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August 16, 2024

The Honorable Chair and Members
State of Hawaii Public Utilities Commission
Kekuanaoa Building, 1st Floor
465 South King Street, Room 103
Honolulu, HI 96813

Re: Non-Docketed Case No. 2023-04661
Wailuku Water Company, LLC's Utility Natural Hazard Mitigation Report

Honorable Chair and Members of the Commission:

On behalf of the Wailuku Water Company, LLC ("WWC"), and pursuant to the Commission's Order Nos. 40396 and 40419 issued in the above-referenced proceeding, please find enclosed WWC's Natural Hazard Mitigation Report.

Thank you for your attention to this matter.

Very truly yours,

SCHLACK ITO
A LIMITED LIABILITY LAW COMPANY

/s/ Douglas A. Codiga
Douglas A. Codiga

Encl.
Copy: Division of Consumer Advocacy (via e-mail)

WAILUKU WATER COMPANY, LLC
NATURAL HAZARD MITIGATION REPORT

The Wailuku Water Company, LLC Natural Hazard Mitigation Report ("Report") is submitted by Wailuku Water Company, LLC ("WWC") pursuant to Order No. 40396[1] and Order No. 40669.[2] The scope of this Report is tailored for non-potable water delivery service by WWC from the WWC irrigation ditch and non-potable water distribution system to the customers[3] in its service area.[4]

OVERVIEW

Historical Background and Mission

WWC was previously an affiliate of Wailuku Sugar and Wailuku Agribusiness Company, Inc., both subsidiaries of C. Brewer Co. Ltd., which have been operating on Maui since 1826. Past enterprises have included sugarcane, macadamia nuts and pineapple among others. Today, WWC provides non-potable water delivery service to Maui residents for a variety of uses, including irrigation water for diversified agriculture, as a non-potable source for the County of Maui Department of Water Supply, and for native Hawaiian traditional and customary practices.

With over 8,911 acres of watershed land, WWC appreciates the link between the native Hawaiian forest and the waters which emerge from it. The principal rivers or streams of Waiheʻe, Waiehu, ʻĪao, and Waikapū run through the watershed land and are collectively Nā Wai ʻEhā, or the Four Great Waters. WWC's mission states: "Our greater purpose as guardians of this precious natural resource is to recognize not only the need to maintain our systems properly but also to recognize the importance of ecological and cultural sustainability."

Description of WWC System

The following describes the irrigation ditch system and the non-potable water distribution system (collectively, "WWC System") for purposes of this Report.

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[1] Order No. 40396 Directing Public Utilities to Develop and File Reports Related to Their Ongoing Efforts and Future Mitigation Plans to Address Natural Hazards filed Nov. 21, 2023 (Non-Docketed Case No. 403661) ("Order No. 40396").

[2] Order No. 40669 Granting Hawaiian Electric's Request for Extension of Time to File Natural Hazard Mitigation Reports filed March 1, 2024 ("Order No. 40669"). WWC's Report is timely filed on or before August 21, 2024 pursuant to Order No. 40669. *Id.* at 4.

[3] The term "customer" is used for convenience only. WWC proposes to provide service to "Contract Customers," "Customers," and "Users" as those terms are defined in WWC's Amended Application filed on May 22, 2024 in Docket No. 2008-0025.

[4] A utility's "planned projects and/or programs will differ across the various utility sectors, based on the size of the utility, type of utility service provided, and customer base" and a report should be "responsive to the natural hazard challenges it has identified," as well as the anticipated cost recovery that will be requested from the Commission in furtherance of the mitigation plans. Order No. 40396 at 8-9.

Irrigation ditch system

WWC's man-made ditch system is comprised of the Waiheʻe Ditch, Spreckels Ditch, ʻĪao-Maniania Ditch, the ʻĪao Waikapū Ditch, and the South Waikapū Ditch.

Waiheʻe Ditch. The Waiheʻe Ditch runs from Waiheʻe River to Maalaea and is the major ditch system for WWC. The ditch taps Waiheʻe River at the 650 foot elevation just below Alelele Falls. Its 10.03 mile length includes 22 tunnels, totaling 16,539 feet; 39 flumes totaling 2,764 feet; 35,549 feet of open, cement-lined ditch; and a 1,253 feet long, 3 feet diameter siphon across the Wailuku River.

Spreckels Ditch. Spreckels Ditch is 6.71 miles and runs parallel to Waiheʻe Ditch from Waiheʻe River to Wailuku where it feeds the Waiale reservoir, which is operated and controlled by Mahi Pono. WWC uses Spreckels Ditch to irrigate the Waiheʻe and Waiehu areas. The Waiheʻe River, Wailuku River and Waikapū Stream feed the ditch system, with some of the streams utilizing the smaller ditches and eventually dropping water off into the Waiheʻe Ditch.

Intakes. Non-Potable water is diverted through a series of intakes located on these three major sources of surface water which are registered diversions with the Commission on Water Resource Management ("CWRM"). The intakes are built with 3 to 4 inch steel grading covering a concrete apron, which then transports water through tunnels and control gates and on to the ditches.

Ditch flows. Water from Waiheʻe River is diverted into Waiheʻe Ditch and the Spreckels Ditch. Water from the Wailuku River feeds the ʻĪao-Maniania Ditch and the ʻĪao Waikapū Ditch. The ʻĪao-Waikapū Ditch serves the Wailuku and the Waikapū area and its excess water is dropped into the Waiheʻe Ditch. The Waikapū Streams feeds the South Waikapū Ditch which serves the Waikapū area and excess water is dropped into the Waiheʻe Ditch.

Non-potable water distribution system

The public utility non-potable water distribution system consists of a series of man-made ditch distribution systems. Water is diverted by intakes from the Waiheʻe River, Waikapū Stream and Wailuku River.

Waiheʻe River. Waiheʻe River has two intakes, one for the Waiheʻe Ditch and one for Spreckels Ditch, and the Wailuku River Intake feeds the ʻĪao-Waikapū Ditch and ʻĪao-Maniania Ditch. Intakes to divert water are built with 3 to 4 inch steel grading covering a concrete apron which then transports water through control gates and on to the ditches. Water from Waiheʻe River is diverted, transported, and delivered to customers using Waiheʻe Ditch and Spreckels Ditch. Waiheʻe Ditch runs from Waiheʻe River to Maalaea and is the major ditch for WWC.

Distribution ditches. WWC uses the Spreckels Ditch for irrigation in the Waiheʻe and Waiehu areas then transports the water to Mahi Pono. Water from Wailuku River is transported and delivered to customers using the ʻĪao-Waikapū Ditch and the ʻĪao-Maniania Ditch. The ʻĪao-Waikapū Ditch serves the area south of ʻĪao Stream to its various customers then drops water into the main Waiheʻe Ditch. The ʻĪao-Maniania Ditch transports water north of Wailuku River to various customers then drops water into the Waiheʻe Ditch.

The non-potable water distribution system is based on gravity flow and does not use pumps to feed or divert water. The water flow is regulated by control gates. The diverted water passes through gravel traps and through a control gate, which limits the amount of water diverted from the stream or river. Ditch flow measurements are collected on a daily basis.

Service Area

A map showing WWC's Service Area is attached as Exhibit A. WWC's geographical Service Area is located in the Waiheʻe, Waiehu, Puuohala, Wailuku, and Waikapū areas on the island of Maui and consists primarily of agricultural, agribusiness, farm, and pasture properties. The Service Area also contains residences, two golf courses, commercial properties, and the delivery point for non-potable water from WWC's system to the County of Maui Department of Water Supply.

Staffing and Chain of Command

WWC is a small non-potable water distribution utility. Staff includes the President (Mr. Avery Chumbley), an Account Manager, a Compliance Officer, and a Field Staff with one Supervisor and four Ditchmen.

Name and Title	**Responsibilities During an Emergency**	**Contact Numbers**
Avery B. Chumbley President	Make official decisions regarding WWC System; coordinate emergency response; communicate with emergency response officials as necessary	(808) 276-3595
Noel Baloaloa Field Staff – Operation Supervisor	Direct, oversee and implement WWC System operations, maintenance and repairs, including response to natural hazard events	(808) 754-3625
Renee Chavez Joseph Partlow Bradley Castro Charles Reinhardt Field Staff – Ditchmen	Implement WWC System operations, maintenance and repairs, including response to natural hazard events	(808) 244-7051

Michael Westfall Compliance Officer	Assist President and Field Supervisor as needed	(808) 244-7051
Desiree Au Sau Account Manager	Assist President and Field Supervisor as needed	(808) 244-7051

MITIGATION AND ADAPTATION PLANS

The following discusses "[m]itigation/adaptation plans for natural hazards, including, but not limited to, tsunamis, wildfires/red flag events, hurricanes, volcanic hazards, earthquakes, floods and landslides, and extreme heat and drought."[5] The mitigation and adaptation plans are discussed in this Report constitute and may also be referred to as the WWC Natural Hazard Mitigation Plan ("WWC NHMP").

The WWC System and operations have been directly and adversely impacted by hurricanes, floods, landslides, and drought. To date, the WWC System has not been directly and adversely impacted by tsunamis, wildfires/red flag events, volcanic hazards, earthquakes, or extreme heat events and the probability of the occurrence of these natural hazard events is considered to be low. References to natural hazards in the WWC NHMP and this Report generally refer only to hurricanes, floods, landslides, and drought.

Objectives, Goals and Metrics

The objectives and goals of the WWC NHMP are to identify components or aspects of the WWC System that may be impacted by natural hazards and identify relevant mitigation and adaptation actions. Metrics as related to the mitigation actions are as described with regard to specific hazards.

Utility values and expectations regarding natural hazard mitigation

WWC's values and expectations regarding natural hazard mitigation are aligned with its purpose of providing non-potable water delivery service to Maui residents for a variety of uses, including irrigation water for diversified agriculture, as a non-potable source for the County of Maui Department of Water Supply, and for native Hawaiian traditional and customary practices. These values and expectations also reflect WWC's "greater purpose as guardians of this precious natural resource is to recognize not only the need to maintain our systems properly but also to recognize the importance of ecological and cultural sustainability."

Lessons learned from past natural hazard events

Lessons learned from past natural hazard events are found in the various incremental adaptations, improvements, and modifications made by WWC over time to infrastructure and operational practices in response to natural hazard events. WWC and its predecessors have

[5] *Id.* at 5.

operated and maintained the WWC System for many decades. During this time, the WWC System has been directly and adversely impacted by natural hazards including hurricanes, floods, landslides, and drought. In response to these events, WWC has regularly and proactively adapted, improved and modified as necessary infrastructure and operations and WWC will continue these practices as part of the WWC NHMP.

Service territory information

Utility infrastructure and environmental conditions

The WWC System is gravity-based, i.e., it utilizes gravity to collect, transport and distribute non-potable water in the Service Area. Utility infrastructure consists primarily of the irrigation ditch system and non-potable water distribution system discussed above. The WWC System also includes control gates and weirs, sand filters and other minor facilities and equipment. Environmental conditions and natural features relevant to the WWC System and this Report relate primarily to the watersheds, weather and precipitation, and drought conditions.

Communities and regions at risk; critical facilities; special needs customers

Risks to the WWC System from natural hazards events pertain primarily to customers located within the Service Area. The WWC System is a source of non-potable water to the County of Maui Department of Water Supply. There are no special needs customers.

Environmental compliance and permitting issues and risks

In the event of harm or damage to the WWC System from a natural hazard event that requires repair or replacement of WWC System components, WWC anticipates that it will be required to obtain permits and approvals from various State and federal agencies, including the U.S. Army Corps of Engineers ("ACE") and the State of Hawaii Commission on Water Resource Management ("CWRM"). WWC will comply with all applicable requirements regarding governmental permits and approvals.

Risk assessment methodology and natural hazard mitigation strategy development

WWC employs an informal vulnerability-based methodology to identify potential issues regarding the WWC System relating to the WWC NHMP. This methodology is integrated into WWC's regular ongoing daily operation and maintenance of the WWC System. The natural hazard mitigation strategy is summarized in the following table.

Natural Hazard	Risk/Vulnerability	Mitigation Before Event	Recovery After Event
Hurricane	1. Excess precipitation	Follow WWC procedures and protocols to reduce ditch flows to a minimum	Follow WWC procedures and protocols to restore ditch flows to typical flow

	2. High winds causing downed trees or branches clogging ditches 3. Overcapacity water in ditches and reservoirs over capacity	flow using WWC System control gates[6] Prioritize cleanout intakes and remove debris in ditch Regular ditch maintenance with herbicide, etc. for vegetative control	using WWC System control gates.
Floods	1. Overcapacity water in ditches and reservoirs	Follow WWC procedures and protocols to reduce ditch flows to a minimum flow using WWC System control gates[7] Prioritize cleanout intakes and remove debris in ditch Regular ditch maintenance with herbicide, etc. for vegetative control	Follow WWC procedures and protocols to restore ditch flows to typical flow using WWC System control gates.
Landslides	1. Earth movement blocking or impeding water in ditches and reservoirs	Follow WWC procedures and protocols to adjust ditch flows in response to landslide location using WWC System control gates[8]	Follow WWC procedures and protocols to restore ditch flows to typical flow using WWC System control gates.
Drought	1. Lack of water to serve WWC System customers	Implement additional water conservation measures to the extent possible and feasible Adjust and operate WWC System to help ensure available water is provided to WWC System customers	Adjust and operate WWC System to restore flows so that available water is provided to WWC System customers.
Tsunami Wildfires/red flag events Volcanic hazards Earthquakes Extreme heat events	The WWC System has not been directly and adversely impacted by tsunamis, wildfires/red flag events, volcanic hazards, earthquakes, or extreme heat events and the probability of the occurrence of these natural	N/A	N/A

[6] A minimum flow is required to carry any debris dumped into the ditch, and be able to carry excess runoff water down the system into adjoining streams.
[7] See note 5, above.
[8] See note 5, above.

	hazard events is considered to be low.		

Situational awareness and forecasting

The open ditch, gravity-fed attributes of the WWC System, and relative lack of closed-system control, require WWC staff to develop and maintain deep familiarity with weather and natural processes over extended time periods, and to employ suitable forecasting and monitoring technologies. WWC staff have decades of experience with monitoring and forecasting weather conditions, precipitation and water flows and how natural conditions interact with and influence operation and maintenance of the WWC System with a focus on providing service to WWC System customers.

Monitoring and forecasting technologies and practices include: (1) daily or regular field observations of ditches, reservoirs, weirs and gates and other aspects of the WWC System; and (2) continuous monitoring of online databases and sources, including weather forecasts and updates from the National Oceanic Atmospheric Administration.

WWC website and engagement with WWC System customers

WWC engages with WWC System customers directly on an as-needed basis and also through the WWC website. The WWC System customers receive non-potable water for agricultural and water supply purposes, as well as for native Hawaiian traditional and customary practices. If there are problems or issues due to the open-ditch, gravity-fed system, customers contact WWC and WWC will evaluate the situation and take appropriate steps to respond.

WWC anticipates providing online updates regarding any impacts to the WWC System from natural hazard events through the WWC website "Status Updates" webpage.[9]

The website also includes a "Resources" webpage which provides links to data and information relating to weather and meteorological conditions affecting the WWC System, including the following links:

Topic	**Link**
Water data	Waihee Rv abv Waihee Dtch intk nr Waihee, Maui, HI - USGS Water Data for the Nation
	Wailuku River at Kepaniwai Park, Maui, HI - USGS Water Data for the Nation
	Wailuku River at Iao Valley Road, Maui, HI - USGS Water Data for the Nation
	https://waterdata.usgs.gov/monitoringlocation/205327156351102/#parameterCode=00045&period=P7D

[9] *Available at* https://www.wailukuwater.com/status-updates.

Meteorological information	http://mkwc.ifa.hawaii.edu/satellite/index.cgi
	National Hurricane Center (noaa.gov)
	Pacific Region Headquarters (weather.gov)
	http://rainfall.geography.hawaii.edu/
	http://climate.geography.hawaii.edu/
Regulatory information	Commission on Water Resource Management (hawaii.gov)
	Mauna Kahālāwai (maunakahalawai.org)

Staff training and workforce planning

WWC staff undergo quarterly trainings regarding WWC System operation and maintenance and these trainings contribute to knowledge and awareness of how to respond to natural hazard events. In addition, staff undergo an annual training focused on natural hazard mitigation and the WWC System.

Proposed expenditures for projects and programs

WWC undertakes various incremental adaptations, improvements, and modifications over time to infrastructure and operational practices in response to natural hazard events, as necessary and appropriate. These expenditures would be recovered in rates or other available cost recovery mechanisms.

RESPONSE GUIDELINES, PROCEDURES AND CHECKLISTS

Standard Operating Procedures ("SOP")

In response to a natural hazard event, WWC intends to utilize the protocols and procedures it relies upon for the various incremental adaptations, improvements, and modifications made by WWC over time to infrastructure and operational practices in response to natural hazard events.

WWC maintains and utilizes written Standard Operating Procedures ("SOP") for the maintenance and operation of WWC System ditches and reservoirs. The SOPs apply to all WWC personnel involved in the operation and maintenance of ditches and reservoirs. The SOPs establish procedures for existing diversions, reservoir maintenance, sluicing and flushing of reservoirs, ditch maintenance and Best Management Practices.

The SOPs also establish procedures for reporting any overtopping of emergency spillways structures and procedures for responding to a storm event.

Pursuant to the SOPs, in the event storm conditions could result in storm water accumulations in ditches, WWC will monitor weather forecasts and conditions and adjust control structures to reduce diversions or lower water levels in order to reduce the potential for overtopping of emergency spillway structures (as applicable). If storm conditions indicate a 10-year storm may occur, WWC may adjust control gate diversions to shut off water flows.

Under the SOPs, WWC will inform WWC System customers of preventative and maintenance actions that may impact the delivery of non-potable water.

Required personnel and work duties

In response to a natural hazard event, the President will be in charge of the response activities. The Field Staff Supervisor will report directly to the President. The Field Staff Ditchmen will report to the Supervisor and President as needed. The Account Manage and Compliance Officer will report to the President and be available to assist as needed at the President's discretion. No change is anticipated to the usual personnel safety measures.

Reporting and recordkeeping

In response to a natural hazard event, WWC will complete reporting and recordkeeping in the usual manner.

COMMUNICATIONS AND REPORTING

Coordination with federal, State and county agencies

In response to a natural hazard event, WWC will coordinate with federal, State and County of Maui agencies on an as-needed and as-appropriate basis. WWC is a source of non-potable water, and will coordinate closely with, the County of Maui Department of Water Supply.

Customer notifications

In response to a natural hazard event, WWC plans to notify customers primarily by posting relevant information on the WWC website.

DAMAGE ASSESSMENT AND RESTORATION

WWC will conduct a damage assessment after a natural hazard event as necessary and appropriate. Priority will be given to ensuring water delivery service to WWC System customers, including the County of Maui Department of Water Supply. WWC maintains a stock of parts of infrastructure parts and equipment for common repairs and replacements which will be available for use.

BUSINESS CONTINUITY PLANS

Insurance coverage

WWC maintains property liability insurance. WWC has experienced difficult in insuring the WWC System based on the age of the infrastructure. In 2016, WWC made a claim under an insurance policy for damage caused by a natural hazard event and the claim was denied by the insurer.

Reporting on financial condition to the Commission

In response to a natural hazard event, WWC will report on its financial condition as necessary and appropriate.

Prioritization plans for dockets, projects and programs

WWC will prioritize any plans for dockets, projects and programs based on lessons learned from ongoing operation and maintenance of the WWC System in response to any natural hazard events.

Notices to government agencies regarding major effects on operations or finances

In response to a natural hazard event, WWC will report on any effects on operations or fitness, as necessary and appropriate, to: (1) CWRM; (2) the State of Hawaii Department of Land and Natural Resources ("DLNR"); (3) DLNR Dam Safety Division; and (4) any other relevant federal, State and County of Maui agencies.

Cost Recovery Plans

Pursuant to Order No. 40396, utilities are to provide information regarding how they plan to recover the costs for construction and implementation of resiliency efforts and mitigation planning and projects, and the Commission will review cost recovery plans in these natural hazard mitigation reports against subsequent utility applications to assess the reasonableness of the costs.[10]

WWC is the applicant in the pending Docket No. 2008-0025 seeking approval from the Commission of its request for a Certificate of Public Convenience and Necessity ("CPCN"), updated tariff rates, and temporary increases in rates. WWC expenditures and cost recovery plans as related to natural hazard mitigation may be impacted by the timing of Commission review and approval of the requested relief in this docket.

[10] Order No. 40396 at 8.

WAILUKU WATER COMPANY PUC SERVICE AREA

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SCALE: 1 IN. = 1000 FT.

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