung of my staff in Honolulu at (808) 587-0238.

Sincerely,



ERIC T. HIRANO  
Chief Engineer

Enclosures

- c: Mark Marshall, Kauai County Civil Defense Agency
- Ms. Colleen Romano
- Mr. & Mrs. Jack and Beverly Harter
- Mr. Gary Tobey
- Ms. Renee J. Hicks
- Mr. Stephen V. Hunt
- Mr. & Mrs. Greg & Dorte Morse
- Mr. Robert H. Jones
- Mr. William L. Flaherty

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



**STATE OF HAWAII**  
**DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

**WILLIAM J. AILA, JR.**  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

**JESSE K. SOUKI**  
FIRST DEPUTY

**WILLIAM M. TAM**  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

June 24, 2014

Mr. Greg Morse  
TMK: (4) 5-1-5:029-003  
Greg & Dorte Morse  
1515 SW Clifton Street  
Portland, Oregon 97201

Ms. Beverly Harter  
TMK: (4) 5-1-5:027  
He Makana Ka Wai  
4535 Waiakalua Street  
Kilauea, Hawaii 96754

Mr. Darrell Holowaychuck  
TMK: (4) 5-1-005:025-0001,0004,0005  
Malie Wai Farms  
14741-45 Avenue  
Edmonton, Alberta, CANADA, T6H 5R4

Mr. Thomas Atkin  
TMK: (4) 5-1-005:029-0001  
31 Kamanikai Place  
Kailua, Hawaii 96734

Mr. V. Stephen Hunt  
TMK: (4) 5-1-005:029-0005  
V. Stephen Hunt Trust  
910 Strand  
Hermosa Beach, California 90254

Ms. Colleen Romano  
TMK: (4) 5-1-005:029-0004  
Waiakalua Land Investments, LLC  
PO Box 343  
Kilauea, Hawaii 96754

Mr. William Flaherty  
TMK: (4) 5-1-005:029-0002  
William L. Flaherty, Trust  
222 Strand  
Hermosa Beach, California 90254

Mr. Zygmunt J. Serafin  
TMK: (4) 5-1-005:025-0002, 0003  
13825 162nd Avenue  
Woodinville, Washington 98072

Dear Joint Owners of the Waiakalua Reservoir (KA-0010):

**WAIAKALUA RESERVOIR (KA-0010), KAUAI**  
**NOTICE OF DEFICIENCY – FOLLOW UP**

The Department of Land and Natural Resources (DLNR) Engineering Division conducted a site visit to the **Waiakalua Reservoir (KA-0010)** on **June 4, 2014**, to meet with surveyors that had been contracted by DLNR to conduct a topographic survey of the dam and reservoir.

During the inspection, extensive seepage of flowing water was observed at the downstream toe of the left embankment. The water level was at 14 <sup>3</sup>/<sub>4</sub> on the gage. The measurement weir was overgrown and inaccessible under ponded water. This situation is similar to seepage that was

identified in April 2009 when a Notice of Dam Safety Deficiency was issued (April 21, 2009). This is also the highest the water level has been documented since the gage was installed.

The seepage identified could be caused by a piping of water through the embankment. Without a means to be able to observe the flow and clarity of the water, it is unable to determine whether the embankment soils are being removed from the dam by the flowing water. If there is an active piping with removal of soils, failure of a dam can happen even if the reservoir is not at full capacity.

Based on the above observations, the following is issued for your immediate action:


1. Lower the water level in the reservoir to a gage reading of 9. (It was initially completed by June 11, 2014, via text messages from Bev Harter)
2. Maintain the water level at a gage reading of 9 or lower.
3. Clear and gain access to the measurement weir by July 11, 2014. Upon clearing and gaining access, notify the DLNR so that we can schedule to revisit the site.
4. Take and record daily readings of the reservoir water level, flow and clarity of the water at the weir, and any other rain, maintenance or other relative information about the dam and reservoir.
5. Submit readings weekly to our office (email to Denise Manuel: [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov), or by fax: 808-587-0283) and to Kauai Civil Defense (email to Mark Marshall: [mmarshall@kauai.gov](mailto:mmarshall@kauai.gov) or fax: 808-241-1860). The first report shall be made no later than July 1, 2014, and shall continue weekly. An Excel spreadsheet is attached and can be emailed upon request.
6. Retain the services of a professional engineer to assess the seepage and slope stability of the embankment and submit proposed remediation activities to our office.

Please note that you are still responsible for addressing all the outstanding deficiencies on the facility and noted in previous correspondences (December 9, 2008, April 21, 2009, August 18, 2010, March 21, 2011, and July 9, 2013).

Failure to meet the above requirements could result in an order to drain the reservoir, and/or be subject to penalties up to \$25,000/day. We expect to start receiving weekly reports by July 1, 2014, and continue to receive them on a weekly basis. We also expect to hear from you that the weir is clear and able to be inspected by July 11, 2014.

Should there be any questions, please contact Ms. Denise Manuel at (808) 587-0246 or at [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov).

Sincerely,



CARTY S. CHANG  
Chief Engineer

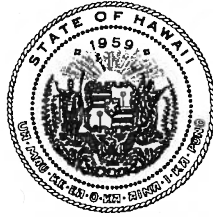
Enclosure

## Reservoir Daily Log

Month/Year: \_\_\_\_\_

Date	Rainfall	Reservoir Water Level Height (gage)	Intake flow rate:	Outlet flow rate:	Maintenance	Seepage flow rate:	Remarks Top of Dam gage reading = __ Spillway gage reading = __
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
<b>Totals</b>							

NEIL ABERCROMBIE  
GOVERNOR OF HAWAII



WILLIAM J. AILA, JR.  
CHAIRPERSON  
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JESSE K. SOUKI  
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ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION  
POST OFFICE BOX 373  
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**SEP - 9 2014**

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Hermosa Beach, California 90254

Mr. Zygmunt J. Serafin  
TMK: (4) 5-1-005:025-0002, 0003  
13825 162nd Avenue  
Woodinville, Washington 98072

Dear Joint Owners of the Waiakalua Reservoir (KA-0010):

**WAIAKALUA RESERVOIR (KA-0010), KAUAI  
NOTICE OF DEFICIENCY - FOLLOW UP**

The Department of Land and Natural Resources (DLNR) Engineering Division received a letter from Mr. Darrell Holowaychuk dated July 10, 2014, and copy of the 2009 Draft Seepage Study (SRGII) from Mrs. Beverly Harter in response to the June 24, 2014, Notice of Deficiency - follow up letter from DLNR. A copy of the Mr. Darrell Holowaychuk letter and coversheet of the Seepage Study are attached for your reference.

The following are the action items listed in the June 24, 2014 DLNR, letter and DLNR's current understanding of the status of each item:

1. Lower the water level in the reservoir to a gage reading of 9.  
*Completed: The water level in the reservoir was lowered to 9 by June 11, 2014, and confirmed via text message from Mrs. Harter.*
2. Maintain the water level at a gage reading of 9 or lower.  
*Completed/Ongoing: The water level has been maintained around 9 based on weekly reporting by Mrs. Harter and photos also provided.*
3. Clear and gain access to the measurement weir by July 11, 2014. Upon clearing and gaining access, notify the DLNR so that we can schedule to revisit the site.  
*Completed: Mr. Holowaychuk's letter states that the valley is very wet and difficult to access. He has built a walkway to access the weir and has cleared the vegetation away so the weir can be read. The weir readings have been included in the weekly readings being submitted via email.*
4. Take and record daily readings of the reservoir water level, flow and clarity of the water at the weir, and any other rain, maintenance or other relative information about the dam and reservoir.  
*Completed/Ongoing: There were various conversations and emails between Mr. Holowaychuk, Mrs. Harter and Mr. Thomas Atkin, regarding reporting. To date, Mrs. Harter has been logging and submitting email reports weekly. These reports have included readings of the reservoir water level height and weir readings in addition to other maintenance and weather related items.*
5. Submit readings weekly to our office (email to Denise Manuel: [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov), or by fax: 808-587-0283) and to Kauai Civil Defense (email to Mark Marshall: [mmarshall@kauai.gov](mailto:mmarshall@kauai.gov) or fax: 808-241-1860). The first report shall be made no later than July 1, 2014, and shall continue weekly. An Excel spreadsheet is attached and can be emailed upon request.  
*Completed/Ongoing: There were various conversations and emails between Mr. Holowaychuk, Mrs. Harter and Mr. Thomas Atkin, regarding reporting. To date, Mrs. Harter has been logging and submitting email reports weekly. These reports have included readings of the reservoir water level height and weir readings in addition to other maintenance and weather related items.*
6. Retain the services of a professional engineer to assess the seepage and slope stability of the embankment and submit proposed remediation activities to our office.  
*Incomplete: Mr. Holowaychuk noted that the downstream area below the dam is/was too wet and muddy to be able to get in there and clear the area of vegetation. He requested that additional time be allowed to dry out the area and that when drier he could move equipment in to clear the area. Mr. Holowaychuk also noted that a Seepage Study had been done and requested for DLNR to review the study (this was separately sent in by Mrs. Harter).*
  - a) *The Draft - Seepage Study (SRGII) was reviewed and notes that "Seepage flow is positively correlated with reservoir stage and varies exponentially*

*as reservoir state changes.” There is no explanation for the seepage or where it comes from and there is no evaluation on the stability of the embankment. Although dams may be able to seep, the seepage must be able to be explained, the seepage needs to be controlled appropriately, the stability of the embankment needs to be evaluated and shown that the embankment is stable under the various loading conditions.*

Action items for following up:

1. Weekly reports need to continue to be submitted.
2. Monthly progress reports on the effort to clear the downstream channel shall be submitted at the end of each month. As we are approaching the fall and winter seasons in 2014, we highly recommend work be accelerated to clear the area which will allow for drainage and access sooner than later. Please provide an update upon receipt of this letter and at the end of each subsequent month.
  - a. If the downstream toe and embankment are unable to be dried out, DLNR recommends lowering the water level to below 9 on the staff gage (i.e., 6 or 7) to see if there is a reduction in the seepage and allow the area to dry out at a faster rate.
  - b. In a July 20, 2010, DLNR inspection an “outlet trash rack grate” was discovered (photo 02 in the inspection report). This feature is on the upstream slope on left embankment and could possibly lead to an exit tunnel on the downstream slope of the left embankment. DLNR recommends investigating this potential outlet as it could be a possible source for some of the seeping water.
3. Provide a timeline for contracting engineering services to evaluate the stability of the dam, completing any studies and construction alteration work necessary.

Even though the long-term plan for this facility may not be currently known or agreed upon, the facility needs to be continually operated, inspected and maintained for the safety of the facility and general public until such a time that a dam alteration, rehabilitation or removal project is approved and constructed. Dam owners are responsible for operating and maintaining dams and reservoirs in accordance with Chapter 179D, Hawaii Revised Statutes. Failure to do so could result in penalties up to \$25,000 per day.

Should you have any questions, please contact Ms. Denise Manuel at (808) 587-0246.

Sincerely,



CARY S. CHANG  
Chief Engineer

Attachments



Thursday July 10<sup>th</sup>, 2014

Dear Mr. Carty Chang,

I am one of the owners that have a portion of the Dam on my property. I live in Canada and I am on island approximately three times a year. I have been working on meeting the DLNR requirements on the portion of Dam that is on my property and have had numerous conversations with Ms. Denise Manuel over the past few years.

It is my intent to bring the portion of Dam that is on my property up to current standards and I have been working towards that goal since I took ownership of the property. In your letter dated June 24<sup>th</sup>, 2014 you listed six items for immediate action. I will respond to each of those items and hopefully we can come up with a reasonable course of action.

1. Lower the water level in the reservoir to a gage reading of (9) it was initially completed by June 11<sup>th</sup>, 2014 via txt message from Bev Harter.

**I am not in control of the gate however I have spoken to Bev Harter who has been controlling the gate and she has indicated that she has lowered the water level to (9 or below) and she will maintain it at (9 or below). I have confirmed this with recent photos (sent by email to Denise). I will take over the monitoring and reporting of the gate and weir box measurements with the goal of getting them to you on a weekly basis as has been requested.**

2. Maintain the water level at a gage reading of 9 or lower.

**Again I have spoken to Bev Harter about this and she said she said that she will do her best to maintain the lake level at a gage level of (9 or lower). With the weekly reporting we will be able to monitor this. At any time that the reading is over 9 on the gage I will immediately ask Bev to open the gate to increase the flow until the water level is again below 9 on the gage**

3. Clear and gain access to the measurement weir by July 11, 2014. Upon clearing and gaining access notify the DLNR so that we can schedule to revisit the site.

**The valley is still very wet and there is not currently access to the weir box from the valley side. I have had my gardener Mr. Joel Roldan clear a path to the weir box coming down from the top of the dam, it is fairly steep however if you access from the corner lot it is reasonable. He has informed me that it is also fairly wet going in from the topside. As of Saturday July 5<sup>th</sup> he was not able to get all the way to the box and he tried to take pictures from a distance. I had him return to site on Tuesday July 8<sup>th</sup> of this week and build a walkway using wood material. He was able to access the box and wipe the measurement gage that was covered by mud. The reading, which I will include with this report. (photo emailed to Denise). I have also emailed the first picture he took with the mud covered gage for your reference. I also asked him to clear the vegetation that was in and around the weir box. At this point I do not have pictures to show the cleared area however I will ask him to take pictures when he returns to site this Saturday. And I will include those photos with me next report**

4. Take and record daily readings of the reservoir water level, flow and clarity of the water at the weir and any other rain, maintenance or other relative information about the dam and reservoir.

**I have spoken to Denise Manuel on this matter and I explained that it was not practical to take daily readings. Denise explained that the DLNR had not been regularly receiving the weekly reports that had been requested in previous facility deficiencies reports. I am not on island to take readings however I contract a gardener Mr. Joel Roldan that is on site every Saturday. Further to that one of the other dam owners Mr. Thomas Atkin is on island**

on Mondays and Wednesdays. We have put in place a plan that between these two individuals we should be able to get reading three times a week. They will take readings Mondays, Wednesdays and Saturdays and then forward them to myself to be compiled and a report emailed to Denise once a week. I have attached a copy of what that report will look like based on the first reading that was taken on Tuesday of this week. That report will include measurements at both the gate and the weir box as well as the local rainfall for the corresponding dates and any comments regarding maintenance done to the DAM

5. Submit readings weekly to our office (email to Denise Manuel: [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov) or fax: 808-241-1860. The first report shall be made no later than July 1, 2014 and shall continue weekly.

I apologize but lack of access to the weir box due to water in the valley precluded us from being able to get readings at the weir box. We also needed to line up people to be able to take the necessary readings. At this point if it is acceptable for us to take the readings three times a week and then submit the results weekly we will begin this process on Saturday July 12<sup>th</sup>. I have attached a copy of what this report would look like based on our first successful reading taken this Tuesday July 8<sup>th</sup>.

6. Retain the services of a professional engineer to assess the seepage and slope stability of the embankment and submit proposed remediation activities to our office.

Denise explained to me that the reason for this request was the increased level of pooling water at and around the base of the dam where the seepage takes place. I had spoken to her previously (approximately in January of this year) about a pool of water that had started to form at the base of the dam and at that time I asked if it would be OK to contract a backhoe operator to clear the overgrown ditch that allows the water to flow away from the Dam. Denise at that time gave me a verbal OK to do that work however when I meet on site with the contractor he said that the valley was too wet at that time to allow access to do the work. (we were just at the end of the rainy season) We then decided to wait until this summer when things were dryer to complete this work to avoid the machine from getting stuck and to allow for a proper job.

Unfortunately in the time between January and now the lake level was allowed to increase to levels much higher than the nine feet that it currently is at and the seepage increased causing the valley to get even wetter. Since the time the lake has been lowered the seepage has reduced in volume and the valley is starting to dry up. The contractor that I have spoken to was the same contractor that did the excavation work to help direct the water from the base of the Dam and install the weir box in the valley back when the seepage study was done. This work was done prior to me buying the property but I am told by that contractor that at that time when the outlet ditch was cleared there was no pooling of water at the base of the dam. The contractor is confident that if the outlet stream is cleared to the back of the property it will allow the seepage water to flow away from the dam. The dam owners have already paid for a seepage study and it indicated that the seepage that was taking place was normal. The contractor that cleared the streambed at the time of the seepage study indicated that having a clear streambed allows the seepage water to flow away from the base of the Dam. The previous seepage study was listed as a draft document and none of the Dam owners have a copy of the final draft.

I feel that a more prudent course of action would be to allow the valley to dry out over the next month to six weeks and then contract the backhoe operator to clear the outlet streambed of the overgrown vegetation to allow the water to flow away from the base of the Dam. I would also propose that the Dam owners get in touch with the engineer that completed the original seepage study and get him to issue a final version of the report. If after clearing the stream bed as suggested we could then see if the seepage water flows away from the dam or if further changes need to be made. There are a lot of issues outstanding on this dam and limited resources available to complete them. My preference would be to spend the money clearing the stream bed to allow the water to flow away from

**the base of the Dam then on paying for a new a seepage study when one has already been done. If this course of action is acceptable I can update you in the weekly reports as to the progress with the drying of the valley and a date that we expect the excavation to take place.**

**Please advise if this is an acceptable course of action.**

**All of the following documents sent via separate email to Denise Manual**

**Draft of weekly report**


**Photo of gate water level gage**

**Photo of weir box gage prior to access and cleaning of gage**

**Photo of gauge after access and cleaning of gage**

**Sincerely Yours,**

  
**Darrell Holowaychuk**  
**Mali'e Wai Farms**

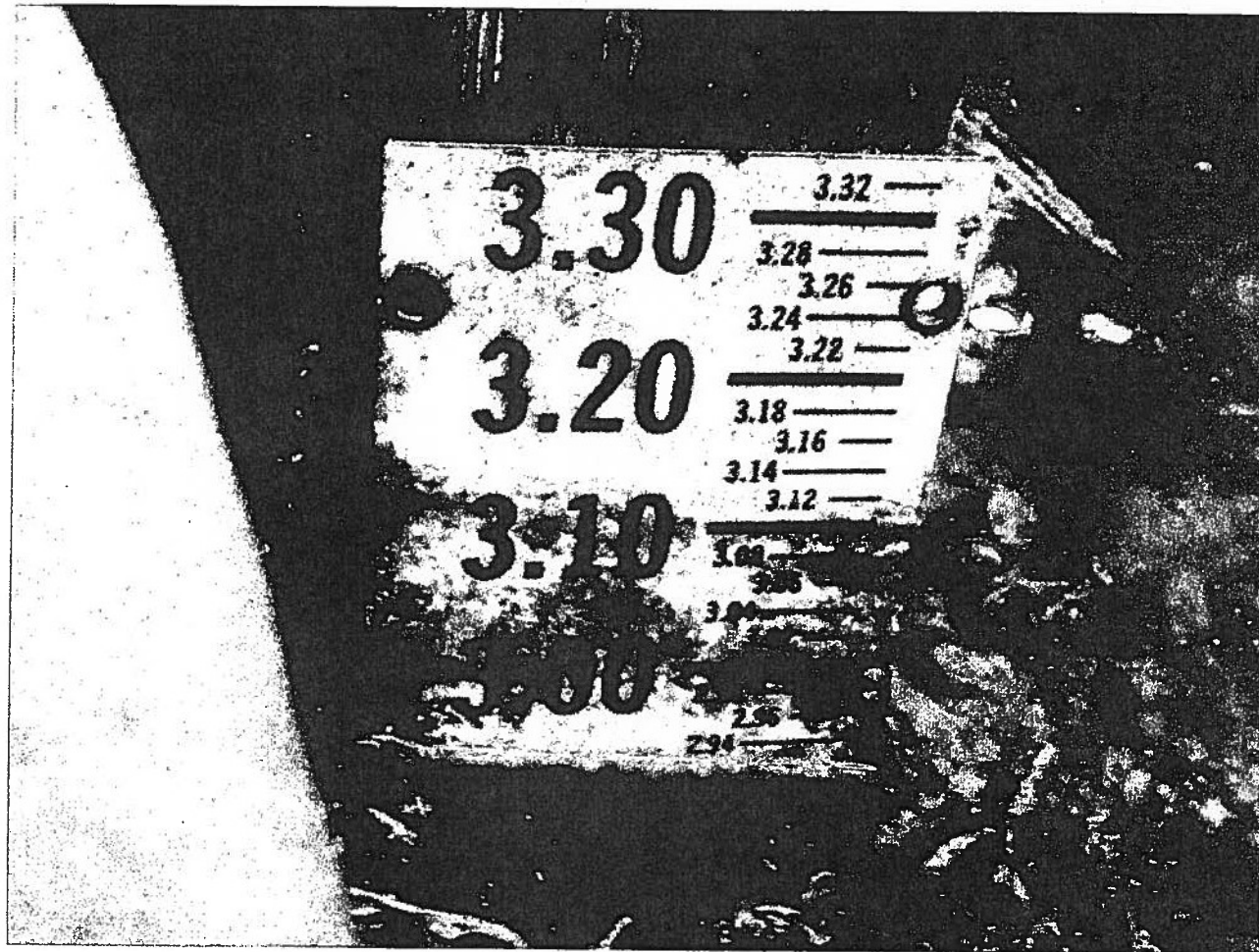
**From:** Joel Roldan <joelroldan96@gmail.com>   
**Subject:** (No Subject)  
**Date:** 9 July, 2014 12:29:18 AM MDT  
**To:** dcp@shaw.ca

1 Attachment, 1.9 MB



From: Joel Roldan <joelroldan96@gmail.com>  
Subject: (No Subject)  
Date: 9 July, 2014 12:21:21 AM MDT  
To: dcp@shaw.ca

1 Attachment, 942 KB





# **Seepage Study: Waiakalua Dam and Reservoir, Kilauea, Kauai**

**Draft Report  
September 10, 2009**

**Prepared for:**

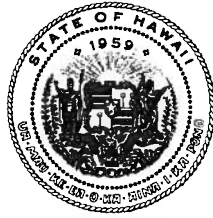
**Save Waiakalua Foundation  
4613 G Waiakalua Rd  
Kilauea HI 96754**

**Prepared by:**



**Sustainable Resources Group Intn'l, Inc.  
111 Hekili Street, Suite A373  
Kailua, HI 96734**

DAVID Y. IGE  
GOVERNOR OF HAWAII



**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

**DEC - 2 2015**

SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

KEKOA KALUHIWA  
FIRST DEPUTY

JEFFREY T. PEARSON, P.E.  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
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STATE PARKS

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Portland, OR 97201

Mr. Darrell Holowaychuck  
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Malie Wai Farms  
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T6H 5R4

Ms. Jeanette Healy  
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PO Box 238  
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Mr. Eric Taylor  
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Kilauea, HI 96754

Mr. V. Stephen Hunt  
TMK: (4) 5-1-005:029-0005  
V. Stephen Hunt Trust  
910 Strand  
Hermosa Beach, CA 90254

Dear Sirs and Madam:

**WAIAKALUA RESERVOIR (KA-0010), KAUAI  
2<sup>ND</sup> NOTICE OF DAM SAFETY DEFICIENCY**

The Department of Land and Natural Resources (Department), Engineering Division is issuing a 2<sup>nd</sup> **NOTICE OF DEFICIENCY** for the operation of the **Waiakalua Reservoir (KA-0010)** as the reservoir was operated above DLNR's restricted water level of 9-ft (gage). The subject facility was issued a Notice of Deficiency on June 24, 2014 and operation of the reservoir was restricted to stay below 9-ft.

DLNR installed a Water Level Monitoring Gage on this facility to aid in the monitoring of the water level. This gage will be available for the dam owners to monitor online soon. Readings from the gage indicated that the water level was exceeding the high level warning threshold set. On September 30, 2015 DLNR conducted a site visit and confirmed that the water level exceeded 11-ft.




You are hereby ORDERED to:

1. Maintain the operating water level in the reservoir to below 9-ft on the staff gage (previously requested). Carry out actions to maintain the water level below this maximum operational level. Provide photographic documentation of the water level at the staff gage in your weekly reporting to the Department. Failure to maintain the water level below this restricted level would be subject to civil resource violation penalties in the amount of \$1,000.00 for the first violation;
2. Clear and maintain access to the seepage measurement weir near the left abutment toe;
3. Take and maintain a log of daily readings of the reservoir water level, flow and clarity of the water at the seepage measurement weir, and note any rain, maintenance or other relative information about the dam and reservoir;
4. Submit daily logs every week to the Department including relevant photos to the Department assigned engineer's email - Denise Manuel: [denise.m.manuel@hawaii.gov](mailto:denise.m.manuel@hawaii.gov). Reports shall be due by Wednesday of the following week. In the past weekly reports were not submitted consistently and failure to submit reports could result in a penalty violation. DLNR will contact Kauai Civil Defense to provide update on the status of this facility as needed;
5. Retain the services of a professional engineer to assess the seepage and slope stability of the embankment and submit a copy of the evaluation and any proposed remediation activities to our office;
6. Complete the attached form, indicating the anticipated schedule for completing the engineering studies and proposed remediation. Resubmit updated schedule upon completion of the study.

These orders encompass and supersede those previously noted in the April 21, 2009, June 24, 2014 and September 9, 2014 letters of deficiencies.

Failure or delinquency to comply with the above stated actions may result in additional penalties and/or Board of Land and Natural Resources actions. Should there be any questions, please contact Ms. Denise Manuel of my staff at (808) 587-0246.

Sincerely,

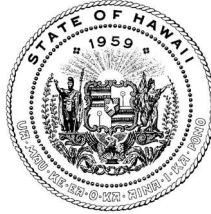


CARTY S. CHANG  
Chief Engineer

Attachment



DAVID Y. IGE  
GOVERNOR OF  
HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
FIRST DEPUTY

M. KALEO MANUEL  
DEPUTY DIRECTOR - WATER

AQUATIC RESOURCES  
BOATING AND OCEAN RECREATION  
BUREAU OF CONVEYANCES  
COMMISSION ON WATER RESOURCE MANAGEMENT  
CONSERVATION AND COASTAL LANDS  
CONSERVATION AND RESOURCES ENFORCEMENT  
ENGINEERING  
FORESTRY AND WILDLIFE  
HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

**STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES**

ENGINEERING DIVISION  
POST OFFICE BOX 373  
HONOLULU, HAWAII 96809

Jul 2, 2021

**VIA EMAIL**

Ms. Beverly Harter  
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[bharter@jackharterheli.com](mailto:bharter@jackharterheli.com)

Ms. Jeanette Healy  
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[victormissiontrust@gmail.com](mailto:victormissiontrust@gmail.com)

Mr. William Flaherty  
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Mr. & Mrs. Raymond & Lori  
Miller  
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[dcp@shaw.ca](mailto:dcp@shaw.ca)

Mr. Frederic North  
TMK (4) 5-1-005:025-5  
649 Palms Blvd  
Venice, CA 90291  
[North649@mac.com](mailto:North649@mac.com)

Dear Sirs/Madams:

**HAWAII DAM SAFETY PROGRAM  
PHASE I INSPECTIONS - ISLAND OF KAUAI  
WAIAKALUA (KA-0010)**

The Department of Land and Natural Resources (Department), Dam Safety Program is pleased to inform you that we have retained AECOM Technical Services, Inc. to conduct a Phase I Dam Safety Investigation of your facility on **August 4, 2021**. We are requesting that you provide access to your facility and a representative to assist the inspection team on the day of the inspection as well as answer any follow up questions that may arise later. We anticipate the inspection to last between 1-3 hours.

For this inspection to be effective, your representative should be able to provide maintenance records for viewing; access to all features of your facility; and assure that spillways, slopes, toe and crest areas are cleared of debris and high vegetation that might prohibit a thorough investigation. Failure to do so could result in a reinspection of the facility at the owner's expense (approximately \$25,000) per HAR 13-190.1-40, c and d.

We will be contacting you soon to schedule the time for the inspection.

Based on the observations during the upcoming inspection, we may be requiring specific actions and schedules for the remediation of Waiakalua Reservoir. These may include maintenance contracts for clearing of larger vegetation. They may also include a specific schedule for slope stability and seepage studies and reports. The goal would be to bring your facility into compliance with HAR §13-190.1-4. Therefore, we strongly encourage you to diligently pursue completing the necessary stability studies which were previously started and deciding on a vegetation maintenance plan that will work long term for the reservoir. This will allow you to participate in setting meaningful goals for the remediation schedule which we will be setting by August 31, 2021.

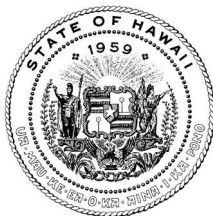
Should you have any question or concerns please contact Ms. Gina Belleau of my staff at (808) 551-1288 or [Gina.C.Belleau@hawaii.gov](mailto:Gina.C.Belleau@hawaii.gov).

Sincerely,



CARTY S. CHANG  
Chief Engineer

DAVID Y. IGE  
GOVERNOR OF HAWAII



SUZANNE D. CASE  
CHAIRPERSON  
BOARD OF LAND AND NATURAL RESOURCES  
COMMISSION ON WATER RESOURCE MANAGEMENT

ROBERT K. MASUDA  
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AQUATIC RESOURCES  
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HISTORIC PRESERVATION  
KAHOOLAWE ISLAND RESERVE COMMISSION  
LAND  
STATE PARKS

STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES

POST OFFICE BOX 621  
HONOLULU, HAWAII 96809

Sep 27, 2021

**VIA CERTIFIED MAIL**

**Ms. Beverly Harter**

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**Mr. V. Stephen Hunt**

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**Mr. Frederic North**

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**Mr. Darrell Holowaychuck**

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**Mr. Thomas Atkin**

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Kilauea, HI 96754

**Mr. William Flaherty**

TMK: (4) 5-1-005:029-0002  
William L. Flaherty, Trust  
222 The Strand  
Hermosa Beach, CA 90254

**Mr. Matthew Miller**

TMK: (4) 5-1-5:029-003  
14025 Cantlay Street  
Van Nuys, CA 91405

Dear Madams and Sirs:

**WAIAKALUA RESERVOIR (KA-0010), KAUAI  
DAM SAFETY - NOTICE OF DEFICIENCY**

The subject regulated dam/reservoir has been classified to be in a poor overall condition and a threat to public safety due to one or more physical / operational conditions and deficiencies identified by the Department of Land and Natural Resources (Department). This Notice of Dam Safety Deficiency supersedes the conditions stipulated in previously issued notice of deficiencies. The subject facility is also classified as a High Hazard Potential dam, as failure could jeopardize the lives of the downstream public.

Pursuant to Hawaii Revised Statutes (HRS) 179D-6, you are required to take the following remediation, maintenance, and monitoring actions, by the deadlines indicated:

1. **Remediation:**

**By 12/1/2021:**

- a. **Submit schedule of technical studies:** On December 2, 2015 the Department requested that a professional engineer assess slope stability of the embankment and seepage from the dam and submit a copy of the evaluation and any proposed

remediation to our office. A consultant began work in 2019, but no further report has been submitted to the Department. Submit a report of what analysis has been completed to date, and a schedule of additional technical studies and reports to be completed for the remediation design.

**By 4/1/2022:**

- b. **Submit technical studies to the Department:** Submit reports completed by your engineer to document compliance with HAR §13-190.1-4 to support the proposed improvements. Examples would be topography map, Hydrologic/Hydraulic studies, stability and seepage analysis and/or other applicable reports required to support the proposed improvements.

**By 12/1/2022:**

- c. **Submit permit application for remediation, repair or removal:** Submit a complete dam safety permit application package (HAR §13-190.1-20) to bring your facility into compliance with HAR §13-190.1-4. If a multi-phase approach to bringing your facility into compliance is chosen, then the permit package for the first phase must be submitted by this date along with a schedule for subsequent phases.

**By 12/1/2023:**

- d. **Start Construction:** Start Construction of the approved Dam Safety Permit improvements. An extension may be granted to this deadline if requested based on scope of work and/or complications with obtaining required permits.

2. **Maintenance Actions:** Clearing of vegetation has been an ongoing problem, which has made it difficult for further investigations to take place. The woody vegetation also has the potential for creating serious safety issues with the dam. Clearing needs to be done on portions of the following properties: TMK: (4) 5-1-005:025-2,3,4, &5, TMK: (4) 5-1-005:029-1,2,3, &4, and TMK: (4) 5-1-005:027.

**By 11/1/2021:**

- a. Clear and maintain clear pathways to critical locations on the structure, including outlet works, spillway, downstream toe, and downstream channel. Send photos of cleared areas to [DLNR.EN.FCDS@hawaii.gov](mailto:DLNR.EN.FCDS@hawaii.gov).

**By 2/1/2022**

- b. Work with a consultant to prepare a vegetation removal plan in accordance with [FEMA 534 technical guidance](#) document and send removal plan to the Department at [DLNR.EN.FCDS@hawaii.gov](mailto:DLNR.EN.FCDS@hawaii.gov). Prepare Operation and Maintenance plan detailing methods, which will be used to maintain the vegetation low, and submit this plan to the Department. On February 1st and August 1st of each year until construction improvements begin, send photos of maintained facility to [DLNR.EN.FCDS@hawaii.gov](mailto:DLNR.EN.FCDS@hawaii.gov).

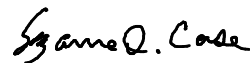
**By 2/1/2023**

- c. Complete clearing of vegetation on the facility per your vegetation removal plan. Send photos of cleared facility to [DLNR.EN.FCDS@hawaii.gov](mailto:DLNR.EN.FCDS@hawaii.gov).
3. **Monitoring and Operations:**
- a. **From 10/1/2021 until implementation of remediation plan:** Once per month (on the first business day of the month), submit daily logs of seepage measurement weir, noting flow and clarity of water to [DLNR.EN.FCDS@hawaii.gov](mailto:DLNR.EN.FCDS@hawaii.gov). Daily access through TMK: (4) 5-1-005:025-4 must be provided to agreed upon reporter to take the measurement at the weir gate.
  - b. **Starting one week from the send date of this letter:** Continue to maintain the operating water level in the reservoir to below 9-ft on the electronic gage. The water level is being electronically monitored at <https://uhslc.soest.hawaii.edu/reservoir/?stn=EDD00CC6>. While fluctuations during large storm events are unavoidable, level should always be dropped as quickly as possible following events. If upcoming events are predicted, the water level should be lowered in anticipation. If the water level is above the 9' threshold for more than 72 hours, you will be subject to a Civil Resource Violation System (CRVS) penalty of up to \$1000 for first violation, and up to \$2000 or as directed by the Board of Land and Natural Resources for subsequent violations.

Failure to comply with the Remediation and Maintenance and Monitoring actions by the indicated deadlines will result in an order to further drain the reservoir to ensure public safety. Additionally, failure to comply may result in penalties of up to \$25,000 per day and other actions by the Board of Land and Natural Resources pursuant to HRS § 179D-6 and 8 and HAR § 13-190.1-5.

Please contact Gina Belleau of my Engineering Division staff at [Gina.C.Belleau@hawaii.gov](mailto:Gina.C.Belleau@hawaii.gov) should you have any questions regarding this matter.

Sincerely,



SUZANNE D. CASE  
Chairperson