Battle over wastewater in Wailua

By Chris D'Angelo - The Garden Island | Sunday, April 20, 2014, 2 a.m.

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LIHUE — The County of Kauai is fighting stricter water quality standards at its Wailua Wastewater Treatment Plant, which already has a history of exceeding certain pollutant limitations.

A new discharge permit for the facility, issued by the state Department of Health in October, "establishes effluent limits not technically feasible to achieve," the county Department of Public Works wrote in comments to DOH in August.

DPW added it is concerned "that the people of Kauai will be burdened with pursuing an endless quest to achieve such compliance."

The county has since filed a request for a contested case hearing, asserting that DOH "has not properly evaluated the factual and legal issues" and "acted arbitrarily and capriciously" in issuing National Pollutant Discharge Elimination System and Zone of Mixing permits for the plant.

Deputy County Attorney Jodi Higuchi-Sayegusa said in a statement that the county is meeting the fundamental regulations set by the Environmental Protection Agency, which have not changed for years.

"In the contested case, the county hopes to clarify the application of new conditions in the county's (NPDES) Permit for the Wailua Wastewater Treatment Plant based on all the available data and scientifically defensible analyses," he said.

In other words, the county says complying with the new standards, specifically for ammonia nitrogen, will be next to impossible.

The Wailua plant discharges up to 1.5 million gallons of treated effluent per day through a "deep ocean outfall" that begins approximately 670 feet offshore of Lydgate Beach and 30 feet below the ocean surface.

The diffuser sits approximately 1,500 feet south of the keiki pool at Lydgate Beach Park.

EXHIBIT "I-66"

In a Summary of Compliance related to the issued permit, DOH outlined several incidents in which the Wailua plant exceeded water quality standards between 2009 and 2012. Those pollutants included chlorine and Enterococcus bacteria, an indicator of fecal contamination.

Water quality specialist Dr. Carl Berg said the main issue is that the plant is not working properly.

“Too high bacteria loads being dumped,” he said after reviewing the documents. “Rules changed and they have to meet new bacteria and ammonia standards which they can’t meet.”

Berg questioned why the county would choose to spend taxpayer money fighting stricter environmental controls.

The “county should have done the pono thing and upgraded the WWTP years ago and stopped dumping in the ocean,” he said.

During an executive session April 9, the Kauai County Council voted 7-0 to approve a request by the county attorney to expend $20,000 to retain special counsel to represent the county in the contest case.

Although he could not discuss the issue in detail, Council Chair Jay Furfaro said the council has concerns about changes in permit requirements and is seeking clarification.

In a response to county concerns, DOH maintained that implementation of the new standards is “not discretionary” and must be done “in a manner protective of water quality.”

The department established a 10-year compliance schedule to provide enough time for the county to identify methods to meet the new objectives, specifically for ammonia nitrogen. The first of 14 required tasks is to secure funding to evaluate its alternatives and submit a report by Oct. 30.

“DOH assumes that substantial and costly facility alterations may be necessary, but identifying specific methods to comply … is the responsibility of the Permittee,” it wrote in its response to county concerns.

“Additionally,” DOH said, “the (county) may evaluate alternative methods besides treatment to achieve compliance,” including other disposal methods and reuse.

The county, however, called the 10-year schedule “unreasonable” because DOH did not address whether achieving the final effluent limits is in fact feasible.

County spokeswoman Mary Daubert did not have an estimate of how much future upgrades to the plant would cost, but said it “may be substantial.”

DOH Public Information Officer Janice Okubo said because it is a contested case, she could not discuss the matter in detail. However, DOH has the ability to fine the county up to $25,000 per day, per violation for noncompliance, she said.

“A lot of times (when) we pursue an enforcement case there are variables to penalties,” she said.

For years, the Kauai Surfrider Foundation’s Blue Water Task Force has been collecting monthly water samples off of Lydgate Beach. Berg said that on multiple occasions Enterococcus bacteria counts there have registered “in the thousands” for a single sample, despite the fact that anything above 104 bacteria per 100 ml is considered polluted.

In December of both 2009 and 2011, the Wailua plant exceeded effluent discharge limitations for Enterococcus, according to documents.

Berg said his greater concerns include the county using the ocean as a dump site and that what they refer to as “wastewater” actually contains valuable nutrients that could be used elsewhere.

“The ocean is not a dump site,” he said. “I am just appalled that at this day in age an island community would even consider (discharging treated effluent).”

In its 16-page request for a hearing, the county outlined several additional concerns about the new permits, including required testing methods and shoreline monitoring schedules. It has requested that the permits be revised to exclude certain effluent limits as well as the 10-year compliance schedule.

“The County will be able to further elaborate on the case once administrative litigation is completed in Nov. 24-26, 2014,” Higuchi-Sayegusa said in his statement.

• Chris D’Angelo, environmental reporter, can be reached at 245-0441 or cdangelo@thegardenisland.com.

https://www.thegardenisland.com/2014/04/20/hawaii-news/battle-over-wastewater-in-wailua/

STATE OF HAWAII

DEPARTMENT OF EDUCATION

PROCUREMENT AND CONTRACTS BRANCH

SEPTEMBER 14, 2020

INVITATION FOR BIDS

No. IFB D21-015

SEALED BIDS

FOR

THE MAINTENANCE AND REPAIR OF

INDIVIDUAL WASTEWATER SYSTEMS (IWS) FOR VARIOUS

HAWAII DEPARTMENT OF EDUCATION (HIDOE) SCHOOLS ON THE ISLANDS

OF OAHU, MAUI AND KAUAI

will be received through the State of Hawaii eProcurement System (HIePRO) at https://hiepro.ehawaii.gov/welcome.html until 4:30 p.m., Hawaii Standard Time (HST)

on

SEPTEMBER 28, 2020

Offerors interested in responding to this electronic solicitation must be registered on the HIePRO (https://hiepro.ehawaii.gov/welcome.html) in order to participate in this procurement. Registration is free. Once registered, Offerors can login to view and respond to the HIePRO solicitation.

Questions relating to this solicitation may be directed to Ms. Louise Yasuda, Procurement and Contracts Support Specialist, at telephone (808) 675-0130, via facsimile (808) 675-0133, or via email at louise.yasuda@k12.hi.us

EXHIBIT "I-67"

The following is hereby submitted:

GROUP C: ISLAND OF KAUAI

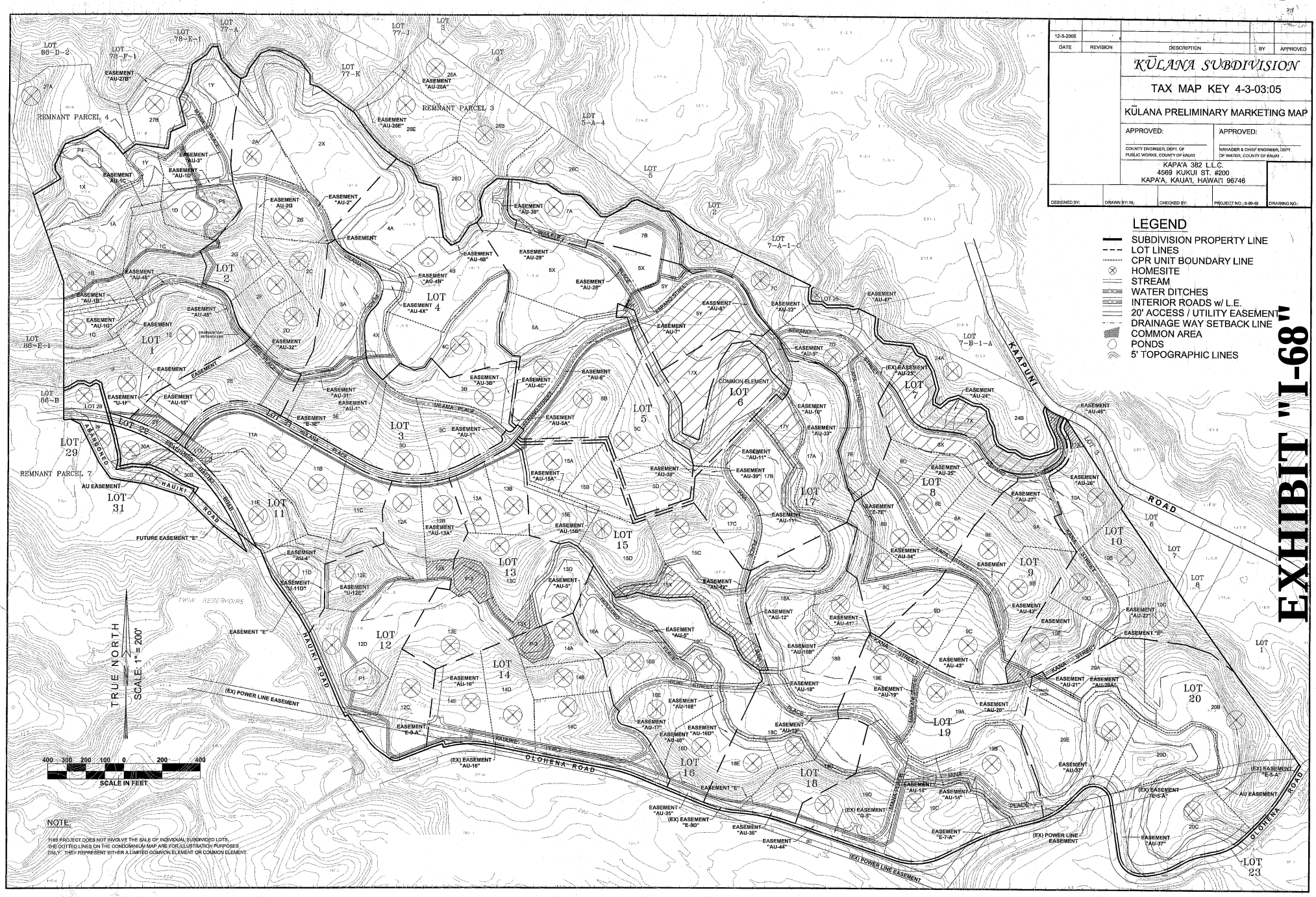
	Location	Item	Capacity	Model	Monthly Service Price (12 cycles/year) (a)	Quarterly Service Price (4 cycles/year) (b)	Semi-Annual Service Price (2 cycles/year) (c)	Annual Service Price (1 cycle/year) (d)	Total Bid Price (a+b+c+d)
PART A									
Group C: Island of Kauai - Recurring Maintenance Septic/Dosing Tanks, Sewage Pumps, Preloader Tanks and Leach Fields									
1	Anahola Elementary School, Bldg C	Septic Tank	8' - 8,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
2	Hanalei Elementary, Bldg C, Cafeteria	Septic Tank	4,847 gallon	concrete	n/a	n/a	$ -	n/a	$ -
3	Halalei Elementary, Courtyard, Bldg A/D	Septic Tank	3,366 gallon	concrete	n/a	n/a	$ -	n/a	$ -
4	Kalaheo Elementary School, Bldg C	Septic Tank	6' - 3,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
5	Kalaheo Elementary School, Bldg M/Café	Septic Tank	6' - 4,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
6	Kalaheo Elementary School, New Admin Bldg	Septic Tank	8' - 4,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
7	Kalaheo Elementary School, Bldg I/J	Septic Tank	6' - 5,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
8	Kalaheo Elementary School, Bldg I/J	Septic Tank	6' - 5,000 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
9	Kalaheo Elementary School, Bldg A/G	Septic Tank	1000 gallon	JP1000 Concrete	n/a	n/a	$ -	n/a	$ -
10	Kapaa Middle School, Bldg PB2	Septic Tank	16,814 gallon	concrete	n/a	n/a	$ -	n/a	$ -
11	Kapaa Middle School, Bldg PB2	Septic Tank	16,814 gallon	concrete	n/a	n/a	$ -	n/a	$ -
12	Kapaa Middle School, Bldg PB2	Dosing Tank	8,584 gallon	concrete	n/a	n/a	$ -	n/a	$ -
13	Kappa Middle School, Bldg PB2	Sewage Pump	5 HP	460 GPM, 35 TDH	n/a	n/a	$ -	n/a	$ -
14	Kappa Middle School, Bldg PB2	Sewage Pump	5 HP	460 GPM, 35 TDH	n/a	n/a	$ -	n/a	$ -
15	Kauai High School, Bldg V, G, Farm Shop, M	Septic Tank	6' - 1,500 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
16	Kauai High School, Bldg V, G, Farm Shop, M	Septic Tank	6' - 1,500 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
17	Kauai High School, Bldg V, G, Farm Shop, M	Septic Tank	6' - 1,500 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -
18	Kauai High School, Bldg V, G, Farm Shop, M	Septic Tank	6' - 1,500 gallon	Xerxes	n/a	n/a	$ -	n/a	$ -

The following is hereby submitted:

	Location	Item	No. of Units (a)	Capacity	Model	Unit Price Per Pump Out Location (b)	Total Pump Out Price (a x b)
PART B							
GROUP C - ISLAND OF KAUAI - PUMPOUT PRICING							
1	Anahola Elementary School, Bldg C	Septic Tank	1	8' - 8,000 gallon	Xerxes	$ -	$ -
2	Hanalei Elementary, Bldg C, Cafeteria	Septic Tank	1	4,847 gallon	concrete	$ -	$ -
3	Halalei Elementary, Courtyard, Bldg A/D	Septic Tank	1	3,366 gallon	concrete	$ -	$ -
4	Kalaheo Elementary School, Bldg C	Septic Tank	1	6' - 3,000 gallon	Xerxes	$ -	$ -
5	Kalaheo Elementary School, Bldg M/Café	Septic Tank	1	6' - 4,000 gallon	Xerxes	$ -	$ -
6	Kalaheo Elementary School, New Admin Bldg	Septic Tank	1	8' - 4,000 gallon	Xerxes	$ -	$ -
7	Kalaheo Elementary School, Bldg I/J	Septic Tank	1	1000 gallon	JP1000	$ -	$ -
8	Kalaheo Elementary School, Bldg A/G	Septic Tank	2	6' - 5,000 gallon	Xerxes	$ -	$ -
9	Kapaa Middle School, Bldg PB2	Septic Tank	2	16,814 gallon	concrete	$ -	$ -
10	Kauai High School, Bldg V, G, Farm Shop, M	Septic Tank	4	6' - 1,500 gallon	Xerxes	$ -	$ -
11	Kauai High School, Bldg I	Septic Tank	1	6' - 3,000 gallon	Xerxes	$ -	$ -
12	Kauai High School, Bldg I (2), J O	Septic Tank	4	6' - 4,000 gallon	Xerxes	$ -	$ -
13	Kauai High School, Bldg B,H,J,U,Y, A/K	Septic Tank	6	6' - 5,000 gallon	Xerxes	$ -	$ -
14	Kauai High School, Bldg L	Septic Tank	1	8' - 9,000 gallon	Xerxes	$ -	$ -
15	Kauai High School, Bldg C	Septic Tank	1	8' - 11,000 gallon	Xerxes	$ -	$ -
16	Kauai High School, Bldg T	Septic Tank	1	8' - 14,000 gallon	Xerxes	$ -	$ -
17	Kauai High School, Bldg L	Septic Tank	1	10' - 20,000 gallon	Xerxes	$ -	$ -
18	Kauai High School, Bldg L	Septic Tank	1	10' - 22,000 gallon	Xerxes	$ -	$ -
19	Kauai High School, Bldg A	Septic Tank	1	5,000 gallon	concrete	$ -	$ -
20	Kilauea Elementary School, Classroom D	Septic Tank	1	6' - 1,500 gallon	Xerxes	$ -	$ -
21	Kilauea Elementary School, Bldg A	Septic Tank	1	6' - 3,000 gallon	Xerxes	$ -	$ -
22	Kilauea Elementary School, Bldg F	Septic Tank	1	1,800 gallon	round concrete	$ -	$ -
23	Kilauea Elementary School, Bldg E	Septic Tank	1	3,112 gallon	twin, multi-chamber,	$ -	$ -

EXHIBIT B
Schedule of Individual Wastewater Systems

Location	Item	No. of Units	Capacity	Model	Date Completed
Puunene Elementary School, Bldg A	Septic Tank	1	6' - 6,000 gallon	Xerxes	6/2/2008
Puunene Elementary School	Leach Field	1	144 chambers	ADS	6/2/2008
Waihee Elementary School	Septic Tank	1	6' - 1,500 gallon	Xerxes	10/1/2009
Waihee Elementary School	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
GROUP C - Island of Kauai					
Septic Tanks/Dosing Tanks, Sewage Pumps, Preloader Tanks, Leach Fields, Wastewater Pump Station and Aerobic Treatment Units					
Anahola Elementary School, Bldg C	Septic Tank	1	8' - 8,000 gallon	Xerxes	10/8/2008
Eleele Elementary School, Bldg O-Near Preschools	WWPS-1	1	2HP	HPGX200CD	7/1/2009
Eleele Elementary School, Bldg I	WWPS-2	1	5HP	HPGHX500	7/1/2009
Hanalei Elementary, Bldg C, Cafeteria	Septic Tank	1	4,847 gallon	concrete	8/12/1996
Hanalei Elementary, Courtyard, Bldg A/D	Septic Tank	1	3,366 gallon	concrete	10/20/1987
Kalaheo Elementary School, Bldg M/Café/Portable P-1	Septic Tank	1	6' - 3,000 gallon	Xerxes	1/8/2009
Kalaheo Elementary School, Bldg C	Septic Tank	1	6' - 4,000 gallon	Xerxes	1/8/2009
Kalaheo Elementary School, Bldg M/Café	Septic Tank	1	8' - 4,000 gallon	Xerxes	1/8/2009
Kalaheo Elementary School, New Admin Bldg	Septic Tank	1	1000 gallon	JP1000 Concrete	7/212014
Kalaheo Elementary School, Bldg I/J	Septic Tank	1	6' - 5,000 gallon	Xerxes	1/8/2009
Kalaheo Elementary School, Bldg A/G	Septic Tank	1	6' - 5,000 gallon	Xerxes	1/8/2009
Kapaa High School, Portable P4031	WWPS-1	1	3HP	HPGHX300DD	6/2/2009
Kapaa Middle School, Bldg PB2	Septic Tank	2	16,814 gallon	concrete	7/5/1997
Kapaa Middle School, Bldg PB2	Dosing Tank	1	8,584 gallon	concrete	7/5/1997
Kappa Middle School, Bldg PB2	Sewage Pump	2	5 HP	460 GPM, 35 TDH	7/5/1997
Kauai High School, Bldg V	Septic Tank	1	6' - 1,500 gallon	Xerxes	10/1/2009
Kauai High School, Bldg G	Septic Tank	1	6' - 1,500 gallon	Xerxes	10/1/2009
Kauai High School, Farm Shop	Septic Tank	1	6' - 1,500 gallon	Xerxes	10/1/2009
Kauai High School, Bldg M	Septic Tank	1	6' - 1,500 gallon	Xerxes	10/1/2009
Kauai High School, Bldg I	Septic Tank	1	6' - 3,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg I	Septic Tank	1	6' - 4,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg J	Septic Tank	1	6' - 4,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg O	Septic Tank	1	6' - 4,000 gallon	Xerxes	10/1/2009
Kauai High School, Portable P4045	Septic Tank	1	6' - 4,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg B	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg H	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg J	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg U	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg Y	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg A/K	Septic Tank	1	6' - 5,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg L	Septic Tank	1	8' - 9,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg C	Septic Tank	1	8' - 11,000 gallon	Xerxes	10/1/2009
Kauai High School, Bldg T	Septic Tank	1	8' - 14,000 gallon	Xerxes	10/1/2009


KŪLANA SUBDIVISION
TAX MAP KEY 4-3-03:05
KŪLANA PRELIMINARY MARKETING MAP
12-5-2005
DATE
REVISION
DESCRIPTION
BY
APPROVED
APPROVED:
COUNTY ENGINEER, DEPT. OF PUBLIC WORKS, COUNTY OF KAUAI
APPROVED:
MANAGER & CHIEF ENGINEER, DEPT. OF WATER, COUNTY OF KAUAI
KAPA'A 382 L.L.C.
4569 KUKUI ST. #200
KAPA'A, KAUA'I, HAWAI'I 96746
DESIGNED BY:
DRAWN BY: RL
CHECKED BY:
PROJECT NO.: 5-99-19
DRAWING NO.:
LEGEND
SUBDIVISION PROPERTY LINE
LOT LINES
CPR UNIT BOUNDARY LINE
HOMESITE
STREAM
WATER DITCHES
INTERIOR ROADS w/ L.E.
20' ACCESS / UTILITY EASEMENT
DRAINAGE WAY SETBACK LINE
COMMON AREA
PONDS
5' TOPOGRAPHIC LINES
EXHIBIT "I-68"
TRUE NORTH
SCALE: 1" = 200'
400 300 200 100 0 200 400
SCALE IN FEET
NOTE:
THIS PROJECT DOES NOT INVOLVE THE SALE OF INDIVIDUAL SUBDIVIDED LOTS. THE DOTTED LINES ON THE CONDOMINIUM MAP ARE FOR ILLUSTRATION PURPOSES ONLY. THEY REPRESENT EITHER A LIMITED COMMON ELEMENT OR COMMON ELEMENT.
KAAPUNI
ROAD
HAUIKI ROAD
OLOHENA ROAD
KANA STREET
LANE STREET
PLACE
REMNANT PARCEL 3
REMNANT PARCEL 4
REMNANT PARCEL 7
LOT 1
LOT 2
LOT 3
LOT 4
LOT 5
LOT 6
LOT 7
LOT 8
LOT 9
LOT 10
LOT 11
LOT 12
LOT 13
LOT 14
LOT 15
LOT 16
LOT 17
LOT 18
LOT 19
LOT 20
LOT 23
LOT 29
LOT 31
COMMON ELEMENT LOT 6
TWIN RESERVOIRS
(EX) POWER LINE EASEMENT
(EX) EASEMENT "AU-16"
(EX) EASEMENT "E-9D"
(EX) EASEMENT "G-5"
(EX) EASEMENT "E-5-A"
(EX) EASEMENT "E-5-A-1"
(EX) EASEMENT "AU-23"
FUTURE EASEMENT "E"
EASEMENT "E"
AU EASEMENT

From: Ed Tschupp
To: Stoddard, Lilian (Libby);
cc: Valentino Reyna; Patricia Sheppard; Steve Dollar; Wailua Waste Water; Bert Uyeno; Cale Fernandez;
Subject: FW: WETT Result 02/23/11 C. of Kauai
Date: Thursday, March 03, 2011 1:56:52 PM
Attachments: County of Kauai WETT 022311.pdf

Aloha, Libby.

It is with considerable sadness that I inform you of our receipt of notification from our laboratory contractor that the WET analysis performed on samples collected Feb 23 from our Wailua facility exceeded the limit indicated in our permit.

When we had the high WET result in our January testing, and initiated our follow-up investigation, I was feeling that we had identified some specific conditions associated with the actual sample analyses and also conditions at the plant that were likely contributory to the high result, and could possibly be sufficient to explain that result from the context of plant upset conditions. Also our subsequent testing from early February yielded results within our permit limits.

By late February, I thought our clarifier issue from January had been well on the way to being resolved, so I do not have a current theory for what conditions may have been operable at the time of the Feb 23 sample. We will proceed with the initial investigation around this most recent high value, which we will document to you with a separate report of our findings.

We are currently schedule for continuation of our accelerated monitoring with samples scheduled for March 9 and March 23.

Let me know if you have any questions, or suggestions.

Edward Tschupp
Chief, Wastewater Management Division
County of Kauai, Department of Public Works
4444 Rice Street, Suite 275
Lihue, Kauai, Hawaii 96766
(808) 241-4084
etschupp@kauai.gov

From: Patricia Sheppard
Sent: Thursday, March 03, 2011 9:16 AM

EXHIBIT "I-69"

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

September 14, 2012

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: AUGUST 2012 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period August 1 through 31, 2012. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 10 days in August 2012 during which effluent was discharged to the ocean. Two violations of our effluent limits occurred during July; the Whole Effluent Toxicity (WET) test results from August 7 and August 21, 2012 were in excess of our permit limits.

Analyses performed monthly by contract laboratories include nutrients, enterococcus, and whole effluent toxicity (WET). For analyses performed by contract laboratories, the respective laboratory reports are attached to the DMR report in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) and WET testing were performed by Marine Research Consultants, Inc. (MRC), via their subcontractor Food Quality Lab, Oahu (FQL). The enterococcus testing was performed by Hawai'i Food and Water Testing (HFWT) for the County.

This month, two rounds of WET testing were performed with the species *Trypneustes gratilla*. Both samples from August7 and August 21, 2012 results were reported as >219.8 Toxicity Units (TUc), which exceeds our permit limit. The State of Hawai'i Department of Health (DOH) was informed of the results in excess of our permit limits upon receipt by the County.

During June, 2012 the County contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes. The results of our Initial Investigation regarding WET test results will be provided in a separate

EXHIBIT "I-70"

report. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 7.5 NTU, reported on August 20, 2012. Additionally, effluent pH has been analyzed a total of 16 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

CONCUR:

LARRY DILL, P.E.
County Engineer

Attachment

cc: EPA Regional Administrator w/attachment

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2012 NOV 29 9:50AM

November 26, 2012

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: OCTOBER 2012 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period October 1 through 31, 2012. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 10 days in October 2012 during which effluent was discharged to the ocean. Two violations of our effluent limits occurred during October; the Whole Effluent Toxicity (WET) test result from October 2 and October 30, 2012 were in excess of our permit limit.

Analyses performed monthly by contract laboratories include nutrients, enterococcus, and whole effluent toxicity (WET). For analyses performed by contract laboratories, the respective laboratory reports are attached to the DMR report in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) and WET testing were performed by Marine Research Consultants, Inc. (MRC), via their subcontractor Food Quality Lab, Oahu (FQL). The enterococcus testing was performed by Hawai'i Food and Water Testing (HFWT) for the County.

This month, three rounds of WET testing were performed with the species *Trypneustes gratilla*. The sample from October 2, 2012 result was reported as >219.78 Toxicity Units (TUc), and the October 30, 2012 sample result was reported as >219.8 TUc, both of which exceed our permit limit. The sample from October 16, 2012 result did not exceed our permit limit. The State of Hawai'i Department of Health (DOH) was informed of the results in excess of our permit limit upon receipt by the County.

EXHIBIT "I-71"

The County has contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes, and our consultant's evaluation of facility data is underway. The results of our Initial Investigation regarding WET test results will be provided in a separate report. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 0.9 NTU, reported on October 1, 9 and 15, 2012. Additionally, effluent pH has been analyzed a total of 10 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

CONCUR:

LARRY DILL, P.E.
County Engineer

Attachment

cc: EPA Regional Administrator w/attachment

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

2012 DEC 31 12:21PM

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

December 28, 2012

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: NOVEMBER 2012 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period November 1 through 30, 2012. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 18 days in November 2012 during which effluent was discharged to the ocean. Two violations of our effluent limits occurred during November; the Whole Effluent Toxicity (WET) test results from November 13 and November 27, 2012 were in excess of our permit limit. In addition to the monthly monitoring of effluent, during November the County also conducted shoreline monitoring for enterococcus and *Clostridium perfringens*.

Also included in this report are the results from the annual Zone of Mixing monitoring for 2012, and the bi-annual Receiving Water Biological Communities Monitoring Program Report. The field work for these two marine monitoring programs was conducted on September 21, 2012 by Steven Dollar, Ph.D. with Marine Research Consultants, Inc. (MRC).

Analyses performed monthly by contract laboratories include nutrients, enterococcus, and whole effluent toxicity (WET). For analyses performed by contract laboratories, the respective laboratory reports are attached to the DMR report in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) and WET testing were performed by Marine Research Consultants, Inc. (MRC), via their subcontractor Food Quality Lab, Oahu (FQL). The enterococcus and *Clostridium perfringens* testing was performed by Hawai'i Food and Water Testing (HFWT) for the County. The Zone of Mixing laboratory analyses were performed by Marine Analytical Specialists, a subcontractor to MRC.

EXHIBIT "I-72"

This month two rounds of WET testing were performed with the species *Trypneustes gratilla*. The results from samples collected on November 13 and 27, 2012 were reported as >219.8 Toxicity Units (TUc), both of which exceeded our permit limit. The State of Hawai'i Department of Health (DOH) was informed of the results in excess of our permit limit upon receipt by the County.

The County has contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes, and our consultant's evaluation of facility data is underway. The results of our Initial Investigation regarding WET test results will be provided in a separate report. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 1.9 NTU, reported on November 27, 2012. Additionally, effluent pH has been analyzed a total of 18 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

CONCUR:

for LARRY DILL, P.E.
County Engineer

Attachment

cc: EPA Regional Administrator w/attachment

FIGURE 1. Aerial photograph of coastal area of Wailua, Kauai, Hawaii, showing locations of Wailua Sewage Treatment Plant, and ocean diffuser for the plant. The Zone of Mixing for the diffuser is shown as a white rectangle that measures 1,500 ft on a side. The location of the six water quality monitoring stations is also shown. See Table 1 for coordinates of sampling stations.

TABLE 1. Coordinates of Zone of Mixing sampling stations for the Wailua Sewage Treatment Plant, Wailua, Kauai, Hawaii.

STATION	LATITUDE	LONGITUDE	DEPTH (ft)
1	22° 02' 15.14"	159° 20' 04.0	29
2	22° 02' 22.39"	159° 20' 01.8	6
3	22° 02' 07.81"	159° 20' 05.4	7
4	22° 02' 18.54"	159° 19' 46.0	37
5	22° 02' 04.05"	159° 19' 51.3	42
6	22° 01' 55.96"	159° 19' 56.6	49

MARINE RESEARCH CONSULTANTS, INC.
1039 WAAKAUA PL. HONOLULU, HI 96822

COUNTY OF KAUAI SEWAGE TREATMENT PLANT DISCHARGE
WAILUA SEWAGE TREATMENT PLANT
ZOM MONITORING

Sampling Date: September 21, 2012 Sampling time: 07:29-08:15

STATION	SAMPLE ID	DEPTH (meters)	TN (µg/L)	NH_4^+ (N) (µg/L)	$NO_3^- + NO_2^-$ (N) (µg/L)	TKN (µg/L)	PO_4^{3-} (µg/L)	TP (µg/L)	Chl-a (µg/L)	TURB (ntu)	pH (rel)	O2 (%saturation)	TEMP. °Centigrade	SALINITY (‰)
DATE OF ANALYSIS			10/4/12	10/4/12	10/4/12	10/4/12	10/4/12	10/4/12	9/21/12	9/21/12	9/21/12	9/21/12	9/21/12	9/21/12
1S	1	1.0	139.86	7.14	6.30	133.56	7.13	14.57	0.063	0.20	8.077	99.96	26.08	35.028
1B	2	8.6	121.52	6.58	10.22	111.30	8.06	15.50	0.147	0.26	8.075	98.90	26.15	34.994
2S	3	1.0	107.10	7.00	2.52	104.58	5.58	13.64	0.168	0.37	8.055	99.74	26.08	34.927
2B	4	2.6	97.58	3.50	1.26	96.32	4.96	12.71	0.147	0.46	8.059	105.58	26.14	34.954
3S	5	1.0	127.82	10.08	15.82	112.00	8.37	16.43	0.084	0.38	8.071	99.96	26.04	34.956
3B	6	2.7	114.94	4.62	4.62	110.32	6.51	14.26	0.084	0.36	8.086	100.22	26.04	35.041
4S	7	1.0	121.66	11.06	10.08	111.58	6.51	13.95	0.094	0.43	8.069	99.65	26.12	34.989
4M	8	4.1	122.50	3.64	10.78	111.72	7.44	15.19	0.147	0.26	8.070	101.38	26.13	35.001
4B	9	10.8	96.18	0.70	2.10	94.08	4.65	12.40	0.094	0.29	8.091	103.21	26.14	35.134
5S	10	1.0	116.76	3.78	1.96	114.80	4.96	13.02	0.063	0.23	8.094	100.14	25.94	34.978
5M	11	3.1	109.48	4.48	0.70	108.78	4.65	13.95	0.094	0.12	8.105	101.61	26.13	35.123
5B	12	11.4	97.72	2.94	0.28	97.44	4.03	13.33	0.094	0.14	8.107	103.76	26.13	35.123
6S	13	1.0	98.56	3.22	3.36	95.20	4.03	13.95	0.126	0.19	8.098	99.92	26.01	35.089
6M	14	2.6	95.62	5.46	2.10	93.52	4.96	14.26	0.178	0.20	8.085	101.57	26.15	35.075
6B	15	14.3	106.54	6.30	6.16	100.38	5.89	15.19	0.115	0.15	8.091	101.89	26.17	35.088
Method			SM4500NC	EPA 350.1	EPA 353.2	EPA 351.4	EPA 365.2	EPA 365.4	SM 10200	EPA 180.1	EPA 150.1	EPA 360.1	EPA 170.1	SM 2520

ABBREVIATIONS
S=surface sample; M=mid-depth sample; B=bottom sample
bdl = below detectable limit
(µg/L) = micrograms per liter; ntu = nephelometric turbidity units; ‰=parts per thousand
Nutrient detection limits (µg/L): NO3, NH4=0.14; TN=1.4; TP=3.1.

PRINCIPAL INVESTIGATOR

December 13, 2012
DATE

TABLE 2. Results of water chemistry analyses at Zone of Mixing stations and effluent for the Wailua Sewage Treatment Plant collected on February 21, 2011. For locations and coordinates of sampling stations, see Figure 1 and Table 1.

CHAIN OF CUSTODY

MARINE RESEARCH CONSULTANTS
1039 WAAKAUA PL. HON. HI 96822

Phone: 808 779-4009; Fax: 808 988-5008
email: sdollar@MRC-hawaii.com

SUBMITTED TO:

MARINE ANALYTICAL SPECIALISTS
1738 LAUKAHI ST., HON, HI 96821
Phone: 808 373-5129

PROJECT: WAILUA STP ZOM

SAMPLE NO.	SAMPLE ID	DATE	TIME	SAMPLE TYPE	# OF CONTAINERS	REQUESTED ANALYSES	PRESERVE
1	1-S	10/21/2012	0759	grab	1	NO3, NH4, TNP, turb, Chla, pH, sal	chill/ICE
2	1-B	"	0800	"	"	"	"
3	2-S	"	0807	"	"	"	"
4	2-B	"	0805	"	"	"	"
5	3-S	"	0751	"	"	"	"
6	3-B	"	0752	"	"	"	"
7	4-S	"	0813	"	"	"	"
8	4-M	"	0814	"	"	"	"
9	4-B	"	0815	"	"	"	"
10	5-S	"	0742	"	"	"	"
11	5-M	"	0743	"	"	"	"
12	5-B	"	0744	"	"	"	"
13	6-S	"	0729	"	"	"	"
14	6-M	"	0730	"	"	"	"
15	6-B	"	0731	"	"	"	"

SAMPLED BY: S. Dollar 9/21/12	RELINQUISHED BY: S. Dollar 9/21/12	RECEIVED BY: D. Walsh 9/21/12
PRINT DATE	PRINT DATE	PRINT DATE
SIGNATURE 0729	SIGNATURE 15:25	SIGNATURE 15:25
SIGNATURE TIME	SIGNATURE TIME	SIGNATURE TIME

COMMENTS:

RECEIVING WATER BIOLOGICAL COMMUNITIES MONITORING PROGRAM FOR THE WAILUA WASTEWATER TREATMENT PLANT, WAILUA, KAUAI, HAWAII 2012

Prepared for

The Division of Wastewater Management
Department of Public Works, County of Kauai
Lihue, Kauai, Hawaii

by

Steven Dollar, Ph.D.
Marine Research Consultants, Inc.
1039 Waakaua Pl.
Honolulu, HI 96822

Submitted
December 21, 2012

TABLE of CONTENTS

INTRODUCTION

National Pollution Discharge Elimination System (NPDES) Permit No. HI 0020257 was issued by the Hawaii State Department of Health (DOH) on May 21, 2007 authorizing discharge from the Wailua Wastewater Treatment Plant to receiving waters in the Pacific Ocean. This permit requires monitoring of biological communities and a bi-annual basis (once every two years) in order to determine effects of the discharge with respect to a Zone of Mixing (ZOM). The ZOM is the water area of the Pacific Ocean which lies within a square with boundaries 1,500 feet on a side with Outfall Serial No. 001 bisecting the northwest side of the square (Figure 1). Key components of benthic (bottom-dwelling) communities include stony (hermatypic) and soft corals, benthic algae, motile macroinvertebrates and reef fish. Beginning in 2002, effluent from the Wailua WWTP was used primarily for irrigation of the neighboring Wailua Golf Course. Consequently, the County of Kauai, in consultation with the DOH, discontinued the benthic monitoring between 2003 through 2005, with monitoring commencing again in 2006. Hence there was a four-year hiatus between the 2002 and 2006. Since 2006, discharge from the Wailua ocean outfall has occurred intermittently, thereby requiring benthic monitoring in 2008, 2010 and 2012. Presented below are the methods and results of the benthic monitoring survey in the vicinity of the Wailua Wastewater Treatment Facility ZOM conducted in September 2012.

METHODS

All fieldwork was conducted on September 21, 2012. Fieldwork was carried out by divers using SCUBA equipment, and working off of a 13-foot boat. Five transect stations were surveyed: Station 1 was located approximately 5 meters (m) to the north of the multiport diffusers that comprise the ocean outfall; Station 2 was located approximately 5 m to the south of the diffusers; Station 3 was located along the northeastern boundary of the ZOM; Station 4 was located along the southwestern edge of the ZOM. Station 5 was located approximately 200 m to the southwest of the ZOM boundary (Figure 1). Water depth at Transects 1 and 2 was approximately 9 m (29 feet); water depth at Transects 3-5 was approximately 7 m (23 feet). Latitude and longitude of transecting sites as determined by Global Positioning System are shown in Table 1. Station locations replicated as closely as possible the stations established in the monitoring surveys conducted in 1997-2010.

At each of five sampling locations, a 50-m (160-foot) long transect tape was stretched along the bottom. Transect lines were oriented perpendicular to the shoreline. Care was taken to place transects in "random" locations that were not biased toward either peak or low coral cover. At each transect site, a quadrat frame with dimensions of one m x 0.7 m (3 feet x 2 feet) was sequentially placed over ten random marks on the transect tape so that the tape bisected the long axis of the frame. At each mark a digital color photograph

recorded the segment of reef area enclosed by the quadrat frame. Quadrats were photographed with a digital camera fitted with a super-wide angle lens (14 mm, 94° field of view). The camera was mounted on a four-legged frame to ensure exact repeatability of quadrat area. The photographic technique provides excellent resolution of the detail of the benthic structure, to the degree that individual calices of certain corals are distinguishable. A copy of the photographs is included in this report as Appendix A.

In addition to the photo-quadrats, a diver with knowledge of the taxonomy of resident species (S. Dollar) visually estimated the percent cover of corals, algae and bared substrata (i.e., sand, limestone) enclosed within the entire quadrat frame. Sea urchins, and other benthic macro-invertebrates located within the quadrat were also counted. No attempt was made to disturb the substratum to observe organisms, and no attempt was made to identify and enumerate cryptic species dwelling within the reef framework. Only macrofaunal species greater than approximately 1 centimeter were recorded.

Following fieldwork, area coverage of each component of bottom cover in the quadrat photos was determined using an overlay grid divided into 200 equally sized segments. The number of segments of each benthic species and substratum type within each grid are summed to calculate area coverage. Thus, for each transect, there is the equivalent of 2,000 data points. Verification of species identification was performed using the information collected in the field. In addition, field data provided input on small organisms that were not visible in photographs. Thus, the method provides for accurate estimates of abundance of organisms that cover a large percentage of the reef surfaces through photographic coverage, as well as occurrence of very small and/or rare organisms that are not visible in photographs. Few, if any other methods provide for such accurate characterization of both extremes of benthic community structure.

Results of the photo-quadrats and in-situ cover estimates were used to calculate indices of community structure, abundance and distribution (e.g., percent cover, number of species) and species diversity.

The photo-quadrat transect method is a modification of the technique described in Kinzie and Snider (1978), and has been employed in numerous field studies of Hawaiian reef communities (e.g., Dollar 1979, Grigg and Maragos 1974). The method was selected for the Wailua Wastewater Treatment Facility monitoring program because it has proven to be particularly useful for quantifying coverage of attached benthos such as corals and large epifauna (e.g., sea urchins, sea cucumbers) that are components of the communities in the study area. In addition, the method provides a permanent photographic record which can be useful in long-term investigations.

Quantitative assessment of reef fish community structure was conducted in conjunction with the benthic surveys. As the transect tape was laid along the bottom, all fish observed within a band approximately 2 meters (6 ft) wide along the transect path were identified by species name and enumerated. Care was taken to conduct the fish surveys so that the minimum disturbance was created by divers, ensuring the least possible dispersal of fish. Only readily visible individuals were included in the census. No attempt was made to seek out cryptic species or individuals sheltered within the coral. This transect method is an adaptation of techniques described in Hobson (1974). In addition, any endangered or protected species, particularly sea turtles, that were noted within the survey area were reported.

RESULTS AND DISCUSSION

General Physiography

Prior to presenting quantitative survey results, it is important to describe the overall setting of the marine environment in the survey region. The shoreline in the area is composed of sandy beaches grading into a shallow, gently sloping nearshore limestone reef platform. Bisecting the limestone platform are numerous sand-filled channels or grooves that are oriented primarily perpendicular to the shoreline. Owing to the orientation of the shoreline (facing northeast) the area is directly impacted by northeasterly tradewind seas. In addition, refracting long period swells from the south and north also generate breaking surf on the nearshore reef platform. As a result, the nearshore area is generally under near constant impact from wave stress, which is an important factor in regulating the composition of the benthic communities.

The area where the Wailua ocean outfall diffuser is located is somewhat anomalous from the majority of the nearshore area of the coastline off eastern Kauai. The multiport diffuser is located at the bottom of a trench at a depth of approximately 9 m (29 feet). Immediately to the northeast of the diffusers, a near vertical limestone cliff rises to a depth of approximately 2 m (8 feet) and terminates in a flat reef bench. The face of the cliff is cut with numerous undercuts and fissures, providing a good habitat for fish, and large mixed species schools of surgeonfish have been observed in the past near the cliff face. To the southwest of the diffuser, bottom topography is different than to the north, as no steep cliff face occurs. Rather, the bottom consists of a gently sloping flat limestone platform that is predominantly covered by a layer of sand. The outfall pipe is partially buried in a trench covered with a layer of armor stone that extends from the shoreline to the diffuser location. At the diffuser site, the bottom consists of a bed of sand from which the diffuser ports extend. The diffusers are "L" shaped ports. Effluent was observed discharging from the diffusers during the 2012 survey (Figures 2 and 3). During the most recent three surveys, it

was noted that pieces of rope of varying length were tied around each of the diffuser ports. It is presumed that the ropes were left in place following maintenance cleaning of the diffuser ports (Figure 4).

The trench where the diffuser is located also serves as a channel where water that is carried toward shore by wave action is returned seaward in a rapidly moving rip current. The velocity of the current resuspends sediment and carries the suspended material, as well as the effluent plumes, seaward. Owing to the suspension of sediment from the rip current, the water column in the vicinity of the diffusers has been very turbid during all surveys to date. However, there was no indication of deposition of organic material on the sand bed surrounding the diffusers.

It is also of note that inspection of the diffuser area in April 2012 revealed that the entire set of diffusers was covered by a thick layer of sand. Subsequent dredging of the sand re-exposed the diffusers. During the September 2012 survey, there was no indication that sand movement had resulted in the first stages of re-burial of the diffusers as documented in Figures 2-4.

Benthic Community Structure

Table 2 shows percent cover of each species of coral in each quadrat on transects surveyed in September 2012. Table 3 shows total coral cover of each species on each transect, and the calculated mean total coral cover, number of species, species diversity, and standard deviation calculated from the quadrat data for each of the ten surveys conducted from 1997 to 2012. Figure 5 shows histograms of total coral cover and the two most common coral species, *Porites lobata* and *Pocillopora meandrina*, on each transect during each survey year.

Observations of the transect sites and the transect data over the entire 15-year duration of the monitoring program indicates that coral cover is extremely sparse in the region near the diffuser ports (Transects 1-2) (Tables 2-3, Figures 2-5, Appendix A). Bottom cover on Transect 1 consists almost entirely of fossil limestone covered with sediment-bound turf, which Transect 2 consists of the sand floor of the channel where the diffuser ports are located. Coral cover in this area consisted only of rare small flat encrustations, primarily of *Porites lobata* and *Palythoa tuberculosa* and isolated heads of *Pocillopora meandrina*. During the 2006, 2008 and 2012 surveys, no living corals were encountered on Transect 1. During the surveys prior to 2006, and in 2010 total coral cover ranged from 0.4% to 4.0% on Transect 1. During 2006, 2010 and 2012, no corals were encountered on Transect 2, while during past surveys coral cover has been between 0.2% to 0.8% on this transect (Table 3). During all surveys, coral cover was the lowest recorded on Transects 1 and 2 compared to the other transects located at the boundaries of, and beyond the ZOM.

In addition, motile invertebrates (e.g., sea cucumbers, sea urchins) and benthic frondose algae were consistently absent on transects 1 and 2 during all surveys. While portions of the bared limestone surface was tinged pink from a thin layer of encrusting coralline algae, the majority of the limestone surface was covered with a layer of fine sediment.

Coral cover was substantially higher on Transects 3-5 compared to Transects 1-2 during all surveys (Table 2). Transect 3, located at the northeastern boundary of the ZOM, had coral cover of about 10% in 2001, 4% in 2002 through 2010, and cover returning to about 10% in 2012. The corals with the highest cover at this site were branched hemispherical colonies of *Pocillopora meandrina* and small flat encrustations of *Porites lobata* (Table 3).

During the 2012 survey, as in many previous surveys, coral cover peaked on Transect 4 (18%), located on the southwest boundary of the ZOM. As in most surveys, coral cover on Transect 5 (13%), located outside, and to the south of the ZOM has been consistently slightly lower than on Transect 4, but higher than on Transects 1-3 (Table 2). This pattern was slightly different in 2010, when the peak cover occurred on Transect 5 (10.6%) followed by Transect 4 (9.7%). The dominant species on Transects 4 and 5 during all surveys were *Pocillopora meandrina, Porites lobata,* and *Montipora spp.* During all surveys except in 2012, numerous small solitary corals (likely *Cycloseris vaughan* or *Fungia granulosa*) have been observed on Transects 4 and 5. During 2008, numerous small colonies of these solitary corals were observed on every quadrat of Transects 3-5, in numbers far greater than observed in any previous survey. While not as numerous as in 2008, solitary corals were also abundant on Transects 4 and 5 in 2011. Also occurring on these two transects during all surveys was the finely branched coralline algae, *Porolithon spp.*

Total coral cover on Transect 4 during the surveys in 1997-2012 ranged from 4.6% to 19.8%; while the range on Transect 5 was 4.3% to 15.8%. Results of the 2010 survey showed the second lowest values recorded to date on both Transects 4 and 5, and the third highest value on Transect 3. Hence, on the transects on the boundary of the ZOM, there was no indication of a overall decrease in coral cover over time compared with the control transect, As such, there is no indication that there are decreases in coral cover that might be a result of effects of the discharge from the Wailua WWTP.

During all surveys, there has been a conspicuous absence of motile macroinvertebrates at any of the transect sites. During the 2010-2012 surveys, no so urchins were observed within photo-quadrats. In 2008, the only macroinvertebrates to occur on the survey transects were several banded sea urchins (*Echinothrix calamaris*) on Transect 3 and a single collector urchin (*Tripneustes gratilla*) on Transect 1. In the 2001 survey, a single sea cucumber (*Honothuria atra*) was observed within the entire study area.

While the majority of the limestone reef surface on Transects 3-5 was covered with a veneer of algal turf, frondose algae were also not abundant on any of the transects. Other than encrusting and branching red coralline algae (primarily *Porolithon* and *Neogoniolithon* spp), the most abundant species was the green calcareous algae *Halimeda opuntia*, which occurred as small clusters on Transects 3-5. Tufts of the blue-green alga *Lyngbya sp.* and were also common on Transects 3-5. During the 2006 survey, tufts of the gold algae *Chrysocystis fragilis* (family Chrysophta) were also noted on the reef surface of Transects 4 and 5. This species is a gelatinous colonial alga that is found of reef flats throughout the Pacific and reproduces primarily by asexual colony fragmentation (Lobban et al. 1995). In Hawaii, this alga is often observed during the summer months when wave action is minimal, attached to the bases of living coral colonies. The slightest water motion is adequate to dislodge and resuspend the alga from its point of attachment. Usually, *C. fragilis* is removed from the reefs in winter months by surge from long-period swells and does not re-establish until calm periods in the summer (Dollar and Grigg 2004). The occurrence of the alga on the reefs off Wailua indicates relatively calm conditions prior to the survey in October 2006. However, there were no observations of *C. fragilis* during the 2008, 2010 and 2012 surveys.

Reef Fish Community Structure

Results of transect counts of fish are presented in Table 4. A total of 304 individuals representing 28 species were noted on the five transects. On individual transects, the highest number of individuals (114) and species (28) Transect 4. The relatively low number of fish on Transect 1 in 2012 compared to several other surveys was a result of the absence of large schools of mixed acunthurids (surgeonfish) in the water column adjacent to the vertical wall.

The predominant reef fish in the vicinity of the Wailua Ocean Outfall consisted of several groups. In past surveys, large mixed schools of surgeonfish were abundant near the vertical wall adjacent to Transect 1, consisting predominantly of the ringtail surgeonfish (pualu, *A. blochii*), the brown surgeonfish (ma'i'i'i, *A. nigrofuscus*), the orangeband surgeonfish (na'ena'e, *A. olivaceus,* and the whitebar surgeonfish, maikiko, *A. leucopareius*) and the goldring surgeonfish (kole, *Ctenochaetus strigosus*), and the unicornfish (*Naso unicornis*). During past surveys, large schools of nenue (*Kyphosus bigibbus*) were observed near the wall, but were not present during the 2008-2012 surveys. Other common fish that have been consistently observed near the vertical wall adjacent to the sewage diffusers are from the families Labridae (hinalea lauwili, *Thallosoma duperrey*), and Mullidae (weke or goat fish, *Mulloides flavolineatus*).

On Transects 2, reef fish abundance was drastically reduced compared to Transect 1, primarily as a result of the absence of the vertical rock wall or any other form of vertical

relief. The same pattern of reduced fish abundance on Transect 2 has been consistent through all surveys of the Wailua WWTP ZOM. The flat bottom was relatively devoid of fish with only 2 individuals observed in 2010 and none in 2012. Fish abundance was higher on Transects 3-5 with most individuals noted in the vicinity of holes, fissures and coral mounds on the reef platform.

These results indicate that fish abundance does not appear to be dependent on living coral cover, as the highest fish abundance has occurred in an area of low coral cover. Rather, the elevated abundance of fish at Transect 1 appears to be a result of the increased substratum complexity created by the undercuts and holes on the vertical cliff face which provide a sheltered habitat for fish. There were no apparent factors why the schools of fish were not observed in 2010 or 2012. All of the other transects occurred on the relatively flat reef platform. As reef fish have typically been most abundant on the transect near the discharge ports, it is apparent that sewage effluent does not have a negative effect on abundance of fish. Rather, the abundance of fish is a function of substratum complexity.

No green sea turtles or other endangered or threatened species were observed underwater or on the surface during the entire 2012 survey.

SUMMARY

Five quantitative line transects established in December 1997 in the vicinity of the Wailua Wastewater Treatment Facility ocean outfall were evaluated for a tenth time in September 2012. Two transects are located at a depth of approximately 9 m, parallel to the outfall diffuser section. Two transects were located along the boundaries of the ZOM, and one transect was located approximately 200 m southwest of the edge of the ZOM. The transects at the edge and beyond the ZOM were located on the relatively flat limestone platform that typifies the nearshore reef off of Wailua.

Results of benthic transect surveys in 2012 revealed no living corals on Transects 1 and 2, both of which are located adjacent to the outfall diffusers. The near lack of coral cover is not likely a result of effluent discharge, as there has been only limited effluent discharge over the past year. Rather, lack of coral cover is a function of the observed burial of the area with a thick layer of sand that was recently dredged to re-expose the diffuser ports. In addition, the extremely harsh physical conditions in that area of the diffusers in the form of extreme sediment resuspension and scour are factors that would limit or prevent coral settlement and growth. Coral cover of the reef surface at the northeastern boundary of the ZOM (Transect 3) was approximately 10%. At the two transect sites to the southwest of the diffuser (Transects 4 and 5), coral cover was higher (18% and 13%, respectively) than

northeast of the diffuser. The consistently lower coral cover to the north of the diffuser may be a result of closer proximity to discharge from the Wailua River.

When results of the entire monitoring program are examined for Transects 4 and 5, it is apparent that there is a cyclical pattern of sequentially increasing and decreasing cover over time (Figure 5). During the years 1997-1999 coral cover is relatively high, followed by a substantial depression in 2000, increasing values to 2002-2006, and another overall decrease in 2008-20101. Coral cover again increased during the 2012 survey. Such a pattern may reflect the varying magnitude of wave stress and associated cycle of coral damage and recovery over time. As discharge from the outfall was intermittent following periods of heavy rains and emergencies between 2002-2006, and coral cover increased during this period, it appears that the discharge had no negative effect on coral community structure.

Motile invertebrates and frondose benthic algae have been scarce at the transect sites adjacent to the diffuser throughout the course of monitoring. The near absence of motile invertebrates is likely a result of the extremely vigorous wave forces that are a near constant condition of the area. Such wave forces produce both significant concussive forces and high levels of abrading suspended sediment which make the habitat unsuitable for colonization of most benthic organisms.

In 2012 reef fish abundance corresponded with coral cover, as the highest abundance of fish occurred on Transects 4 and 5, where coral cover was lowest. In past surveys, high numbers of fish, notably mixed schools of surgeonfish have been observed on the vertical face adjacent to Transect 1, presumable as a result of increased substratum complexity created by the vertical cliff face that was unique to the region immediately to the north of the diffuser. These schools of fish were not observed during the 2010 or 2012 surveys.

Observations of the diffusers indicate that there is no evidence of deposition of sewage material on the reef surface. The high degree of water motion, created by a seaward flowing rip has been a consistent feature of the area during all surveys to date, rapidly dilutes and disperses the effluent.

While the effluent discharge cannot be unequivocally eliminated as a factor in the lack of benthos, particularly corals, in the vicinity of the diffusers, other environmental factors must also be considered. The primary factor appears to be a seaward flowing rip current of highly turbid water and suspended sediment that continually flows offshore through the gap in the reef where the diffusers are located. As most of the reef flat is very shallow, one of the only avenues of seaward return from the surf zone is through the channel occupied by the outfall. The turbid water in the rip is likely a result of resuspension of particulate material (sand) in the inner surf zone. Recent removal of a layer of sand that completely

buried the diffuser ports corroborates the observations that extensive quantities of suspended sediment move through the gap in the reef where the outfall discharges are located.

There was no visual indication of any disease or pathological abnormalities with any of the biota or fish in the area of the discharge.

In conclusion, results of the tenth benthic monitoring survey to date does not indicate any impacts to the marine environment resulting from discharge of effluent from the Wailua Wastewater Treatment Plant. Results of benthic monitoring surveys over a period of 15 years indicate with consistency that the discharge of effluent from the Wailua Sewage Treatment Plant is not having any negative effect on the biotic communities in the area. The reasons for lack of impact are: 1) the natural rigor of the area from water movement (currents and wave impact) and sediment scour and deposition prevents the establishment of benthic communities; 2) the discharged effluent is entrained in a freshwater plume that rises and is rapidly dispersed by wave and current action with minimal or no contact with the ocean floor; 3) fish communities have generally been similar or higher at one of the stations closest to the diffusers compared to other survey sites, suggesting that some effects of the discharge might be considered as positive, rather than negative.

December 21, 2012

Principal Investigator
Steven Dollar, PhD.

Date

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FIGURE 1. Aerial photograph of ocean off of Wailua Wastewater Treatment Plant on eastern shoreline of the Island of Kauai showing locations of five biological monitoring survey stations. Stations 1 and 2 are located adjacent to the ocean outfall diffusers; Stations 3 and 4 are located on the northern and southern boundaries of the Zone of Mixing, and Station 5 is a control station south of the Zone of Mixing.

TABLE 1. Coordinates of benthic sampling transects in the vicinity of the Wailua Wastewate Treatment Plant Ocean Outfall, Wailua, Kauai, Hawaii.

Transect	Latitude (North)	Longitude (West)
1	22°02.220	159°20.054
2	22°02.220	159°20.054
3	22°02.306	159°19.900
4	22°02.092	159°19.900
5	22°01.889	159°19.999

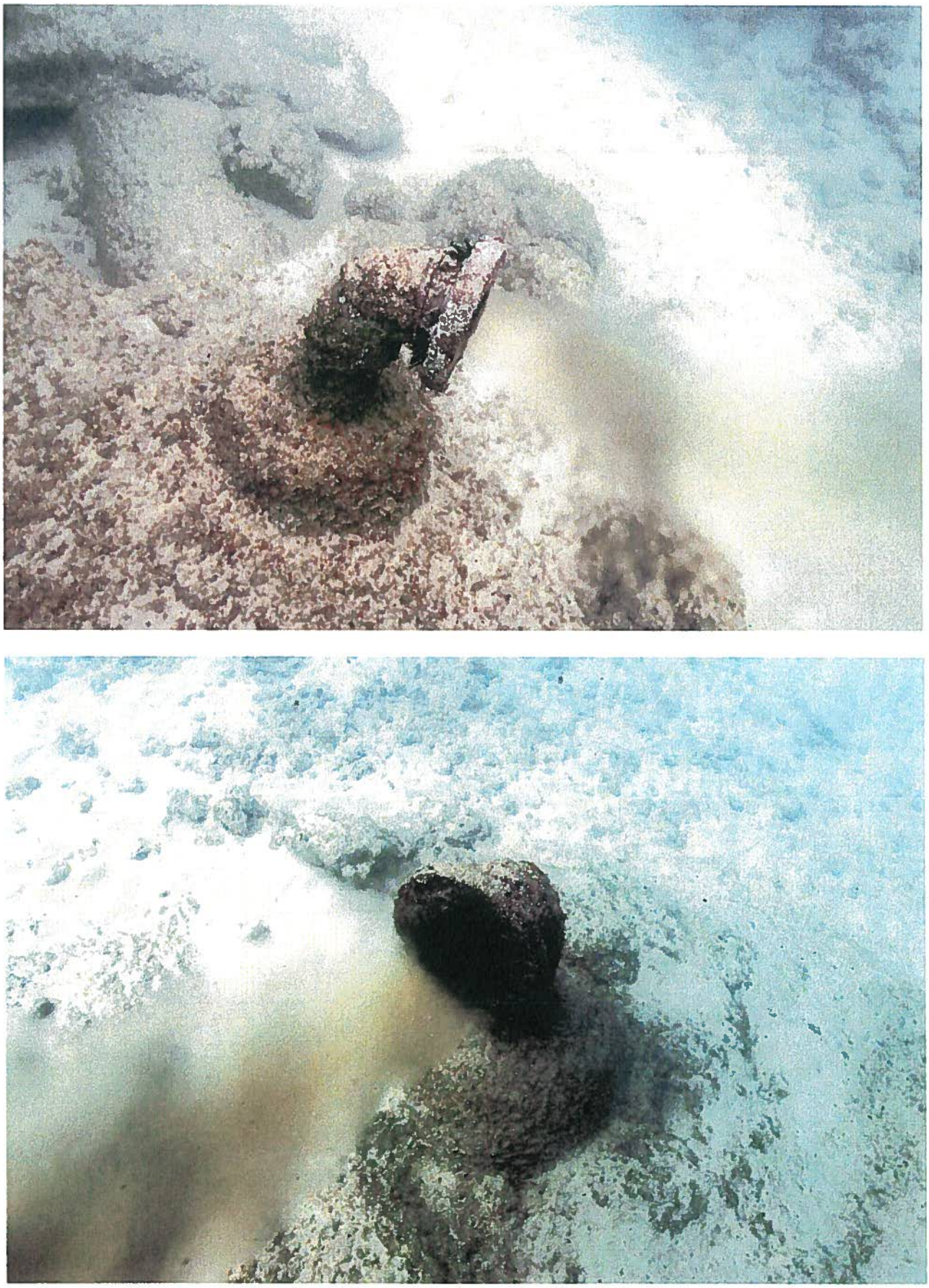


FIGURE 2. Photographs of two Wailua Wastewater Treatment Plant ocean diffuser ports discharging effluent taken on September 21, 2012.

FIGURE 3. Photographs of two Wailua Wastewater Treatment Plant ocean diffuser ports discharging effluent taken on September 21, 2012.

FIGURE 4. Photographs of three Wailua Wastewater Treatment Plant ocean diffuser ports that are sealed and wrapped with rope taken on September 21, 2012.

TABLE 2. Percent cover of coral species and coralline algae on photo-quadrat transects in the vicinity of the Wailua Wastewater Treatment Plant ocean outfall. For transect site locations, see Figure 1.

TRANSECT SITE:	Wailua WWTP						MEAN CORAL COVER			0.0 %	
	Transect 1						STD. DEV.			0.0	
DATE:	September 21, 2012						SPECIES COUNT			0	
							SPECIES DIVERSITY			0.00	
SPECIES	QUADRAT										SPECIES TOTAL
	1	2	3	4	5	6	7	8	9	10	
											0.0
QUAD CORAL TOTAL	0	0	0	0	0	0	0	0	0	0	0.0
Calcareous algae											0.0
Limestone/turf	75	90	86	88	99	65	20	20	65	88	69.6
Sand	25	10	10	12	1	35	80	80	35	12	30.0
NON-CORAL TOTAL	100	100	100	100	100	100	100	100	100	100	100.0

TRANSECT SITE:	Wailua WWTP						MEAN CORAL COVER			0.0 %	
	Transect 2						STD. DEV.			0.0	
DATE:	September 21, 2012						SPECIES COUNT			0	
							SPECIES DIVERSITY			0.00	
SPECIES	QUADRAT										SPECIES TOTAL
	1	2	3	4	5	6	7	8	9	10	
											0.0
QUAD CORAL TOTAL	0	0	0	0	0	0	0	0	0	0	0.0
Calcareous algae											0.0
Limestone/turf	70	65	60								19.5
Sand	30	35	40	100	100	100	100	100	100	100	80.5
NON-CORAL TOTAL	100	100	100	100	100	100	100	100	100	100	100.0

TRANSECT SITE:	Wailua WWTP						MEAN CORAL COVER			10.2 %	
	Transect 3						STD. DEV.			9.2	
DATE:	September 21, 2012						SPECIES COUNT			6	
							SPECIES DIVERSITY			1.30	
SPECIES	QUADRAT										SPECIES
	1	2	3	4	5	6	7	8	9	10	
Porites lobata	1	2	1		1		5	1	2	2	1.5
Porites compressa	8		1								0.9
Pocillopora meandrina	3	8	2		1			18	19	5	5.6
Montipora capitata		3									0.3
Montipora patula							6	11			1.7
Palythoa tuberculosa		1					1				0.2
QUAD CORAL TOTAL	12	14	4	0	2	0	12	30	21	7	10.2
Calcareous algae	6	24	9			5	11	22	6	20	10.3
Limestone/turf	82	62	87	100	93	95	77	48	73	73	79.0
Sand					5						0.5
NON-CORAL TOTAL	88	86	96	100	93	100	88	70	79	93	89.3

TRANSECT SITE:	Wailua WWTP						MEAN CORAL COVER			18.1 %	
	Transect 4						STD. DEV.			9.4	
DATE:	September 21, 2012						SPECIES COUNT			5	
							SPECIES DIVERSITY			1.26	
SPECIES	QUADRAT										SPECIES TOTAL
	1	2	3	4	5	6	7	8	9	10	
Porites lobata	14	4	13	9	6	11	17	5	3	4	8.6
Pocillopora meandrina		5		5	5	4		3	2	6	3.0
Porites compressa	2	2			3		9	1		1	1.8
Montipora patula	3	15	1			13	12			2	4.6
Palythoa tuberculosa					1						0.1
QUAD CORAL TOTAL	19	26	14	14	15	28	38	9	5	13	18.1
Calcareous algae	5		8	13	12	7	6	4	5	21	8.1
Limestone/turf	76	74	78	73	73	65	56	87	90	66	73.8
Sand											0.0
NON-CORAL TOTAL	81	74	86	86	85	72	62	91	95	87	81.9

TRANSECT SITE:	Wailua WWTP						MEAN CORAL COVER			13.3 %	
	Transect 5						STD. DEV.			8.9	
DATE:	September 21, 2012						SPECIES COUNT			4	
							SPECIES DIVERSITY			1.13	
SPECIES	QUADRAT										SPECIES TOTAL
	1	2	3	4	5	6	7	8	9	10	
Porites lobata	1	2	2	15	4	1		14	13	14	6.6
Pocillopora meandrina	6	11	6	5					4	4	3.6
Montipora patula		6	12	1					6	2	2.7
Palythoa tuberculosa			4								0.4
QUAD CORAL TOTAL	7	19	24	21	4	1	0	14	23	20	13.3
Calcareous algae		16	5	6	3	2		1	4	10	4.7
Limestone/turf	93	65	71	73	93	97	80	85	73	70	80.0
Sand							20				2.0
NON-CORAL TOTAL	93	81	76	79	96	99	100	86	77	80	86.7

TABLE 3. Percent cover of coral, non-coral substratum, and coral community statistics on transects in the vicinity of the Wailua Wastewater Treatment Plant Ocean Outfall for ten surveys conducted from 1997 to 2012 (surveys were not conducted in 2003, 2004, 2005, 2007, 2009 and 2010). For locations of transects, see Figure 1.

TRANSECT 1	SURVEY MONTH-YEAR									
	12-97	10-98	09-99	11-00	05-01	09-02	10-06	10-08	02-11	09-12
Porites lobata	1.4	0.3	0.5	0.2	0.2				0.4	
Pocillopora meandrina					0.6	2.3				
Montipora patula	0.2		0.2	0.3		1.7				
Palythoa tuberculasa		0.1		0.1						
TOTAL CORAL COVER	1.6	0.4	0.7	0.6	0.8	4.0	0.0	0.0	0.4	0.0
NUMBER OF SPECIES	2	2	2	3	2	2	0	0	1	0
CORAL COVER DIVERSITY	0.38	0.56	0.60	1.01	0.56	0.68	0.00	0.00	0.00	0.00
ST. DEV.	4.2	0.7	0.8	0.7	1.0	4.3	0.0	0.0	0.0	0.0
NON-CORAL SUBSTRATA										
Calcareous algae		17.3	11.4	25.6	20.4	42.5	4.7	0.9	0.0	0.0
Algal turf/limestone	74.5	49.3	62.7	41.6	62.4	49.0	53.0	32.8	70.6	69.6
Sand	17.9	25.1	24.7	32.8	17.2	4.5	42.3	66.3	29.0	29.3
Rubble	5.0	7.9	0.5							

TRANSECT 2	SURVEY MONTH-YEAR									
	12-97	10-98	09-99	11-00	05-01	9-02	10-06	10-08	02-11	09-12
Porites lobata	0.2	0.2	0.2	0.3	0.3			0.2		
Porites compressa					0.3					
Pocillopora meandrina			0.1							
Montipora patula	0.1			0.2		0.1				
Palythoa tuberculosa		0.3	0.1	0.1	0.1	0.1				
TOTAL CORAL COVER	0.3	0.5	0.4	0.6	0.8	0.2	0.0	0.2	0.0	0.0
NUMBER OF SPECIES	2	2	3	3	2	2	0	0	0	0
CORAL COVER DIVERSITY	0.64	0.67	1.04	1.01	1.00	0.69	0.00	0.00	0.00	0.00
ST. DEV.	0.5	0.7	0.5	0.7	1.0	0.6	0.0	0.0	0.0	0.0
NON-CORAL SUBSTRATA										
Porolithon	29.5									
Calcareous algae	41.5	3.4	6.5	25.6	20.4	4.6	3.1			
Algal turf/limestone	28.7	26.7	43.8	41.6	62.4	72.9	79.9	12.3	1	19.5
Sand	17.9	35.3	39.3	32.8	17.2	22.5	17.0	87.7	99.0	80.5
Rubble	5.0	34.1	10.0							

TRANSECT 3	SURVEY MONTH-YEAR									
	12-97	10-98	09-99	11-00	05-01	09-02	10-06	10-08	02-11	09-12
Porites lobata	0.8	2.1	1.9	1.4	2.0	1.1	1.3	1.4	2.0	1.5
Porites compressa	0.1	0.9			0.3	0.1	0.3			0.9
Pocillopora meandrina	1.1	1.2	0.6	0.8	5.6	3.0	2.1	2.3	1.7	5.6
Montipora patula			0.1	0.4	2.4		0.9		0.3	1.7
Montipora capitata					0.1					0.3
Palythoa tuberculosa			0.3	0.1	0.1		0.1	0.1		0.2
Cycloseris vaughani								0.6	0.1	
Pocillopora damicornis									0.1	
TOTAL CORAL COVER	2.0	4.2	2.9	2.7	10.5	4.2	4.7	4.4	4.2	10.2
NUMBER OF SPECIES	3	3	4	3	2	3	5	4	5	6
CORAL COVER DIVERSITY	0.85	1.03	0.95	1.01	1.03	0.59	1.29	0.97	1.09	1.30
ST. DEV.	2.0	3.4	3.6	0.7	1.0	4.5	3.7	3.5	3.1	9.2
NON-CORAL SUBSTRATA										
Calcareous algae				25.6	20.4		3.8	3.2	0.9	10.3
Algal turf/limestone	98.0	95.8	79.9	41.6	62.4	86.2	76.4	90.9	94.9	79
Sand			17.2	32.8	17.2	10.3	15.1			0.5

TRANSECT 4	SURVEY MONTH-YEAR									
	12-97	10-98	09-99	11-00	05-01	09-02	10-06	10-08	11-02	09-12
Porites lobata	5.1	3.7	4.0	1.3	2.4	1.2	4.9	3.3	4.3	8.6
Porites compressa	1.1	1.1	1.9	0.5	0.4		0.0	0.2	0.9	1.8
Pocillopora meandrina	0.4	2.4	3.0	2.4	13.3	10.2	6.1	7.3	2.3	3.0
Pocillopora eydouxi						4.7		1.5		
Montipora patula	0.9	0.9	1.8	0.2	0.2	3.6	4.6		0.9	4.6
Montipora capitata	0.3	0.1						1.0	0.5	
Montipora flabellata					0.3					
Fungia scutaria				0.1						
Palythoa tuberculosa	0.1	0.3	0.2			0.1	0.5			0.1
Cycloseris vaughani								0.6	0.6	
Psammocora stellata	2.3							0.1	0.2	
TOTAL CORAL COVER	10.2	8.5	10.9	4.5	16.6	19.8	16.1	14.0	9.7	18.1
NUMBER OF SPECIES	7	6	5	5	5	5	5	7	7	5
CORAL COVER DIVERSITY	1.08	1.39	1.40	1.01	0.80	0.85	1.28	1.34	1.33	1.26
ST. DEV.	5.9	3.0	6.1	0.7	1.0	12.6	6.3	10.4	3.8	9.4
NON-CORAL SUBSTRATA										
Calcareous algae		2.7	0.8	25.6	20.4	2.7	7.5	7.1	8.4	8.1
Algal turf/limestone	90.2	87.7	88.3	41.6	62.4	77.5	76.0	75.4	78.4	73.8
Sand	0.2	1.1		32.8	17.2			3.5	3.5	0.0
Rubble										

TRANSECT 5	SURVEY MONTH-YEAR									
	12-97	10-98	09-99	11-00	05-01	09-02	10-06	10-08	11-02	09-12
Porites lobata	6.6	5.9	3.3	2.1	0.8	5.1	2.6	3.9	5.9	6.6
Porites compressa		0.2	0.3	0.6	0.4	0.4	0.8	0.8	1.2	
Pocillopora meandrina	4.8	9.2	4.5	0.3	10.8	5.2	7.7	4.1	1.9	3.6
Montipora patula	3.4	0.4	2.8	0.8	0.2	2.7	2.5	0.3	0.9	2.7
Montipora capitato				0.4				0.2	0.2	
Fungia scutaria				0.1	0.3		0.1			
Palythoa tuberculosa	0.3		0.2		0.1	0.1	0.3			0.4
Pavona varians						0.2				
Pavona duerdeni		0.1								
Cycloseris vaughani								0.7	0.5	
TOTAL CORAL COVER	15.1	15.8	11.1	4.3	12.6	13.7	14.0	10.0	10.6	13.3
NUMBER OF SPECIES	4	5	5	6	6	6	6	6	6	4
CORAL COVER DIVERSITY	1.26	0.86	1.24	1.01	0.52	1.19	1.23	1.30	1.31	1.13
ST. DEV.	12.7	5.2	11.1	0.7	1.0	8.0	7.7	7.9	4.4	8.9
NON-CORAL SUBSTRATA										
Calcareous algae		17.1	4.8	25.6	20.4		4.9	9.4	9.9	4.7
Algal turf/limestone	84.3	67.1	84.1	41.6	62.4	86.6	81.1	80.6	79.0	80.0
Sand				32.8	17.2			0.5	0.5	2.0

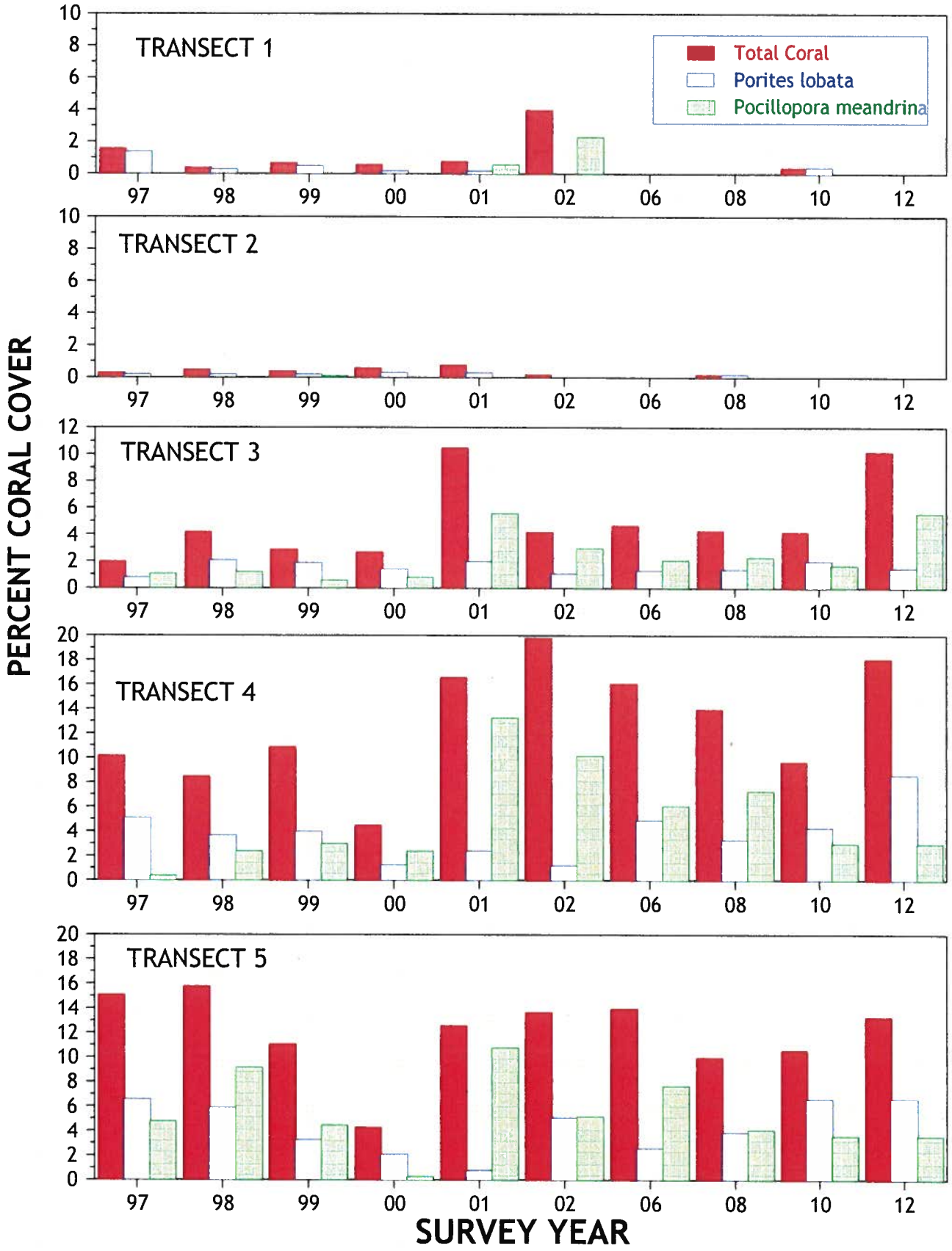
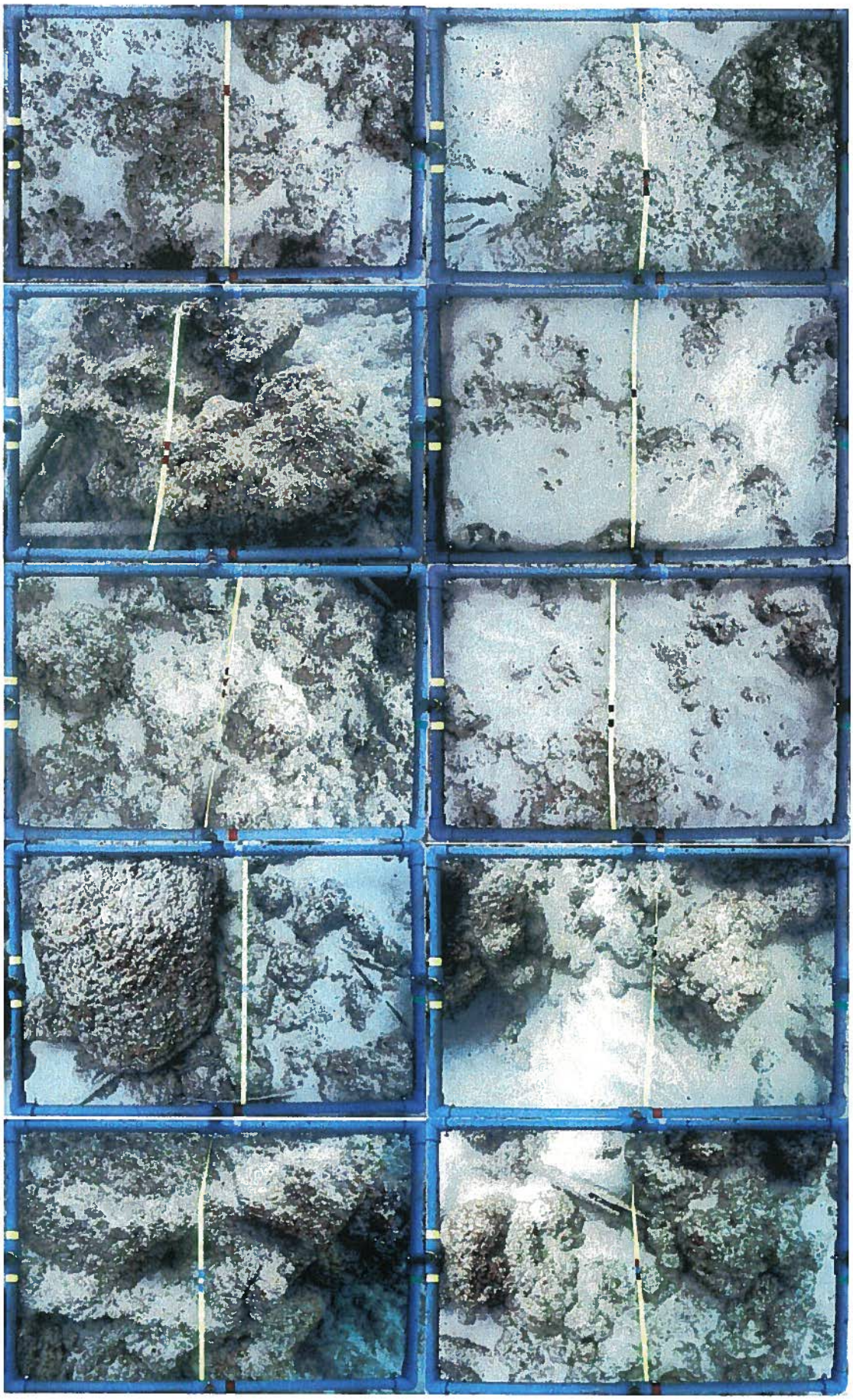


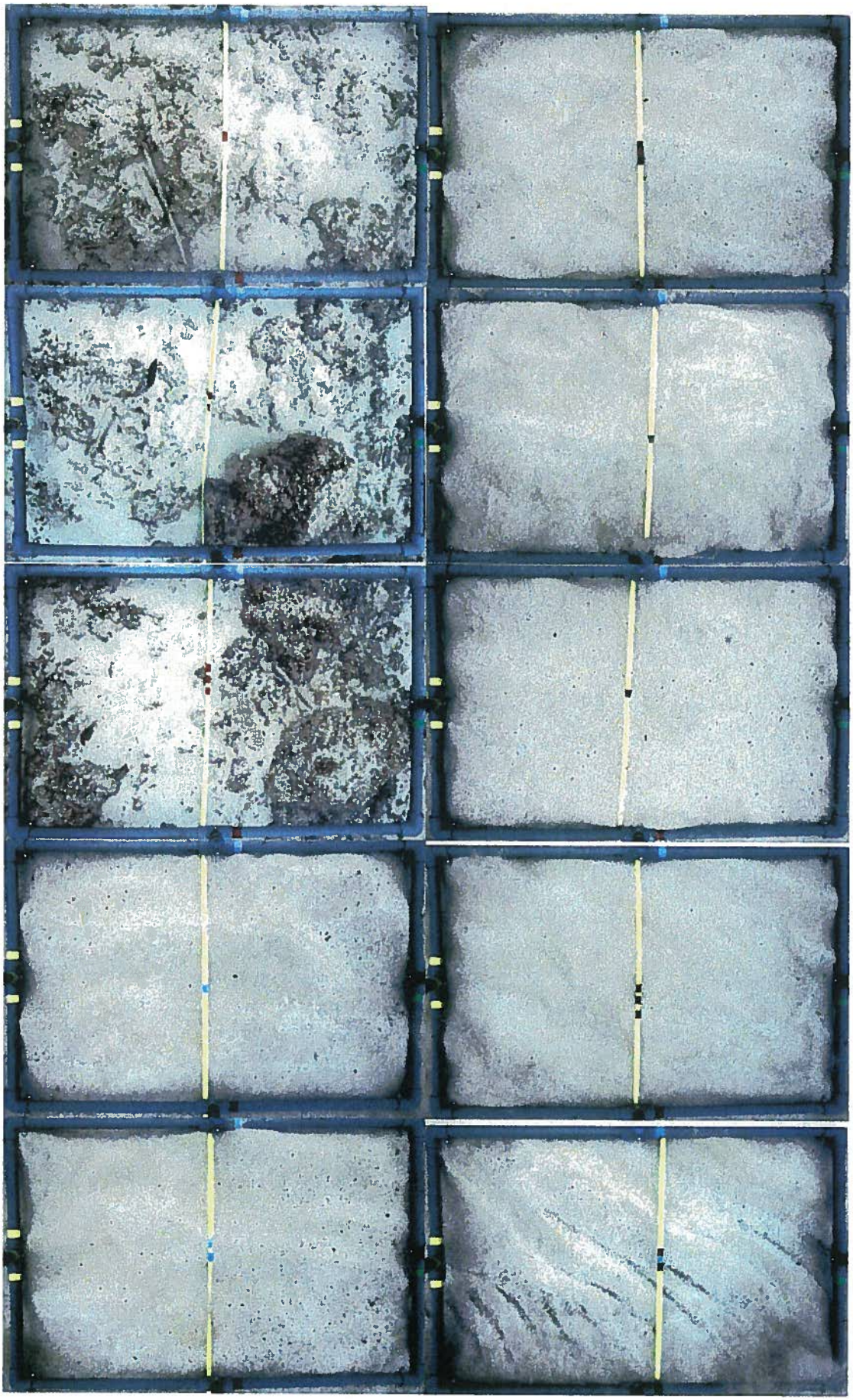
FIGURE 5. Histograms showing percent cover of all corals and two most abundant species (Porites lobata and Pocillopora meandrina) measured during bi-annual surveys on transects located in the vicinity of the Wailua Wastewater Treatment Plant Ocean Outfall, Wailua, Kauai, Hawaii. Note differences in vertical scale of percent cover on each transect.

TABLE 4. Reef fish abundance on transects in the vicinity of the Wailua Wastewater Treatment Plant Ocean Outfall, September 21, 2012.

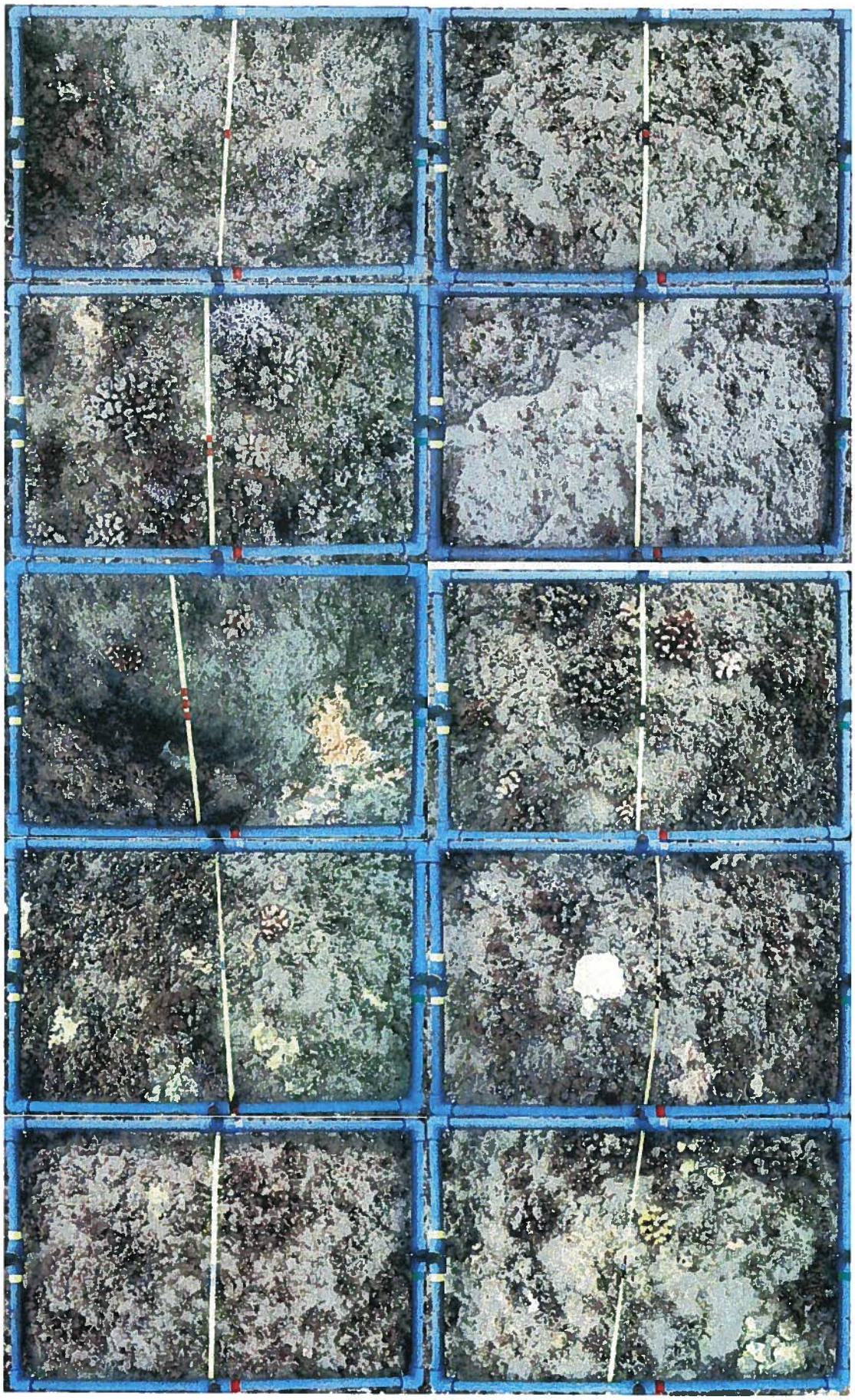
FAMILY Genus	TRANSECT 1	2	3	4	5
HOLOCENTRIDAE					
Myripristes berndti			3	4	3
KYPHOSIDAE					
Kyphosus bigibbus				2	
CIRRHITIDAE					
Paracurrhites arcatus			2	3	5
MULLIDAE					
Mulloides flavolineatus	3		4	3	5
Mulloides variocolensis				6	
CARANGIDAE					
Caranx melamphygus					1
LUTJANIDAE					
Lutjanus kasmira			3	2	2
CHAETODONTIDAE					
Chaetodon miliaris			4	3	6
C. multicinctus			2	3	1
C. quadramaculatus			2	2	
C. lunula					2
POMACENTRIDAE					
Abudefduf abdominalis			2	3	3
Stegastes fasciolatus			4	3	5
Chromis vanderbilti			12	14	13
C. ovalis			3	6	7
Dascyllus albisella			4	7	11
LABRIDAE					
Bodianus bilunulatus			1	1	2
Thalassoma duperrey			3	3	4
SCARIDAE					
Chlorurus perspicillatus				1	
Scarus spp.				2	3
ACANTHURIDAE					
A. triostegus			1	2	1
A. olivaceus			2	3	2
A. nigrofuscus	1		2	4	2
Ctenochaetus strigosus	1		5	7	6
Naso hexacanthus	1		1		1
N. unicornis			2	3	2
N. lituratus			2	2	1
Zebrasoma flavescens			5	6	8
BALISTIDAE					
Melichthys niger			6	7	4
Rhinecanthus rectangulus			1	2	1
FISTULARIIDAE					
Aulostoma chinensis			4	10	3
NUMBER SPECIES	4	0	25	28	27
NUMBER INDIVIDUALS	6	0	80	114	104



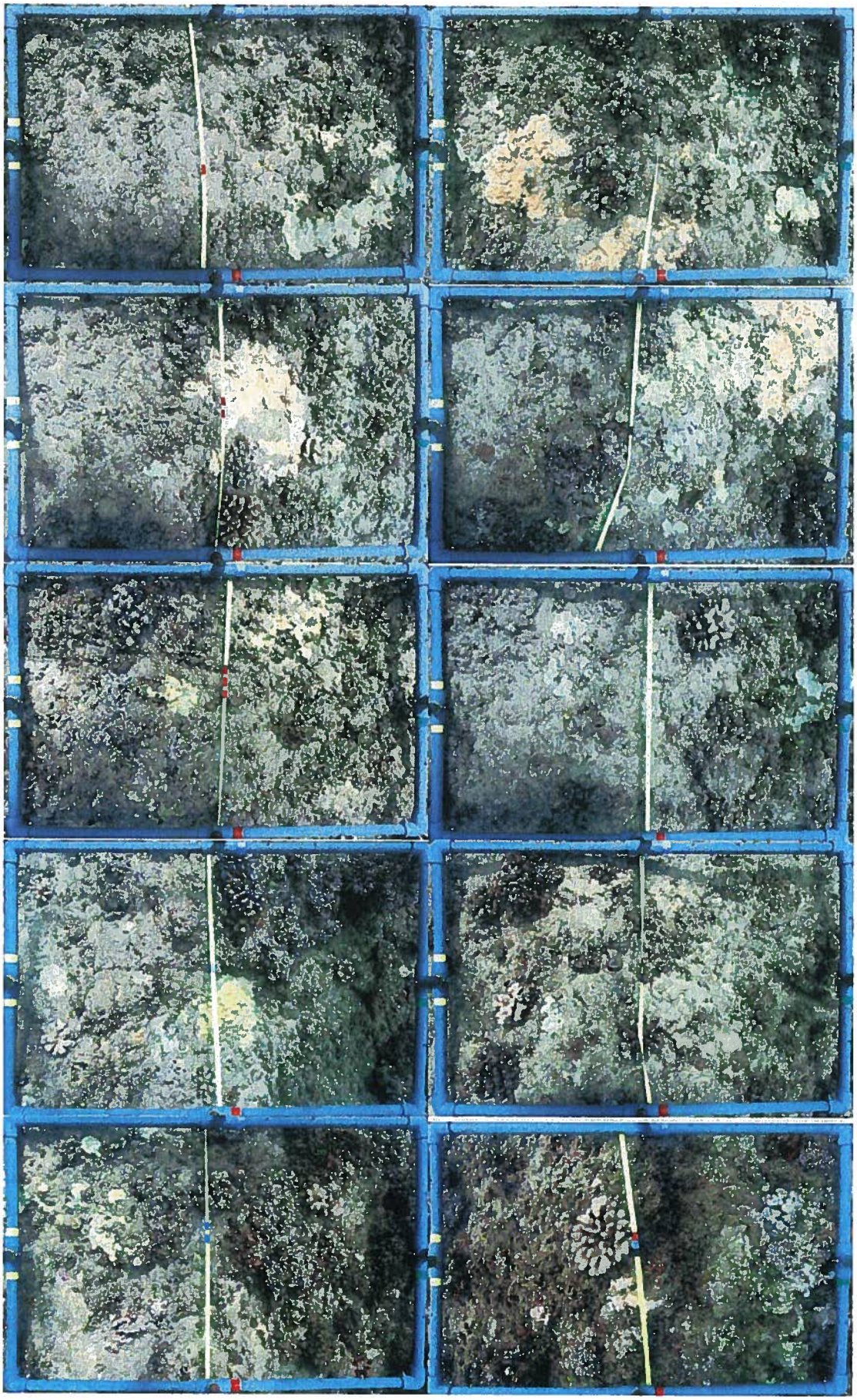
APPENDIX A-1. WAILUA WWTP BENTHIC MONITORING TRANSECT PHOTOGRAPHS - **TRANSECT 1-** QUADRATS 1-10 September 21, 2012.



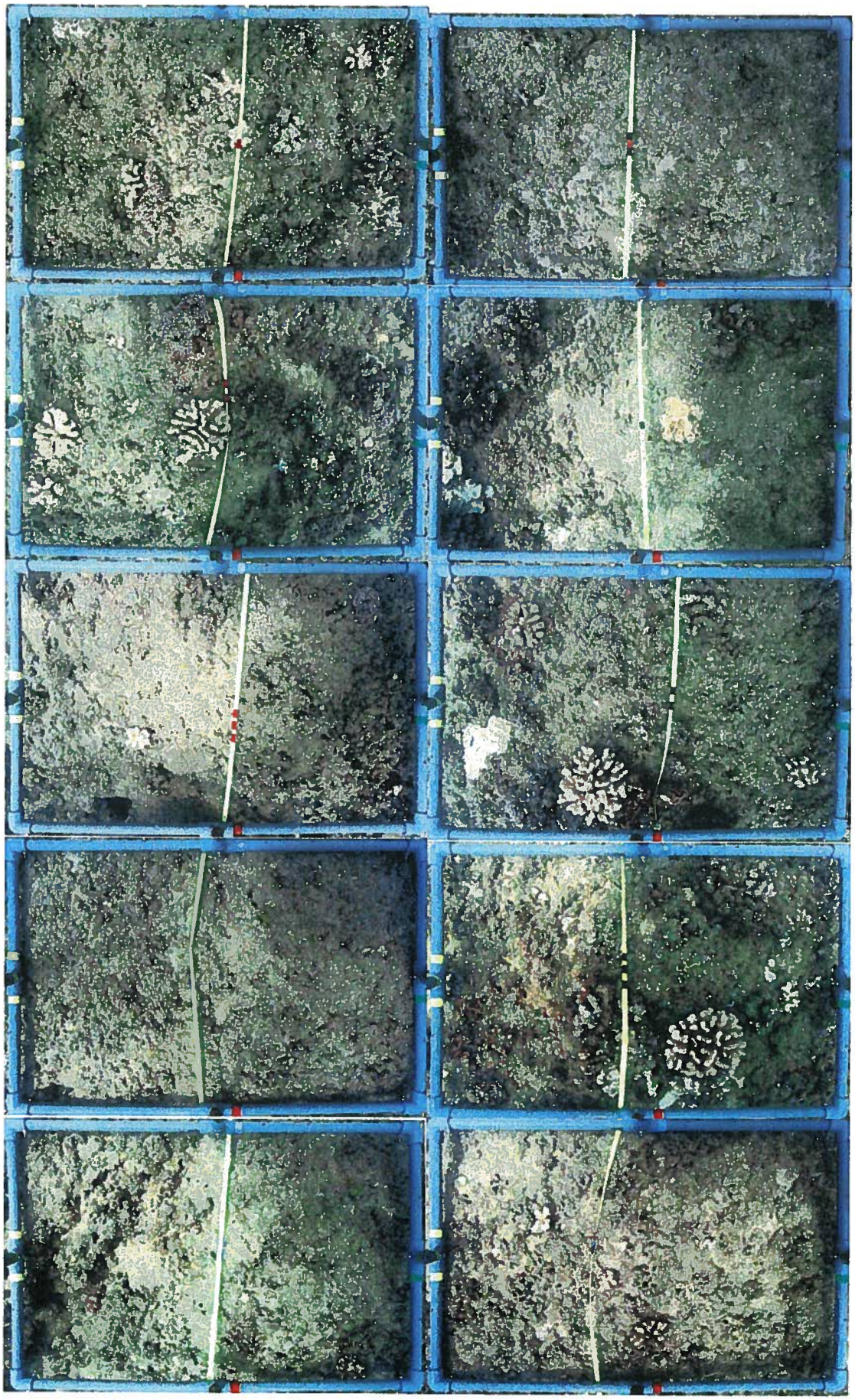
APPENDIX A-2. WAILUA WWTP BENTHIC MONITORING TRANSECT PHOTOGRAPHS - **TRANSECT 2** QUADRATS 1-10 September 21, 2012.



APPENDIX A-3. WAILUA WWTP BENTHIC MONITORING TRANSECT PHOTOGRAPHS - TRANSECT 3 QUADRATS 1-10, September 21, 2012.



APPENDIX A-4. WAILUA WWTP BENTHIC MONITORING TRANSECT PHOTOGRAPHS - **TRANSECT 4**; QUADRATS 1-10, September 21, 2012.



APPENDIX A-5. WAILUA WWTP BENTHIC MONITORING TRANSECT PHOTOGRAPHS - **TRANSECT 5** QUADRATS 1-10, September 21, 2012.

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

December 28, 2012

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: NOVEMBER 2012 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period November 1 through 30, 2012. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 18 days in November 2012 during which effluent was discharged to the ocean. Two violations of our effluent limits occurred during November; the Whole Effluent Toxicity (WET) test results from November 13 and November 27, 2012 were in excess of our permit limit. In addition to the monthly monitoring of effluent, during November the County also conducted shoreline monitoring for enterococcus and *Clostridium perfringens*.

Also included in this report are the results from the annual Zone of Mixing monitoring for 2012, and the bi-annual Receiving Water Biological Communities Monitoring Program Report. The field work for these two marine monitoring programs was conducted on September 21, 2012 by Steven Dollar, Ph.D. with Marine Research Consultants, Inc. (MRC).

Analyses performed monthly by contract laboratories include nutrients, enterococcus, and whole effluent toxicity (WET). For analyses performed by contract laboratories, the respective laboratory reports are attached to the DMR report in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) and WET testing were performed by Marine Research Consultants, Inc. (MRC), via their subcontractor Food Quality Lab, Oahu (FQL). The enterococcus and *Clostridium perfringens* testing was performed by Hawai'i Food and Water Testing (HFWT) for the County. The Zone of Mixing laboratory analyses were performed by Marine Analytical Specialists, a subcontractor to MRC.

EXHIBIT "I-73"

This month two rounds of WET testing were performed with the species *Trypneustes gratilla*. The results from samples collected on November 13 and 27, 2012 were reported as >219.8 Toxicity Units (TUc), both of which exceeded our permit limit. The State of Hawai'i Department of Health (DOH) was informed of the results in excess of our permit limit upon receipt by the County.

The County has contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes, and our consultant's evaluation of facility data is underway. The results of our Initial Investigation regarding WET test results will be provided in a separate report. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 1.9 NTU, reported on November 27, 2012. Additionally, effluent pH has been analyzed a total of 18 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

CONCUR:

for LARRY DILL, P.E.
County Engineer

Attachment

cc: EPA Regional Administrator w/attachment

0020257

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

2013 APR 2 4:21PM

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

March 28, 2013

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: FEBRUARY 2013 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period February 1 through 28, 2013. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 23 days in February 2013 during which effluent was discharged to the ocean. One violation of our effluent limits occurred during February; the Whole Effluent Toxicity (WET) test result from February 6, 2013 was in excess of our permit limit.

Analyses performed monthly by contract laboratories include nutrients, enterococcus, and whole effluent toxicity (WET). For analyses performed by contract laboratories, the respective laboratory reports are attached to the DMR report in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) were performed by Hawai'i Food and Water Testing Lab, as a subcontractor to HOH Utilities, LLC, the County's prime contractor for these analyses. The WET test analyses were performed by Food Quality Lab, Oahu (FQL). The enterococcus testing was performed by the County's sanitary chemists.

This month two sets of WET testing were performed with the species *Trypneustes gratilla*. The result from the sample collected on February 6, 2013 was reported as 219.80 Toxicity Units (TUc), which exceeded our permit limit. The result from the sample collected on February 20, 2013 was not in excess of our permit limit. The State of Hawai'i Department of Health (DOH) has previously been informed of the results in excess of our permit limit.

The County has contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes, and our consultant's

EXHIBIT "I-74"

2013936

evaluation of facility data is underway. The results of our Initial Investigation regarding WET test results will be provided in a separate report. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

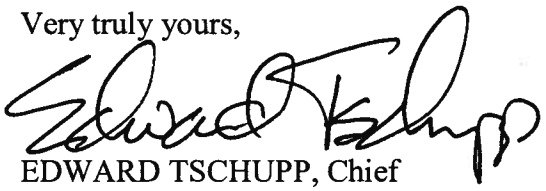
The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 1.7 NTU, measured on February 19, 2013. Additionally, effluent pH has been analyzed a total of 23 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,



EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

HI 0020257.

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

2013 MAY 1 11:34AM

GV
SM
MSY.

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

April 30, 2013

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: ANNUAL REPORT, WASTEWATER POLLUTION PREVENTION PROGRAM, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Wastewater Pollution Prevention Program Annual Report for the Wailua Wastewater Treatment Plant (WWTP) for the period April 1, 2012 through March 31, 2013. Included in the report are summaries of conditions at the WWTP and within the service area, including: flow; BOD and TSS concentration and loading data; toxic pollutant and septic waste impacts; service area growth; impact of new regulations; bypasses and overflows; collection system effectiveness and condition; permitted capacity; and treatment capacity.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

EXHIBIT "I-75"

2013B177

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
KAUA'I COUNTY, HAWAI'I

April 30, 2013

INTRODUCTION

This annual report covers the period from April 1, 2012 through March 31, 2013, and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP), owned and operated by the County of Kaua'i Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The NPDES permit is issued by the State of Hawai'i, Department of Health (DOH). During 2012, the County completed submittal of all information required for the periodic renewal of the NPDES permit, and anticipated that the DOH will draft a new permit within the next year.

FLOW

Influent and Effluent flow meters are installed at the Wailua WWTP, and daily records of plant flows are maintained. The Wailua WWTP discharges effluent both to the Wailua Golf Course for reuse as "R-2" irrigation water, and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. Plant records identify on a daily basis whether effluent is discharged to the ocean or to the golf course. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily flow influent to the WWTP was approximately 0.562 MGD. The maximum daily influent flow was 0.797 MGD, recorded on September 7, 2012, during a period when flow was directed to the golf course. The minimum influent flow to the WWTP was 0.349 MGD, recorded on May 14, 2012.

Effluent average daily flow during those days on which the effluent was discharged to the ocean was approximately 0.285 MGD, with the recorded maximum and minimum daily flows being 0.643 MGD on December 6, 2012 and 0.060 MGD on September 5, 2012, respectively. During the period from April 1, 2012 through March 31, 2013, effluent was discharged to the ocean during all or a part of 187 calendars days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

On February 20, 2012, operators attempted to switch Wailua WWTP effluent flow to the ocean outfall, and the outfall was unable to handle the flow, therefore flow was switched back to the golf course. The County found that the outfall diffusers were covered over by sand, which has occurred in the past, most recently in 2007. Visual inspection by divers has confirmed that the diffusers have been covered by sand, and the County has proceeded with an emergency

procurement with a marine services company to have the sand removed from around the diffusers. The ocean outfall was returned to service on May 13, 2013.

Appendix A includes copies of the daily flow records for the reporting period.

BIOCHEMICAL OXYGEN DEMAND LOADING

Influent and effluent Biochemical Oxygen Demand (BOD) analyses are performed weekly, and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs). Influent BOD values averaged approximately 210 milligrams per liter (mg/l). The maximum and minimum influent BOD concentrations observed during the reporting period were 290 mg/l and 160 mg/l, respectively. Effluent BOD averaged 2.1 mg/l. The maximum and minimum effluent BOD were 4.4 mg/l and <2 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume, and is reported monthly in the DMRs. The influent and effluent BOD loading averaged approximately 720 pounds per day (lb/d) and 7.3 lb/d, respectively, during the reporting period.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly, and the results of these analyses are reported monthly in the DMRs. Influent TSS values averaged approximately 180 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 280 mg/l and 120 mg/l, respectively. The average effluent TSS concentration was 1.2 mg/l, and the maximum and minimum effluent TSS concentrations were 5.5 mg/l and 0.2 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume, and is reported monthly in the DMRs. The TSS influent and effluent loading averaged approximately 620 pounds per day (lb/d) and 4.2 lb/d, respectively, during the reporting period.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity permit testing requirements include monthly effluent testing using Whole Effluent Toxicity (WET) methods with one of the two species identified in the permit, alternating species every month. However, prior to April 1, 2012, the County was performing accelerated WET testing with the species *Trypneustes gratilla* due to prior exceedance of permit limits for chronic toxicity units (TUc). During the period from April 1, 2012 through March 30, 2013, a total of 23 WET tests were performed with the species *Trypneustes gratilla* in the accelerated WET testing program. Of these analyses, 16 analyses exceeded permit TUc limits, and 7 analyses did not exceed the permit limits. The County has evaluated plant operating conditions and sampling procedures, and has not been able to identify conditions that correlate with or explain the results, which appear to be random.

No WET testing using the species *Ceriodaphnia dubia,* was conducted during this monitoring period, due to the ongoing accelerated monitoring with the species *Trypneustes gratilla.*

Annual analyses for priority pollutants were performed during the monitoring period in 2012. Priority pollutant compounds were not found at concentrations in excess of any regulatory action limits.

The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Growth of population and the number of residences and businesses in the Wailua WWTP service area has been low. Future growth rates and timing are unknown, and will depend on individual developer's schedules. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa'a. There are specific resort and residential developments in various stages of design and permitting that could become significant new sources of wastewater flow to the Wailua WWTP, however several projects in the service area have been delayed indefinitely due to economic conditions. Economic conditions appear to be improving, and the County anticipates a gradual increase in resort and residential development in the service area.

IMPACT OF NEW REGULATIONS

During the 2012-2013 reporting period the Wailua WWTP has not been affected by any specific new regulations.

BYPASSES AND OVERFLOWS

During the 2012-2013 reporting period there were no sewer system spills or bypasses.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Following the completion of the Wailua WWTP Facility Plan in 2008, the County proceeded with design of the first batch of identified improvements at the WWTP. The Facility Plan also provides planning for eventual upgrades and replacements of SPS's within the system due to age and condition. Figure 1 shows the main components of the collection system, as identified in the Facility Plan.

Routine operations within the collection system include service lateral cleaning and repair on an as needed basis, and periodic cleaning of pump station wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of pump station equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

TREATMENT CAPACITY

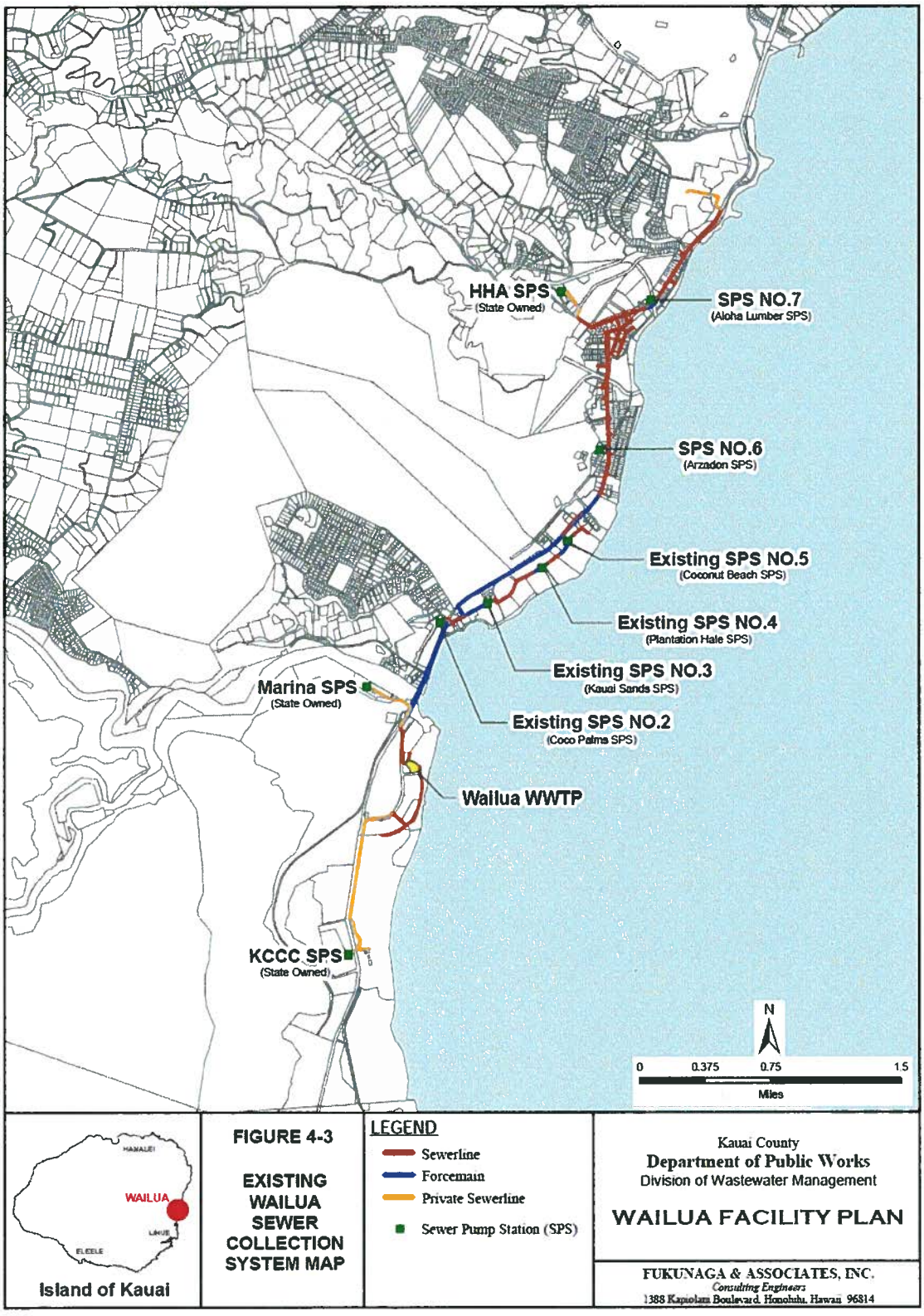
Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP, and lack of redundancy for some treatment processes at the WWTP, the Facility Plan consultant recommended that the Wailua WWTP should be considered as a 1.0 MDG facility.

The County is implementing the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. During the 2012-2013 reporting period, bidding and contracting for the Wailua Wastewater Treatment Plant Improvements, Phase I project was completed. This project is partially funded from a US EPA grant along with DOH funding from the Hawai'i Water Pollution Control Revolving Fund (SRF) program. The project includes replacement of blowers, sludge pumps and the solids dewatering centrifuge along with other improvements; the actual construction will commence approximately mid 2013.

The design is underway for the Wailua Wastewater Treatment Plant Improvements, Phase II project, which includes significant upgrades to address treatment process redundancy and reliability. The Preliminary Engineering Report for the Phase II project was submitted to and approved by the DOH.

FIGURE 1

WAILUA WWTP SEWAGE COLLECTION SYSTEM



Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2013 JUL 1 10:55AM

June 28, 2013

CERTIFIED MAIL

Mr. Mike Tsuji
Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Mr. Tsuji:

SUBJECT: MAY 2013 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period May 1 through 31, 2013. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 24 days in May 2013 during which effluent was discharged to the ocean. In May 2013, four violations of our effluent limits occurred; these included pH values of 5.7, 5.8 and 5.6 recorded on May 8, May 24 and May 29, respectively, and a Whole Effluent Toxicity (WET) test result in excess of our permit limits from a sample collected on May 15, 2013.

Analyses performed monthly by contract laboratories include nutrients and whole effluent toxicity (WET). For contract laboratory analyses, the respective laboratory reports are attached in their entirety. The nutrient analyses (total kjeldahl nitrogen, ammonia, nitrate plus nitrite, and total phosphorus) were performed by Hawai'i Food and Water Testing Lab (HFWT), as a subcontractor to HOH Utilities, LLC, the County's prime contractor for these analyses. The WET test analyses were performed by Food Quality Lab (FQL). The enterococcus testing was performed by the County's sanitary chemists.

This month three sets of WET testing were performed with the species *Trypneustes gratilla*. The results from samples collected on May 1 and May 29 were not in excess of our permit limit. The result from the sample collected on May 15, 2013 was reported as 219.78 Toxicity Units (TUc), which exceeded our permit limit. The State of Hawai'i Department of Health (DOH) has previously been informed of the results, including the pH results, that were in excess of our permit limit.

EXHIBIT "I-76"

The County has contracted with Brown and Caldwell for evaluation of WETT results and for initial investigation for Toxicity Reduction Evaluation (TRE) purposes. Our consultant's evaluation of facility data is complete and the results of our Initial Investigation regarding WET test results will be provided to the DOH in a separate report during July, 2013. Meanwhile, the County will continue with accelerated monitoring during periods of ocean discharge, in accordance with our permit.

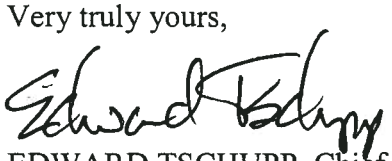
The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 5.1 NTU, measured on May 27, 2013. Additionally, effluent pH has been analyzed a total of 24 times during the month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,



EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

BWTF (WATER QUALITY MONITORING)

If the water is brown, turn around...too much bacteria, chemicals, dead animals, sharp debris and sharks.

Click here to learn more about COVID-19 and Beach Water Quality

Ocean and nearshore waters around Kauai are monitored on a regular basis by the Clean Water Branch of Hawaii's Department of Health and by the Blue Water Task Force of the Kauai Chapter of the Surfrider Foundation. Both organizations collect samples in similar ways and test for Enterococcus bacteria concentrations using the exact same method approved by the U.S. Environmental Protection Agency.

The DOH and Surfrider monitor different types of beaches and coastal recreational waters on Kauai to provide more extensive water-quality information to inform safe beachgoing. DOH collects water samples at popular ocean beaches, while Surfrider collects at popular surfbreaks or in estuaries where canal, stream or river water meets the ocean at the beach. The latter sites are extremely popular places for children to play in the water but the water is often polluted.

While DOH chronic-water pollution warning signs have been posted at Gillin's Beach (at Mahaulepu), Hanamaulu Beach Park and Niumalu Beach Park, many more signs are needed to inform the public about the health risk from swimming in polluted waters and to warn them to stay out.

Working together, Surfrider and the DOH must identify polluted waters and make sure that residents and visitors alike are aware of potential health threats at the beach. The DOH can then identify the sources of pollution and take action to eliminate them. We need to ensure that the health of anyone enjoying the beach or our coastal waters here on Kauai is safe and protected.

EXHIBIT "I-77"

– ***Dr. John P. Alderete, Ph.D.***, is head of the Blue Water Task Force of the Kauai Chapter of the Surfrider Foundation

Surfrider Kauai: Blue Water Task Force

01/09/2021

Enterococcus bacterial concentration per 100 mls

Testing Site	Single-day results*	This year's geomean**
Gillins Beach	**63.0**	**141.5**
Kalihiwai Stream Mouth	**120.0**	**196.0**
Rock Quarry Surf Beach	**228.0**	**33.1**
Hanalei River	**278.0**	**555.5**
Anahola Stream	**288.0**	**704.6**
Wailua River Mouth	**327.0**	**303.4**
Waimea River Mouth	**377.0**	**440.5**
Moikeha Canal	**420.0**	**458.1**
Nawiliwili Stream	**443.0**	**651.3**
Waikomo Stream	**450.0**	†
Hanapepe River	**457.0**	**623.9**
Kilauea Stream Mouth	**605.0**	**688.9**
Waikomo Stream (Koloa Landing)	**689.0**	**647.7**
Niumalu Beach Park	**1,354.0**	**608.4**
Moloa'a Stream	**1,483.0**	**1,736.7**
Hanamaulu Stream	**1,607.0**	**1,689.5**
Waiopili Stream	**2,613.0**	**6,051.0**

* Single-day sample results should be <130

** Geomean of samples should be <35

† not enough data

The Blue Water Task Force is our water quality testing program. It is comprised of a group of individuals who, on the second Saturday morning of the month, paddle out to various surf spots or go to streams on the island, and collect a water sample to be tested later in our lab. We test for Enterococcus bacteria that indicate contamination from feces of warm-blooded animals, especially humans. It is the standard test for both the Hawaii Department of Health and the U.S. Environmental Protection Agency.

We also test some of the streams and County Beach parks not tested by the Hawaii Department of Health. We were testing 36 sites on a monthly basis, but because of COVID-19 restrictions and the safety of our

NEIL ABERCROMBIE
GOVERNOR OF HAWAII

LORETTA J. FUDDY, A.C.S.W., M.P.H.
DIRECTOR OF HEALTH

STATE OF HAWAII

DEPARTMENT OF HEALTH

P. O. BOX 3378
HONOLULU, HI 96801-3378

In reply, please refer to:
File:

10010PKP.13a
DATE: October 1, 2013
NPDES PERMIT NO.: HI 0020257

FACT SHEET: APPLICATION FOR RENEWAL OF NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERMIT AND ZONE OF MIXING (ZOM) TO DISCHARGE TO THE PACIFIC OCEAN, WATERS OF THE UNITED STATES

PERMITTEE: COUNTY OF KAUAI, DEPARTMENT OF PUBLIC WORKS

FACILITY: WAILUA WASTEWATER TREATMENT PLANT

FACILITY MAILING ADDRESS
County of Kauai
Department of Public Works
Wailua Wastewater Treatment Plant
4444 Rice Street
Suite 275
Lihue, Kauai, Hawaii 96766

FACILITY STREET ADDRESS
County of Kauai
Department of Public Works
Wailua Wastewater Treatment Plant
4460 Nalu Road
Wailua, Kauai, Hawaii 96746

PERMITTEE MAILING ADDRESS
County of Kauai
Department of Public Works
Wailua Wastewater Treatment Plant
4444 Rice Street
Suite 275
Lihue, Kauai, Hawaii 96766
Contact: Mr. Edward Tschupp, Chief,
Wastewater Management Division
County of Kaua'i
Tel. No. (808) 241-4083

EXHIBIT "I-78"

Table of Contents

This Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of the draft permit.

A. Permit Information

The following table summarizes administrative information related to the Wailua Wastewater Treatment Plant (hereinafter, facility).

Table F-1. Facility Information

Permittee	County of Kauai, Department of Public Works, Wastewater Management Division
Name of Facility	Wailua Wastewater Treatment Plant
Facility Address	4460 Nalu Road Wailua, Kauai, Hawaii 96746
Facility Contact, Title, and Phone	Edward Tschupp, Chief, Division of Water Management, (808) 241-4083
Authorized Person to Sign and Submit Reports	Edward Tschupp, Chief, Division of Water Management, (808) 241-4083
Mailing Address	4444 Rice Street, Suite 275 Lihue, Kauai, HI 96766
Billing Address	Same as above
Type of Facility	Wastewater Treatment Plant
Pretreatment Program	No
Reclamation Requirements	No
Facility Design Flow	1.5 million gallons per day (MGD)
Receiving Waters	Pacific Ocean
Receiving Water Type	Marine
Receiving Water Classification	Class A Wet Open Coastal Waters (HAR, Section 11-54-06(b)(2)(B))

1. NPDES Permit No. HI 0020257, including ZOM, became effective on May 21, 2007, with minor permit modifications effective August 20, 2009, and expired on March 31, 2011. The Permittee reapplied for an NPDES permit and ZOM on January 6, 2011, and submitted supplemental information on September 7, 2012. The DOH administratively extended the existing permit on June 8, 2011 pending reapplication processing.

2. The Director of Health (hereinafter Director) proposes to issue a permit to discharge to the waters of the state until **September 30, 2018,** and has included in the proposed permit those terms and conditions which are necessary to carry out the provisions of the Federal Water Pollution Control Act (P.L. 92-500), Federal Clean Water Act (CWA) (P.L. 95-217) and Chapter 342D, Hawaii Revised Statutes.

B. Facility Setting

1. Facility Operation and Location

The Permittee owns and operates the facility, located in Wailua on the island of Kauai. The facility has a design capacity of 1.5 MGD and provides primary and secondary treatment of wastewater for approximately 11,600 people in the Wailua Resort area and Kapaa Town Highway Corridor. Treatment at the facility includes preliminary influent screening, grit removal, flow equalization, complete mix aeration basins, secondary clarification, disk filtration, and chlorination. Treated effluent is reclaimed for use on the Wailua Golf Course. Reclaimed effluent discharged to the Wailua Golf Course is regulated by the DOH Wastewater Branch under a separate reclamation permit. During heavy rains or as a backup alternative means of disposal, the treated effluent may be discharged to the Pacific Ocean through Outfall Serial No. 001at Latitude 22°02′30"N and Longitude 159°20′10"W. Treated effluent is discharged through Outfall Serial No. 001 approximately 180 days per year.

Outfall Serial No. 001 is a deep ocean outfall that discharges treated effluent through a diffuser that starts approximately 670 feet offshore and 30 feet below the surface of the water. The diffuser has a total of seven ports: six ports with a 4-inch diameter along the section and one end cap with a 6-inch diameter. Presently, only three ports are open for discharge.

Sludge processing at the facility consists of dissolved air flotation thickening, digestion, and dewatering using a centrifuge or drying beds. Biosolids are trucked offsite for disposal.

Storm water is not discharged from the facility.

Figure 1 of the draft permit provides a map showing the location of the facility. Figure 2 of the draft permit provides a map of the Zone of Mixing (ZOM), Zone of Initial Dilution (ZID), and receiving water monitoring station locations.

2. Receiving Water Classification

The Pacific Ocean offshore of Lydgate Beach Park, Wailua, is designated as “Class A Wet Open Coastal Waters” under Section 11-54-06(b)(2)(B), Hawaii Administrative Rules (HAR). Protected beneficial uses of Class A waters include recreation, aesthetic enjoyment, and the protection and propagation of fish, shellfish, and wildlife.

3. Ocean Discharge Criteria

The Director has considered the Ocean Discharge Criteria, established pursuant to Section 403(c) of the CWA for the discharge of pollutants into the territorial sea, the waters of the contiguous zone, or the oceans. The United States

Environmental Protection Agency (EPA) has promulgated regulations for Ocean Discharge Criteria in 40 Code of Federal Regulations (CFR) Part 125, Subpart M. The Director has determined that the discharge will not cause unreasonable degradation to the marine environment. Based on current information, the Director proposes to issue a permit.

4. Impaired Water Bodies on CWA 303(d) List

CWA Section 303(d) requires states to identify specific water bodies where water quality standards are not expected to be met after implementation of technology-based effluent limitations on point sources.

On July 24, 2012, the EPA approved the 2008/2010 State of Hawaii Water Quality Monitoring and Assessment Report, which includes the 2008/2010 303(d) List of Impaired Water Bodies in the State of Hawaii updated with data collected from marine water between January 2006 and December 2009.

The Pacific Ocean offshore of Lydgate Beach Park is listed as an impaired water body on the 2008/2010 303(d) list for enterococcus. Currently, this section of Pacific Ocean offshore of Lydgate Beach Park is reported as a Category 3 and 5 waterbody and of low priority in regards to the preparation of TMDLs for this waterbody. At present, no TMDLs have been established for this waterbody.

5. Summary of Existing Effluent Limitations

a. Existing Effluent Limitations and Monitoring Data

Effluent limitations contained in the existing permit for discharges from Outfall Serial No. 001 and representative monitoring data from January 2009 through June 2012 are presented in the following tables.

Table F-2. Historic Effluent Limitations and Monitoring Data – Outfall Serial No. 001

Parameter	Units	Effluent Limitation			Reported Data[1]		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Flow	MGD	[2]	--	[2]	0.48	--	0.67
Biochemical Oxygen Demand (5-Day)	mg/L	30	45	--	7.8	18	--
	kg/day	171	256	--	10	24	--
	lbs/day	375	563	--	22	53	--
	% Removal	As a monthly average, not less than 85 percent removal efficiency from influent stream.			95[3]		
Total Suspended Solids	mg/L	30	45	--	8.1	20	--
	kg/day	171	256	--	11	28	--
	lbs/day	375	563	--	24	62	--
	% Removal	As a monthly average, not less than 85 percent removal efficiency from influent stream.			96[3]		

Parameter	Units	Effluent Limitation			Reported Data[1]		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Enterococci	CFU/100 ml	192[4]	--	[2]	383[5]	--	1,760
Total Residual Chlorine	µg/L	[2]	--	412	280	--	450
Total Nitrogen	µg/L	--	--	[2]	--	--	30,440
Ammonia Nitrogen	µg/L	--	--	[2]	--	--	21,100
Nitrate + Nitrite Nitrogen	µg/L	--	--	[2]	--	--	24,400
Total Phosphorus	µg/L	--	--	[2]	--	--	5,900
pH	s.u.	Not less than 6.0 nor greater than 9.0			5.4 – 7.3		
Chronic Toxicity – *Ceriodaphnia Dubia*	TUc	--	--	55	--	--	14
Chronic Toxicity –*Tripneustes Gratilla*	TUc	--	--	55	--	--	220

[1] Source: Monthly DMR's submitted by the Permittee from January 2009 through June 2012.
[2] No effluent limitations for this pollutant in the previous permit, only monitoring required.
[3] Data represents the minimum percent removal reported.
[4] Effluent limitation established as a geometric mean.
[5] Data represents that maximum reported monthly geometric mean.

6. Compliance Summary

The following table lists effluent limitation exceedances as identified in the monthly, quarterly, and annual DMRs submitted by the Permittee from January 2009 to June 2012.

Table F-3. Summary of Compliance History

Monitoring Period	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
1/1/09 - 1/31/09	--	pH	5.4	6 – 9.0	s.u.
5/1/10 - 5/31/10	Daily Maximum	Chlorine	450	412	ug/L
9/1/10 - 9/30/10	Daily Maximum	Chlorine	450	412	ug/L
12/1/11 - 12/31/11	Daily Maximum	Chlorine	430	412	ug/L
12/1/09 – 12/31/09	Monthly Geomean	Enterococcus	383	192	MPN/100mL
12/1/11 – 12/31/11	Monthly Geomean	Enterococcus	206	192	MPN/100mL
11/1/09 - 11/30/09	Maximum	WET *T. gratilla*	>220	55	TU_C
1/1/11 - 1/31/11	Maximum	WET *T. gratilla*	>219	55	TU_C
2/1/11 - 2/28/11	Maximum	WET *T. gratilla*	>219	55	TU_C
3/1/11 - 3/31/11	Maximum	WET *T. gratilla*	>220	55	TU_C
4/1/11 - 4/30/11	Maximum	WET *T. gratilla*	220	55	TU_C
5/1/11 - 5/31/11	Maximum	WET *T. gratilla*	220	55	TU_C
6/1/11 - 6/30/11	Maximum	WET *T. gratilla*	220	55	TU_C

Monitoring Period	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
7/1/11 - 7/31/11	Maximum	WET *T. gratilla*	220	55	TU_C
8/1/11 - 8/31/11	Maximum	WET *T. gratilla*	>220	55	TU_C
9/1/1 - 9/30/11	Maximum	WET *T. gratilla*	220	55	TU_C
10/1/11 - 10/31/11	Maximum	WET *T. gratilla*	>220	55	TU_C
12/1/11 - 12/31/11	Maximum	WET *T. gratilla*	220	55	TU_C
1/1/12 - 1/31/12	Maximum	WET *T. gratilla*	>220	55	TU_C
5/1/12 - 5/31/12	Maximum	WET *T. gratilla*	220	55	TU_C
6/1/12 - 6/30/12	Maximum	WET *T. gratilla*	>220	55	TU_C

8. Planned Changes

There are not planned changes expected during the term of the proposed permit that will significantly impact the operation of the Facility.

C. Applicable Plans, Policies, and Regulations

1. Hawaii Administrative Rules, Chapter 11-54

On November 12, 1982, the Hawaii Administrative Rules, Title 11, Department of Health, Chapter 54 became effective (hereinafter HAR, Chapter 11-54). HAR, Chapter 11-54 was amended and compiled on October 6, 1984; April 14, 1988; January 18, 1990; October 29, 1992; April 17, 2000; October 2, 2004; June 15, 2009; and the most recent amendment was on October 21, 2012. HAR, Chapter 11-54 establishes beneficial uses and classifications of state waters, the state antidegradation policy, zones of mixing standards, and water quality criteria that are applicable to the Pacific Ocean offshore of Lydgate Beach Park.

Requirements of the draft permit implement HAR, Chapter 11-54.

2. Hawaii Administrative Rules, Chapter 11-55

On November 27, 1981 HAR, Title 11, Department of Health, Chapter 55 became effective (hereinafter HAR, Chapter 11-55). HAR Chapter 11-55 was amended and compiled on October 29, 1992; September 22, 1997; January 6, 2001; November 7, 2002; August 1, 2005; October 22, 2007; June 15, 2009; and the most recent amendment was on October 21, 2009. HAR, Chapter 11-55 establishes standard permit conditions and requirements for NPDES permits issued in Hawaii.

Requirements of the draft permit implement HAR, Chapter 11-55.

3. State Toxics Control Program

NPDES Regulations at 40 CFR 122.44(d) require permits to include water quality-based effluent limitations (WQBELs) for pollutants, including toxicity, that

are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an exceedance of a water quality standard. The *State Toxics Control Program: Derivation of Water Quality-Based Discharge Toxicity Limits for Biomonitoring and Specific Pollutants* (hereinafter, STCP) was finalized in April, 1989, and provides guidance for the development of water quality-based toxicity control in NPDES permits by developing the procedures for translating water quality standards in HAR, Chapter 11-54 into enforceable NPDES permit limitations. The STCP identifies procedures for calculating permit limitations for specific toxic pollutants for the protection of aquatic life and human health.

Guidance contained in the STCP was used to determine effluent limitations in the draft permit.

D. Rationale for Effluent Limitations and Discharge Specifications

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. NPDES regulations establish two (2) principal bases for effluent limitations. At 40 CFR 122.44(a), permits are required to include applicable technology-based limitations and standards; and at 40 CFR 122.44(d), permits are required to include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water. When numeric water quality objectives have not been established, but a discharge has the reasonable potential to cause or contribute to an excursion above a narrative criterion, WQBELs may be established using one (1) or more of three (3) methods described at 40 CFR 122.44(d) – 1) WQBELs may be established using a calculated water quality criterion derived from a proposed state criterion or an explicit state policy or regulation interpreting its narrative criterion; 2) WQBELs may be established on a case-by-case basis using EPA criteria guidance published under CWA Section 304(a); or 3) WQBELs may be established using an indicator parameter for the pollutant of concern.

1. Technology-Based Effluent Limitations

a. Scope and Authority

Section 301(b) of the CWA and implementing EPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this permit must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR 133.

Regulations promulgated in 40 CFR 125.3(a)(1) require technology-based effluent limitations for municipal dischargers to be placed in NPDES permits

based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for publically owned treatment works (POTWs) [defined in Section 304(d)(1)]. CWA Section 301(b)(1)(B) requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the EPA Administrator.

Based on this statutory requirement, EPA developed secondary treatment regulations, which are specified in 40 CFR 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD_5), total suspended solids (TSS), and pH.

b. Applicable Technology-Based Effluent Limitations

The Permittee discharges secondary treated wastewater. At 40 CFR 133, EPA has established the minimum required level of effluent quality attainable by secondary treatment shown in Table F-4 below. The standards in Table F-4 are applicable to the facility and therefore established in the draft permit as technology-based effluent limitations.

Table F-4. Applicable Technology-Based Effluent Limitations

Parameter	Units	30-Day Average	7-Day Average
BOD_5[1]	mg/L	30	45
TSS[1]	mg/L	30	45
pH	standard units	6.0 – 9.0	

[1] The 30-day average percent removal shall not be less than 85 percent.

2. Water Quality-Based Effluent Limitations (WQBELs)

a. Scope and Authority

NPDES Regulations at 40 CFR 122.44(d) require permits to include WQBELs for pollutants, including toxicity, that are or may be discharged at levels that cause, have reasonable potential to cause, or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard (reasonable potential). As specified in 40 CFR 122.44(d)(1)(i), permits are required to include WQBELs for all pollutants "which the Director determines are or may be discharged at a level that will cause, have reasonable potential to cause, or contribute to an excursion above any state water quality standard."

The process for determining reasonable potential and calculating WQBELs, when necessary, is intended to protect the receiving waters as specified in HAR, Chapter 11-54. When WQBELs are necessary to protect the receiving waters, the DOH has followed the requirements of HAR, Chapter 11-54, the STCP, and other applicable State and federal guidance policies to determine WQBELs in the draft permit.

Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELS must be established in accordance with the requirements of 40 CFR 122.44(d)(1)(vi), using (1) EPA criteria guidance under CWA Section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information.

b. Applicable Water Quality Standards

The beneficial uses and water quality standards that apply to the receiving waters for this discharge are from HAR, Chapter 11-54.

(1) HAR, Chapter 11-54. HAR, Chapter 11-54 specifies numeric aquatic life standards for 72 toxic pollutants and human health standards for 60 toxic pollutants, as well as narrative standards for toxicity. Effluent limitations and provisions in the draft permit are based on available information to implement these standards.

(2) Water Quality Standards. The facility discharges to the Pacific Ocean, which is classified as a marine Class A Wet Open Coastal Waters in HAR, Chapter 11-54. As specified in HAR, Chapter 11-54, saltwater standards apply when the dissolved inorganic ion concentration is above 0.5 parts per thousand. As such, a reasonable potential analysis (RPA) was conducted using saltwater standards. Additionally, human health water quality standards were also used in the RPA to protect human health. Where both saltwater standards and human health standards are available for a particular pollutant, the more stringent of the two will be used in the RPA.

40 CFR 122.45(c) requires effluent limitations for metals to be expressed as total recoverable metal. Since water quality standards for metals are expressed in the dissolved form in HAR, Chapter 11-54, factors or translators must be used to convert metal concentrations from dissolved to total recoverable. Default EPA conversion factors were used to convert the applicable dissolved criteria to total recoverable.

(3) Receiving Water Hardness. HAR, Chapter 11-54 contains water quality criteria for six metals that vary as a function of hardness in freshwater. A lower hardness results in a lower freshwater water quality standard. The metals with hardness dependent standards include cadmium, copper, lead, nickel, silver, and zinc. Ambient hardness values are used to calculate freshwater water quality standards that are hardness dependent. Since saltwater standards are used for the RPA, the receiving water hardness was not taken into consideration when determining reasonable potential.

c. Determining the Need for WQBELs

NPDES regulations at 40 CFR 122.44(d) require effluent limitations to control all pollutants which are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard. Assessing whether a pollutant has reasonable potential is the fundamental step in determining whether or not a WQBEL is required. Using the methods prescribed in EPA's *Technical Support Document for Water Quality-Based Toxics Control* (the TSD, EPA/505/2-90-001, 1991), the effluent data from Outfall Serial No. 001 were analyzed to determine if the discharge demonstrates reasonable potential. The RPA compared the effluent data with numeric and narrative water quality standards in HAR, Chapter 11-54-4. To determine reasonable potential for parameters contained in HAR, Chapter 11-54-6, a direct comparison of the effluent's maximum effluent concentration was compared to the most stringent WQS.

(1) Reasonable Potential Analysis (RPA). The RPA for pollutants with WQS specified in HAR, Chapter 11-54-4, based on the TSD, combines knowledge of effluent variability as estimated by a coefficient of variation with the uncertainty due to a limited number of data to project an estimated maximum receiving water concentration as a result of the effluent. The estimated receiving water concentration is calculated as the upper bound of the expected lognormal distribution of effluent concentrations at a high confidence level. The projected maximum receiving water concentration, after consideration of dilution, is then compared to the WQS in HAR, Chapter 11-54 to determine if the pollutant has reasonable potential. The projected maximum receiving water concentration has reasonable potential if it cannot be demonstrated with a high confidence level that the upper bound of the lognormal distribution of effluent concentrations is below the receiving water standards.

Because the most stringent WQS for pollutants specified in HAR, Section 11-54-6 are provided as geometric means and exceedances of these WQS are less sensitive to effluent variability, the RPA was

conducted by doing a direct comparison of the maximum effluent concentration to the most stringent applicable WQS.

(2) Effluent Data. The RPA was based on effluent monitoring data submitted to the DOH in DMRs from January 2009 through June 2012.

(3) Dilution. The STCP discusses dilution, defined as the reduction in the concentration of a pollutant or discharge which results from mixing with the receiving waters, for submerged and high-rate outfalls. The STCP states that minimum dilution is used for establishing effluent limitations based on chronic criteria and human health standards for non-carcinogens, and average conditions is used for establishing effluent limitations based on human health standards for carcinogens.

The previous permit included a dilution of 54:1 (seawater: effluent) for effluent limitations. The dilution used was based a 1996 *Wailua WWTP Ocean Outfall Dilution Analysis* (hereinafter Study). In the Study, the Permittee determined the minimum initial dilution to be 54:1. EPA's *Initial Mixing Characteristic of Municipal Ocean Discharges* indicates that "worst-case" conditions be evaluated using a combination of conservative values for conditions affecting initial dilution. Although no average dilution was provided, using a minimum initial dilution of 54:1 for calculating effluent limitations for human health standard for carcinogens is more conservative than an average dilution and will still be protective of water quality. Therefore, because only a minimum initial dilution was used in the previous permit and a new dilution study has not been conducted, the DOH has determined the initial dilution of 54:1 is still protective of water quality for chronic and fish consumption criteria for non-carcinogens, and for fish consumption criteria for carcinogens.

HAR, Section11-54-9 allows the use of a ZOM to demonstrate compliance with WQS. ZOMs consider initial dilution, dispersion, and reactions from substances which may be considered to be pollutants. However, due to other potential sources of pollutants into the receiving water, such as storm water runoff or unidentified discharges, it is often problematic to determine the cause of WQS exceedances in the receiving water at the edge of a ZOM. It is more practical to determine the available dilution provided in the ZOM and apply that dilution to the WQS to calculate an effluent limitation that can be applied end-of-pipe. However, an available dilution at the edge of the ZOM is not currently known for this discharge. Thus, for Section 11-54-6(b)(3) parameters, reasonable potential to contribute to an exceedance of WQS is most reasonably assessed by comparing monitoring data at the edge of the ZOM to the applicable WQS. If an annual geometric mean at the edge of a ZOM exceeds the applicable WQS, the Permittee is determined to have reasonable potential for the pollutant. If an exceedance of WQS is not observed at the edge of the

ZOM, it is assumed that sufficent dilution and assimilative capacity exists to meet WQS at the edge of the ZOM.

Where reasonable potential has been determined for Section 11-54-6(b)(3) pollutants, limitations must be established that are protective of water quality. Because the dilution at the edge of the ZOM is not known, where assimilative capacity exists this permit establishes limitations for Section 11-54-6(b)(3) pollutants as performance-based effluent limitations and receiving water limitations and requires the Permittee to conduct a dilution analysis at the edge of the ZOM so that end-of-pipe effluent limitations may be established during future permitting efforts. Where assimilative capacity does not exist, it is not appropriate to grant a ZOM and/or dilution, and an end-of-pipe criteria-based effluent limitation must be established that is protective of WQS.

Assimilative capacity for pollutants with reasonable potential is evaluated for Section 11-54-6(b)(3) pollutants by aggregating all ZOM control station data annually and comparing the annual geometric means to the applicable WQS. If an annual geometric mean exceeds 90 percent of the WQS, assimilative capacity is determined to be insufficient and dilution may not be granted.

(4) Summary of RPA Results. The maximum effluent concentrations from the DMRs over the current permit term, maximum projected receiving water concentration after dilution calculated using methods from the TSD, the applicable HAR, Section 11-54-4(b)(3) and 11-54-6(b)(3) water quality standard, and result of the RPA for pollutants discharged from Outfall Serial No. 001 are presented in Table F-5, below. The maximum projected concentrations for toxics specified in HAR, Section 11-54-4 have been revised to reflect available dilution. For nutrients and water quality standards specified in HAR, Section 11-54-6(b)(3), dilution, where available, has been accounted for within the summarized applicable water quality standard. Only pollutants detected in the discharge are presented in Table F-5. All other pollutants were not detected and therefore, no reasonable potential exists.

Table F-5. Summary of RPA Results

Parameter	Units	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Arsenic, Total Recoverable	µg/L	5.0	0.51	36	No
Chromium, Total Recoverable	µg/L	1.1	0.11	50[1]	No
Copper, Total Recoverable	µg/L	18	1.8	3.5	No
Cyanide, Total Recoverable	µg/L	240	24	1.0	Yes
Nickel, Total Recoverable	µg/L	3.0	0.30	8.4	No
Zinc, Total Recoverable	µg/L	46	4.6	91	No
Bis(2-Ethylhexyl)Phthalate	µg/L	30	3.1	16,000	No

Parameter	Units	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Chlorine	µg/L	450	8.9	7.5	Yes
Diethyl Phthalate	µg/L	21	2.1	590,000	No
Ammonia Nitrogen	µg/L	6.85[2]	NA	3.5	Yes
Total Nitrogen	µg/L	133[2]	NA	150	No
Nitrate + Nitrite Nitrogen	µg/L	8.8[2]	NA	5.0	Yes
Total Phosphorous	µg/L	15.3[2]	NA	20	No
pH	s.u.	5.4 – 7.3	NA	7.0-8.6	Yes[3]
Enterococcus	#/cfu	1760	NA	1,890	Yes[4]

[1] Water quality standard is expressed as Chromium VI.
[2] Maximum annual geometric mean at the edge of the ZOM.
[3] Although the minimum pH for the effluent was outside of the water quality standard, technology-based effluent limits was given because receiving water pH was not found to be in exceedance.
[4] Although the maximum effluent concentration is less than the water quality standard when dilution is accounted for, there is a high potential for an exceedance if the effluent does not receive proper treatment.

(5) Reasonable Potential Determination.

(a) Constituents with limited data. In some cases, reasonable potential cannot be determined because effluent data are limited. The draft permit requires the Permittee to continue to monitor for these constituents in the effluent using analytical methods that provide the lowest available detection limitations. When additional data become available, further RPAs will be conducted to determine whether to add numeric effluent limitations to this draft permit or to continue monitoring.

Data for the following parameters was not available:

- Dioxin TEQ
- 1,2,4,5-Trichlorobenzene
- 2,3,5,6-Tetrachlorophenol
- Aluminum
- Chloropyrifos
- Cyclohexane-technical
- Isoprophylchloroether
- Methyl(bis)chloroether
- Nitrosamines
- Nitroso-dibutylamine-N
- Nitrosodiethylamine-N
- Pentachlorobenzene
- Pentachloroethane
- Pyrollidine-N
- Tetrachloroethanes
- Tributyltin
- Chromium III
- Asbestos

(b) Pollutants with No Reasonable Potential. WQBELs are not included in this draft permit for constituents listed in HAR, Chapter 11-54-4.(3) and 11-54-6(b)(3) that do not demonstrate reasonable potential; however, monitoring for such pollutants is still required in order to collect data for future RPAs. Pollutants with no reasonable potential

consist of those identified in Table F-5 or any pollutant not discussed in Parts D.2.c.(5).(a) or D.2.c.(5).(c) of this Fact Sheet.

(c) Pollutants with Reasonable Potential. The RPA indicated that ammonia, chlorine, cyanide, enterococcus, nitrate + nitrite, and pH have reasonable potential to cause, or contribute to an excursion above state water quality standards. Thus, WQBELs have been established in this draft permit at Outfall Serial No. 001 for ammonia, chlorine, cyanide, enterococcus, nitrate + nitrite, and pH.

The WQBELs were calculated based on WQS contained in HAR, Chapter 11-54 and procedures contained in both STCP and HAR, Chapter 11-54, as discussed in Part D.2.d, below.

d. WQBEL Calculations

Specific pollutant limits may be calculated for both the protection of aquatic life and human health.

(1) WQBELs based on Aquatic Life Standards. The STCP categorizes a discharge from a facility into one of four categories: (1) marine discharges through submerged outfalls; (2) discharges without submerged outfalls; (3) discharges to streams; or (4) high-rate discharges. Once a discharge has been categorized, effluent limitations for pollutants with reasonable potential can be calculated, as described below.

(a) For marine discharges through submerged outfalls, the daily maximum effluent limitation shall be the product of the chronic water quality standard and the minimum dilution factor;

(b) For discharges without submerged outfalls, the daily maximum effluent limitation shall be the acute toxicity standard. More stringent limits based on the chronic standards may be developed using Best Professional Judgment (BPJ);

(c) For discharges to streams, the effluent limitation shall be the most stringent of the acute standard and the product of the chronic standard and dilution; and

(d) For high rate outfalls, the maximum limit for a particular pollutant is equal to the product of the acute standard and the acute dilution factor determined according to Section II.B.4 of the STCP. More stringent limits based on chronic standards may be developed using BPJ.

(2) WQBELs based on Human Health Standards. The STCP specifies that the fish consumption standards are based upon the bioaccumulation of

toxics in aquatic organisms followed by consumption by humans. Limits based on the fish consumption standards should be applied as 30-day averages for non-carcinogens and annual averages for carcinogens.

The discharge from this facility is considered a marine discharge through a submerged outfall. Therefore, for pollutants with reasonable potential, the draft permit establishes, on a pollutant by pollutant basis, daily maximum effluent limitations based on saltwater chronic aquatic life standard after considering dilution and average monthly effluent limitations for non-carcinogens or annual average effluent limitations for carcinogens based on the human health standard after considering dilution. WQBELs established in the draft permit are discussed in detail below.

(3) Calculation of Pollutant-Specific WQBELs

As discussed in Part D.2.c.(3) of this Fact Sheet, a minimual initial dilution of 54:1 has been established.

The following equations were used to calculate reasonable potential for the pollutants below.

Projected Maximum RWC = MEC x $99\%_{ratio}$ x Dm

Where:

RWC	=	Receiving water concentration
MEC	=	Maximum effluent concentration reported
$99\%_{ratio}$	=	The 99% ratio from Table 3-1 in the TSD or calculated using methods in Section 3.3.2 of the TSD.
Dm	=	Percent Dilution (i.e., 54:1, or 1.8%)

If the projected maximum receiving water concentration is greater than the applicable water quality standard from HAR, Chapter 11-54, the reasonable potential exists for the pollutant and effluent limitations are established. Pollutants with reasonable potential are discussed below in detail.

(a) Chlorine

i. **Chlorine Water Quality Standards.** The most stringent applicable water quality standard for chlorine is the chronic aquatic life water quality standard of 7.5 µg/L, as specified in HAR, Chapter 11-54.

ii. **RPA Results.** The Permittee reported 37 data points for chlorine (n = 37), with a standard deviation of 27 µg/L and an average of 393 µg/L, resulting in a CV = 0.07. Based on a CV of 0.07 and 37 samples, the 99% multiplier calculated using methods described in

Section 3.3.2 of the TSD was 1.1. As discussed in Part D.2.c.(3), the facility is granted a dilution of 54:1. Therefore, Dm = 1.8%.

The maximum effluent concentration for chlorine was 450 µg/L.

Projected Maximum RWC = MEC x $99\%_{ratio}$ x Dm
= (450 µg/L) x 1.1 x 0.018
= 8.9 µg/L

HAR Chapter 11-54 Water Quality Standard = 7.5 µg/L

The projected maximum receiving water concentration (8.9 µg/L) exceeds the most stringent applicable water quality standard for this pollutant (7.5 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for chlorine.

iii. **Chlorine WQBELs.** WQBELs for chlorine are calculated using STCP procedures and are based on the chronic aquatic life water quality standard. The draft permit establishes a daily maximum effluent limitation for chlorine of 412 µg/L based on the chronic aquatic life water quality standard and a dilution of 54:1. There are no human health standards for chlorine; therefore, this permit only includes a daily maximum effluent limitation for chlorine.

iv. **Feasibility.** The maximum effluent concentration reported for chlorine during the term of the previous permit was 450 µg/L. However the effluent data from January 2009 through June 2012 indicate only two exceedances of the proposed daily maximum effluent limitation of 412 µg/L. The DOH has determined that the facility will be able to comply with the proposed maximum daily chlorine effluent limitation.

v. **Anti-backsliding.** Anti-backsliding regulations are satisfied because the effluent limitations for chlorine established in this permit are at least as stringent as the effluent limitations established in the previous permit.

(b) Cyanide

i. **Cyanide Water Quality Standards.** The most stringent applicable water quality standard for cyanide is the chronic aquatic life water quality standard of 1.0 µg/L, as specified in HAR, Chapter 11-54.

ii. **RPA Results.** The Permittee reported three data points for cyanide (n = 3), resulting in a CV = 0.6. Based on a CV of 0.6 and three samples, the 99% multiplier calculated using methods

described in Section 3.3.2 of the TSD was 5.6. As discussed in Part D.2.c.(3), the facility is granted a dilution of 54:1. Therefore, Dm = 1.8%.

The maximum effluent concentration for cyanide was 240 µg/L.

Projected Maximum RWC = MEC x $99\%_{ratio}$ x Dm
= (240 µg/L) x 5.6 x 0.018
= 24 µg/L

HAR Chapter 11-54 Water Quality Standard = 1.0 µg/L

The projected maximum receiving water concentration (24 µg/L) exceeds the most stringent applicable water quality standard for this pollutant (1.0 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for cyanide.

iii. Cyanide WQBELs. WQBELs for cyanide are calculated using STCP procedures and are based on the chronic aquatic life water quality standard. The draft permit establishes a daily maximum effluent limitation for cyanide of 55 µg/L based on the chronic aquatic life water quality standard and a dilution of 54:1. There are no human health standards for cyanide; therefore, this permit only includes a daily maximum effluent limitation for cyanide.

iv. Feasibility. The maximum effluent concentration reported for cyanide during the term of the previous permit was 240 µg/L. The maximum effluent concentration is greater than the proposed maximum daily effluent limitation of 55 µg/L, however two of the three effluent monitoring results are less than the proposed maximum daily effluent limitation. Insufficent data is available to adequately evaluate the Permittee's ability to immediately comply with the proposed effluent data.

v. Anti-backsliding. Anti-backsliding regulations are satisfied because the previous permit did not contain effluent limitations for cyanide.

e. Ammonia Nitrogen

HAR Chapter 11-54-6 establishes the following WQS for ammonia nitrogen:

Parameter	Geometric Mean	Value not to exceed more than 10% of the time	Value not to exceed more than 2% of the time
Ammonia Nitrogen (µg/L)	3.50	8.50	15.00

As demonstrated in Table F-5 of this Fact Sheet, reasonable potential to exceed applicable WQS for ammonia nitrogen has been determined.

Zone of mixing data from October 2009 through September 2012 indicate that assimilative capacity is not available for ammonia nitrogen in the receiving water. Assimilative capacity was evaluated as specified below:

(1) Review the list of impaired waterbodies to determine if the waterbody is impaired for ammonia nitrogen.

The waterbody is not listed in for ammonia nitrogen.

(2) Identify nearby control stations to determine the "decision unit" for analysis.

Control Station S6 is the only available reference station and has been identified as the applicable control station for evaluating assimilative capacity and constitutes the decision unit for the analysis.

(3) Data from all stations (including surface, middle, and bottom) are aggregated together to represent the decision unit and generate annual geomeans. To ensure adequate assimilative capacity, the highest annual geomean for the decision unit shall not exceed 90 percent of the applicable WQS.

The resulting geomeans were:

Year	Result (µg/L)
2009	4.85
2010	0.48
2011	0.87
2012	4.80

The highest annual geomean for the decision unit of 4.85 µg/L is greater than 90 percent of the applicable WQS (3.15 µg/L). Assimilative capacity is not present in the receiving water.

(4) Consider other available information if available, including studies, reports, and receiving water data trends.

Additional information is not currently known that would support the removal of assimilative capacity for ammonia nitrogen. Therefore assimilative capacity has not been granted for ammonia nitrogen based on receiving water data.

Because assimilative capacity is not available in the receiving water, dilution can not be granted for ammonia nitrogen, and the WQS must be applied without dilution. DOH has determined that the application of the geometric mean over a calendar year, and the 10th percentile established as a single sample maximum, will be protective of water quality. The single sample maximum is based on the more conservative 10th percentile concentration rather than the two percentile concentration and thus discharges of pollutants greater than the 10th percentile concentration is prohibited.

Effluent data for ammonia from January 2009 through June 2012 indicate a maximum effluent concentration of 21,100 µg/L and an average concentration of 3,770 µg/L. It is not feasible for the Permittee to immediately comply with final end-of-pipe effluent limitations for ammonia nitrogen. Compliance with the applicable effluent limitations will take substantial and costly facility alterations. Consistent with HAR 11-55-21, this permit establishes a compliance schedule for the Permittee to comply with final effluent limitations for ammonia nitrogen as soon as possible, but no longer than 9.75 years.

The schedule of compliance is being proposed for parameters that were not limited at the proposed levels in the previous permit and the existing discharge is not expected to comply with the proposed limits. The schedule of compliance as described in the permit is in accordance with 40 CFR 122.47.

Interim and final compliance dates included in the permit represent a reasonable time period to complete the necessary tasks, and ensure compliance is achieved without unnecessary delay. Compliance tasks and dates are based on a time frame determined by DOH for the Permittee, a small and economically-challeged municipality, to be able to acquire funding and procure services required for compliance. The Permittee must receive concurrence from its County Council to receive project funding. Because of the economic downturn, this is often an iterative process where funding is often not approved when first requested. Procurement is also a lengthy process where strict procedures must be followed to ensure fairness to all proposals.

In addition, final compliance may ultimately require the implementation of unidentified treatment technologies, with unknown implementation and operational costs, thus, a systematic approach initially evaluating less costly alternatives, and providing sufficient time to investigate study results and evaluate control technologies is necessary. Interim requirements and final compliance is required “as soon as possible”, requiring the Permittee to comply with the interim compliance tasks and final effluent limitations before the established interim compliance dates, if possible. As such, the compliance schedule requires compliance as soon as possible, consistent with the requirements of 40 CFR 122.47(1). DOH believes that the schedule and

milestones as described in the proposed permit will achieve compliance with the final effluent limits as soon as possible.

The schedule of compliance exceeds one (1) year from the date of permit issuance. Consistent with the requirements of 40 CFR 122.47(3), interim compliance dates and reporting requirements have been established no greater than one (1) year apart, and to ensure consistent progress toward compliance with final effluent limitations.

During the compliance schedule, the Permittee is required to maintain current treatment capability. Interim effluent limitations for ammonia nitrogen have been established until the final effluent limitations become effective. Interim effluent limitations have been established based on effluent data from January 2009 through June 2012. A single sample maximum effluent limitation has been established equal to the maximum effluent concentration (21,100 µg/L) and an annual geomean effluent limitation has been established based on the highest observed annual geomean (4,536 µg/L).

f. Nitrate + Nitrite Nitrogen

HAR Chapter 11-54-6 establishes the following WQS for nitrate + nitrite:

Parameter	Geometric Mean	Value not to exceed more than 10% of the time	Value not to exceed more than 2% of the time
Nitrate + Nitrite (µg/L)	5.00	14.00	25.00

As demonstrated in Table F-5 of this Fact Sheet, reasonable potential to exceed applicable WQS for nitrate + nitrite has been determined.

Zone of mixing data from October 2009 through September 2012 indicate that assimilative capacity is available for nitrate + nitrite in the receiving water. Assimilative capacity was determined as specified below:

(1) Review the list of impaired waterbodies to determine if the water body is impaired for nitrate + nitrite.

The water body is not listed for nitrate + nitrite.

(2) Identify nearby control stations to determine the “decision unit” for analysis.

Control Station S6 is the only available reference station and has been identified as the applicable control station for evaluating assimilative capacity and constitutes the decision unit for the analysis.

(3) Data from all stations (including surface, middle, and bottom) are aggregated together to represent the decision unit and generate annual geomeans. To ensure adequate assimilative capacity, the highest annual geomean for the decision unit shall not exceed 90 percent of the applicable WQS.

The resulting geomeans were:

Year	Result (µg/L)
2009	0.34
2010	3.33
2011	1.11
2012	3.36

The highest annual geomean for the decision unit of 3.36 µg/L is less than 90 percent of the applicable WQS (4.5 µg/L). Assimilative capacity appears to be present in the receiving water.

(4) Consider other available information if available, including studies, reports, and receiving water data trends.

Information is not currently known that would result in the removal of assimilative capacity for nitrate + nitriate. An apparent trend of increasing concentration within the receiving water at the reference station does not appear present. The Permittee shall be required to conduct a ZOM dilution study to establish available dilution at the edge of the ZOM and verify that assimilative capacity within the receiving water exists for nitrate + nitrite.

Because the available dilution at the edge of the ZOM is not currently known, end-of-pipe water quality-based effluent limitations can not be determined. However, WQS exceedances at the edge of the ZOM occurred over the previous permit term, indicating that current effluent concentrations have the potential to exceed the available dilution for nitrate+nitrite. In the absence of a known dilution within the ZOM, and in addition to applicable receiving water limitations and requirements to evaluate available dilution at the edge of the ZOM, this permit establishes performance-based effluent limitations for nitrate+nitrite to minimize the potential for WQS exceedances within the receiving water.

Effluent concentrations for nitrate+nitrite from January 2009 through June 2012 indicate effluent concentrations as high as 24,400 µg/L. A performance-based single sample effluent limitation of 24,400 µg/L has been established based on the maximum effluent contration observed over the previous permit term.

In addition to the receiving water limitation and performance-based effluent limitation, the Permittee shall conduct a ZOM dilution study so that

appropriate end-of-pipe water quality-based effluent limitations may be established during future permiting efforts.

g. pH

The draft permit establishes an effluent limitation for pH at Outfall Serial No. 001 of 6.0 – 9.0. ZOM data over the prevous permit term indicate that this effluent limitation is protective of water quality at the edge of the ZOM. This pH effluent limitation is consistent with applicable technology-based effluent limitations and is established in accordance with water quality standards for open coastal waters in HAR, Section 11-54-6(b)(3).

h. Enterococcus

HAR, Section 11-54-8(b) establishes water quality objectives for marine recreational waters within 300 meters of shore. As discussed in Part E.3.a of this Fact Sheet, the draft permit establishes receiving water limitations for marine recreational waters within 300 meters from shore based on State regulations contained in HAR, Chapter 11-54. The discharge consists of treated sewage which may contain pathogens at elevated concentrations if not properly disinfected, sufficent to impact human health or the beneficial uses of the receiving water. To ensure the protection of human health, this permit establishes effluent limitations for enterococcus. Applicable criteria are established in HAR, Section 11-54-8(b).

The draft permit establishes the following end-of-pipe effluent limitations and monitoring requirements for enterococcus at Outfall Serial No. 001. The MEC for enterococcus was 1,760 CFU per 100 milliliters.

(1) A monthly geometric mean of 1,925 CFU per 100 milliliters, based on the geometric mean of 35 CFU per 100 milliliters from HAR Section 11-54-8(b) and a dilution of 54:1.

Based on the State Enterococcus standard at the time of reissuance of 7 CFU per 100 milliliters, a safety factor of two, and a dilution of 54:1, the previous permit included a geometric mean of 192 CFU per 100 milliliters. However, as explained by the DOH in *Rationale for Proposed Revisions to Hawaii Administrative Rules Title 11 Department of Health Chapter 54 Water Quality Standards*, the State enterococcus standard of 7 CFU per 100 milliliters was based mainly on a health risk assessment, not as a regulatory limit. In the rationale, the DOH recommended that the State enterococcus water quality standard be revised to a geometric mean of 35 CFO per 100 milliliters and a single sample maximum value of 104 CFO per 100 ml to be consistent with federal standards. The new standards were adopted by the DOH on June 15, 2009, and approved by the EPA on March 19, 2010.

Consistent with HAR, Chapter 11-54-1.1.(b), where the quality of the waters exceed levels necessary to support propagation of fish, shellfish, and wildlife and recreation, in and on the water, that quality shall be maintained and protected unless a lowering of water quality is necessary to accommodate important economic or social development. Because the Permittee has the facilities necessary to achieve compliance with the previous effluent limitation, and has not demonstrated degradation of water quality is necessary to accommodate important economic or social development, the maximum monthly geometric mean limitation of 192 per 100 milliliters has been carried over.

(2) A single sample maximum of 5,720 CFU per 100 milliliters, based on the single sample maximum of 104 CFU per 100 milliliters from HAR Section 11-54-8(b) and a minimum dilution of 54:1.

i. Whole Effluent Toxicity (WET)

WET limitations protect receiving water quality from the aggregated toxic effect of a mixture of pollutants in an effluent. WET tests measure the degree of response of exposed aquatic test organisms to an effluent or receiving water. The WET approach allows for protection of the narrative criterion specified in HAR, Chapter 11-54-4(b)(2) while implementing Hawaii's numeric WQS for toxicity. There are two types of WET tests – acute and chronic. An acute toxicity test is conducted over a short period of time and measures mortality. A chronic toxicity test is generally conducted over a longer period of time and may measure mortality, reproduction, or growth.

The previous permit established a chronic WET effluent limitation at Outfall Serial No. 001 for *Ceriodaphnia dubia* and *Tripneustes gratilla.*

Whole effluent toxicity data for the time period between January 2009 and June 2012 using the test species *C. dubia* did not result in an exceedance of the chronic toxicity effluent limitation based on seven samples; however, monitoring results for *T. gratilla* exceeded the chronic toxicity effluent limitation in 15 out of 26 samples. Therefore, discharge from Outfall Serial No. 001 has reasonable potential for chronic toxicity.

A chronic WET effluent limitation has been established at Outfall Serial No. 001. For improved WET analysis, DOH has begun implementing EPA's Test of Significant Toxicity Method (TST) for WET effluent limitations within the State. As such, the chronic WET effluent limitation at Outfall Serial No. 001 has been revised to be consistent with the TST method using *T. gratilla*.

T. gratilla is a native species to Hawaii, and as observed in historic effluent data, *T. gratilla* is more sensitive to potential toxic pollutants within the Permittee's

effluent than *C. dubia*. The use of *T. gratilla* provides increased sensitivity to toxicity within the Permittee's effluent, and will minimize toxic impacts on local species.

Test procedures for measuring toxicity to marine organisms of the Pacific Ocean, including T.gratilla, are not provided at 40 CFR 136. Consistent with the Preamble to EPA's 2002 Final WET Rule, permit writers may include (under 40 CFR 122.41(j)(4) and 122.44(i)(iv)) requirements for the use of test procedures that are not approved at 40 CFR Part 136 on a permit-by-permit basis. The use of alternative methods for West coast facilities in Hawaii is further supported under 40 CFR 122.21(j)(5)(viii), which states, "West coast facilities in…, Hawaii,… are exempted from 40 CFR [P]art 136 chronic methods and must use alternative guidance as directed by the permitting authority."

EPA has issued applicable guidance for conducting chronic toxicity tests using T. gratilla in Hawaiian Collector Urchin, Tripneustes gratilla (Hawa'e) Fertilization Test Method 3/16/98 (Adapted by Amy Wagner, EPA Region 9 Laboratory, Richmond, CA from a method developed by George Morrison, EPA, ORD Narragansett, RI and Diane Nacci, Science Applications International Corporation, ORD Narragansett, RI) (EPA/600/R-12/022).

As previously discussed, reasonable potential for WET has been determined for Outfall Serial No. 001 and an effluent limitation must be established in accordance with 40 CFR 122.44(d)(1). Further, a WET effluent limitation and monitoring are necessary to ensure compliance with applicable WQS in HAR, Chapter 11-54-4(b)(2).

The proposed WET limitation and monitoring requirements are incorporated into the draft permit in accordance with the EPA national policy on water quality-based permit limitations for toxic pollutants issued on March 9, 1984 (49 FR 9016), HAR, Section 11-54-4(b)(2)(B), and EPA's National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R-10-003, 2010).

Consistent with HAR, Chapter 11-54-4(b)(2)(B), this Permit establishes a chronic toxicity effluent limitation based on the TST hypothesis testing approach. The TST approach was designed to statistically compare a test species response to the in-stream waste concentration (IWC) and a control.

For continuous discharges through submerged outfalls, HAR Section 11-54-4(b)(4)(A) requires the no observed effect concentration (NOEC), expressed as a percent of effluent concentration, to not be less than 100 divided by the minimum dilution. Thus, the minimum dilution of 54:1 is most appropriate for establishing a critical dilution factor. The following equation is used to calculate the IWC where dilution is granted (Outfall Serial No. 001):

IWC = 100/critical dilution factor

= 100/55

= 1.8%

For any one chronic toxicity test, the chronic WET permit limit that must be met is rejection of the null hypothesis (Ho):

IWC (100 percent effluent) mean response ≤ 0.75 × Control mean response.

A test result that rejects this null hypothesis is reported as "Pass". A test result that does not reject this null hypothesis is reported as "Fail"

The acute and chronic biological effect levels (b values of 20% and 25%, respectively) incorporated into the TST define EPA's unacceptable risks to aquatic organisms and substantially decrease the uncertainties associated with the results obtained from EPA's traditionally used statistical endpoints for WET. Furthermore, the TST reduces the need for multiple test concentrations which, in turn, reduces laboratory costs for dischargers while improving data interpretation. A significant improvement offered by the TST approach over traditional hypothesis testing is the inclusion of an acceptable false negative rate. While calculating a range of percent minimum significant differences (PMSDs) provides an indirect measure of power for the traditional hypothesis testing approach, setting appropriate levels for β and α using the TST approach establishes explicit test power and provides motivation to decrease within test variability which significantly reduces the risk of under reporting toxic events (USEPA 2010[1]).

Taken together, these refinements simplify toxicity analyses, provide dischargers with the positive incentive to generate high quality data, and afford effective protection to aquatic life.

A WET effluent limitation based on the TST hypothesis testing approach is protective of the WQS for toxicity contained in HAR, Section 11-54-4(b)(4)(B) and is not considered to be less stringent. Use of the TST approach is consistent with the requirements of State and federal anti-backsliding regulations.

j. Summary of Final Effluent Limitations

In addition to the effluent limitations specified above, HAR, Section 11-55-20 requires that daily quantitative limitations by weight be established where

[1] U.S. Environmental Protection Agency. 2002a. Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (5th Edition). EPA 821-R-02-012. Washington, DC: Office of Water.

possible. Thus, in addition to concentration based-effluent limitations, mass-based effluent limitations (in pounds per day) have been established where applicable based on the following formula:

lbs/day = 8.34 * concentration (mg/L) * flow (MGD)

40 CFR 122.45(b)(1) requires that mass-based effluent limitations for POTWs be based on design flow. The previous permit established mass based effluent limitations at a design flow of 1.5 MGD for BOD_5 and TSS. This permit continues to use the design flow of 1.5 MGD for calculating mass-based effluent limitations.

Mass-based effluent limitations in the previous permit were established in kilograms per day and pounds per day. However, to be consistent with other permits in the State, the draft permit only establishes mass-based effluent limitations in pounds per day. Limitations expressed as kilograms per day and pounds per day are duplicative and therefore only limitations expressed as pounds per day have been established in this draft permit. The limitations in this permit meet applicable anti-backsliding and antidegradation requirements, as discussed in Part D.2.k and D.2.l of this Fact Sheet.

The following table lists final effluent limitations contained in the draft permit and compares them to effluent limitations contained in the previous permit.

Table F-6. Summary of Final Effluent Limitations – BOD_5 and TSS

Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Biochemical Oxygen Demand (BOD_5) (5-day @ 20 Deg. C)	mg/L	30	45	--	30	45	--
	kg/day[1]	171	256	--	--	--	--
	lbs/day[1]	375	563	--	375	563	--
	% Removal	As a monthly average, not less than 85 percent removal efficiency from the influent stream.			The average monthly percent removal shall not be less than 85 percent.		
Total Suspended Solids (TSS)	mg/L	30	45	--	30	45	--
	kg/day	171	256	--	--	--	--
	lbs/day	375	563	--	375	563	--
	% Removal	As a monthly average, not less than 85 percent removal efficiency from the influent stream.			The average monthly percent removal shall not be less than 85 percent.		

[1] Based on a design flow of 1.5 MGD.

Table F-7. Summary of Final Effluent Limitations – All Other Pollutants

Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
pH	s.u.	Not less than 6.0 and not greater than 9.0			Not less than 6.0 and not greater than 9.0		

Parameter	Units	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Total Residual Chlorine	µg/L	--	--	412	--	--	412
	lbs/day[1]	--	--	--	--	--	5.2
Cyanide, Total Recoverable	µg/L	--	--	--	--	--	55
	lbs/day[1]	--	--	--	--	--	0.69
Ammonia Nitrogen	µg/L	--	--	--	[2]	--	--
	lbs/day[1]	--	--	--	[2]	--	--
Nitrate + Nitrite N	µg/L	--	--	--	--	--	24,400[3]
	lbs/day[1]	--	--	--	--	--	305
Enterococci	CFU/100 ml	192[4]	--	--	192[5]	--	5,720[3]
Chronic Toxicity – *Ceriodaphnia Dubia*	TUc	--	--	55	--	--	--
Chronic Toxicity – *Tripneustes Gratilla*	TUc	--	--	55	--	--	Pass[6]

[1] Based on a design flow of 1.5 MGD.

[2] **Final Effluent Limitations (effective <DATE – 9.75 years after effective date>):** Discharge from the facility shall not exceed an annual geometric mean of 3.5 µg/L (0.04 lbs/day) nor a single sample maximum of 8.5 µg/L (0.11 lbs/day).
Interim Effluent Limitations (effective through <DATE – 9.75 years after effective date>): Discharge from the facility shall not exceed an annual geometric mean of 4,536 µg/L (56.7 lbs/day) nor a single sample maximum of 21,100 µg/L (264 lbs/day).

[3] Effluent limitation expressed as a single sample maximum.

[4] Effluent limitation expressed as a geometric mean.

[5] Effluent limitation expressed as a monthly geometric mean.

[6] "Pass", as described in section D.2.h of this Fact Sheet.

k. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA Sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

As discussed in Part D.2.i of this Fact Sheet, previous effluent WET limitations C. dubia have been removed, however WET effluent limitations for T. gratilla have been retained and revised. WET data from January 2009 through June 2012 did not result in a single exceedance of the chronic toxicity limitation out of seven samples, however the Permittee exceeded the effluent limitation for T. gratilla in 15 out of 26 samples. T. gratilla appears to be the most sensitive species, and effluent limitations for T. gratilla appear to be more conservative than effluent limitations for C. dubia. Thus, removing WET limitations for C. dubia and retaining effluent limitations for WET using T. gratilla is not expected to result in less stringent effluent limitations.

Federal anti-backsliding regulations at 40 CFR 122.44(l)(i) allows for effluent limitations in a reissued permit to be less stringent if information is available which was not available at the time of the permit issuance and which have justified the application of a less stringent effluent limitation. Additionally, for attainment waters, CWA Section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy. Effluent limitations and requirements contained in this permit are no less stringent than those conrtained in the previous permit, and are consistent with State and Federal anti-backsliding regulations.

I. Satisfaction of Antidegradation Policy Requirements

The DOH established the State antidegradation policy in HAR, Section 11-54-1.1, which incorporates the federal antidegradation policy at 40 CFR 131.12. HAR, Section 11-54-1.1 requires that the existing quality of waters be maintained unless degradation is justified based on specific findings demonstrating that allowing lower water quality is necessary to accommodate economic or social development in the area in which the waters are located. All effluent limitations and requirements of the draft permit are retained from the previous permit except those for ceriodaphnia dubia. As discussed in Part 2.k above, WET testing using ceriodaphnia dubia was removed because there were no exceedances from January 2009 to June 2012 and many for T. gratilla. Since T.gratilla appears to be the more sensitive species, WET testing for only T. gratilla was retained.

Therefore, the permitted discharge is consistent with antidegradation provisions of 40 CFR 131.12 and HAR, Section 11-54-1.1. The impact on existing water quality will be insignificant and the level of water quality necessary to protect the existing uses will be maintained and protected.

E. Rationale for Receiving Water and Zone of Mixing Requirements

1. Summary of ZOM Water Quality Standards and Monitoring Data

The following are effluent quality monitoring results for HAR, Chapter 11-54, specific water quality criteria parameters that were provided in the ZOM Application Supplemental Information submitted to the DOH on September 7, 2012, and applicable ZOM water quality criteria from 11-54-6(b)(3).

Table F-8. ZOM Monitoring Data

Parameter	Units	Applicable Water Quality Standard	Maximum Reported Concentration[1]
Total Nitrogen	µg/L	150[2]	10,000
Ammonia Nitrogen	µg/L	3.5[2]	280
Nitrate + Nitrite	µg/L	5.0[2]	8,700
Orthophosphate	µg/L	--	4,410

Parameter	Units	Applicable Water Quality Standard	Maximum Reported Concentration[1]
Phosphorus			
Total Phosphorus	µg/L	20[2]	6,200
Chlorophyll a	µg/L	0.30[2]	330
Turbidity	NTU	0.50[2]	0.71
TSS	mg/L	--	1.0
pH	s.u.	[3]	6.6
Dissolved Oxygen	mg/L	[4]	4.3
Temperature	°C	[5]	28
Salinity	ppm	[6]	500

[1] Source: ZOM Application Supplemental Information submitted to DOH on September 7, 2012.
[2] Water quality standard expressed as a geometric mean.
[3] pH shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain, or groundwater discharge may depress the pH to a minimum level of 7.0.
[4] Dissolved oxygen shall not be less than 75 percent saturation.
[5] Temperature shall not vary more than 1° Celsius from ambient conditions.
[6] Salinity shall not vary more than 10 percent from natural or seasonal changes considering hydrologic input and oceanographic factors.

2. Existing Receiving Water Limitations and Monitoring Data

a. Shoreline Stations

The following are a summary of the geometric mean values calculated from each shoreline monitoring location, reported in the monthly DMRs from April 2009 through June 2012.

Table F-9. Shoreline Monitoring Stations

Station	Geometric Mean[1]	
	Enterococcus[2]	Clostridium perfringens[2]
	CFU/100 mL	CFU/100 mL
1	1.5	3.9
2	1.2	4.2
3	4.5	0.73
Applicable Water Quality Standard	34[3]	--

[1] Source: Monthly DMR's submitted by the Permittee from April 2009 through June 2012.
[2] Reported geometric mean is the maximum annual geometric mean reported at each monitoring station.
[3] Water quality standard expressed as a geometric mean.

b. Offshore Stations

The following are a summary of the geometric mean values calculated from each offshore monitoring location, reported in the monthly and quarterly DMRs from February 2009 through June 2011.

Table F-10. Offshore Monitoring Stations

Station	Maximum Geometric Mean[1]									
	Total Nitrogen[2]	Ammonia Nitrogen[2]	Nitrate + Nitrite Nitrogen[2]	Total Phosphorus[2]	Chlorophyll a[2]	Turbidity[2]	pH[3]	Dissolved Oxygen[4]	Temperature[2]	Salinity[2]
	µg/L	µg/L	µg/L	µg/L	µg/L	NTU	s.u.	% Saturation	°C	PPT
S-1	130	6.85	8.02	15.03	0.17	0.39	8.2	104	26.7	35.1
S-2	127	4.95	7.21	13.32	0.16	0.41	8.2	103	26.7	35.2
S-3	133	6.82	8.82	15.31	0.30	0.40	8.2	103	26.7	35.1
S-4	130	3.04	6.11	13.80	0.12	0.40	8.2	102	26.7	35.2
S-5	117	3.68	1.28	13.43	0.20	0.33	8.2	102	26.7	35.2
S-6 (Control Station)	153	4.85	3.52	14.46	0.18	0.36	8.9	103	26.6	35.2
Applicable Water Quality Standard	150[5]	3.5[5]	5.0[5]	20[5]	0.30[5]	0.50[5]	[6]	[7]	[8]	[9]

[1] Source: Monthly and Quarterly DMR's submitted by the Permittee from October 2009 through September 2012.
[2] Reported geometric mean is the maximum annual geometric mean from the top, middle, and bottom sampling points at each station.
[3] The highest annual result from the top, middle, and bottom.
[4] Reported geometric mean is the minimum annual geometric mean from the top, middle, and bottom sampling points at each station.
[5] Water quality standard expressed as a geometric mean.
[6] pH shall not deviate more than 0.5 units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain, or groundwater discharge may depress the pH to a minimum level of 7.0.
[7] Not less than 75 percent saturation.
[8] Shall not vary more than 1 degree Celsius from ambient conditions.
[9] Shall not vary more than 10 percent from natural or seasonal changes considering hydrologic input and oceanographic factors.

3. Proposed Receiving Water Limitations

a. Basic Water Quality Criteria Applicable to the Facility

(1) The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the DOH, as required by the Water Quality Act of 1987 (P.L. 100-4) and regulations adopted thereunder. The DOH adopted water quality standards specific for open

coastal waters in HAR, Chapter 11-54. The draft permit incorporates receiving water limitations and requirements to ensure the facility does not exceed applicable water quality standards.

(2) The Pacific Ocean offshore of Lydgate Beach Park is designated as "Class A Wet Open Coastal Waters". As such, the discharge from the facility shall not interfere with the attainment or maintenance of that water quality which assures protection of public water supplies and the protection and propagation of a balanced indigenous population of shellfish, fish, and wildlife and allows recreational activities in and on the water. The draft permit incorporates receiving water limitations for the protection of the beneficial uses of the Pacific Ocean.

The Permittee is required to comply with the HAR, Chapter 11-54, Basic Water Quality Criteria of which has been incorporated as part of the draft permit under Section 1 of the DOH Standard NPDES Permit Conditions, dated December 30, 2005.

(3) The following criteria are included in HAR, Section 11-54-8(b) for recreational areas in marine recreational waters:

(a) Within 300 meters of the shoreline, including natural public bathing or wading areas, enterococcus content shall not exceed a geometric mean of 35 CFU per 100 milliliters in not less than five samples which shall be spaced to cover a period between 25 and 30 days. No single sample shall exceed the single sample maximum of 104 CFU per 100 milliliters.

(b) At locations where sampling is less frequent than five samples per 25 to 30 calendar days, no single sample shall exceed the single sample maximum nor shall the geometric mean of these samples taken during the 30-day period exceed 35 CFU per 100 milliliters.

(c) Raw or inadequately treated sewage, sewage for which the degree of treatment is unknown, or other pollutants of public health significance, as determined by the director of health, shall not be present in natural public swimming, bathing, or wading areas. Warning signs shall be posted at locations where human sewage has been identified as temporarily contributing to the enterococcus count.

The draft permit establishes these criteria for recreational areas, as described in Part C of the draft permit, to be consistent with HAR, Section 11-54-8(b).

b. Specific Criteria for "Class A Wet Open Coastal Waters"

Table F-11. Specific Criteria for "Class A Wet Open Coastal Waters"

Parameter	Units	Geometric mean not to exceed the given value	Not to exceed the given value more than 10% of the time	Not to exceed the given value more than 2% of the time
Total Nitrogen	µg/L	150.00	250.00	350.00
Ammonia Nitrogen	µg/L	3.50	8.50	15.00
Nitrate + Nitrite Nitrogen	µg/L	5.00	14.00	25.00
Total Phosphorus	µg/L	20.00	40.00	60.00
Light Extinction Coefficient	k units	0.20	0.50	0.85
Chlorophyll a	µg/L	0.30	0.90	1.75
Turbidity	NTU	0.50	1.25	2.00
pH	standard units	Shall not deviate more than 0.5 standard units from a value of 8.1, except at coastal locations where and when freshwater from stream, stormdrain, or groundwater discharge may depress the pH to a minimum level of 7.0.		
Dissolved Oxygen	mg/L	Shall not be less than 75 percent saturation, determined as a function of ambient water temperature and salinity.		
Temperature	°C	Shall not vary more than 1°C from ambient conditions.		
Salinity	ppm	Shall not vary more than 10 percent from natural or seasonal changes considering hydrologic input and oceanographic factors.		

The specific water quality criteria listed at HAR, Section 11-54-6(b)(3) for "Class A, Wet Open Coastal Waters" shall apply to the treated wastewater through Outfall Serial No. 001, as seen in the table above.

The discharges from Outfall Serial No. 001 shall not cause the water quality standards set for in Table F-11 to be exceeded for light extinction coefficient within the ZM-30, and shall comply with water quality standards for all other pollutants listed in Table F-11 beyond the ZOM.

These requirements are consistent with HAR, Chapter 11-54 and retained from the previous permit.

c. Zone of Mixing (Z0M)

HAR, Chapter 11-54 allows for a ZOM , which is a limited area around outfalls to allow for initial dilution of waste discharges, if the ZOM is in compliance with requirements in HAR, Section 11-54-9(c). The Permittee has requested that the existing ZOM for the assimilation of treated wastewater from the Pacific Ocean be retained. Consistent with the current permit, the ZOM requested is a 1,500 feet by 1,500 feet square along the centerline of the

diffuser, that extends vertically downward to the ocean floor. The center of the ZOM is located 555 feet east of the center of the outfall diffuser. Figure 2 in the draft permit shows the ZOM.

(1) Prior to the renewal of a ZOM, the environmental impacts, protected uses of the receiving water, existing natural conditions, character of the effluent, and adequacy of the design of the outfall must be considered. The following findings were considered:

(a) The Permittee's ZOM application and a 2008 Receiving Water Biological Communities Monitoring Program report (hereinafter 2008 Report) submitted with the ZOM application indicate that no major physical effects are expected due to continuation of the ZOM.

The Permittee's 2008 Report concludes that the discharge from the facility is not having any negative impact on the biotic communities in the area. The 2008 Report finds that other environmental factors contribute to the lack of bethos in the vicinity of the diffuser. The 2008 Report states that the natural rigor of the area from water movement, including currents and wave movement, and sediment scour prevents the establishment of benthic communities; the discharged effluent is entrained in a freshwater plume that rises and is rapidly dispersed by wave action and current action with minimal or no contact with the ocean floor; and fish communities have been consistently similar or higher at one of the monitoring stations closest to the diffuser compared to other survey sites.

Based on the limited data and studies, there is no current evidence that the outfall or the existing ZOM is adversely impacting fish health or community structure.

(b) The diffuser for Outfall Serial No. 001 reportedly provides a minimum of 54:1 dilution and discharges approximately 670 feet offshore. No information provided in the ZOM application indicates that dilution would be negatively impacted by current conditions. Further, the permit requires the Permittee to conduct a ZOM Dilution Analysis Study to evaluate the available dilution at the edge of the ZOM within three (3) years of the effective date of the permit and verify the presence or absence of assimilative capacity for nutrients with reasonable potential.

(c) Based on receiving water data on the existing chemical environment submitted between October 2009 and February 2011, there seems to be no difference in water quality between the ZOM stations and control stations. Therefore, there appears to be no major environmental effects on the receiving water from the discharge.

(d) Effluent data and receiving water data are provided in Tables F-5, F-8, F-9, and F-10 of this Fact Sheet. The effluent and receiving water data indicate there is a potential for nutrient (ammonia, nitrate + nitrite, total nitrogen, and total phosphorus) impairment, as discussed in Part D.2.e through D.2.h of this Fact Sheet. However, as discussed above, biological monitoring of the Facility's diffuser found that no evidence of negative impacts to the marine environment.

(2) HAR Section 11-54-9(c)(5) prohibits the establishment of a ZOM unless the application and supporting information clearly show: that the continuation of the ZOM is in the public interest; the discharge does not substantially endanger human health or safety; compliance with the WQS would produce serious hardships without equal or greater benefits to the public; and the discharge does not violate the basic standards applicable to all waters, will not unreasonably interfere with actual or probable use of water areas for which it is classified, and has received the best degree of treatment or control. The following findings were made in consideration of HAR Section 11-54-9(c)(5):

(a) The facility treats domestic wastewater for approximately 11,600 people and is a necessity for public health. Discharge from Outfall Serial No. 001 is used as a back-up discharge point for treated effluent when reclaimed water delivered to the Wailua Golf course is at capacity. Therefore discharging from Outfall Serial No. 001 is necessary during periods of extended rain. Additionally, there are no other treatment facilities currently servicing this area and a cessation of function or operation would cause severe hardship to the residents.

(b) No known information indicates that the discharge is causing or contributing to conditions that substantially endanger human health or safety.

(c) The feasibility and costs to install treatment necessary to meet applicable WQS end-of-pipe, or additional supporting information, were not provided by the Permittee to demonstrate potential hardships. However, based on effluent data, significant facility enhancements and capital costs would likely be necessary to comply with applicable WQS for which the ZOM was applied. As discussed in Part E.3.c.(2)(a), the operation of the facility has been found to benefit the public. No information is known that would revise the finding during the previous permit term that compliance with the applicable WQS without a ZOM would produce serious hardships without equal or greater benefits to the public.

(d) As discussed in Part D.2.c.(5)(c) of this Fact Sheet, effluent data indicates the presence of pollutants in excess of applicable WQS.

However, this permit establishes water quality-based effluent limitations based on WQS. The Permit requires compliance with the effluent limitations and conditions which are protective of the actual and probable uses of the receiving water and implement applicable technology-based effluent limitations.

The Department has determined that the ZOM satisfies the requirements in HAR, Section 11-54-09(c)(5).

The establishment of the ZOM is subject to the conditions specified in Part D of the draft permit. The draft permit incorporates receiving water monitoring requirements which the DOH has determined are necessary to evaluate compliance of the Outfall Serial No. 001 discharges with the applicable water quality criteria, as described further in section F.4 of this Fact Sheet.

F. Rationale for Monitoring and Reporting Requirements

40 CFR 122.41(j) specify monitoring requirements applicable to all NPDES permits. HAR, Section 11-55-28 establishes monitoring requirements applicable to NPDES permits within the State of Hawaii. 40 CFR 122.48 and HAR, Section 11-55-28 require that all NPDES permits specify requirements for recording and reporting monitoring results. The principal purposes of a monitoring program are to:

- Document compliance with waste discharge requirements and prohibitions established by the DOH;
- Facilitate self-policing by the Permittee in the prevention and abatement of pollution arising from waste discharge;
- Develop or assist in the development of limitations, discharge prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards; and,
- Prepare water and wastewater quality inventories.

The draft permit establishes monitoring and reporting requirements to implement federal and State requirements. The following provides the rationale for the monitoring and reporting requirements contained in the draft permit.

1. Influent Monitoring

Influent monitoring is required to assess the performance of treatment facilities, and to evaluate compliance with effluent limitations. Influent monitoring requirements for BOD_5 and TSS have been retained from the previous permit. Additionally, influent monitoring for flow, ammonia, chlorine, cyanide, nitrate + nitrite, total nitrogen, total phosphorus, and oil and grease, have been established in the draft permit in order to determine if said pollutants present in

the influent in elevated concentrations. The proposed influent water monitoring requirements are specified in Part A.1 of the draft permit.

2. Effluent Monitoring – Outfall Serial No. 001

The following monitoring requirements are applicable at Outfall Serial No. 001.

a. Monitoring requirements for ammonia, nitrate + nitrite, total nitrogen, and total phosphorus are retained from the previous permit to determine compliance with applicable effluent limitations or to enable comparison with the receiving water ZOM monitoring results to determine if the facility effluent is contributing to elevated concentrations of said pollutants.

b. Monitoring requirements for pH, BOD_5, chlorine, enterococcus, and TSS have been retained from the previous permit in order to determine compliance with effluent limitations and to collect data for future RPAs.

c. Monitoring requirements for flow have been retained from the previous permit to calculate pollutant loading and to determine compliance with mass-based effluent limitations.

d. Monitoring requirements for cyanide have been established in this permit to determine compliance with newly established effluent limitations for cyanide.

e. Monitoring requirements for oil and grease have been established to evaluate characterize the discharge for this parameter and evaluate the potential to contribute to exceedances of the quality objectives established in HAR, Chapter 11-54.

f. Monitoring requirements for all other pollutants listed in Appendix 1 are retained from the previous permit in order to collect data for future RPAs.

3. Whole Effluent Toxicity Monitoring

Consistent with the previous permit, monthly whole effluent toxicity testing is required in order to determine compliance with whole-effluent toxicity effluent limitations as specified in Parts A.1 and B of the draft permit.

4. Receiving Water Quality Monitoring Requirements

a. Shoreline Water Quality Monitoring

Shoreline water quality monitoring for enterococci is used to determine compliance with water quality criteria specific for marine recreational waters within 300 meters of shoreline, as described in Part C of the draft permit. The Permittee shall monitor at three shoreline monitoring stations for enterococci. This permit increases monitoring frequency from twice per year

to seven (7) calendar days per month in order to calculate a geometric mean. Additionally, the draft permit requires the discharge to report visual observations seven (7) calendar days per month. These monitoring requirements are included in Part E.1 of the draft permit. This permit does not retain monitoring requirements for Clostridium perfringens or salinity at the shoreline stations as monitoring for said pollutants is no longer necessary to determine compliance with requirements in this permit.

b. Offshore Water Quality Monitoring

Offshore water quality monitoring is required to determine compliance with State water quality standards, as described in Part D of the draft permit. The draft permit requires the Permittee to monitor five stations along the boundary of the ZOM; one station in each corner of square perimeter of the ZOM and one station located at the midway point of the west side of the ZOM boundary. Additionally, the draft permit requires the Permittee to monitor at one control station outside the boundary of the ZOM. All monitoring requirements for offshore stations are retained from the previous permit and included in Part E.3 of the draft permit.

c. Bottom Biological Communities Monitoring

Bottom biological communities monitoring is required to determine if the discharge is having a negative impact on the existing bottom biological communities. The draft permit requires the Permittee to perform receiving water bottom biological communities monitoring once every two (2) years. Bottom biological monitoring requirements are retained from the previous permit in accordance with HAR, Section 11-54-9(c)(6)(C).

G. Rationale for Provisions

1. Standard Provisions

The Permittee is required to comply with DOH Standard NPDES Permit Conditions, which are included as part of the draft permit.

2. Monitoring and Reporting Requirements

The Permittee shall comply with all monitoring and reporting requirements included in the draft permit and in the DOH Standard NPDES Permit Conditions.

3. Special Provisions

a. Reopener Provisions

The draft permit may be modified in accordance with the requirements set forth at 40 CFR 122 and 124, to include appropriate conditions or limitations

based on newly available information, or to implement any new state water quality criteria that are approved by the EPA.

b. Special Studies and Additional Monitoring Requirements

(1) Toxicity Reduction Requirement. The draft permit requires the Permittee to submit an initial investigation Toxicity Reduction Evaluation (TRE) workplan to the Director and EPA which shall describe steps which the Permittee intends to follow in the event that toxicity is detected. This requirement is retained from the previous permit and is discussed in detail in Part B.2 of the draft permit.

4. Special Provisions for Municipal Facilities

a. Biosolids Requirements

The use and disposal of biosolids is regulated under federal laws and regulations, including permitting requirements and technical standards included in 40 CFR 503, 257, and 258. The biosolids requirements in the draft permit are in accordance with 40 CFR 257, 258, and 503, are based on the previous permit and are consistent with NPDES permits issued to other Hawaii POTWs.

b. Pretreatment Requirements

The federal CWA Section 307(b), and federal regulations, 40 CFR 403, require POTWs to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to CWA Sections 307(b), (c), (d), and 402(b), 40 CFR 125, 40 CFR 403, and in HAR, Section 11-55-24.

The draft permit does not include pretreatment requirements because 40 CFR Section 403 does not apply to this facility. The facility is exempt from this section because it does not receive wastewater from sources subject to National Pretreatment Standards. The previous permit also did not contain pretreatment requriements.

5. Other Special Provisions

a. Water Pollution Prevention Program. The draft permit requires the Permittee to submit a wastewater pollution control plan by May 31 each year. This provision is retained from the previous permit and is required to allow DOH to ensure that the Permittee is operating correctly and attaining maximum treatment of pollutants discharged by considering all aspects of the

wastewater treatment system. This provision in included in Part F of the draft permit.

b. Wastewater treatment facilities subject to the draft permit shall be supervised and operated by persons possessing certificates of appropriate grade, as determined by the DOH. If such personnel are not available to staff the wastewater treatment facilities, a program to promote such certification shall be developed and enacted by the Permittee. This provision is included in the draft permit to assure that the facility is being operated correctly by personnel trained in proper operation and maintenance.

c. The Permittee shall maintain in good working order a sufficient alternate power source for operating the wastewater treatment and disposal facilities. This provision is ensures that if a power failure occurs, the facility is well equipped to maintain treatment operations until power resumes. If an alternate power source is not in existence, the draft permit requires the Permittee to halt, reduce, or otherwise control all discharges upon the reduction, loss, or failure of the primary source of power. This provision is included in Part J.2 of the draft permit.

H. Public Participation

Persons wishing to comment upon or object to the proposed draft NPDES permit in accordance with HAR, Sections 11-55-09(b) and 11-55-09(d), may submit their comments in writing either in person or by mail, to:

Clean Water Branch
Environmental Management Division
919 Ala Moana Boulevard, Room 301
Honolulu, HI 96814-4920

0020257

Bernard P. Carvalho, Jr.
Mayor

Gary K. Heu
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Larry Dill, P.E.
County Engineer

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DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2013 AUG 9 1:31PM

August 8, 2013

CERTIFIED MAIL

State of Hawai'i, Department of Health
Clean Water Branch
Environmental Management Division
919 Ala Moana Boulevard, Room 301
Honolulu, Hawai'i 96814-4920

SUBJECT: PROPOSED WATER POLLUTION CONTROL PERMIT, COUNTY OF KAUA'I, DEPARTMENT OF PUBLIC WORKS, WAILUA WASTEWATER TREATMENT PLANT, NPDES PERMIT NO. HI 0020257, ZONE OF MIXING NO. ZM-30, REFERENCE: 13-CW-PW-98

Gentlemen:

The County of Kaua'i, Department of Public Works (County), the applicant for the subject National Pollutant Discharge Elimination System (NPDES) permit, has initiated our review of the subject Public Notice Permit (Draft Permit) and the accompanying Fact Sheet. The County has serious concerns about the Draft Permit; the technical basis for several key provisions of the Draft Permit; and the approach used for communication with the County regarding the Draft Permit. The Draft permit represents a significant revision to the method for establishment of effluent limits for the facility, and also significant changes are incorporated in many sections of the permit document. Given the magnitude and potential consequences of the extensive changes incorporated in the Draft Permit, the County does not believe that sufficient time has been allowed for our review, and we therefore request additional time for submittal of our comments.

Draft Permit establishes effluent limits not technically feasible to achieve. As presently written, the Draft Permit includes effluent limits for ammonia nitrogen that may not be technically achievable at any cost, despite the best efforts of the County. The ammonia nitrogen effluent limit established by this Draft Permit includes a geometric mean value of 3.5 micrograms per liter (µg/l), and a single sample maximum value of 8.5µg/l. These values are considerably below commonly available laboratory detection limits, and it is not clear to the County that such low limits can be achieved even if the facility were to go to the extreme of using reverse osmosis (RO) for effluent treatment. The County believes it is important to

EXHIBIT "I-79"

consider that the Wailua Wastewater Treatment Plant (WWTP) is already a tertiary facility, using effluent filtration following biological treatment and clarification, and consistently achieves excellent effluent water quality. The Fact Sheet acknowledges that *"compliance with the applicable effluent limitations will take substantial and costly facility alterations"* (Page 20, first paragraph). Further, the Fact Sheet acknowledges that it is not feasible for the Permittee to immediately comply with effluent limitations of the Draft Permit. To address the infeasibility of the Draft Permit effluent limitations, the Draft Permit approach is to establish interim limitations and a schedule under which the County will be required to attempt to comply with the effluent limitations of the Draft Permit. Neither the Draft Permit nor the Fact Sheet provide any indication of what *"substantial and costly facility alterations"* will be required, or whether compliance can actually be achieved following those alterations. The County is concerned that there may not be any feasible technology that can meet the Draft Permit Limits, but that the people of Kaua'i will be burdened with pursuing an endless quest to achieve such compliance.

Draft Permit inappropriately establishes Water Quality Based Effluent Limits (WQBELs) without making a defensible determination of non-compliance with Water Quality Standards (WQS). The Wailua WWTP discharges to receiving waters which are designated as "Class A Open Coastal Waters." Thus, under the WQS, compliance with the Total Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite, Total Phosphorus, Chlorophyll a, Light Extinction Coefficient and Turbidity fall into three categorical limits: "Geometric mean not to exceed the given value", "Not to exceed the given value more than ten percent of the time" and "Not to exceed the given value more than two percent of the time." The DOH methodology of comparing the extremely limited available data (one sampling event per year, with samples at shallow, middle and deep locations, and representing the data as an "annual geometric mean") to only to the "geometric mean not to exceed the given value" falls short of determining compliance against all three categorical limits. This approach constitutes extrapolation of the available data for decision-making about water quality to an extent that is far from being statistically defensible.

Insufficient time or opportunity allowed for review of the Draft Permit by the Permittee. The Permittee was not provided with any opportunity to review or comment on the Draft Permit prior to being provided with the Public Comment Draft, which literally showed up in the mail one day with instructions to proceed with publication for public comment. To the County's knowledge, this approach is a departure from the past practice of the Department of Health (DOH), which has previously provided the Permittee with an administrative draft of the proposed permit for review and comment prior to proceeding with the Public Comment Draft. The County understands that there is no requirement for provision of an administrative draft of the permit, rather this measure is usually afforded to the Permittee as a courtesy.

With the significant changes made to the approach for establishment of effluent limits in this Draft Permit, along with the significant changes within the permit generally, relative to the prior permit, the thirty-day public comment period is not an adequate time frame for the County to review this Draft Permit. It should be noted that the County submitted supplemental information requested by the DOH to complete our application on September 7, 2012.

Subsequent to this submittal, the DOH has had more than nine months to perform analysis of the data and prepare the draft permit, which was mailed to the County via a letter dated June 21, 2013. The County does not believe it is reasonable to allow only the thirty day public comment period for review by the Permittee of a significantly revised permit, and accordingly we request additional time for submittal of comments.

In addition to the serious concerns summarized above, the County has many other concerns about various provisions of the Draft Permit. Among these concerns are apparent reliance on extremely limited data; assumptions made in the analysis of those data; requirements that we consider to be excessive or without merit; factually incorrect statements made in the Fact Sheet; and numerous other corrections and clarifications the County requests to be incorporated into the permit. The following comments are submitted for your consideration and action:

1. Expiration Date, Page 1. The County notes that the Draft Permit indicates an expiration date in 2013. Please update this to reflect the five year term for an NPDES Permit.

2. Part A. 1., Page 3, first Table, "Flow". The County requests deletion of the requirement for reporting average weekly flow (footnote 2). Presently, daily flow monitoring is conducted and the average monthly and maximum daily flow values are reported. Flow at the plant does not fluctuate greatly, and addition of reporting of the average weekly flow would not provide any particularly useful information. This requirement would add complexity to the current reporting procedures. We therefore request that the requirement for average weekly reporting be changed to N/A, consistent with the current permit.

3. Part A. 1., Page 3, first Table, "Flow". Please clarify what is meant by "Continuous/Estimate" for Flow Measurement Frequency. Our current permit specifies "Continuous/Recorder", and the facility flow meters include data recorders.

4. Part A. 1., Page 3, first Table, "BOD and TSS" (footnote 3). Footnote 3 is shown in the "Maximum Daily" column, and reads "The Permittee shall monitor and report the parameter analytical test results." Presently, the facility conducts BOD and TSS analyses once per week, and the highest values observed during the month of the weekly analyses are reported in the weekly average column of the discharge monitoring report (DMR) form. The County is not clear whether footnote 3 would require any changes to our current monitoring and reporting practices. Please clarify.

5. Part A. 1., Page 3, second Table, "pH". The County objects to the revised pH limits. The draft permit establishes pH limits of between 7.0-8.6 pH units. The fact sheet does not establish whether there has been any violation of WQS; present any evidence of impairment of the receiving water with respect to pH; present a Reasonable Potential Analysis (RPA) assessment; evaluate initial dilution or dilution in the Zone of Mixing; or discuss whether there is assimilative capacity in the Zone of Mixing. The fact sheet presents no discussion of existing ocean monitoring data. There does not appear to be any basis to support the change from the previous federal "technology-based" limits of pH 6.0

to pH 9.0. The fact sheet also does not comment on whether there would need to be any significant facility modifications that would be required to meet the revised pH effluent limits. Substantial modifications would be required. At a minimum, chemical addition would be required to bring effluent pH up to the new minimum value, as the vast majority of pH results (daily monitoring) fall between 6.0 and 7.0. It is not clear on what basis the draft permit specifies the revised pH limit. Based on the limited analysis presented in the Fact Sheet and unclear basis for the revised limit, it appears the proposed revised limits are arbitrary and capricious.

6. Part A. 1., Page 3, second Table, "Cyanide". The County objects to the addition of cyanide limits. One value for cyanide was observed from a total of 3 sets of annual priority pollutant analyses of effluent, and in the other two samples, cyanide was not detected. Based on this single result, as indicated in the Fact Sheet, this value was compared to the most stringent applicable WQS, the chronic aquatic life standard of 1.0 µg/l. The fact sheet does not establish whether there has been any actual violation of WQS; present any evidence of impairment of the receiving water with respect to cyanide; evaluate dilution in the Zone of Mixing; or discuss whether there is assimilative capacity in the Zone of Mixing. The fact sheet presents no discussion of existing ocean monitoring data. Instead, the Fact Sheet proceeds directly to a determination via the RPA process that there is reasonable potential for cyanide concentrations to exceed the WQS.

   Based on research presented at the 2006 WEFTEC conference (refer to the paper included as Attachment 1), there is significant potential that the single positive cyanide result was due to chemical reaction of the sample to sample preservatives while the sample was in transit to or in storage prior to the analysis. Thus, the basis for this effluent limit appears to be a single sample result that may have been spurious data. Regardless, an effluent limit of 55µg/l and a mass limit of 0.69 pounds per day (lb/d) are proposed, with monthly monitoring being required. It is unclear why a mass limit would be appropriate for cyanide, as toxicity is based on concentration. If cyanide monitoring is required in the final permit, the County requests allowing laboratory methods that do not involve sample preservation.

7. Part A. 1., Page 3, second Table, "Enterococci". The County requests revision of footnote 6 to allow for use of other approved methods for Enterococci analyses. Specifically, the County desires to use the "Enterolert" test method for these analyses.

8. Part A. 1., Page 3, second Table, "Oil and Grease". The County requests deletion of this monitoring parameter, primarily because of considerations regarding the standard test method for these analyses. The County's understanding is that the test methods for Oil and Grease analysis involve hexane extraction, and that the method does not achieve particularly good method detection limits. We acknowledge that there may be detectable oil and grease influent to the facility, but strongly doubt that detectable oil and grease would be found in the facility's effluent. This is supported by the consistently low concentrations of BOD achieved in the facility effluent. Using test methods that involve

hazardous materials such as hexane when it is unlikely that the results will provide any meaningful information does not seem justified. If there is some requirement that dictates monitoring for Oil and Grease shall be conducted, the County requests that this analysis only be required for the effluent monitoring program. Monitoring for Oil and Grease on influent samples is not perceived by the County to provide any information that would be useful for operation of the facility.

9. Part A. 1., Page 3, second Table, "Total Residual Chlorine". The County requests deletion of the requirement to measure Total Residual Chlorine on the influent samples. We anticipate that whatever chlorine residual was present in the source water has been consumed during the conveyance of the wastewater to the facility via the sewer collection system. Further, we anticipate interference from the influent wastewater with the colorimetric test method, which is expected to result in questionable test results.

10. Part A. 1., Page 4, "Remaining Pollutants". The County questions the need for an increased monitoring frequency for the priority pollutants analyses. Other than cyanide, the priority pollutant analyses performed to date have not revealed much significant information. The suite of analyses is expensive, and when entire groups of analyses have consistently returned results of "not detected", there does not appear to be much basis for increasing the frequency for performing those analyses. If additional data are desired for constituents that have been observed, such as metals, the County could understand running those test methods with greater frequency. Also, the County requests clarification on whether or not asbestos should be considered to be included with the Remaining Pollutants analyses.

11. Part A. 1., Page 4, second Table, "Ammonia Nitrogen". The County objects to establishment of the Ammonia Nitrogen limits. Mass-based limits are not justified, as the WQS concerns are concentration based. As discussed in the Fact Sheet, the DOH methodology used to determine the need for a WQBEL was to: 1) aggregate Zone of Mixing data (from four sets of annual monitoring results); 2) represent the aggregated data as an "annual geometric mean"; and 3) compare these assumed geometric mean values to the criteria of "geometric mean not to exceed 3.5 µg/l". This analysis does not actually establish that the limited available data can reasonably be characterized as annual geometric mean concentrations, as the data are from only one point in time and are calculated from not more than 3 discrete samples collected at different depths. Nothing presented in the Fact Sheet addresses whether the available data more properly should be compared to the "Not to exceed 8.5 µg/l more than ten percent of the time" standard, or the "Not to exceed 15.0 µg/l more than two percent of the time" standard. Therefore, the County finds that DOH methodology of comparing to only to the "geometric mean not to exceed 3.5 µg/l" falls short of determining compliance against all three categorical limits.

    Nonetheless, DOH proceeded with performing a RPA and concluded that reasonable potential for ammonia nitrogen concentrations to exceed the WQS, and further, that the ocean does not have assimilative capacity for ammonia nitrogen. The lack of assimilative

capacity was based on the four sets of annual zone of mixing data from the one control station, two of which sets of results represented by DOH as "annual geometric mean" values (based on 3 individual samples) exceeded the geometric mean WQS value. The other two "annual geometric mean" results were considerably lower than the WQS. The same issue with over-extrapolation of available data is at issue with the assimilative capacity analysis.

The County believes that basing these analyses on the limited data lacks adequate statistical validity and does not allow understanding of variability over the course of a year. It is entirely possible that the control station is not representative of the open ocean water quality condition; and the data may have been subjected to various environmental conditions such as storm water influence, on any specific date on which monitoring occurred. To consider one set of not more than 3 samples to reflect an annual geometric mean concentration represents an unreasonable extrapolation of the available limited data. Limited data and an analysis based on many assumptions should not be the rationale for establishment of "end-of-pipe" effluent limits that require "substantial and costly facility alterations". These limits are considerably below most laboratory detection limits for the ammonia nitrogen analyses (which may be an issue for the control point data used for the assimilative capacity analysis). Finally, the limits are established at a level sufficiently low that compliance may not be achievable, even following the implementation of the "substantial and costly facility alterations".

12. Part A. 1., Page 4, second Table, "Nitrate + Nitrite Nitrogen". The County objects to establishment of the Nitrate + Nitrite Nitrogen limits. Mass-based limits are not justified, as the WQS concerns are concentration based. Similar to the analysis for Ammonia Nitrogen, the methodology for establishment of these limits discussed in the Fact Sheet was flawed. In the case of Nitrate + Nitrite Nitrogen, the RPA conducted by DOH, based on the flawed methodology of evaluation of the limited data relative to only one of the applicable WQS, concluded that there is a reasonable potential for nitrate + nitrite nitrogen concentrations to exceed the WQS. In this case, DOH determined that the ocean does have assimilative capacity for nitrate + nitrite nitrogen. Based on the limited ZOM boundary sample data and the flawed methodology for analysis, the DOH concludes that WQS exceedances have occurred, which therefore could be attributed to the facility effluent. To address this determination and for establishing future effluent limits, a ZOM dilution study is required. A maximum effluent limit of 24,400 µg/l, and corresponding limit of 305 lb/d, is established in the draft permit, based on the maximum observed effluent monitoring result during the 2009-2012 period of data analysis. The County is concerned that, as with ammonia nitrogen, the conclusions and corresponding effluent limitations for nitrate + nitrite nitrogen are based on far too limited data and far too many assumptions.

13. Part A. 3., Page 4, "Arrangement of Monitoring Dates". The County requests deleting this provision. As currently written, the provision is confusing; however, the intent appears to be to stagger the monitoring schedule so that the day of the week that sampling

is performed varies. This concept appears to be well-intentioned, and designed to identify whether there is variability. This provision however will be problematic for the County for the following reasons:

- Moving the monitoring date around every week would disrupt the existing schedule for operation of the irrigation reuse system at the Wailua Golf Course. The County believes it would be counterproductive if provisions of this permit were to have the effect of limiting the opportunity for beneficial reuse of the facility's effluent.
- Shipping logistics for scheduling sample analysis at contract laboratories would be problematic. Some analyses require shipping samples off-island to contract laboratories. The shipping logistics, including sample pick-up and delivery by shipping services, are problematic over week ends.
- There is no flexibility by the County's current contractor for performing the Whole Effluent Toxicity (WET) testing. That contractor is the only source currently available to the County for that testing, and they schedule the testing to occur only on specific days of the week, and only every other week.

For these reasons, the County considers the provision, although well intentioned, to be impractical. Based on flow measurements, for which daily monitoring is performed, the facility does not experience patterns observable in the influent flow that would suggest significant variability during the week.

14. Part A. 5. b., Page 5, "Effluent Monitoring Location". Request clarification on this sentence. The County requests the sentence be revised to "All effluent samples shall be taken downstream of the chlorine contact chamber where representative samples of the final effluent can be obtained, and prior to mixing with the receiving water."

15. Part A. 6. a., Page 5, "Interim Effluent Limitations, Ammonia Nitrogen". The County objects to establishing interim effluent limitations for Ammonia Nitrogen. Additionally, the County is concerned about possible effects the draft permit interim limits could have on facility maintenance. These limits were based on historical performance and would have been achievable based on data from January 2010 through August 2012. The single maximum limit is problematic since it could randomly be exceeded for any number of reasons. The single maximum value will essentially prevent partial shutdown of the aeration basin for maintenance, without risk of a permit violation. The County would appreciate there being a provision of the permit that would allow the single sample maximum to not be considered a violation if there is a need to perform maintenance of one of the aeration basins.

16. Part A. 6. b., Pages 5 -7, "Compliance Schedule for Ammonia Nitrogen". The County observes that the compliance schedule places a lengthy, costly burden on the people of Kaua'i County, without any assurance that the "substantial and costly facility alterations" will be successful at achieving compliance with the draft permit ammonia nitrogen effluent limits.

17. Part B., Page 8, "Whole Effluent Toxicity Requirements". The County continues to be concerned about the availability of testing facilities that the County can use for the WET testing using the species *Tripneustes gratilla (T. gratilla)*. There is only one commercial laboratory available to the County. There is currently the possibility of having the analysis done by the University of Hawai'i (UH) under a research program, which the County is exploring; it is uncertain how long the UH research program will remain an option. The County does not have the manpower, resources or technical capacity to perform this testing in-house.

    The County is presently entirely dependent on the contract laboratory, and DOH/EPA oversight, to provide quality assurance (QA) that the testing is being conducted properly by the contract laboratory. Among the findings of the County's assessment of our prior WET testing results were concerns about the adequacy of the contract laboratory's QA program. At a recent meeting (July 22, 2013) with DOH staff regarding the County's WET testing program, DOH staff indicated similar concerns about laboratory QA procedures. Additionally, the limited availability of testing facilities along with the limited number of tests performed by that contract laboratory results in a very limited schedule of times during the month when testing is possible. For example, within the last year, the County was unable to have a sample analyzed due to a missed sample date when the sampler failed to collect a sample due to a power outage. Normally a sample could be collected the following day, however for WET testing with only one testing facility available, the laboratory was unable to run our sample on any date other than according to their schedule. For these reasons, the County requests insertion of the provision B. 1. a. (3). of our current permit into the new permit. This provision provides for conducting the WET analysis with other species in the event that the locally available *T. gratilla* species becomes unavailable. The County suggests that use of the purple urchin (*Stronglocentrotus purpuratus*) would be the most appropriate alternative species.

18. Part B. 2., Page 8, "Test Methods". The County notes that the Draft Permit references the 1998 version of the test method. It is the County's understanding that the method and recently be updated and published. Please update the reference to the current published method.

19. Part B. 3., Pages 8 & 9, "Chronic WET Permit Limit". The County requests that the equation shown at the top of page 9 be corrected. The equation shows "100 percent effluent" whereas 3.a. says the IWC is 1.8 %. The latter is correct.

20. Part B. 6. c., Page 11, "TRE". The provisions of this section include an automatic trigger to initiate Toxicity Reduction Evaluation (TRE). Our current permit provides that the County shall conduct TRE evaluations if determined necessary by DOH and the US EPA. The County requests that the automatic trigger be deleted and the discretionary trigger by DOH and US EPA be retained. The TRE evaluation is a significant effort, and with new statistical methods being incorporated in the draft permit and with the previously stated

QA concerns by the County, there are sufficient uncertainties about the WET monitoring program that an automatic trigger to a TRE does not seem appropriate. DOH would always have the option to direct the County to proceed with a TRE in the event there was sufficient data indication that a TRE is necessary.

21. Part B. 7. a., Page 12, "Reporting Chronic Toxicity Monitoring Results". The County requests that the equation for calculation of "pass" or "fail" be corrected.

22. Part C., Pages 14 - 16, "Water Quality Criteria". The County agrees with the purpose and intent of the WQS, and specifically with the statement that the discharge of treated wastewater shall not cause water quality criteria to be violated. It is however important to be mindful that the ocean is the receiving water for various natural and altered streams, storm water, and direct surface water runoff, which are subject to various non-point source discharges that affect such water bodies. Violations of receiving water WQS can result from discharges that are unrelated to the Wailua WWTP, and such violations are not associated with operating conditions at the facility, and beyond the control of the County.

23. Part C. 1. b., Page 14, "Shoreline Monitoring". The County requests that shoreline monitoring shall not be considered non-compliant with the provisions of the permit when the monitoring schedule includes days when there is no discharge to the ocean. Approximately 180 days every year the facility effluent is conveyed to the Wailua Golf Course for beneficial reuse as irrigation water. The County believes it would be counterproductive if provisions of this permit were to have the effect of limiting the opportunity for beneficial reuse of the facility's effluent.

    Additionally, the County believes that compliance at the shoreline monitoring stations should not be included in the NPDES permit. The enterococci concentrations at the shoreline are not necessarily related to discharge from the facility, unless there is evidence that the discharge is coming ashore. More likely, enterococci levels at the shoreline are related to beach activities, stream discharges and storm water discharges. Though the WQS at the shoreline monitoring stations might be exceeded, the exceedances might not have anything to do with the Wailua WWTP discharge.

24. Part D. 1., Page 17, Final Paragraph, "Zone of Mixing Limitations". The County objects to this paragraph which would result in any listed water quality criteria violation at the boundary of our zone of mixing being deemed to be a permit violation, regardless of whether there is any relationship between the facility and the water quality criteria violation. As previously commented, effects of storm water runoff or other unrelated point source or non-point source discharges may result in such water quality criteria violations.

25. Part E. 1., Page 18, "Shoreline Monitoring". The draft permit significantly expands the frequency of shoreline monitoring. The County believes the frequency is excessive,

particularly considering the intermittent nature of the discharge from this facility. Our primary mode of operation is to convey effluent to the Wailua Golf Course for reuse as an irrigation water source. Under these circumstances, we believe quarterly monitoring would be more appropriate. It is also critically important to the County that the Wailua facility is not required to be discharging to the ocean during the scheduled shoreline monitoring periods that are to occur "seven times per month, with not more than 5 consecutive days between sampling". The County believes it would be counterproductive if provisions of this permit were to have the effect of limiting the opportunity for beneficial reuse of the facility's effluent. Shoreline monitoring would curtail beneficial reuse of the effluent if it is required that the facility always directs effluent to the ocean on days when shoreline monitoring is scheduled. If that is not a requirement, the County has no objection to conducting shoreline monitoring the proscribed 7 days per month, with not more than 5 days between samples, particularly if a quarterly monitoring schedule is allowed.

26. Part E. 2., Page 19, "Offshore Monitoring". The County requests deletion of the "land-based microwave positioning system ... (e.g., mini-ranger)". We believe that current GPS technology is adequate for the practical purpose of re-occupying the off-shore stations, and the County is not aware of whether there is currently a mini-ranger system established in this area.

27. Part E. 2., Page 19, second Table, "Nitrate Plus Nitrite Nitrogen". The County requests that this parameter be changed to one time per year, consistent with our current permit and the frequency of all other parameters included in this table. For this off-shore monitoring, a significant component of the cost of this program is the mobilization of the sampling vessel. By specifying the increased frequency for one parameter only, the program cost will be nearly double current costs.

28. Part E. 2., Page 19, second Table, "CDP". Please clarify how the reporting is to be performed for the parameters where continuous depth profile (CDP) data is required. The footnote no. 3 implies a graphical presentation; however, the monitoring is to be performed at discreet 2 meter intervals.

29. Part E. 3., Page 20, "Bottom Biological Communities Monitoring". The County requests extending this monitoring program from "at least once every two years" to "at least once every four years". This request is based on the findings of the previous monitoring which has been conducted at a frequency of once every two years. Our consultant performing the monitoring has consistently recommended that the frequency for this monitoring is excessive.

30. Part E. 4., Pages 20 - 21, "ZOM Dilution Analysis Study". The County observes that the schedule for conducting this study is not consistent with the governmental appropriations, budgeting and procurement time frames, or with the time frame required for Department of Health approvals. Following the completion of the 180 day period from the effective

date of the permit, the time proscribed for submittal of the Work Plan for this study, it will be necessary for the County to receive DOH approval for the work plan. The County is then required to incorporate DOH comments. The next milestone of the schedule is implementation of the work plan with any necessary revisions. This milestone makes no allowance for budget processes of the County. The County's budget process commences around the later part of the calendar year and is not approved until the beginning of the new fiscal year, in July. The milestone also does not allow sufficient time for proceeding with the professional services procurement for the consultant qualified to perform this study. The professional services selection process requires a minimum of 6 months. Accordingly, the milestone for initiation of the study would be more appropriately established as "within 18 months of the DOH approval of the Work Plan". Other milestones should be adjusted in a similar fashion.

31. Part E. 5., Page 21, "Annual Receiving Water Monitoring Report". The County notes that this report is a new requirement of the Draft Permit and a similar requirement does not exist in our current permit.

32. Part G., Pages 24 -27, "Pretreatment Requirements". The County objects to the inclusion of the Pretreatment Requirements of this Draft Permit and requests deletion of the entire section. It does not appear that there is an appropriate basis for this requirement. The Fact Sheet erroneously indicates that this program is based on previous permit. Review by the County of 40 CFR 403.8 indicates that a Pretreatment Program is not applicable to this facility due to the small size (permitted capacity of 1.5 million gallons per day (MGD), actual flow approximately 0.5 MGD), and the lack of Industrial Users which pass through or interfere with the operation of the facility. The facility service area consists of predominately residential users and resorts and small commercial establishments. Establishment of a Pretreatment Program would require significant cost, staffing and establishment of enabling legislative authority, all of which are anticipated to yield negligible benefits due to the small size, lack of significant industrial users (SIU's), and the primarily domestic wastewater loading of the existing collection system.

33. Part H. 1. b. (1) (c) and H. 1. b. (2)., Page 31, "Permit" and "Representative Sampling Plan". Please confirm that these paragraphs do not apply to sludge disposed of at a municipal solid waste landfill (MSWLF).

34. Part H. 1. c. (2)., Page 31, "Groundwater Monitoring Program". This section appears to be out of place. In our current permit, this provision falls under the equivalent section to H. 1. d., for sludge only landfills or surface disposal sites. The MSWLF groundwater monitoring requirements are the responsibility of the MSWLF operator, and subject to permitting and oversight by the applicable branch of the State of Hawai'i, Department of Health.

35. Part H. 1. "e", Page 32, "Annual Report". This section is mislabeled; it should be Part H. 1. g. The County requests a change in the certification language. This statement requires

that the Permittee certify that vector attraction reduction requirements have been met by the MSWLF. Vector attraction requirements at a MSWLF are the responsibility of the landfill operator.

36. Part I. 2. c. (4)., Page 37, "Method Detection Limits". The County questions the need for the discussion of establishment of method detection limits in this permit. Suggest replacing this section with a reference to a standard laboratory procedures publication, if the information is necessary to be referenced in the permit.

37. Part I. 2. f. (2)., Page 39, "Offshore Water Quality Monitoring". The County requests that the reporting period be changed to 1/year, as most parameters are to be monitored annually.

38. Part I. 2. f. (2)., Page 39, "STORET". Please clarify the requirement. The County did not see prior reference to STORET in the Draft permit.

39. Part I. 3. a. (3)., Page 40, "Reporting". Please clarify the meaning of "event". If the event is the time "the authorized personnel become aware of the exceedance", that would be acceptable. If the event is the actual exceedance, 24 hours is insufficient time to receive most laboratory results.

40. Part I. 3. c., Page 40, "Reporting". The County recommends the addition of email notification as an allowable alternative.

41. Part J. 1., Page 42, "Operator Certification". Contrary to the erroneous statement of the Fact Sheet, this provision was not contained in the previous permit.

42. Part J. 2., Page 42, "Alternate Power Source". This provision has been considerably modified from, and not as stated in the Fact Sheet, retained from the previous permit.

CERTIFICATION STATEMENT

I certify that under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

The County appreciates the opportunity to comment on the subject Public Comment Draft Permit for our facility. If you have any questions about our comments, please feel free to contact Mr. Edward Tschupp at (808) 241-4084, or by email at etschupp@kauai.gov .

Very Truly Yours,

Edward Tschupp, P. E. Chief
Wastewater Management Division

CONCUR:

Larry Dill, P. E.
County Engineer

Attachment 1 – FACTORS AFFECTING CYANIDE GENERATION IN CHLORINATED WASTEWATER EFFLUENT MATRIX (WEFTEC 2006 Conference)

c: US EPA Water Division (WTR-5), CWA Standards and Permits Office, EPA, Region 9 (via email sablad.elizabeth@epa.gov)
Mr. Gary Ueunten, CWB Kaua'i.

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

February 28, 2014

2014 MAR 3 1:15PM

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: JANUARY 2014 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period January 1 through 31, 2014. This report includes the standard DMR forms, laboratory reports, and the total residual chlorine analysis data sheet for the 21 days in January 2014 during which effluent was discharged to the ocean. During January 2014 there were two violations of pH effluent limits, on January 13, 2014 (5.8 pH units) and on January 30, 2014 (5.6 pH units). On both these days, effluent was diverted to the golf course while operators addressed plant adjustments to address the low pH.

The updated permit effective date was November 1, 2013. The County is still working on getting set up with new permit reporting forms and establishing the NetDMR reporting processes required under the new permit. Until the NetDMR process is set up, the County will continue to submit hard copy reports.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing was performed by the County's sanitary chemists, who also conducted the shoreline monitoring. The contract laboratory reports are attached in their entirety. The monthly contract laboratory analyses, other than WET testing, were coordinated by Hawai'i Food and Water Testing Lab (HFWT), as a subcontractor to HOH Utilities, LLC, the County's prime contractor for these analyses. Two WET test analyses in January 2014 were performed by Food Quality Lab (FQL), and in addition, spilt samples were sent to the University of Hawai'i laboratory for separate testing. All WET test results were reported as passing. Since the change to using TST method for data analysis, the County has not experienced any fail results.

In addition to the contract laboratory reports, the new permit established an expanded schedule for shoreline monitoring, with visual observations along with sampling for Enterococcus

EXHIBIT "I-80"

analysis. The sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the month was 29.7 NTU, measured on January 13, 2014. Additionally, effluent pH has been analyzed a total of 21 times during the month, and the range of all analyses is reported on the DMR form. As noted above there were two effluent pH violations that occurred during January.

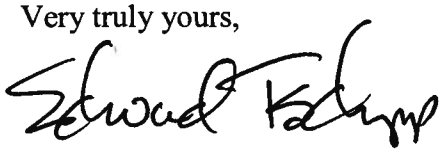
Due to the prior methodology for evaluation of WET test results under our old permit, WET results exceeded our permit limits, and the County was performing accelerated monitoring. Since switching to the TST method, all results have been passing, and a total of 6 sets of analyses have been completed, inclusive of the January 2014 testing. In accordance with our permit, following the six sets of passing results, in February 2014 the County discontinued accelerated monitoring. In July 2013 the County submitted our initial Toxicity Reduction Evaluation (TRE) investigation report, and to date, there has not been a response from the State of Hawai'i, Department of Health on our initial investigation report.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,



EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

0020257

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
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April 24, 2014

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

2014 APR 25 10:50 AM

Dear Sirs:

SUBJECT: ANNUAL REPORT, WASTEWATER POLLUTION PREVENTION PROGRAM, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Wastewater Pollution Prevention Program Annual Report for the Wailua Wastewater Treatment Plant (WWTP) for the period April 1, 2013 through March 31, 2014. Included in the report are summaries of conditions at the WWTP and within the service area, including: flow; BOD and TSS concentration and loading data; toxic pollutant and septic waste impacts; service area growth; impact of new regulations; bypasses and overflows; collection system effectiveness and condition; permitted capacity; and treatment capacity.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

cc: EPA Regional Administrator w/attachment

EXHIBIT "I-81"

An Equal Opportunity Employer

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
KAUA'I COUNTY, HAWAI'I

April 30, 2014

INTRODUCTION

This annual report covers the period from April 1, 2013 through March 31, 2014, and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP), owned and operated by the County of Kaua'i Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The NPDES permit is issued by the State of Hawai'i, Department of Health (DOH). In October, 2013, the DOH issued the renewal of the NPDES permit, with an effective date of November 1, 2013.

FLOW

Influent and Effluent flow meters are installed at the Wailua WWTP, and daily records of plant flows are maintained. The Wailua WWTP discharges effluent both to the Wailua Golf Course for reuse as "R-2" irrigation water, and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. Plant records identify on a daily basis whether effluent is discharged to the ocean or to the golf course. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily flow influent to the WWTP was approximately 0.614 MGD. The maximum daily influent flow was 0.784 MGD, recorded on November 8, 2013. The minimum influent flow to the WWTP was 0.257 MGD, recorded on February 18, 2014.

The average daily effluent flow to the ocean, for those days during which some or all of the effluent flow was directed to the ocean, was approximately 0.352 MGD. The recorded maximum and minimum daily flows were 0.608 MGD on February 21, 2014, and 0.042 MGD on January 15, 2014, respectively. During the period from April 1, 2013 through March 31, 2014, effluent was discharged to the ocean during all or a part of 284 calendars days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

Appendix A includes copies of the daily flow records for the reporting period.

BIOCHEMICAL OXYGEN DEMAND LOADING

Influent and effluent Biochemical Oxygen Demand (BOD) analyses are performed weekly, and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs).

Influent BOD values averaged approximately 220 milligrams per liter (mg/l). The maximum and minimum influent BOD concentrations observed during the reporting period were 320 mg/l and 120 mg/l, respectively. Effluent BOD averaged 4.2 mg/l. The maximum and minimum effluent BOD were 15 mg/l and <2 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume, and is reported monthly in the DMRs. The influent and effluent BOD loading averaged approximately 750 pounds per day (lb/d) and 9.3 lb/d, respectively, during the reporting period.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly, and the results of these analyses are reported monthly in the DMRs. Influent TSS values averaged approximately 220 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 420 mg/l and 74 mg/l, respectively. The average effluent TSS concentration was 2.1 mg/l, and the maximum and minimum effluent TSS concentrations were 20 mg/l and 0.2 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume, and is reported monthly in the DMRs. The TSS influent and effluent loading averaged approximately 720 lb/d and 7.0 lb/d, respectively, during the reporting period.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity Testing. Chronic Toxicity permit testing requirements under the permit in effect prior to November 2013 included monthly effluent testing using Whole Effluent Toxicity (WET) methods with one of the two species identified in the permit, alternating species every month. The updated permit, effective November 1, 2013 deleted the species *Ceriodaphnia dubia*, and retained the species *Trypneustes gratilla.* In addition, the updated permit incorporated the Test of Significant Toxicity (TST) approach for evaluation of the chronic toxicity testing data.

Prior to April 1, 2013, the County was performing accelerated WET testing with the species *Trypneustes gratilla* due to prior exceedance of permit limits for chronic toxicity units (TUc). During the period from April 1, 2013 through October 31, 2013, a total of 16 WET tests were performed with the species *Trypneustes gratilla* in the accelerated WET testing program. Of these analyses, 9 analyses exceeded permit TUc limits, and 7 analyses did not exceed the permit limits. In addition to the analyses performed by the County's contracted commercial laboratory (FQLabs, LLC.), the County conducted additional WET testing through the University of Hawai'i (UH), including 1 analysis performed on samples split to both UH and FQLabs for independent testing. The split sample was determined by UH to be not in excess of our permit limit, whereas FQLabs reported the result to be in excess of our permit limit.

The County contracted with the environmental consulting company Brown and Caldwell, Inc. to evaluate plant operating conditions possibly contributing to WET testing exceedances. This study did not identify conditions that correlate with, or explain the WET results, which appear to be random. The initial evaluation of the toxicity testing data and plant operating conditions was

summarized in a report titled Wailua Wastewater Treatment Plant Whole Effluent Toxicity Assessment Report, prepared by Brown and Caldwell Inc., and submitted to DOH on July 22, 2013.

Subsequent to the updated permit's November 1, 2013 effective date, the County continued with accelerated monitoring with the species *Trypneustes gratilla*, using the TST approach for data analysis. Since the change to use of the TST approach, none of the WET test results have been reported as "failed", and by letter dated March 31, 2014, DOH approved the County discontinuing accelerated monitoring.

No WET testing was conducted using the species *Ceriodaphnia dubia* during 2013, due to the ongoing accelerated monitoring with the species *Trypneustes gratilla.*

Priority Pollutant Analyses. Annual analyses for priority pollutants were performed during 2013, in accordance with permit requirements. The annual 2013 priority pollutant results were submitted to DOH in the monthly DMR report for December 2013, dated January 28, 2014. Priority pollutant compounds were not found at concentrations in excess of regulatory action limits.

Based on prior year annual priority pollutant results, the updated permit effective November 1, 2013 established monthly monitoring for cyanide for influent and effluent samples. Influent and effluent cyanide analyses are performed monthly, and the results of these analyses are reported monthly in the DMRs. Cyanide was detected in one of the five influent samples since November 1, 2013 at a concentration of 5.9 micrograms per liter (ug/l), and not detected in the other four influent samples. Cyanide has not been detected in any of the five effluent samples collected monthly since November 1, 2013.

Septic Waste Impacts. The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Growth of population and the number of residences and businesses in the Wailua WWTP service area has been low. Future growth rates and timing are unknown, and will depend on individual developer's schedules. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa'a. There are specific resort and residential developments in various stages of design and permitting that could become significant new sources of wastewater flow to the Wailua WWTP, however several projects in the service area have been delayed indefinitely due to economic conditions. Economic conditions appear to be improving, and the County anticipates a gradual increase in resort and residential development in the service area.

IMPACT OF NEW REGULATIONS

During the 2013-2014 reporting period the Wailua WWTP has not been affected by any specific new regulations. The updated NPDES permit, effective November 1, 2013 has significant impact

on the facility, particularly with the establishment of effluent limitations for ammonia nitrogen. The updated permit establishes a 10-year compliance schedule for implementation of improvements necessary to achieve compliance with new effluent limits for ammonia nitrogen. In addition, the updated permit requires the County to perform a Zone of Mixing Dilution Analysis Study.

BYPASSES AND OVERFLOWS

During the 2013-2014 reporting period, there was one spill which occurred on October 23, 2013 when a contractor damaged a 6-inch D.A.F.T. discharge pipe containing internal plant recycle flow within the Wailua WWTP. The spill was approximately 1,800 gallons discharged to the ground, and was contained within the plant.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Following the completion of the Wailua WWTP Facility Plan in 2008, the County proceeded with design of the first batch of identified improvements at the WWTP. The Facility Plan also provides planning for eventual upgrades and replacements of Sewage Pump Station (SPS) equipment and facilities within the system due to age and condition. Figure 1 shows the main components of the collection system, as identified in the Facility Plan.

Routine operations within the collection system include service lateral cleaning and repair on an as needed basis, and periodic cleaning of pump station wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of pump station equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP.

Prior to 2013, the County initiated design of an odor control system for the Coco Palms SPS, which was bid, contracted and installed during the reporting period. System start-up was initiated in March 2014.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

TREATMENT CAPACITY

Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP, and lack of redundancy for some treatment processes at the WWTP, the Facility Plan consultant recommended that the Wailua WWTP should be considered as a 1.0 MDG facility.

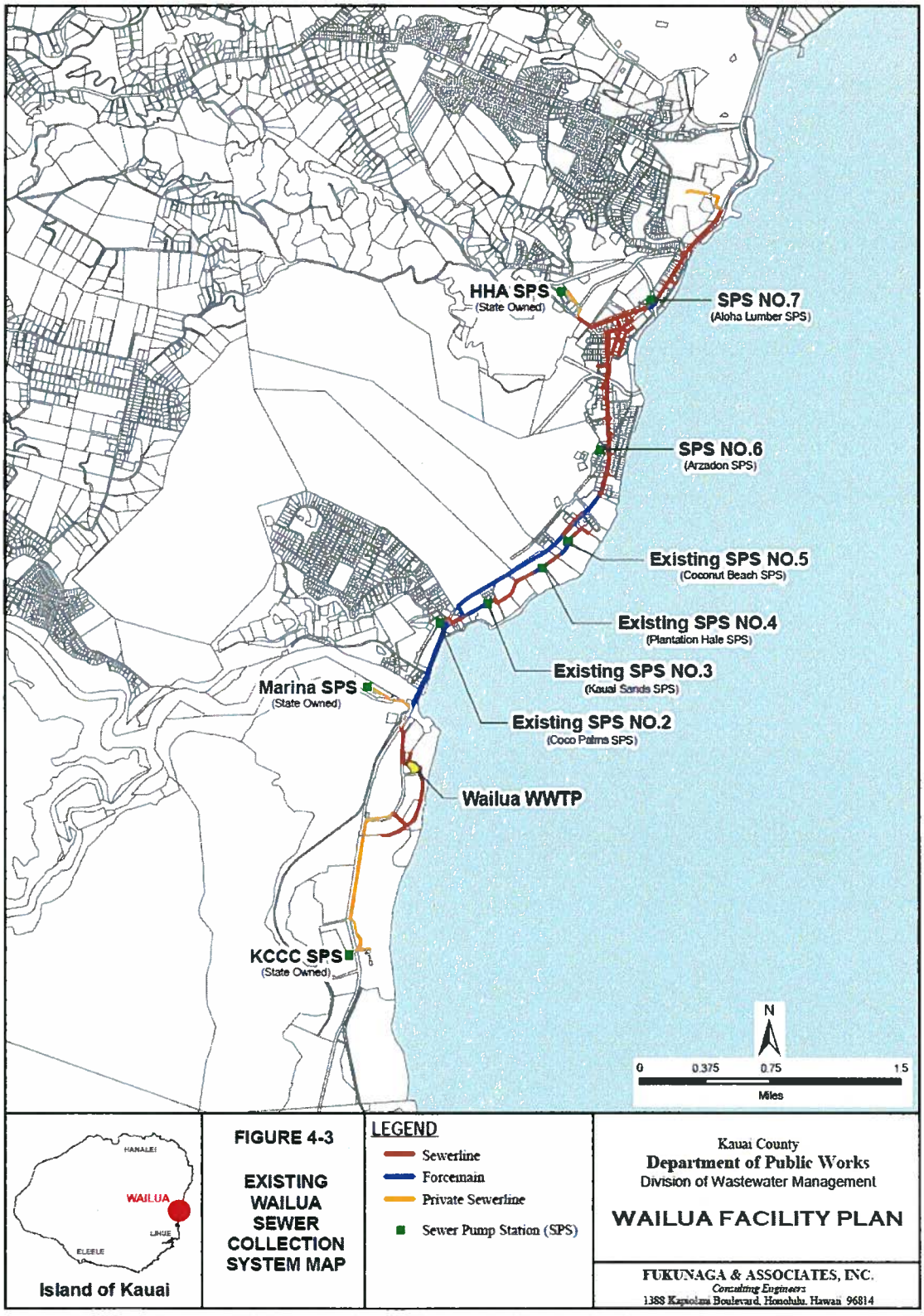
The County is implementing the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. During the 2013-2014 reporting period, construction was initiated for the Wailua Wastewater Treatment Plant Improvements, Phase I project. This project is partially funded from a US EPA grant, along with DOH funding from the Hawai'i Water Pollution Control Revolving Fund (SRF) program. The project includes replacement of

blowers, sludge pumps and the solids dewatering centrifuge along with other improvements. The construction is expected to be completed by approximately October 2014.

The design is underway for the Wailua Wastewater Treatment Plant Improvements, Phase II project, which includes significant upgrades to address treatment process redundancy and reliability. The Preliminary Engineering Report for the Phase II project was submitted to and approved by the DOH. Preliminary design for the Phase II project has been completed, and the design consultant will be proceeding with the detailed design during the upcoming year.

FIGURE 1

WAILUA WWTP SEWAGE COLLECTION SYSTEM



Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

December 24, 2014

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: NOVEMBER 2014 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period November 1 through 30, 2014. This report includes the standard DMR forms, laboratory reports, the total residual chlorine analysis data, and shoreline monitoring reports for the 22 days in November 2014 during which effluent was discharged to the ocean.

During November 2014, one permit violation occurred; the effluent Nitrate plus Nitrite Nitrogen result from the monthly sample, collected November 5, 2014, was reported as 39 milligrams per liter (mg/l), in excess of the permit effluent limit of 24.4 mg/l.

The permit effective date was November 1, 2013. In July, 2014, the State of Hawai'i, Department of Health (DOH) set up new permit reporting forms for reporting purposes. The County has not yet established the NetDMR reporting process per the new permit. Until the NetDMR process is set up, the County will continue to submit hard copy reports.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing and shoreline monitoring were performed by the County's sanitary chemists. Monthly contract laboratory analyses, other than WET testing, were coordinated by Hawai'i Food and Water Testing Lab (HFWT), as a subcontractor to HOH Utilities, LLC, the County's prime contractor. The WET test analysis was performed by FQLabs, LLC. Since the change to using TST method for data analysis, the County has not experienced any failing WET testing results. The contract laboratory reports are attached in their entirety.

The monthly shoreline monitoring visual monitoring, sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An

enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

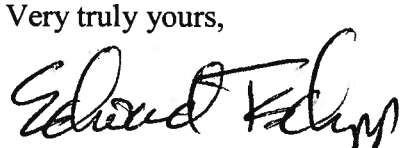
The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the periods of ocean discharge this month was 4.6 NTU, measured on both November 11 and 12, 2014. Additionally, effluent pH has been analyzed a total of 22 times during the periods of ocean discharge this month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,



EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
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2015 JUN 2 9:52AM

May 28, 2015

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: APRIL 2015 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period April 1 through 30, 2015. This report includes the standard DMR forms, laboratory reports, the total residual chlorine analysis data, and the shoreline monitoring report. There were 16 days in April 2015 during which effluent was discharged to the ocean.

During April 2015, two permit violations occurred; the effluent Nitrate plus Nitrite Nitrogen result from the monthly sample, collected April 22, 2015 was reported as 30.87 mg/l, in excess of the permit effluent limit of 24.4 mg/l. The other permit violation was the monthly geometric mean Enterococci value of 256 CFU/100 ml, in excess of the permit limit of 192 CFU/100 ml. There were two monitoring periods during this month when chlorine residual values were very low, and Enterococcus results were higher than normal, which affected the monthly geometric mean result. The plant operators have been advised to boost up the chlorine levels somewhat, within permit limits, to better control Enterococci levels.

The permit effective date was November 1, 2013. In July, 2014, the State of Hawai'i, Department of Health (DOH) set up new permit reporting forms for reporting purposes. The County has not yet established the NetDMR reporting process per the new permit. Until the NetDMR process is set up, the County will continue to submit hard copy reports.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing and shoreline monitoring were performed by the County's sanitary chemists. Monthly contract laboratory analyses, other than WET testing, were performed by FQLabs, LLC. The WET test analysis was performed by Bio-Aquatic Testing, Inc.

EXHIBIT "I-83"

April 2015 was the first month for the County's new contracts with laboratories. The new laboratory prepared sample bottles for cyanide analyses with preservatives, and cyanide was detected in both influent and effluent samples. Previously, use of preservatives has been implicated in the literature to interact with wastewater samples, yielding artificially elevated cyanide results. Therefore, the County considers that the reported cyanide results for April to be not representative of actual cyanide levels. For future monitoring the County will be returning to using rush analysis of un-preserved samples. The contract laboratory reports are attached in their entirety.

The monthly shoreline monitoring visual monitoring, sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the periods of ocean discharge this month was 2.3 NTU, measured on April 1 and April 17, 2015. Additionally, effluent pH has been analyzed a total of 16 times during the periods of ocean discharge this month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

SW
SM

HI 0020257

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

May 29, 2015

2015 JUN 1 10:32AM

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: ANNUAL REPORT, WASTEWATER POLLUTION PREVENTION PROGRAM, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Wastewater Pollution Prevention Program Annual Report for the Wailua Wastewater Treatment Plant (WWTP) for the period April 1, 2014 through March 31, 2015. Included in the report are summaries of conditions at the WWTP and within the service area, including: flow; BOD and TSS concentration and loading data; toxic pollutant and septic waste impacts; service area growth; impact of new regulations; bypasses and overflows; collection system effectiveness and condition; permitted capacity; and treatment capacity.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

cc: EPA Regional Administrator w/attachment

EXHIBIT "I-84"

An Equal Opportunity Employer

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
KAUA'I COUNTY, HAWAI'I

May 29, 2014

INTRODUCTION

This annual report covers the period from April 1, 2014 through March 31, 2015, and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP), owned and operated by the County of Kaua'i Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The current NPDES permit, effective date of November 1, 2013, was issued by the State of Hawai'i, Department of Health (DOH).

FLOW

Influent and Effluent flow meters are installed at the Wailua WWTP, and daily records of plant flows are maintained. The Wailua WWTP discharges effluent both to the Wailua Golf Course for reuse as "R-2" irrigation water, and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. Plant records identify on a daily basis whether effluent is discharged to the ocean or to the golf course. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily flow influent to the WWTP was approximately 0.572 MGD. The maximum daily influent flow was 0.947 MGD, recorded on March 25, 2015. The minimum influent flow to the WWTP was 0.277 MGD, recorded on August 11, 2014.

The average daily effluent flow to the ocean, for those days during which some or all of the effluent flow was directed to the ocean, was approximately 0.285 MGD. The recorded maximum and minimum daily flows were 0.503 MGD on August 9, 2014, and 0.063 MGD on November 28, 2014, respectively. During the period from April 1, 2014 through March 31, 2015, effluent was discharged to the ocean during all or a part of 206 calendars days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

Appendix A includes copies of the daily flow records for the reporting period.

BIOCHEMICAL OXYGEN DEMAND LOADING

Influent and effluent Biochemical Oxygen Demand (BOD) analyses are performed weekly, and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs). Influent BOD values averaged approximately 303 milligrams per liter (mg/l). The maximum and

minimum influent BOD concentrations observed during the reporting period were 510 mg/l and 160 mg/l, respectively. Effluent BOD averaged 3.1 mg/l. The maximum and minimum effluent BOD were 12 mg/l and <2 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume, and is reported monthly in the DMRs, in units of pounds per day (lb/d). The influent and effluent BOD loading averaged approximately 930 lb/d and 9.7 lb/d, respectively, during the reporting period.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly, and the results of these analyses are reported monthly in the DMRs. Influent TSS values averaged approximately 260 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 500 mg/l and 180 mg/l, respectively. The average effluent TSS concentration was 1.7 mg/l, and the maximum and minimum effluent TSS concentrations were 6.6 mg/l and 0.3 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume, and is reported monthly in the DMRs, in units of pounds per day. The TSS influent and effluent loading averaged approximately 790 lb/d and 5.2 lb/d, respectively, during the reporting period.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity Testing. Chronic Toxicity permit testing requirements include monthly effluent testing using Whole Effluent Toxicity (WET) methods with the species *Trypneustes gratilla.* The permit specifies use of the Test of Significant Toxicity (TST) approach for evaluation of the chronic toxicity testing data.

The County performed the monthly WET testing as required, including performing spilt samples to different laboratories on several occasions for quality control purposes. All WET results for the monitoring period were reported as "Pass".

Priority Pollutant Analyses. Annual analyses for priority pollutants were performed during 2014, in accordance with permit requirements. The annual 2014 priority pollutant sample was collected December 3, 2014 and results were submitted to DOH in a DMR report dated March 27, 2015. Priority pollutant compounds were not found at concentrations in excess of regulatory action limits.

In addition to the annual priority pollutant scan, the permit requires monthly monitoring for cyanide for influent and effluent samples, and these results are reported monthly in the DMRs. Cyanide was detected in five influent samples during the monitoring period at a concentrations of as high as 7.5 micrograms per liter (µg/l). Cyanide has not been detected in any of the monthly effluent samples collected during the monitoring period, although the annual priority pollutant scan from the December 3, 2014 sample reported cyanide at a concentration of 2.9 µg/l. The detection limit for the annual priority pollutant scan was 2.0 µg/l, lower than the detection limit of 5.0 µg/l reported for the monthly monitoring.

Septic Waste Impacts. The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Growth of population and the number of residences and businesses in the Wailua WWTP service area has been low. Future growth rates and timing are unknown, and will depend on individual developer's schedules. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa'a. Proposed resort and residential developments are in various stages of design and permitting that could become significant new sources of wastewater flow to the Wailua WWTP. However, there were no significant changes during the 2014-2015 reporting period, and no significant changes are anticipated until at least 2016. Economic conditions are improving, and the County anticipates a gradual increase in resort and residential development in the service area.

IMPACT OF NEW REGULATIONS

During the 2014-2015 reporting period the Wailua WWTP has not been affected by any specific new regulations. The current NPDES permit, effective November 1, 2013 has significant impact on the facility, particularly with the establishment of effluent limitations for ammonia nitrogen.

The permit (Part A, Paragraph 6 b.) establishes a 10-year compliance schedule for implementation of improvements necessary to achieve compliance with new effluent limits for ammonia nitrogen. In addition, the permit (Part E, Paragraph 4) requires the County to perform a Zone of Mixing Dilution Analysis Study. The County has proceeded with contracting with consulting engineering firms to perform both the Compliance Alternatives Evaluation Study and the Zone of Mixing Dilution Analysis Study.

BYPASSES AND OVERFLOWS

During the 2014-2015 reporting period, there were two spills which occurred within the WWTP facility. The first spill occurred on September 18, 2014 when 1,200 gallons of sludge was spilled during construction involving the sludge line. The second spill of 600 gallons of sludge occurred the following day, September 19, 2014 when sludge pipe broke. In both cases, the sludge was discharged to the ground within the plant, and was contained and cleaned up. There were no collection system bypasses, overflows or spills.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Routine operations within the collection system include service lateral cleaning and repair on an as needed basis, and periodic cleaning of pump station wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of pump station equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP. The County has dedicated collection system maintenance staff and equipment necessary for this on-going maintenance.

In addition to the routine operation and maintenance, in 2008 the County has completed a Facility Plan to identify long term Wastewater System capital and operational needs. The Facility Plan identified various capital improvements (CIP) along with anticipated time frames for scheduling the CIP improvements.

The Facility Plan included planning for eventual upgrades and replacements of Sewage Pump Station (SPS) equipment and facilities within the system due to age and condition. Routine scheduled replacement of major equipment (pumps) at the pump stations has been included in annual operating budgets in order to maintain all County sewage pump stations, including those in the Wailua-Kapa'a collection system.

During the 2014-2015 reporting period, work was completed on installation of Odor Control system at the Coco Palms SPS. In addition, plans were completed and bid for additional odor control equipment (carbon unit) at this pump station.

An additional capital improvement project, the Island-wide SCADA System, is currently under construction at both the WWTP and several Wailua SPS's. This system will significantly improve our operator's ability to know current operating conditions at the remote pump stations as well as at the treatment plant.

Figure 1 shows the main components of the collection system, as identified in the Facility Plan.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

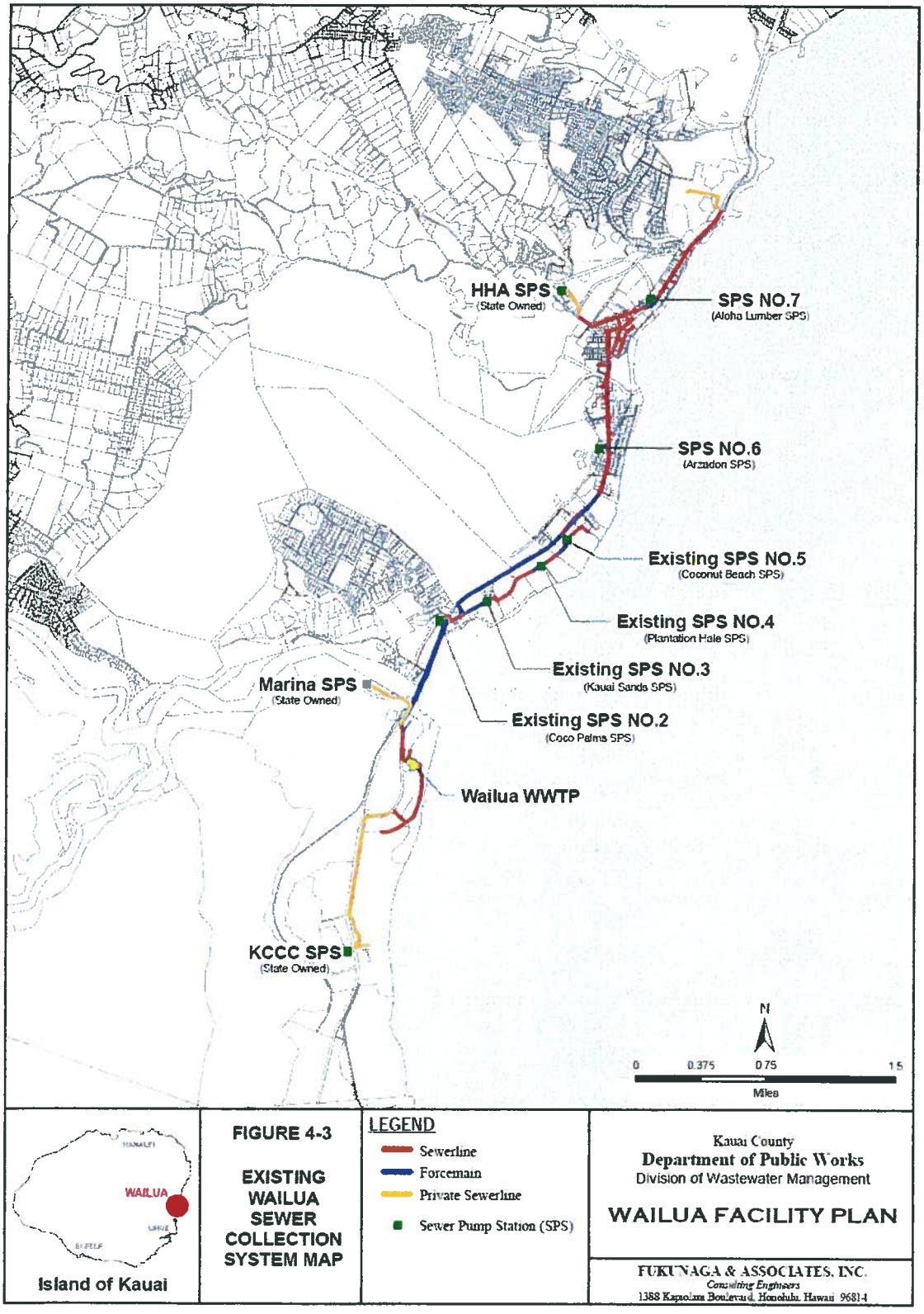
TREATMENT CAPACITY

Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP, and lack of redundancy for some treatment processes at the WWTP, the 2008 Facility Plan recommended that the Wailua WWTP should be considered as a 1.0 MGD facility.

The County continues to work on the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. During the 2013, construction was initiated for the Wailua Wastewater Treatment Plant Improvements, Phase I project, which was completed in 2014. This project was partially funded from a US EPA grant, along with DOH funding from the Hawai'i Water Pollution Control Revolving Fund (SRF) program. The project includes replacement of blowers, sludge pumps and the solids dewatering centrifuge along with other improvements. The design is underway for the Wailua Wastewater Treatment Plant Improvements, Phase II project, which includes significant upgrades to address treatment process redundancy and reliability. The Preliminary Engineering Report for the Phase II project was submitted to and approved by the DOH. Preliminary design for the Phase II project has been completed, and the design consultant will be proceeding with the detailed design during the upcoming year.

FIGURE 1

WAILUA WWTP SEWAGE COLLECTION SYSTEM



HI 0020257

SM
DCL

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
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4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
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2015 AUG 31 1:47PM

August 28, 2015

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: JULY 2015 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period July 1 through 31, 2015. This report includes the standard DMR forms, laboratory reports, the total residual chlorine analysis data, and the shoreline monitoring report. In addition to the monthly data and laboratory reports, during July 2015 semi-annual receiving water zone of mixing monitoring was performed and the results from that monitoring are also attached to this report. There were 16 days in July 2015 during which effluent was discharged to the ocean.

During July 2015, one permit violation occurred; the effluent cyanide result from the monthly sample, collected July 8, 2015 was reported as 0.063 mg/l, in excess of the permit effluent limit of 0.055 mg/l.

The permit effective date was November 1, 2013. In July, 2014, the State of Hawai'i, Department of Health (DOH) set up new permit reporting forms for reporting purposes. The County has not yet established the NetDMR reporting process per the new permit. Until the NetDMR process is set up, the County will continue to submit hard copy reports.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing and shoreline monitoring were performed by the County's sanitary chemists. Monthly contract laboratory analyses, other than WET testing, were performed by FQLabs, LLC. The WET test analysis was performed by Bio-Aquatic Testing, Inc. The semi-annual receiving water zone of mixing monitoring was performed by Marine Research Consultants, Inc., under a sub-contract to HOH Utilities LLC. The contract laboratory reports are attached in their entirety.

EXHIBIT "I-85"

The monthly shoreline monitoring visual monitoring, sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the periods of ocean discharge this month was 1.97 NTU, measured on July 21, 2015. Additionally, effluent pH has been analyzed a total of 16 times during the periods of ocean discharge this month, and the range of all analyses is reported on the DMR form.

During July 2015, the County conducted additional analyses for influent and effluent Alkalinity and Chemical Oxygen Demand. These are not required monitoring parameters under our permit; the data were collected for the use of the County's consultant performing the Effluent Limits Compliance Alternatives Study required by the permit. The laboratory reports for the additional data are also included in this DMR.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

MK

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Larry Dill, P.E.
County Engineer

Lyle Tabata
Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2015 OCT 30 2:13PM

October 30, 2015

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: FINAL REPORT, AMMONIA NITROGEN EFFLUENT LIMITS COMPLIANCE ALTERNATIVES EVALUATION STUDY
PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

The County of Kaua'i, Department of Public Works, Division of Wastewater Management is hereby submitting two copies of the subject Final Report. This report was prepared in compliance with Task 2, Part A, Paragraph 6 b., Table 6, Compliance Schedule for Ammonia Nitrogen, of the subject National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP).

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment: Two (2) copies, Wailua WWTP Effluent Limits Compliance Alternatives Evaluation Study, Final Report

EXHIBIT "I-86"

An Equal Opportunity Employer

October 2015

County of Kaua`i
Department of Public Works – Wastewater Management Division

Wailua Wastewater Treatment Plant Effluent Limits Compliance Alternatives Evaluation Study



K/J Project No. 1567003*00

Kennedy/Jenks Consultants

Executive Summary

The County of Kauaʻi, Department of Public Works, Wastewater Management Division (County) owns and operates the Wailua Wastewater Treatment Plant (Wailua WWTP). The plant is rated for 1.5 million-gallons per day (MGD) average daily flow, with a design peak flow of 5.03 MGD and an equalized peak day flow of 3.0 MGD. Existing treatment processes include headworks (parshall flume, mechanically cleaned bar screen, aerated grit chamber, and aerated surge tanks), activated sludge, secondary clarifiers, filtration, chlorination, and solids handling.

The County received its current National Pollutant Discharge Elimination System (NPDES) permit for the Wailua WWTP from the State of Hawaiʻi Department of Health (DOH) on October 1, 2013, and the permit went into effect on November 1, 2013. The new permit contains discharge limitations on ammonia-nitrogen and nitrate+nitrite nitrogen that were not in previous permits. Table ES-1 summarizes the new NPDES permit limits that require nearly complete removal of ammonia-nitrogen. Interim ammonia-nitrogen limits became effective in 2013; a compliance schedule provides the County 10 years to identify and implement improvements to meet the final effluent limits. The purpose of this report is to evaluate alternatives and determine a recommended alternative for implementation. This evaluation will provide the County with a plan to comply with the new effluent limits or divert the treated effluent from the outfall, making the imposed limits a nonissue.

Table ES-1. Wailua WWTP Nutrient Limitations

	Discharge Limitations[b]		
Parameter[a]	**Geometric Mean[c]**	**Single Sample Maximum**	**Units**
Ammonia - Nitrogen	3.5	8.5	µg/L
	0.04	0.11	lbs/day
Nitrate +Nitrite – Nitrogen	--	24,400	µg/L
	--	305	lbs/day
Total Nitrogen	--	(a)	µg/L
	--	(a)	lbs/day
Total Phosphorus	--	(a)	µg/L
	--	(a)	lbs/day
Ammonia-Nitrogen (Interim)	4,536	21,100	µg/L
	56.7	264	lbs/day

Notes:

(a) Monitoring and reporting of parameter analytical test results is required.

(b) Monitoring required on a monthly basis using 24-hour composite samples on both influent and effluent.

(c) Geometric mean to be evaluated on a calendar year basis.

µg/L = micrograms per liter.

lbs/day = pounds per day.

Wailua WWTP staff has been operating the facility to comply with the interim effluent ammonia limits, however evaluation of plant performance data indicates that the treatment capacity of the existing liquid processes will not support compliance with the final effluent limits. To validate this observation, the existing WWTP capacity was evaluated using a biological process model and desktop calculations. In addition, several options were explored for reducing nitrogen sent to the outfall, including source control, biological treatment improvements, effluent polishing, effluent diversion, and reuse. Although these options do not independently achieve the effluent quality objectives, combinations of improvement options present potentially feasible alternatives to comply with the NPDES permit objectives. Favorable options were combined into comprehensive compliance alternatives, which were then evaluated based on economic and non-cost criteria.

ES.1 Options Evaluation

Options were explored in five key areas, each of which was evaluated for its potential to comply with the new effluent ammonia-nitrogen limit or divert treated effluent from the outfall.

Table ES-2. Ammonia-Nitrogen Reduction Options

Wastewater Element	Potential Benefit	Options Considered
Pretreatment	Reduce influent nitrogen levels through source control or collection system treatment	• Source control • BIOXIDE® addition
Biological Process Improvements	Optimize biological nitrogen removal through process optimization and additional treatment capacity	• Expand with an Modified Ludzack-Ettinger (MLE) • Expand with an MLE and integrated fixed-film activated sludge (IFAS) • Expand with an MLE and membrane bioreactor (MBR) • Expand with an MLE and influent filtration
Effluent Polishing	Provide treatment downstream of the biological process to remove residual ammonia	• Breakpoint chlorination • Reverse osmosis (RO) • Ion exchange
Effluent Diversion/Reuse	Expand effluent reuse or provide alternative discharge options to divert effluent from the outfall for other beneficial uses with different water quality standards	• Expand reuse • Injection wells with underground injection control (UIC) permits • Subsurface infiltration

SM
DCL
KP

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4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2015 DEC 30 12:31PM

December 28, 2015

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: NOVEMBER 2015 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period November 1 through 30, 2015. This report includes the standard DMR forms, laboratory reports, the total residual chlorine analysis data, and the shoreline monitoring report. There were 19 days in November 2015 during which effluent was discharged to the ocean.

During November 2015, one permit violation occurred; the effluent chlorine residual result from the sample collected November 19, 2015 was reported as 0.43 mg/l, in excess of the permit effluent limit of 0.412 mg/l. This occurred just prior to or during the period of transition from the ocean outfall to the golf course, and the corrective action of termination of discharge to the ocean was implemented by 08:00 AM, within approximately an hour of the measurement. An additional noteworthy event is that from November 1 through November 9 the influent flow meter yielded unreliable readings. The influent flow meter was affected by construction of the County's new SCADA system, and the instrumentation problem was identified and corrected.

The permit effective date was November 1, 2013. In July, 2014, the State of Hawai'i, Department of Health (DOH) set up new permit reporting forms for reporting purposes. The County has not yet established the NetDMR reporting process per the new permit. Until the NetDMR process is set up, the County will continue to submit hard copy reports.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing and shoreline monitoring were performed by the County's sanitary chemists. Monthly contract laboratory analyses, other than WET testing, were performed by FQLabs, LLC. The WET test analysis was performed by Bio-Aquatic Testing, Inc. The contract laboratory reports are attached in their entirety.

EXHIBIT "I-87"

The monthly shoreline monitoring visual monitoring, sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the periods of ocean discharge this month was 4.70 NTU, measured on November 27, 2015. Additionally, effluent pH has been analyzed a total of 19 times during the periods of ocean discharge this month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

SM
DCL
KP

HI0020257

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Lyle Tabata
Acting County Engineer

Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

February 26, 2016

2016 FEB 29 10:21 AM

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: JANUARY 2016 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Discharge Monitoring Report (DMR) for the Wailua Wastewater Treatment Plant (WWTP) for the period January 1 through 31, 2016. This report includes the standard DMR forms, laboratory reports, the total residual chlorine analysis data, and the shoreline monitoring report. There were 19 days in January 2016 during which effluent was discharged to the ocean.

During January 2016, an enterococcus monthly geometric mean permit violation occurred; the monthly geometric mean was calculated as 253 CFU per 100 ml, in excess of the permit limit of 192 CFU per 100 ml. The high geometric mean value was primarily a result of one high measurement of >2,420 CFU per 100 ml from January 26, 2016, and was associated with a measured chlorine residual of 0.00 mg/l. That high value did not exceed the permit daily maximum value limit of 5720 CFU per 100 ml for enterococcus, however it did affect the monthly geometric mean. Our operators adjusted chlorine levels following this high value, and subsequent enterococcus samples collected on January 28 and 31, 2016 yielded results that were below 100 CFU per 100 ml.

The permit effective date was November 1, 2013. In July, 2014, the State of Hawai'i, Department of Health (DOH) set up new permit reporting forms for reporting purposes. The County has established user accounts for the NetDMR reporting process per the new permit. We anticipate completion of the necessary set-up for the NetDMR system within the next month.

Analyses performed monthly by contract laboratories include nutrients, cyanide, oil and grease and whole effluent toxicity (WET). Enterococcus testing and shoreline monitoring were performed by the County's sanitary chemists. Monthly contract laboratory analyses, other than WET testing, were performed by FQLabs, LLC. The WET test analysis was performed by Bio-Aquatic Testing, Inc. The contract laboratory reports are attached in their entirety.

EXHIBIT "I-88"

The monthly shoreline monitoring visual monitoring, sampling and enterococcus analysis were performed by County sanitary chemists, and the results are reported in this DMR. An enterococcus sample is usually collected from plant effluent and run in parallel with the shoreline samples to compare with the shoreline results.

The County continues to analyze effluent turbidity, which is not a permit requirement. The highest turbidity value measured during the periods of ocean discharge this month was 2.97 NTU, measured on January 28, 2016. Additionally, effluent pH has been analyzed a total of 19 times during the periods of ocean discharge this month, and the range of all analyses is reported on the DMR form.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

SM
DCL
KP

HI0020257

Bernard P. Carvalho, Jr.
Mayor

Nadine K. Nakamura
Managing Director

Lyle Tabata
Acting County Engineer

Deputy County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

February 26, 2016

2016 FEB 29 10:21 AM

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: JANUARY 2016 – DISCHARGE MONITORING REPORT, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

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If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater Management at (808) 241-4084.

Very truly yours,

EDWARD TSCHUPP, Chief
Division of Wastewater Management

Attachment

cc: EPA Regional Administrator w/attachment

Bernard P. Carvalho, Jr.
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Managing Director

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Acting County Engineer

Deputy County Engineer

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County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

May 31, 2016

2016 JUN 6 10:26AM

Department of Health
Clean Water Branch
919 Ala Moana Blvd., 3rd Floor
Honolulu, Hawai'i 96814

Dear Sirs:

SUBJECT: ANNUAL REPORT, WASTEWATER POLLUTION PREVENTION PROGRAM, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provide the Wastewater Pollution Prevention Program Annual Report for the Wailua Wastewater Treatment Plant (WWTP) for the period April 1, 2015 through March 31, 2016. Included in the report are summaries of conditions at the WWTP and within the service area, including: flow; BOD and TSS concentration and loading data; toxic pollutant and septic waste impacts; service area growth; impact of new regulations; bypasses and overflows; collection system effectiveness and condition; permitted capacity; and treatment capacity.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact Edward Tschupp, Chief, Division of Wastewater at (808) 241-4084.

Very truly yours,

Edward Tschupp

EDWARD TSCHUPP, Chief
Division of Wastewater Management

cc: EPA Regional Administrator w/attachment

EXHIBIT "I-89"

An Equal Opportunity Employer

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
KAUA'I COUNTY, HAWAI'I

May 31, 2015

INTRODUCTION

This annual report covers the period from April 1, 2015 through March 31, 2016, and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP), owned and operated by the County of Kaua'i Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The current NPDES permit, effective date of November 1, 2013, was issued by the State of Hawai'i, Department of Health (DOH).

FLOW

Influent and Effluent flow meters are installed at the Wailua WWTP, and daily records of plant flows are maintained. The Wailua WWTP discharges effluent both to the Wailua Golf Course for reuse as "R-2" irrigation water, and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. Plant records identify on a daily basis whether effluent is discharged to the ocean or to the golf course. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily flow influent to the WWTP was reported as approximately 0.707 MGD. The maximum reported daily influent flow was 2.246 MGD, recorded on September 25, 2015. The minimum influent flow to the WWTP was 0.471 MGD, recorded on January 10, 2016. The influent flow metering during several months in 2015 was subject to reporting errors due to scaling problems introduced with the integration of the influent flow meter into the facility's new Supervisory Control and Data Acquisition (SCADA) system that was constructed and put on-line during 2015. The source of the influent flow meter scaling problems was identified and corrected in November 2015. Additionally, flow meter calibration in February 2016 identified an additional meter accuracy problem, which was corrected with the February 25, 2016 meter calibration.

The average daily effluent flow to the ocean, for those days during which some or all of the effluent flow was directed to the ocean, was approximately 0.254 MGD. The recorded maximum and minimum daily flows were 0.461 MGD on July 29, 2015, and 0.006 MGD on May 5, 2015, respectively. During the period from April 1, 2015 through March 31, 2016, effluent was discharged to the ocean during all or a part of 241 calendars days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

Appendix A includes copies of the daily flow records for the reporting period.

BIOCHEMICAL OXYGEN DEMAND LOADING

Influent and effluent Biochemical Oxygen Demand (BOD) analyses are performed weekly, and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs). Influent BOD values averaged approximately 292.5 milligrams per liter (mg/l). The maximum and minimum influent BOD concentrations observed during the reporting period were 480 mg/l and 200 mg/l, respectively. Effluent BOD averaged 3.25 mg/l. The maximum and minimum effluent BOD were 11 mg/l and <2 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume, and is reported monthly in the DMRs, in units of pounds per day (lb/d). The influent and effluent BOD loading averaged approximately 800 lb/d and 9.06 lb/d, respectively, during the reporting period.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly, and the results of these analyses are reported monthly in the DMRs. Influent TSS values averaged approximately 238 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 400 mg/l and 120 mg/l, respectively. The average effluent TSS concentration was 2.3 mg/l, and the maximum and minimum effluent TSS concentrations were 13.0 mg/l and 0.1 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume, and is reported monthly in the DMRs, in units of pounds per day. The TSS influent and effluent loading averaged approximately 650 lb/d and 6.5 lb/d, respectively, during the reporting period.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity Testing. Chronic Toxicity permit testing requirements include monthly effluent testing using Whole Effluent Toxicity (WET) methods with the species *Trypneustes gratilla.* The permit specifies use of the Test of Significant Toxicity (TST) approach for evaluation of the chronic toxicity testing data.

The County performed the monthly WET testing as required, and all WET results for the monitoring period were reported as "Pass", with one exception. A sample collected over the 24 hour period from February 16 to February 17, 2016 was submitted for WET testing, and the lab reported that sample as "failed". The County proceeded with a resample, which was collected during March 1 to March 2, 2016, and was reported as "pass" (non-toxic). The County also proceeded with conducting an Initial Investigation, Toxicity Reduction Evaluation (TRE) in accordance with the County's Initial Investigation TRE Work Plan, dated March 2015. Based on the Initial TRE Investigation, the County concluded that the WET test "fail" result was due to a temporary upset condition, triggered by reduced aeration basin capacity in January 2016, when one aeration basin was off-line for required maintenance. The Initial TRE Investigation report and accompanying data were submitted to the DOH on May 10, 2016.

Priority Pollutant Analyses. Annual analyses for priority pollutants were performed during 2015, in accordance with permit requirements. The annual 2015 priority pollutant sample was collected December 9, 2015 and results were submitted to DOH in a DMR report dated March 7, 2016. Priority pollutant compounds were not found at concentrations in excess of regulatory action limits.

In addition to the annual priority pollutant scan, the permit requires monthly monitoring for cyanide for influent and effluent samples, and these results are reported monthly in the DMRs. Cyanide was detected in 3 influent samples during the monitoring period at concentrations of as high as 14 micrograms per liter (µg/l). Cyanide was detected in 8 monthly effluent samples at concentrations of as high as 41 micrograms per liter (µg/l). The annual priority pollutant scan from the December 9, 2015 sample reported reactivity (cyanide, reactive) at a concentration of 46 µg/l.

Septic Waste Impacts. The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Growth of population and the number of residences and businesses in the Wailua WWTP service area has been low. Future growth rates and timing are unknown, and will depend on individual developer's schedules. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa'a. Proposed resort and developments are in various stages of permitting, design and construction that could become significant new sources of wastewater flow to the Wailua WWTP. However, as of yet, there were no significant changes during the 2015-2016 reporting period. The first of the new resort developments is expected to be completed in approximately the next year, and additional new developments are anticipated to continue in future years. Economic conditions are improving, and a gradual increase is expected in resort and residential development in the service area.

IMPACT OF NEW REGULATIONS

During the 2014-2015 reporting period the Wailua WWTP has not been affected by any specific new regulations. The current NPDES permit, effective November 1, 2013 has significant impact on the facility, particularly with the establishment of effluent limitations for ammonia nitrogen.

The permit (Part A, Paragraph 6 b.) establishes a 10-year compliance schedule for implementation of improvements necessary to achieve compliance with new effluent limits for ammonia nitrogen. In addition, the permit (Part E, Paragraph 4) requires the County to perform a Zone of Mixing Dilution Analysis Study. The County has proceeded with contracting with consulting engineering firms to perform both the Compliance Alternatives Evaluation Study and the Zone of Mixing Dilution Analysis Study. The Compliance Alternatives Evaluation Study was completed in October, 2015, and submitted to the DOH on October 30, 2015. The Zone of Mixing Dilution Analysis Study field work was completed in May, 2016.

BYPASSES AND OVERFLOWS

During the 2015-2016 reporting period, there were 2 spills which occurred within the WWTP facility. The first spill occurred on May 5, 2015 when 10,000 gallons of treated effluent overflowed at the on-site effluent manhole due to blockage of the on-shore portion of the effluent outfall line due to tree roots. The second spill of 300 gallons of sludge occurred on January 8, 2016 due to overflow from the sludge drying beds. In both cases, the sludge was discharged to the ground within the plant, and was contained and cleaned up (sludge) or infiltrated into the sandy soil at the plant and adjacent park (treated effluent). There were no collection system bypasses, overflows or spills.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Routine operations within the collection system include service lateral cleaning and repair on an as needed basis, and periodic cleaning of pump station wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of pump station equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP. The County has dedicated collection system maintenance staff and equipment necessary for this on-going maintenance.

In addition to the routine operation and maintenance, in 2008 the County has completed a Facility Plan to identify long term Wastewater System capital and operational needs. The Facility Plan identified various capital improvements (CIP) along with anticipated time frames for scheduling the CIP improvements.

The Facility Plan included planning for eventual upgrades and replacements of Sewage Pump Station (SPS) equipment and facilities within the system due to age and condition. Routine scheduled replacement of major equipment (pumps) at the pump stations has been included in annual operating budgets in order to maintain all County sewage pump stations, including those in the Wailua-Kapa'a collection system.

During the 2015-2016 reporting period, work was contracted for installation of a carbon filter as Phase 2 of the Odor Control system at the Coco Palms SPS. The construction of this phase of improvements was initiated on March 7, 2016. In addition, design for complete rehabilitation of the "Kaua'i Sands" SPS (SPS #3) was initiated during this year.

An additional capital improvement project, the Island-wide SCADA System, was constructed at both the WWTP and several Wailua SPS's. The SCADA system significantly improves our operator's ability to know current operating conditions at the remote pump stations as well as at the treatment plant.

Figure 1 shows the main components of the collection system, as identified in the Facility Plan.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

TREATMENT CAPACITY

Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP, and lack of redundancy for some treatment processes at the WWTP, the 2008 Facility Plan recommended that the Wailua WWTP should be considered as a 1.0 MGD facility.

The County continues to work on the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. During 2014, construction was completed for the Wailua Wastewater Treatment Plant Improvements, Phase I project. This project included replacement of blowers, sludge pumps and the solids dewatering centrifuge along with other improvements, was partially funded from a US EPA grant, along with DOH funding from the Hawai'i Water Pollution Control Revolving Fund (SRF) program. In 2015, the County completed construction of the Island-wide SCADA system improvements in the Wailua Wastewater System. Currently, design is underway for the Wailua Wastewater Treatment Plant Improvements, Phase II project, which includes significant upgrades to address treatment process redundancy and reliability. Preliminary design for the Phase II project has been completed, and the design consultant will be incorporating the input from the recently completed Effluent Limits Compliance Alternatives Evaluation Study, and will be proceeding with the detailed design.

Hawaii Department of Health
Clean Water Branch
NPDES Compliance Evaluation Inspection

Inspection Date: November 17, 2017 ***Entry:*** 8:50 a.m. ***Exit:*** 2:45 p.m.

Weather: Sunny with no recent precipitation ***Inspection Report No.:*** PA1669

Permittee: County of Kauai Department of Public Works

Facility Name: Wailua Wastewater Treatment Plant

NPDES Permit No.: HI0020257

Effective Date: November 1, 2013 ***Expiration Date:*** September 30, 2018

Facility Address: 4460 Nalu Road; Wailua, Island of Kauai, Hawaii 96766

Facility Representative and Title: Jon Nakashima (Field Operations Superintendent, County of Kauai)

Additional On-Site Representative(s): Jason Kajimoto (Engineer IV, County of Kauai); Mario Mararagan (Working Superintendent, County of Kauai); Gregory Jerves, Jr. (Operator Assistant, County of Kauai)

Receiving Water(s): Pacific Ocean

Inspection Team: Kort Kirkeby (U.S. EPA Contractor, PG Environmental)

Executive Summary: The Facility had a number of operational and maintenance issues. Many of the items observed were noted in previous inspection reports, and had not been adequately addressed. The Permittee also had several Nitrite + Nitrate levels that exceeded Permit standards for Outfall Serial No. 001 in 2017.

EXHIBIT "I-90"

Areas Evaluated During Inspection (*Check only those areas evaluated*)			
☒Permit	☒Self-Monitoring Program *(DMR)*	☐Pretreatment	☐MS4
☒Records/Reports	☒Compliance Schedules	☐Pollution Prevention *(Waste Disposal)*	
☒Facility Site Review	☒Laboratory	☐Storm Water	
☒Effluent/Receiving Waters	☒Operations & Maintenance	☐Combined Sewer Overflow	
☒Flow Measurement	☒Sludge Handling/Disposal	☐Sanitary Sewer Overflow	

Introduction

On November 17, 2017, I, Kort Kirkeby, a United States Environmental Protection Agency (EPA) contractor with PG Environmental inspected the County of Kauai's (Permittee) Wailua Wastewater Treatment Plant (hereinafter, Facility or WWTP), in Wailua, Kauai, Hawaii (refer to Figure 1; Photograph 1). Discharges from the Facility are regulated by National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 (the Permit). The Permit authorizes the discharge of treated wastewater to the Pacific Ocean through Outfall Serial No. 001, or reclaimed for use at the Wailua Golf Course. The Permit became effective on November 1, 2013, and is set to expire on September 30, 2018.

The primary purpose of the inspection was to evaluate and to determine the accuracy and reliability of the Permittee's self-monitoring and reporting program. The primary Facility representatives present during the inspection included Jon Nakashima (Field Operations Superintendent, County of Kauai) and Jason Kajimoto (Engineer IV, County of Kauai).

Background

The Permittee provides sewerage services to resorts and commercial areas of Wailua and Kapaa and a few residences that are located immediately along the Kuhio Highway. There are no known significant industrial users (SIUs) that contribute industrial flows to the Facility.

Facility Tour

At approximately 8:50 a.m., I met with Facility representatives at the Facility operations building where I presented my inspector credentials and explained the purpose of the inspection. I explained that the inspection consisted of a Facility tour and a records review of Permit-related documentation. Mr. Nakashima and Mr. Kajimoto provided me with a summary of the Facility layout and updates to projects occurring in the collection system and at the Facility (refer to *Facility Description* section of this report

for details). Mr. Kajimoto explained that the previous lead operator no longer works at the Facility, and Mr. Mararagen is the current operator for the Facility. However, Mr. Nakashima is in charge of operations at the Facility while Mr. Mararagen is being trained. It should be noted that Mr. Nakashima is also the regional superintendent for other wastewater facilities operated by the Permittee.

The Facility representatives accompanied me on a tour of the Facility where we inspected the Facility's treatment train (refer to Photographs 2 through 11 of the attached Photograph Log). After the Facility tour, I viewed the laboratory and reviewed the methodology for select parameters analyzed in-house. I then conducted a records review of Permit-related documentation maintained at the Facility; records reviewed as a component of the inspection are identified in the *Records and Reports* section of this report. At approximately 11:45 a.m., I held a closing conference where I discussed my preliminary observations with the Facility representatives. At 1:00 p.m., I visited the County of Kauai Wastewater offices at 4444 Rice Street, Lihue, Kauai, HI, to review additional Permit-required documents and discharge monitoring reports (DMRs) and associated monitoring data. At approximately 2:45 p.m. I provided Mr. Kajimoto with a summary of my preliminary observations.

Facility Description

The Facility provides tertiary treatment of wastewater. The 1.5 million gallon per day (mgd) design flow treatment train consists of the following:

- One mechanical bar screen and one manual bar screen (mechanical down for repair; manual in operation)
- One grit chamber (in operation)
- Three flow equalization basins (approximately 350,000-gallon total capacity; all in operation)
- Two aeration basins (both in operation)
- Two secondary clarifiers (both in operation)
- One disk filtration unit (in operation)
- Chlorine contact basin (in operation)

The treated effluent is either reclaimed for use at the Wailua Golf Course, or directed to the Pacific Ocean through Outfall Serial No. 001. Sludge processing consists of one dissolved air flotation thickening (DAFT) unit, digestion, and dewatering using a centrifuge or drying beds (three drying beds for emergency use). All of the sludge processing units were in operation at the time of the inspection.

The Permittee had recently completed some Facility upgrades since the previous inspection of the Facility that occurred on November 3, 2015. Specifically, the Permittee installed a supervisory control and data acquisition (SCADA) system to monitor and control processes both in the collection system as well as at the Facility. The Permittee also started an asset management system. At the time of the inspection, Mr. Nakashima stated that all of the Facility equipment is entered into the asset management system; this is further discussed in the *Inspection Findings* section of this report.

Additional upgrade projects were also discussed with Facility representatives. They stated that an influent flow meter project had been put on hold, but Mr. Nakashima has requested quotes for a new laser flow meter to record influent flows and address the influent flow backup issues noted in previous inspection reports. He added the flow meter is budgeted for 2018, but no exact timeline was provided. Mr. Kajimoto discussed the NPDES Permit Upgrade Project, a study to look at alternatives for treatment processes due to ammonia and nitrogen exceedances. He stated that the current plan is to abandon the ocean outfall and install a number of infiltration trenches to infiltrate the treated wastewater into the ground. He stated that the Permittee has a kickoff meeting with the construction consultant that was scheduled for the same week as this inspection, and they hope to have draft specs complete by October 30, 2018.

The Permittee is also piloting a study to evaluate influent filtration to better meet nutrient limits. The influent filtration pilot project starts next month, and consists of installing AquaDisk filters in the surge basins. Mr. Kajimoto stated that the AquaDisk system is expected to remove 70% of total suspended solids (TSS) and 50% of biochemical oxygen demand (BOD) from the influent.

Refer to Figure 1 for a Google Earth aerial image of the Facility (imagery dated December 16, 2013).

Flow

The Facility's design capacity (design dry weather flow) is 1.5 mgd; however, as noted in previous inspections, the Facility's current design flow has been reduced to 1.0 mgd due to the discontinued use of the "Rapid Block System." Mr. Nakashima stated that average flows are around 0.6 mgd.

NPDES Permit No. HI 0020257 is specific to the discharge of effluent to the Pacific Ocean via Outfall Serial No. 001. Effluent discharged to the Wailua Golf Course is regulated under a separate reclamation permit. Mr. Nakashima stated that the Permittee typically discharges to the golf course five days a week, depending on the amount of rain received that week.

Monitoring

Influent flow is measured immediately after screening by two ultrasonic transducers and Parshall flumes. Effluent flows are measured at the terminus of the chlorine contact tank by a V-notch weir equipped with an ultrasonic transducer. Influent samples are collected immediately prior to influent screening (refer to Photograph 2), and effluent samples for Outfall Serial No. 001 are collected from the chlorine contact tank, prior to the effluent weir. Influent and effluent samples are collected and analyzed by Facility staff at the on-site laboratory for pH, dissolved oxygen, temperature, total residual chlorine, TSS, and total settleable solids. Analysis of BOD, fecal coliform, and enterococcus samples are conducted at the Permittee's off-site laboratory located at the Lihue Wastewater Treatment Plant. Samples for nutrients and priority pollutants are collected by Facility staff and analyzed by WEC Labs (City of Industry, CA). Samples for chronic toxicity are analyzed Bio-Aquatic Testing, Inc. Zone of mixing

(ZOM) monitoring and bottom biological communities monitoring are performed by Marine Research Consultants.

Records and Reports

Records, plans, reports, and Permit-required documentation were reviewed as a component of the inspection. The on-site review was not a thorough review of each record, plan, or report, and its inclusion in the following list as being reviewed does not indicate complete adequacy and acceptance by the permitting agency. The records review is conducted to identify issues with record keeping, report completion and submittal, recent effluent limitation exceedances, and to verify proper monitoring and reporting practice, in addition to identifying other major compliance issues that may become apparent through quick on-site reviews. Records, plans, reports, and documentation requested and reviewed during the inspection include:

- Copy of the current NPDES Permit (effective November 1, 2013);
- Discharge monitoring reports (DMRs; 2017);
- Initial Toxicity Reduction Evaluation (TRE) Work Plan (March 12, 2015);
- Operation and Maintenance (O&M) Manuals;
- Operator Log Books (2017); and
- Whole effluent toxicity (WET) Test Report (January 18, 2017).

DMRs and contract laboratory data was viewed at the County of Kauai Wastewater Division offices in Lihue, Kauai. Discharge limitation exceedances were identified and discussed in the *Inspection Findings* section of this report.

Inspection Findings

The following section describes the overall findings that I observed during the inspection regarding the Permittee's compliance with the Permit. The presentation of the following findings does not constitute a formal determination of compliance with the Permit.

1. Standard Conditions, Part 9 of NPDES Permit No. HI 0020257, establishes annual monitoring requirements for Outfall Serial No. 001.

   I reviewed DMR results for January – September as a component of the inspection. I also discussed recent effluent violations with Facility representatives. The Facility experienced the following recent effluent violations for pH at Outfall Serial No. 001.

Date	Parameter	Lower Limit	Result
February 16, 2017	pH	6.0 standard units (S.U.)	5.7 S.U.
February 24, 2017	pH	6.0 S.U.	5.8 S.U.
February 25, 2017	pH	6.0 S.U.	5.7 S.U.
February 26, 2017	pH	6.0 S.U.	5.9 S.U.

Mr. Kajimoto stated that the February pH exceedances were the result of a faulty pH probe used at the onsite laboratory. The probe was replaced around the end of February 2017, and the Facility has not exceeded the lower pH limit since this time. It should be noted that the Facility has recorded low values for pH in other months including multiple 6.0 S.U. readings; refer to Inspection Finding 3.a. for further details.

The Facility experienced the following effluent violations for Nitrite + Nitrate (N + N) total (as N) at Outfall Serial No. 001.

Date	Parameter	Limit	Result
January 2017	N + N	24,400 µg/L	32,140 µg/L
February 2017	N + N	24,400 µg/L	25,268 µg/L
March 2017	N + N	24,400 µg/L	26,900 µg/L
April 2017	N + N	24,400 µg/L	28,800 µg/L
June 2017	N + N	24,400 µg/L	26,000 µg/L

Mr. Kajimoto stated that nutrient limits have been difficult to meet at the Facility. He added that the new AquaDisk pilot project should help reduce the nutrient levels.

2. NPDES Permit No. HI0020257, Part A. Effluent Limitations and Monitoring Requirements – Part 1, footnote 4, states, "Both influent and effluent samples shall be taken, as specified in Part A.2 and A.3 of this Permit." Standard Conditions, Part 3.b, of NPDES Permit No. HI 0020257, states, "Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of discharges."

   The Permittee was not accurately recording the influent flow to the Facility. The Facility is designed with two influent channels; one passes through a mechanical bar screen and the other through a manual bar screen. Each channel contains an ultrasonic transducer and Parshall flume downstream of the bar screens. Once influent flow passes through the Parshall flumes, it then takes an immediate 90-degree bend prior to discharging into the flow equalization basins. Ultrasonic transducer readings are dependent on the height of the wastewater as it passes under the transducer. Thus, any backing up of the influent or agitation caused to the influent that results in a higher water level reading will result in artificially high flow readings (such as with peak wet weather flows).

   During the inspection, I noted that the influent channel leading to the mechanical bar screen was gated shut due to the bar screen being down for repair, and flow was backing up from the downstream end of the manual bar screen and into the mechanical bar screen Parshall flume due to the 90-degree bend restricting flow. As a result, standing water was observed in the mechanical bar screen channel including in the area directly underneath the ultrasonic transducer, which could cause an artificially high reading (refer to Photograph 3). Mr.

Nakashima stated that the Permittee is aware of the design issue with the influent flow meters, and is evaluating alternatives including the installation of a laser flow measuring device. This Finding has been noted in previous inspection reports and has not been addressed by the Permittee.

3. Standard Conditions, Section 9 of NPDES Permit No. HI 0020257, requires the Permittee to, "at all times properly operate and maintain all facilities and system of the treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures."

   Over the course of the inspection, I observed multiple maintenance deficiencies. The deficiencies observed during the inspection have the potential to affect the efficiency or operability of the treatment units or overall treatment system. The deficiencies are described below.

   a. **Influent Flow and Characterization**: During the inspection, Facility representatives explained that oil and grease is a continued issue with influent flows through the collection system and to the Facility. Specifically, Mr. Nakashima noted that the County of Kauai does not conduct inspections of restaurant grease traps located within the collection system's service area. He added that he understood the grease trap oversight and inspection is the responsibility of HDOH, and he was unaware of such a program in the County of Kauai. Further, Facility representatives were unsure if the Permittee had an ordinance to ensure that the County can enforce a pretreatment or oil and grease program. As a result, grease was observed throughout the treatment train including at the influent to the surge basins (refer to Photograph 4), on the aeration basin weirs, as well as on the surface of the secondary clarifiers (refer to Photographs 7 through 9).

      Mr. Nakashima stated that the Facility has continued operational problems with low pH in both the influent and effluent, which results in pH levels of the Facility's effluent near or below the effluent limitations in the Permit. He added that the Permittee is unsure of the source of the low pH wastewater, but restaurants and hotels contribute the bulk of the influent to the Facility.

      During the inspection, I observed large amounts of floc, ash, grease, and solids on the surface of the secondary clarifiers (see Inspection Finding 3.d. Mr. Nakashima stated that the Facility experienced a 'Major Upset' three to four weeks prior to the inspection. He added that the entire microbial population in the WWTP died, and that it was still being reestablished at the time of the inspection. Further, he was unaware of any effluent violations as a result of the upset, and it was unclear if the upset constituted reporting the upset to HDOH as per Part H.3.a.1 of the Permit. Facility representatives mentioned in the

closing conference that the upset could have been the result of one of the local hotel pools that had been drained without first dechlorinating.

b. **Grit Screening/Headworks**: During the opening conference, Mr. Nakashima noted the grit chamber is in operation, but was repaired a month ago because the baffles came off the walls of the chamber. During the inspection, he noted that the grit chamber was filling up with water because the outlet drain was plugged with solids, likely due to the mechanical bar screen being offline.

   The mechanical bar screen was inoperable at the time of the inspection. Mr. Nakashima stated the motor had recently burnt out, and the Permittee placed an order for a new motor yesterday; no timeline was provided on when the mechanical bar screen would be repaired and brought back online (see Inspection Finding 2 for further details on the headworks). It was unclear how long the mechanical bar screen was offline.

c. **Aeration Basins**: During the inspection, I noted that the aeration basin weir channel was overfull, and was backing up into the flow equalization basin No. 1. Further, I noted uneven aeration across the blowers in both aeration basins (refer to Photograph 5). Mr. Nakashima stated that the Facility has an issue with buildup of grit and solids in the trough and chambers of the aeration basins, and increased cleaning is needed. Mr. Mararagan was unaware of the aeration basin backing up into flow equalization basin No. 1, and stated that the operational conditions were not normal.

d. **Secondary Clarifiers**: During the inspection, I observed significant amounts of floc, solids, and what Facility representatives referred to as grey “ash” and “grease bits” on the surface of the secondary clarifiers (refer to Photographs 6 through 10). Algal growth was also observed on the weirs of the clarifier, and floc, solids, and ash were observed flowing over the weirs of the secondary clarifiers and leading to the disk filter (refer to Photographs 6 and 10). As previously mentioned, Mr. Nakashima stated that the Facility had a major upset three to four weeks prior, and was still recovering from the upset. He added that the operators did not clean the weirs and waste on the previous night, as per their daily maintenance schedule, and he would discuss the issues observed with the operators. Further, I observed a large scum mat inside the center ring of the secondary clarifiers (refer to Photographs 7 and 8). Facility representatives stated the mat was a result of an accumulation of grease, and needs to be manually cleaned out on a regular basis. Mr. Nakashima was unsure of the cause of the upset, but Facility representatives mentioned in the closing conference that the upset could have been the result of one of the local hotel pools that had been drained without first dechlorinating.

   Based on the observations, it is unclear if the secondary clarifiers were properly operated and were properly optimizing wasting rates. Further, the Permittee should evaluate and

have a process in place to ensure the overall maintenance of assets in the treatment train are properly operated and maintained.

e. **Asset Management, Preventive Maintenance, and Corrective Maintenance Tracking:** The Permittee had not developed a guidance document or current operations manual for Facility staff. The Facility had multiple operations and maintenance manuals, but discussions with Facility operators indicated that they were unsure what versions were current or useful. As a result, much of the process control measures used at the Facility were based on institutional knowledge from Mr. Nakashima. Further, Mr. Kajimoto noted that all Facility staff were new within the last two years.

   As noted previously, Mr. Nakashima stated that the Permittee had implemented an asset management software program that included each of the Facility's assets and could create work orders for maintenance activities. However, based on discussions with Facility representatives and operations observed at the Facility, it appeared that the Permittee was not adequately utilizing the asset management system. Specifically, maintenance operations discussed during the inspection such as lift station cleaning, baffle repairs to the grit chamber, disk filtration system cloth media replacement, and other scheduled and unscheduled maintenance tasks were not updated in the asset management system, according to Facility representatives. Mr. Nakashima stated that he is aware the Facility should be tracking and entering repairs of its assets to the system, but stated the Facility is understaffed and is trying to keep up with current tasks.

   Based on discussions with Facility representatives, it appeared that equipment was run to failure as opposed to being replaced or maintained prior to failure. Observations made during the inspection such as an inoperable mechanical bar screen, uneven aeration in the aeration basins, plugged drains, and inadequate maintenance and control of the secondary clarifiers, were consistent with that understanding.

f. Mr. Nakashima stated that Facility staff operators conduct analysis for pH, dissolved oxygen, temperature, total suspended solids, settleable solids, and residual chlorine at the on-site laboratory. The laboratory did not have standard operating procedures or a guidance document to describe proper analysis procedures for the parameters conducted in-house. Further, the Facility did not have manuals for the proper operation of the pH or dissolved oxygen meters. Based on observations during the inspection, the in-house laboratory did not have adequate laboratory controls and quality assurance procedures consistent with the requirements of Section 9 of the NPDES Permit's Standard Conditions.

Attachments

CEI Figure Log

CEI Photograph Log

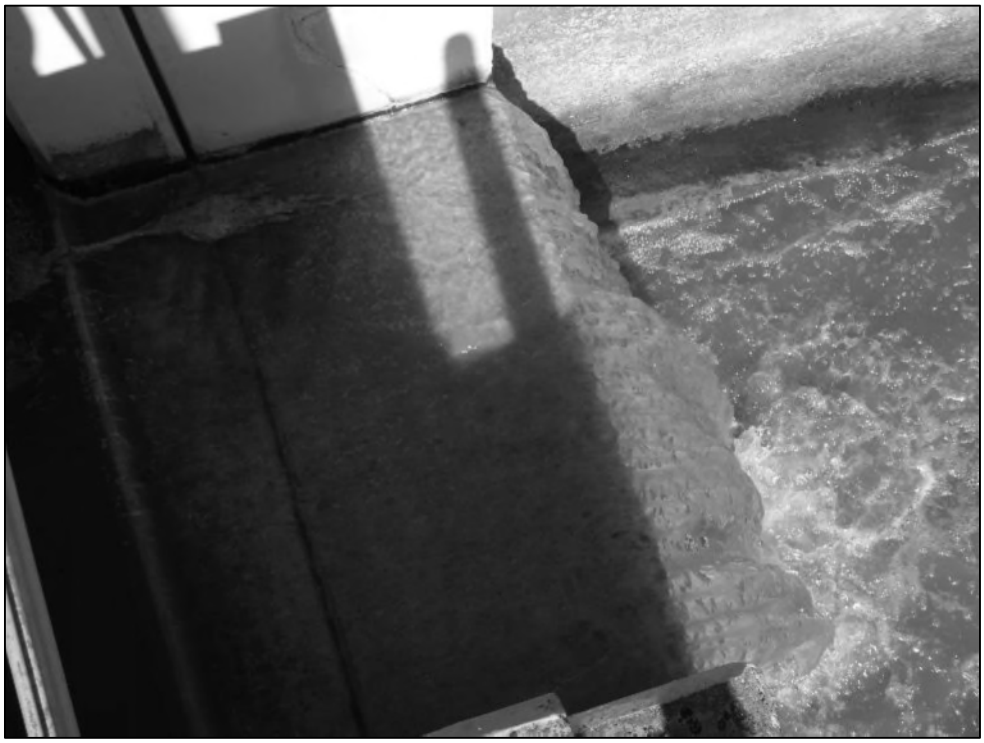
CEI Inspection Report Certification

Figure 1. *Google Earth* aerial image of the Wailua WWTP, imagery dated December 16, 2013.

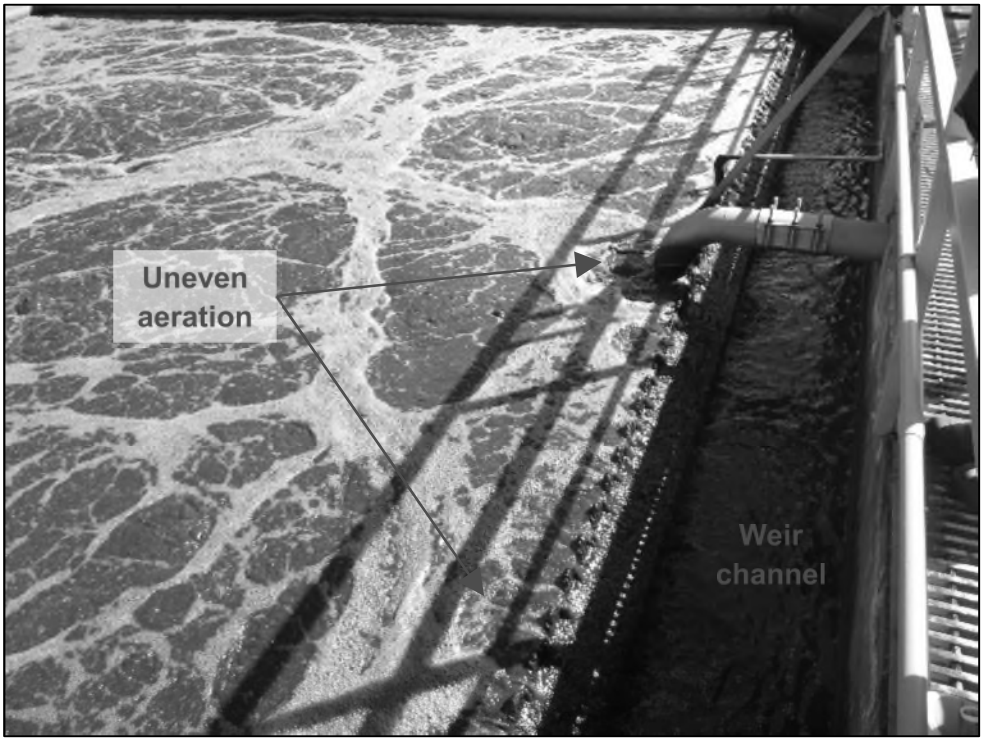
Photograph 1. *Google Earth* street view of Facility entrance. Image dated March 2012.

Photograph 2. View of Facility staff collecting an influent grab sample. Photograph by K. Kirkeby on November 17, 2017.

Photograph 3. View of the two ultrasonic transducers used to measure Facility influent flow. Photograph by K. Kirkeby on November 17, 2017.

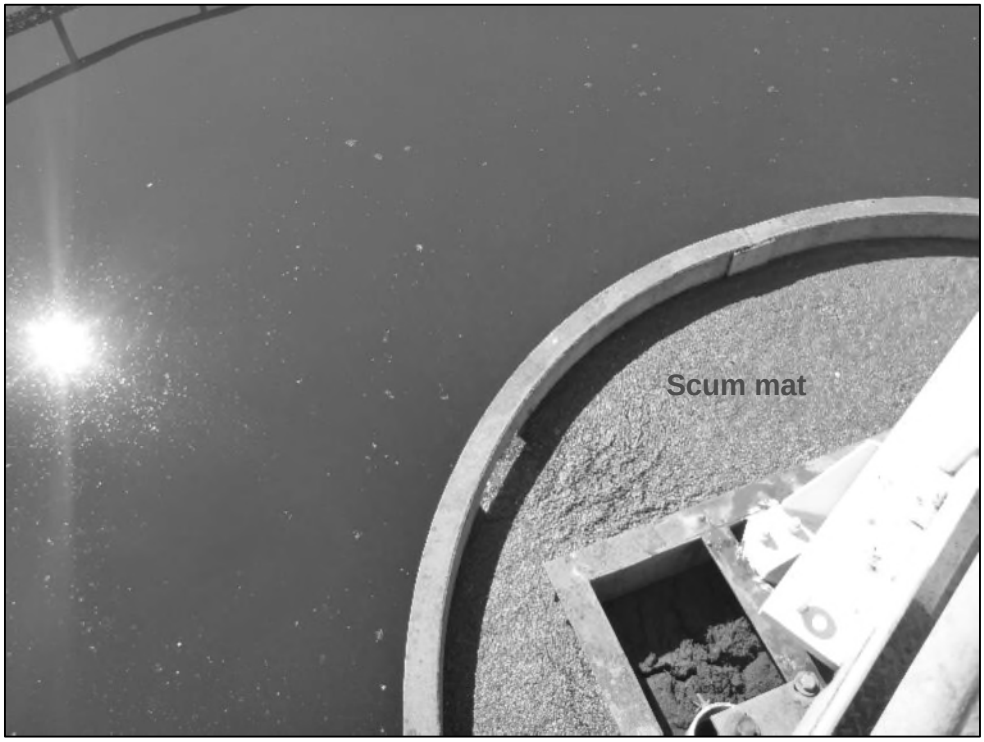


Photograph 4. View of influent flow entering a flow equalization basin. Note the grey coloration of the channel, indicative of grease buildup. Photograph by K. Kirkeby on November 17, 2017.



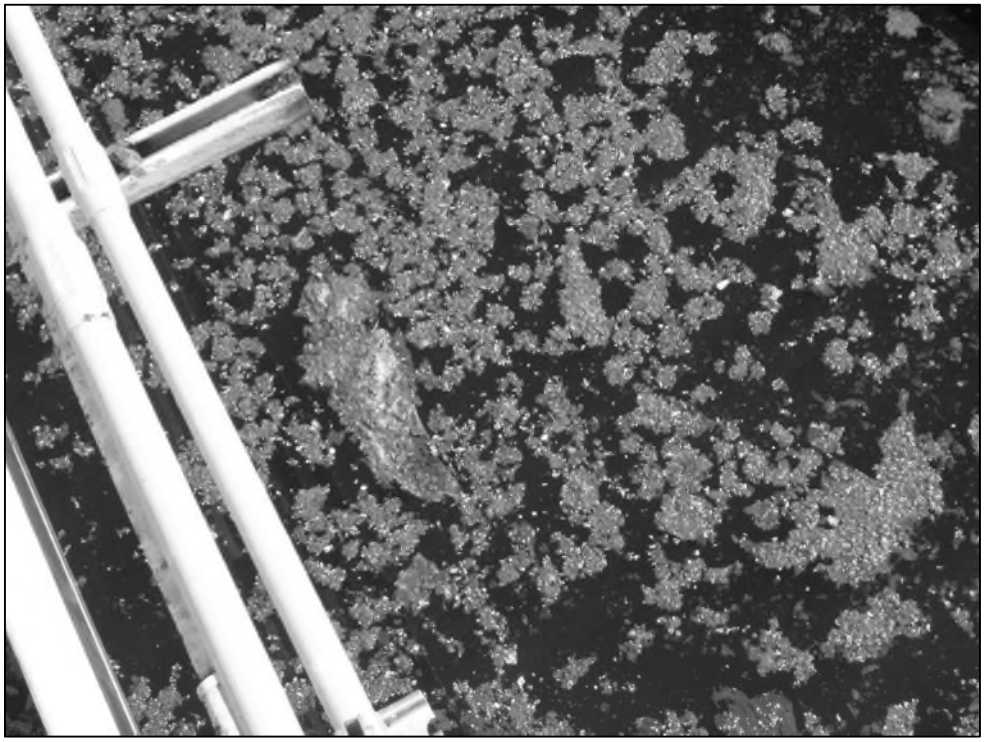
Photograph 5. View of the aeration basin. Uneven aeration was observed, and the weir channel was overfull of water. Photograph by K. Kirkeby on November 17, 2017.

Photograph 6. View of one of the Facility's secondary clarifiers. Floc, solids, 'ash', and 'grease bits' were observed on the surface and flowing over the weirs. Photograph by K. Kirkeby on November 17, 2017.

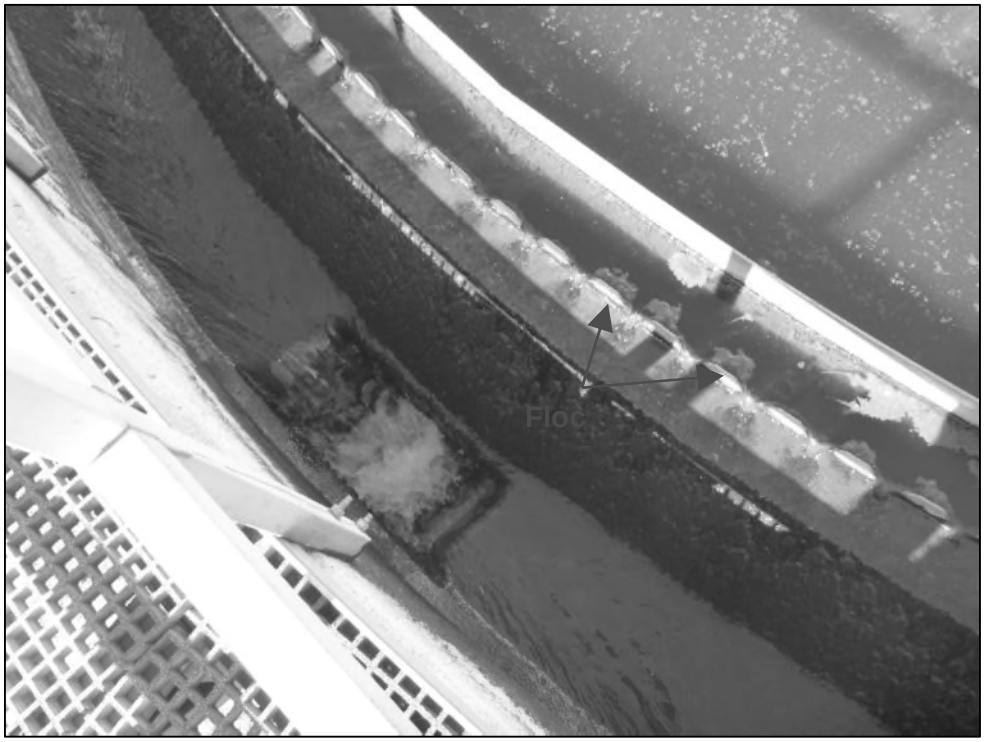


Photograph 7. View of the center of one of the Facility's secondary clarifiers. Note accumulation of scum in the center of the clarifier. Photograph by K. Kirkeby on November 17, 2017.

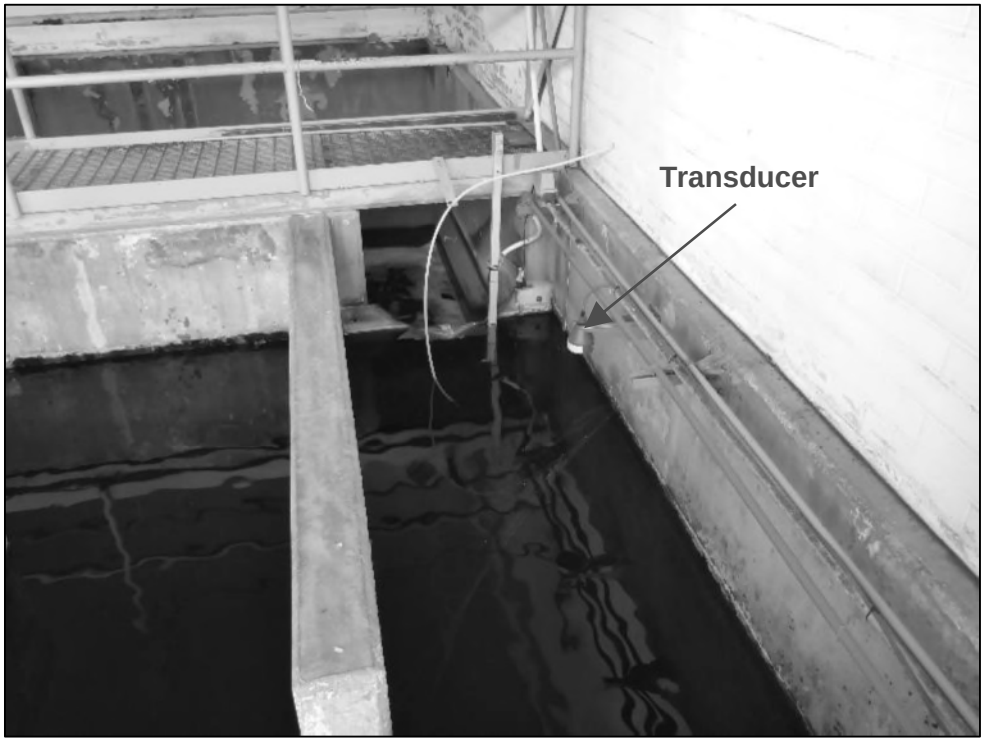
Photograph 8. Additional view of the center of one of the secondary clarifiers as shown in Photograph 7. Facility representatives stated the scum mat is an accumulation of grease. Photograph by K. Kirkeby on November 17, 2017.



Photograph 9. Close of view of one of the Facility's secondary clarifiers. Solids, floc, 'ash' and 'grease bits' were observed on the surface. Photograph by K. Kirkeby on November 17, 2017.



Photograph 10. View of floc flowing over the secondary clarifier weirs and towards the disk filter. Photograph by K. Kirkeby on November 17, 2017.



Photograph 11. View of the final effluent, ultrasonic transducer, and weir prior to discharge to Outfall Serial No. 001 or the Wailua Golf Course.

Inspection Report Certification

I certify that the statements made in this inspection report are, to the best of my knowledge, a true and accurate representation of what was observed on November 17, 2017 at the Wailua WWTP.

I certify that the ten photographs (Photographs 2 through 11) described in the attached Photograph Log were taken by the undersigned and are a true, accurate, and unaltered representation of what was observed on November 17, 2017 at the Wailua WWTP.

January 23, 2018

Kort Kirkeby
U.S. EPA Contractor
PG Environmental

Bernard P. Carvalho Jr.
Mayor

Wallace G. Rezentes Jr.
Managing Director

Lyle Tabata
Acting County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

March 29, 2018

Hawai'i State Department of Health
Clean Water Branch
P.O. Box 3378
Honolulu, HI 96801-3378
Attention: Mr. Alec Wong

Dear Mr. Wong:

SUBJECT: COMPLIANCE EVALUATION INSPECTION (CEI) RESPONSE, PERMIT NO. HI 0020257, WAILUA WWTP, KAUA'I, HAWAI'I

This letter and attachments provides the County of Kaua'i, Department of Public Works, Wastewater Management Division's (County's) response to findings noted in the November 17, 2017 Compliance Evaluation Inspection (CEI) report for the Wailua Wastewater Treatment Plant (WWTP). The Wailua WWTP is operated pursuant to the requirements of the County's national pollutant discharge elimination system (NPDES) permit no. HI 0020257.

The subject CEI was performed on November 17, 2017 by Kort Kirkeby, an employee of the firm PG Environmental, which is a contractor to the United States Environmental Protection Agency (EPA). The Hawai'i State Department of Health, Clean Water Branch (DOH) transmitted the CEI report, dated February 13, 2018, for County review and response. This letter provides the County's response to the CEI report findings. Additionally, this letter provides correction and clarification comments on information presented in the CEI report.

I. RESPONSES TO CEI INSPECTION FINDINGS

The CEI report identified three items in the Inspection Findings section. For clarity, the inspection findings are presented in italics followed by the County's response.

1. *Standard Conditions, Part 9 of NPDES Permit No. HI 0020257, establishes annual monitoring requirements for Outfall Serial No. 001.*

   I reviewed DMR results for January – September as a component of the inspection. I also discussed recent effluent violations with Facility representatives. The Facility experienced the following recent violations for pH at Outfall Serial No. 001.

EXHIBIT "I-91"

Date	*Parameter*	*Lower Limit*	*Result*
February 16, 2017	*pH*	*6.0 standard units (S.U.)*	*5.7 S.U.*
February 24, 2017	*pH*	*6.0 S.U.*	*5.8 S.U.*
February 25, 2017	*pH*	*6.0 S.U.*	*5.7 S.U.*
February 26, 2017	*pH*	*6.0 S.U.*	*5.9 S.U.*

Mr. Kagimoto stated that the February pH exceedances were the result of a faulty pH probe used at the onsite laboratory. The probe was replaced around the end of February 2017, and the Facility has not exceeded the lower pH limit since this time. It should be noted that the Facility has recorded low values for pH in other months including multiple 6.0 S.U. readings; refer to Inspection Finding 3.a. for further details.

The Facility experienced the following effluent violations for Nitrite + Nitrate (N + N) total (as N) at Outfall Serial No. 001.

Date	*Parameter*	*Limit*	*Result*
January 2017	*N + N*	*24,400 µg/L*	*32,140 µg/L*
February 2017	*N + N*	*24,400 µg/L*	*25,268 µg/L*
March 2017	*N + N*	*24,400 µg/L*	*26,900 µg/L*
April 2017	*N + N*	*24,400 µg/L*	*28,800 µg/L*
June 2017	*N + N*	*24,400 µg/L*	*26,000 µg/L*

Mr. Kagimoto stated that nutrient limits have been difficult to meet at the Facility. He added that the new AquaDisk pilot project should help reduce the nutrient levels.

County Response.

Evaluation of records indicate that there were three (and not four) occurrences where the effluent pH was lower than 6.0 S.U. Reviewing the discharge monitoring report (DMR) data submitted for February 2017, the pH on February 16 was 6.7, which is not a violation as identified in the CEI inspection report (see the attached pH data submitted in the February 2017 DMR for reference). The County is confirming that, as discussed during the CEI, the Wailua WWTP has not had a pH violation since February 2017.

Reviewing the influent pH data around the period of the three pH violations, the influent pH measurements were as follows:

- 2/20: 6.7
- 2/21: 6.6
- 2/22: 6.7
- 2/23: 6.5
- 2/24: 6.7
- 2/25: 6.2
- 2/26: 6.9

The influent wastewater characteristics at the Wailua WWTP are impacted by the long hydraulic retention time (13-18 hours in the respective sewer force mains) and warmer temperature in the collection system. This enhances anaerobic conditions and lowers the influent pH. The influent pH levels are further reduced in the effluent stream with the WWTP process nitrifying with no ability to recover alkalinity/pH through an anoxic process.

During the period of February 24-26, the combination of low influent pH and a nitrifying process resulted in effluent pH violations. In order to address the three effluent pH violations and the overall daily effluent pH which is on the lower end of the permitted pH range, the County has contracted Kennedy/Jenks Consultants (K/J) and is currently in the design stage to add process improvements to increase alkalinity and raise the effluent pH. Specifically, K/J is designing an anoxic/swing zone that would be integrated with the existing surge basins upstream of the activated sludge basins. This design contract is being performed along with other design work which is part of the County's NPDES permitted ammonia nitrogen compliance schedule.

The County's Wailua WWTP NPDES permit includes the following discharge limitations:

- Ammonia Nitrogen
    - Geometric mean: 3.5 µg/l, 0.04 lbs/day
    - Interim geometric mean: 4,536 µg/l, 56.7 lbs/day
    - Single sample maximum: 8.5 µg/l, 0.11 lbs/day
    - Interim single sample maximum: 21,100 µg/l, 264 lbs/day
- Nitrate + Nitrite Nitrogen
    - Single Sample Maximum: 24,400 µg/l, 305 lbs/day

As part of a previous compliance schedule milestone, the County has evaluated reasonable alternatives to comply with the final effluent limitations for ammonia nitrogen. Upon evaluating the alternatives, the only feasible alternative that would allow the County to be in compliance with the regulatory requirements was to abandon the ocean outfall. As such, the County is currently following the ammonia nitrogen compliance schedule to abandon the ocean outfall. When this is implemented, the County will no longer have an NPDES permit and nutrient discharge limitations, including ammonia nitrogen. As a result, the Nitrite + Nitrate discharge limitation will not be an issue in the future.

The Wailua WWTP's current process is not designed to effectively achieve nutrient removal to the levels permitted. For example, the plant does not currently have an anoxic zone to achieve denitrification. As such, it is difficult to operate the existing WWTP in order to consistently meet the effluent limit for Nitrate + Nitrite.

The County will be contracting K/J to identify an interim process control strategy (using the BioWin model) under the current process train and teach and support the operations staff in understanding the process control strategy to meet both the interim ammonia nitrogen limits (until the ocean outfall is abandoned) and the pH requirements (until the anoxic zone is constructed).

2. *NPDES Permit No. HI 0020257, Part A. Effluent Limitations and Monitoring Requirements – Part 1, footnote 4, states, "Both influent and effluent samples shall be taken, as specified in Part A.2 and A.3 of this Permit." Standard Conditions, Part 3.b, of NPDES Permit No. HI 0020257, states, "Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of discharges."*

   The Permittee was not accurately recording the influent flow to the Facility. The Facility is designed with two influent channels; one passes through a mechanical bar screen and the other through a manual bar screen. Each channel contains an ultrasonic transducer and Parshall flume downstream of the bar screens. Once influent flow passes through the Parshall flumes, it then takes an immediate 90-degree bend prior to discharging into the flow equalization basins. Ultrasonic transducer readings are dependent on the height of the wastewater as it passes under the transducer. Thus, any backing up of the influent or agitation caused to the influent that results in a higher water level reading will result in artificially high flow readings (such as with peak wet weather flows).

   During the inspection, I noted that the influent channel leading to the mechanical bar screen was gated shut due to the bar screen being down for repair, and flow was backing up from the downstream end of the manual bar screen and into the mechanical bar screen Parshall flume due to the 90-degree bend restricting flow. As a result, standing water was observed in the mechanical bar screen channel including in the area directly underneath the ultrasonic transducer, which could cause an artificially high reading (refer to Photograph 3). Mr. Nakashima stated that the Permittee is aware of the design issue with the influent flow meters, and is evaluating alternatives including the installation of a laser flow measuring device. This Finding has been noted in previous inspection reports and has not been addressed by the Permittee.

County Response.

As identified in the CEI inspection report, at the time of the inspection the influent mechanical bar screen was offline for servicing and repairs. As a result, that channel was isolated and removed from service. The CEI inspector's observation that the influent flow measurements were being affected by standing water underneath the ultrasonic transducer corresponding to the mechanical bar screen is incorrect. The ultrasonic transducer signal for an offline channel is not incorporated in the flow measurement. Further, under normal flow conditions, only one influent channel is online. As a result, the only ultrasonic transducer being used at the time of the inspection was the one corresponding to the manual bar screen Parshall flume. This should not be an inspection finding. Additionally, this was a similar finding in the previous inspection report which was also deemed to be incorrect.

The inspection report identified issues with the hydraulics of the headworks, specifically the 90-degree bend immediately downstream of the Parshall flumes. A backwash condition increases the height of the wastewater as it passes under the ultrasonic transducer which translates to artificially higher flow readings. The County has recently contracted with Clipper Controls to

purchase two ISCO LaserFlow meters to address this (see the attached contract). As identified in the previous inspection response, this flow meter was piloted and installed at the Līhu'e WWTP to address similar hydraulic issues. These flow meters use a laser Doppler sensor to measure liquid velocity, which in conjunction with the measured channel geometry yields flow measurements that are not affected by hydraulic backwash conditions as is the case with Parshall flumes.

It should be noted that the reference to the Standard Conditions, Part 3.b of the NPDES permit provided in the CEI report corresponds to providing accurate and reliable measurements of the volume of discharge. The issue brought up in the CEI report is in regard to influent measurement. The Wailua WWTP does have an appropriate effluent flow measurement device which provides accurate and reliable measurements.

3. *Standard Conditions, Section 9 of NPDES Permit No. HI 0020257, requires the Permittee to, "at all times properly operate and maintain all facilities and system of the treatment and control (and related appurtenances) which are installed or used by the permittee to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures."*

   Over the course of the inspection, I observed multiple maintenance deficiencies. The deficiencies observed during the inspection have the potential to affect the efficiency or operability of the treatment units or overall treatment system. The deficiencies are described below.

   a. ***Influent Flow and Characterization:*** *During the inspection, Facility representatives explained that oil and grease is a continued issue with influent flows through the collection system and to the Facility. Specifically, Mr. Nakashima noted that the County of Kaua'i does not conduct inspections of restaurant grease traps located within the collection system's service area. He added that he understood the grease trap oversight and inspection is the responsibility of HDOH, and he was unaware of such a program in the County of Kaua'i. Further, Facility representatives were unsure if the Permittee had an ordinance to ensure that the County can enforce a pretreatment or oil and grease program. As a result, grease was observed throughout the treatment train including at the influent to the surge basins (refer to Photograph 4), on the aeration basin weirs, as well as on the surface of the secondary clarifiers (refer to Photographs 7 through 9).*

      Mr. Nakashima stated that the Facility has continued operational problems with low pH in both the influent and effluent, which results in pH levels of the Facility's effluent near or below the effluent limitations in the Permit. He added that the Permittee is unsure of the source of the low pH wastewater, but restaurants and hotels contribute the bulk of the influent to the Facility.

During the inspection, I observed large amounts of floc, ash, grease, and solids on the surface of the secondary clarifiers (see Inspection Finding 3.d). Mr. Nakashima stated that the Facility experienced a 'Major Upset' three to four weeks prior to the inspection. He added that the entire microbial population in the WWTP died, and that it was still being reestablished at the time of the inspection. Further, he was unaware of any effluent violations as a result of the upset, and it was unclear if the upset constituted reporting the upset to HDOH as per Part H.3.a.1 of the Permit. Facility representatives mentioned in the closing conference that the upset could have been the result of one of the local hotel pools that had been drained without first dechlorinating.

County Response.

Although the County does not currently inspect restaurant grease traps located within the collection system's service area, the County has taken a proactive approach to minimizing the grease being conveyed to the Wailua WWTP. The Division's line crew uses a vactor truck to remove the accumulated fat, oil and grease (FOG) from each pump station wet well on a quarterly basis. Sewage pump stations are a natural place for FOG to accumulate because within the wet well, FOG accumulates on the water surface and while the pumps operate and draw down the water level, FOG generally stays on the surface and is not pumped further along through the collection system. This minimizes the amount of FOG that is conveyed through the system and ultimately to the Wailua WWTP. After removing FOG with the vactor truck, it is transported to the Līhu'e WWTP where it is emptied in a sludge drying bed and dewatered. The dewatered FOG is ultimately disposed of at the Kekaha Landfill.

The County also addresses FOG in the collection system by having installed a BioAmp system at two sewage pump stations, SPS 6 and 7, within the Wailua WWTP collection system. The BioAmp system provides high levels of bacteria on an automatic and regular cycle that addresses potential issues including reducing FOG.

FOG is a maintenance issue for the Wailua WWTP but it does not have a major impact on the process train and plant operation. The CEI was performed when the County had a major process upset and the conditions identified on November 17, 2017 are not typical. Further, the County did not have any effluent violations during that month.

The effluent oil and grease results identified in the monthly DMRs for the previous year are provided below:

- December 2016: Not detected (ND) (i.e. < 5 mg/l)
- January 2017: ND
- February 2017: ND
- March 2017: ND
- April 2017: ND
- May 2017: ND
- June 2017: ND

- July 2017: ND
- August 2017: ND
- September 2017: ND
- October 2017: ND
- November 2017: ND

Based on this data, the County is effectively removing FOG that enters the collection system and what reaches the Wailua WWTP is effectively removed prior to discharge.

In regards to other programs that the County is doing in order to address FOG, the County's Building Division oversees the installation of grease traps in new and renovation construction. This includes Building Division inspectors inspecting the grease trap installations prior to issuing a certificate of occupancy.

The County is currently working towards providing better and more effective FOG removal at the Wailua WWTP. The County has recently completed an influent filter pilot test. In addition to removing BOD_5 and TSS, the filter is effective at removing FOG from the influent wastewater prior to entering the WWTP processes, protecting the downstream processes from FOG issues. Based on the results of the pilot test, K/J is proceeding with designing the permanent addition of an influent filter at the Wailua WWTP.

With respect to a pretreatment program, due to the size of the Wailua WWTP and the lack of industrial wastewater sources, there is no permit requirement for the County to conduct a pretreatment program. In the event that a pretreatment program is required in the future, the County would review the sewer ordinance and determine whether any changes would be required and seek the appropriate revisions via an ordinance proposal to the County Council.

In addition to periodic low influent pH (as low as 6.2 S.U.), the effluent pH issue at the Wailua WWTP is caused because nitrification is occurring during the biological treatment process which in turn lowers the effluent pH. As previously identified, the County has contracted K/J to add an anoxic/swing zone to the surge basins in the planned WWTP upgrades. This will restore alkalinity to the process, remove nitrates and raise the effluent pH. Until the anoxic zone is constructed, the lower pH limit will need attention with process control. As it was previously stated, the County will contract K/J to identify an interim process control strategy under the current process train and teach and support the operations staff in understanding the process control strategy so that the County can have a clear process control approach in order to meet the pH range requirements until the anoxic zone is constructed. It is expected that after the anoxic zone is constructed, pH will be much easier to control.

b. ***Grit Screening/Headworks:*** *During the opening conference, Mr. Nakashima noted the grit chamber is in operation, but was repaired a month ago because the baffles came off the walls of the chamber. During the inspection, he noted that the grit chamber was filling up with water because the outlet drain was plugged with solids, likely due to the mechanical bar screen being offline.*

The mechanical bar screen was inoperable at the time of the inspection. Mr. Nakashima stated that the motor had recently burnt out, and the Permittee placed an order for a new motor yesterday; no timeline was provided on when the mechanical bar screen would be repaired and brought back online (see Inspection Finding 2 for further details on the headworks). It was unclear how long the mechanical bar screen was offline.

County Response.

The County concurs with the observations. Unfortunately, since the mechanical bar screen motor failed, the downstream processes were affected. Based on the process at the Wailua WWTP, grit is generally contained in the surge basins. The impact of the mechanical bar screen being down and the grit chamber being plugged is accumulated grit in the surge basins. Eventually, the basins must be taken down so that the accumulated debris/grit can be removed.

c. ***Aeration Basins:*** *During the inspection, I noted that the aeration basin weir channel was overfull, and was backing up into the flow equalization basin No. 1. Further, I noted uneven aeration across the blowers in both aeration basins (refer to Photograph 5). Mr. Nakashima stated that the Facility has an issue with buildup of grit and solids in the trough and chambers of the aeration basins, and increased cleaning is needed. Mr. Mararagan was unaware of the aeration backing up into flow equalization basin No. 1, and stated that the operational conditions were not normal.*

County Response.

The County will do a better job of monitoring the aeration basin channel and air dispersion and will address these issues accordingly. In addition, the preventative maintenance of the aeration basin channel will be added to our asset management software program. It should be noted that during the month of November, there were no effluent violations.

d. ***Secondary Clarifiers.*** *During the inspection, I observed significant amounts of floc, solids, and what Facility representatives referred to as grey "ash" and "grease bits" on the surface of the secondary clarifiers (refer to Photographs 6 through 10). Algal growth was also observed on the weirs of the clarifier, and floc, solids, and ash were observed flowing over the weirs of the secondary clarifiers and leading to the disk filter (refer to Photographs 6 and 10). As previously mentioned, Mr. Nakashima stated that the Facility had a major upset three to four weeks prior, and was still recovering from the upset. He added that the operators did not clean the weirs and waste on the previous night, as per their daily maintenance schedule, and he would discuss the issues observed with the operators. Further, I observed a large scum mat inside the center ring of the secondary clarifiers (refer to Photographs 7 and 8). Facility representatives stated that the mat was a result of an accumulation of grease, and needs to be manually cleaned out on a regular basis. Mr. Nakashima was unsure of the cause of the upset, but Facility representatives mentioned in the closing*

conference that the upset could have been the result of one of the local hotel pools that had been drained without first dechlorinating.

Based on the observations, it is unclear if the secondary clarifiers were properly operated and were properly optimizing wasting rates. Further, the Permittee should evaluate and have a process in place to ensure the overall maintenance of assets in the treatment train are properly operated and maintained.

County Response.

The County will do a better job of cleaning the clarifier weirs of algal growth. Typically, the clarifier weirs are hosed down daily by our operations staff. Mr. Mararagan will be overseeing this to make sure it is being performed regularly.

The ash and grease bits on the surface of the secondary clarifiers were a result of the process upset in which the microorganisms were severely impacted. However, in order to address influent variations and possible FOG issues, the County is currently in the design stage to add an influent filter at the Wailua WWTP. This will greatly increase the ability to remove grease and scum in the surge basins so that it does not reach the secondary clarifiers.

The Wailua WWTP rarely encounters process upsets to the degree that was observed by the inspector. In response to the major upset, the operators were able to make the necessary adjustments to the WWTP in order to correct the conditions and continue to meet our discharge requirements. The monthly DMR data confirms that the Wailua WWTP is operating as required per our NPDES permit. If the County continues to have major process upsets in the future, the County will meet with the hotels located in the Wailua collection system service area regarding their dechlorinating procedures prior to discharge to the County sewer.

e. ***Asset Management, Preventive Maintenance, and Corrective Maintenance Tracking:*** *The Permittee had not developed a guidance document or current operations manual for Facility staff. The Facility had multiple operations and maintenance manuals, but discussions with Facility operators indicated that they were unsure what versions were current or useful. As a result, much of the process control measures used at the Facility were based on institutional knowledge from Mr. Nakashima. Further, Mr. Kagimoto noted that all Facility staff were new within the last two years.*

As noted previously, Mr. Nakashima stated that the Permittee had implemented an asset management software program that included each of the Facility's assets and could create work orders for maintenance activities. However, based on discussions with Facility representatives and operations observed at the Facility, it appeared that the Permittee was not adequately utilizing the asset management system. Specifically, maintenance operations discussed during the inspection such as lift station cleaning, baffle repairs to the grit chamber, disk filtration system cloth media replacement, and other scheduled and unscheduled maintenance tasks were not updated in the asset

management system, according to Facility representatives. Mr. Nakashima stated that he is aware the Facility should be tracking and entering repairs of its assets to the system, but stated the Facility is understaffed and is trying to keep up with current tasks.

Based on discussions with Facility representatives, it appeared that equipment was run to failure as opposed to being replaced or maintained prior to failure. Observations made during the inspection such as an inoperable mechanical bar screen, uneven aeration in the aeration basins, plugged drains, and inadequate maintenance and control of the secondary clarifiers, were consistent with that understanding.

County Response.

The County previously contracted Fukunaga and Associates to create a process control matrix for the Wailua WWTP in response to a previous CEI. The matrix covers each process at the plant and describes the process equipment, inflows and outflows, control measures, process checks, process analyses and set-points, capacity and redundancy, normal operational procedures, wet-weather operational procedures, and operational procedures in the event of failure and how to restart operations. The process control matrix is mounted in the office at the Wailua WWTP.

In order for the operations staff to have a clearer approach on operating the plant, the operations staff has reviewed all of the equipment operation and maintenance (O&M) manuals and disposed of the manuals that are no longer applicable. The County will also contract K/J to provide an updated interim O&M manual for the Wailua WWTP to guide the current operation of the WWTP since they are currently designing process upgrades as part of the NPDES permit ammonia nitrogen compliance schedule.

The County is currently training the operations staff, who have all been at the plant for less than two years, how to properly use the County's asset management software program. The software vendor, as part of an ongoing contract, performs a minimum of 3 onsite visits which includes hands on training for new staff and support. The contract also includes phone and email support to address our needs in between the site visits.

The asset management software program currently focuses on the preventative and corrective maintenance work identified in equipment O&M manuals. The asset management software program will be updated to include other necessary maintenance tasks (i.e. not in a specific equipment's O&M manual) such as cleaning the aeration basin channel.

Equipment at the Wailua WWTP are not intended to run to failure. There are times when either a CIP design/construction project or a budgeted equipment replacement does not take place before a piece of equipment fails but the County has a good relationship with the local vendors and can get replacement parts relatively quickly. The County is also working on standardizing on the types of equipment that we use so it is easier to keep spare parts on hand and our maintenance staff can also perform any maintenance more efficiently. Additionally, the County typically

designs redundancy into our systems so that if an asset needs to be taken down for maintenance or replacement, a standby asset can be put into service.

f. Mr. Nakashima stated that Facility staff operators conduct analysis for pH, dissolved oxygen, temperature, total suspended solids, settleable solids, and residual chlorine at the on-site laboratory. The laboratory did not have standard operating procedures or a guidance document to describe proper analysis procedures for the parameters conducted in-house. Further, the Facility did not have manuals for the proper operation of the pH or dissolved oxygen meters. Based on observations during the inspection, the in-house laboratory did not have adequate laboratory controls and quality assurance procedures consistent with the requirements of Section 9 of the NPDES Permit's Standard Conditions.

County Response.

The operations staff conduct analysis for pH, dissolved oxygen, temperature, total suspended solids, settleable solids and residual chlorine at the on-site laboratory. The County's chemists and experienced operations staff train the newer operations staff on how to do the analyses. Whenever new operations staff perform these analyses, they do so under the supervision of an experienced operator or chemist. If there are any questions, the work environment allows for a discussion on how to do certain analyses. If either the chemists or the working supervisor deem that an operator is not capable of performing the analyses to the expected level of quality, they will not be allowed to perform the analyses.

The operations staff has posted all of the standard operating procedures on the walls of the on-site laboratory and the County's chemists have confirmed that all of the standard operating procedures are current. The County's chemists also confirmed that all of the appropriate manuals for all lab equipment are at the Wailua WWTP's on-site laboratory and not only at the chemist's lab for reference. The County's chemists also performed a training for all operations staff on the "Standard Laboratory Analysis Procedures" (SLAP) manual. A copy of the SLAP manual is available on request.

II. CORRECTIONS AND CLARIFICATIONS TO THE CEI REPORT

The County has noted several inaccuracies in the CEI Report that we believe should be corrected. Additionally, we offer clarification on some other sections of the CEI report that we considered to be incomplete or confusing. The following corrections and clarifications are presented for consideration by the DOH:

1. Facility Tour Section, Page 3 – *"Mr. Mararagan is the current operator for the Facility. However, Mr. Nakashima is in charge of operations at the Facility while Mr. Mararagan is being trained. It should be noted that Mr. Nakashima is also the regional superintendent for other wastewater facilities operated by the Permittee."*

At the time of the inspection, Jon Nakashima was serving as the Direct Responsible Charge (DRC) of the Wailua WWTP. As of January 3, 2018, the DRC Notification Form was submitted to the State of Hawai'i, Board of Certification of Operating Personnel identifying that Mario Mararagan has accepted the primary DRC position and Troy Shigematsu has accepted the secondary DRC position at the Wailua WWTP. Additionally, Jon Nakashima's title is Wastewater Operations Superintendent. As the superintendent, his role in the Wastewater Management Division is to oversee all of the County's wastewater facilities. The wording in the inspection report, *"It should be noted that Mr. Nakashima is also the regional superintendent for other wastewater facilities operated by the Permittee."* seems to imply that Jon was being asked to do much more than his role requires. Although Jon was the DRC for the Wailua WWTP at the time of the inspection, his position always requires that he oversee the operations at the facilities.

2. Facility Description Section, Page 3 – *"The Permittee also started an asset management system."* The County has had the current asset management program since 2007. It is a critical component for our operations as it includes scheduling preventative maintenance (PM) and corrective maintenance (CM), both within the Division and with other Departments/Divisions within the County (e.g., scheduling work orders with the County's plumbers and carpenters).

3. Facility Description Section, Page 4 – *"Mr. Kagimoto discussed the NPDES Permit Upgrade Project, a study to look at alternatives for treatment processes due to ammonia and nitrogen exceedances."* The project is a requirement of our NPDES permit compliance schedule for ammonia nitrogen. The project is not a result of ammonia and nitrogen exceedances.

4. Facility Description Section, Page 4 – *"The Permittee is also piloting a study to evaluate influent filtration to better meet nutrient limits."* The purpose of the pilot study for the influent filter is to provide more stable and consistent conditions (BOD_5 and TSS removal) for the secondary treatment process. It is not intended to help meet the permit required nutrient discharge limitations. In regards to the permitted nutrient discharge limitations, the County has determined that, as part of the NPDES permit compliance schedule for ammonia nitrogen, the ocean outfall will be abandoned. When this is done, the County will no longer have an NPDES permit and nutrient discharge limitations. However, the WWTP performance will be enhanced with process improvements, currently in the design phase, to add an anoxic/swing zone and influent filtration. When the process improvements are added, the effluent nitrogen levels will be consistently lower than in recent history.

5. Monitoring Section, Page 4 – In addition to the sampling and analyses identified, the County's chemists analyze for TSS on influent and effluent samples when the treated effluent is being discharge to the ocean outfall. Also, the County's chemists perform the sampling for nutrients and priority pollutants as opposed to the Facility staff.

In summary, the County appreciates the opportunity to review and respond to the CEI report and address comments and concerns. We trust that our reply is responsive to DOH concerns. The County is committed to continuing to improve our facilities and operations. The NPDES permit compliance schedule for ammonia nitrogen has resulted in a different approach to backup disposal for our R-2 recycled water and process improvements. We will continue to meet the milestones identified in the compliance schedule while we implement the process improvements (e.g. adding an influent filter and an anoxic/swing zone) and construct the infiltration trenches. The County recognizes that additional work is needed in some areas and we have formulated plans to address it in the near future.

CERTIFICATION:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

If you have any questions, please contact me at (808) 241-4083 or jkagimoto@kauai.gov.

Very truly yours,

JASON KAGIMOTO, P.E.
Chief, Wastewater Management Division

CONCUR:

LYLE TABATA
Acting County Engineer

RE DEL CTM 4/27/18
HI 0020257

Bernard P. Carvalho Jr.
Mayor

Wallace G. Rezentes Jr.
Managing Director

Lyle Tabata
Acting County Engineer

DEPARTMENT OF PUBLIC WORKS
County of Kaua'i, State of Hawai'i
4444 Rice Street, Suite 275, Līhu'e, Hawai'i 96766
TEL (808) 241-4992 FAX (808) 241-6604

2018 APR 26 10:48AM

SCANNED 4/27/18 ms

April 20, 2018

Hawai'i State Department of Health
Clean Water Branch
P.O. Box 3378
Honolulu, HI 96801-3378
Attention: Mr. Alec Wong

Dear Mr. Wong:

SUBJECT: CORRECTIVE ACTION PLAN FOR WAILUA WASTEWATER TREATMENT PLANT (WWTP) OPERATION AND MAINTENANCE (O&M) INSPECTION

The County of Kaua'i, Department of Public Works is hereby submitting the attached corrective action plan for the Wailua WWTP, in response to the State of Hawai'i, Department of Health (DOH) April 4, 2018 letter transmitting the Wailua WWTP R-2 Water O&M Inspection report.

The attached plan provides the County's actions to address deficiencies. Please note that these actions have already been taken and the deficiencies have already been addressed.

If you have any questions, please contact me at (808) 241-4083 or jkagimoto@kauai.gov.

Very truly yours,

JASON KAGIMOTO, Chief
Wastewater Management Division

CONCUR:

LYLE TABATA
Acting County Engineer

EXHIBIT "I-92"

20184281

COUNTY OF KAUA'I
DEPARTMENT OF PUBLIC WORKS
WASTEWATER MANAGEMENT DIVISION

CORRECTIVE ACTION PLAN, WAILUA WASTEWATER TREATMENT PLANT (WWTP)

April 20, 2018

PURPOSE: This Corrective Action Plan is to address deficiencies at the Wailua WWTP identified in the March 14, 2018 Operation and Maintenance (O&M) Inspection conducted by the State of Hawai'i, Department of Health (DOH).

In the O&M Inspection Report, the rating of "Unacceptable" was assigned to the Wailua WWTP for the inspection period from February 2017 thru January 2018. As indicated in the DOH cover letter, dated April 4, 2018, the unacceptable rating was due to the deficiencies listed in the O&M Inspection Report. These deficiencies include:

1. *The chlorine residual monitoring system is inoperative. §11-62-26(c)(2)(A)(ii), Hawai'i Administrative Rules, requires automatic continuous monitoring and recording of chlorine residual; and*

2. *The effluent filter is inoperative.*

CORRECTIVE ACTION PLAN

1. ***The chlorine residual monitoring system is inoperative. §11-62-26(c)(2)(A)(ii), Hawai'i Administrative Rules, requires automatic continuous monitoring and recording of chlorine residual.***

Action Plan. The County, with the support of the local vendor, Hawai'i Engineering Services (HES), replaced the chlorine analyzer on March 29, 2018. The chlorine analyzer was calibrated by HES on April 4, 2018. The new chlorine analyzer provides automatic and continuous monitoring and recording of chlorine residual in the Division's SCADA system.

2. ***The effluent filter is inoperative.***

Action Plan. The County brought the effluent filter back online on March 23, 2018. A chain on the effluent filter broke on March 6, 2018. H2O Process Systems, the local vendor for the effluent filter was contacted. With their help, the County was able to identify what needed to be repaired. The parts were ordered and the repairs were performed by Division maintenance staff.

2019 ANNUAL REPORT
RECEIVING WATER MONITORING PROGRAMS
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
COUNTY OF KAUA'I, HAWAI'I

March 27, 2020

EXHIBIT "I-93"

TABLE OF CONTENTS

2019 ANNUAL REPORT
RECEIVING WATER MONITORING PROGRAMS
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT
COUNTY OF KAUA'I, HAWAI'I

March 27, 2020

INTRODUCTION

This report is the Annual Receiving Water Quality Report for 2019, prepared pursuant to the requirements of Part E of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua Wastewater Treatment Plant (WWTP), owned and operated by the County of Kaua'i, Department of Public Works. The NPDES permit is issued by the State of Hawai'i, Department of Health (DOH). In October, 2019, the DOH issued the renewal of the NPDES permit, with an effective date of November 1, 2019.

The Wailua WWTP discharges effluent both to the Wailua Golf Course, for reuse as R-2 recycled water for irrigation purposes, and to the Pacific Ocean via the NPDES permitted ocean outfall. WWTP records identify on a daily basis whether effluent is discharged to the golf course or to the ocean. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD). During 2019, the average daily effluent flow from the Wailua WWTP was approximately 0.51 MGD. Approximately 69 percent of this flow was discharged to the ocean, with the remaining 31 percent of the effluent used for R-2 irrigation water at the Wailua Golf Course.

RECEIVING WATER MONITORING PROGRAMS

There are three separate receiving water monitoring programs conducted by the facility: Shoreline Monitoring; Offshore Water Quality Monitoring; and Bottom Biological Communities Monitoring. This report summarizes the monitoring program information collected during 2019.

Shoreline Monitoring Program

The shoreline monitoring program parameters include collecting grab samples from three monitoring stations and testing for enterococci and taking visual observations. The monitoring frequency is five times per month. The monitoring stations include three shoreline stations, as shown on Figure 1 and described as:

- Station 1: 2,000 feet south of shoreline station #3, samples collected at the shoreline
- Station 2: 1,000 feet south of shoreline station #1, samples collected at the shoreline

- Station 3: At the shoreline, directly adjacent to the outfall, samples collected at the shoreline

The County has developed a standard Summary of Shoreline Monitoring Analytical Results form that is included in the monthly Discharge Monitoring Report (DMR). The summary table presents the results for enterococci bacteria from each monitoring station along with an effluent sample from the facility. In addition to these results, the summary also provides the site visual observations and effluent chlorine residual.

Note that there are periods when effluent is diverted to the golf course for irrigation purposes. Periodically, golf course reuse occurs when shoreline monitoring scheduling dictates shoreline monitoring is to occur. The County proceeds with the shoreline monitoring whether or not flow is diverted to the golf course. Dates when flow is routed to the golf course are indicated on the summary table. The chlorine dosing for R-2 recycled water is higher than the chlorine dosing used when flow is routed to the ocean outfall. There is a clear correlation between chlorine residual and relatively low enterococci levels in the effluent samples, as would be expected with higher chlorine dosing.

The shoreline monitoring station enterococci levels do not appear to correlate to either effluent enterococci levels or chlorine residual in the effluent. There appears to be weather-related correlations with shoreline enterococci levels; following significant precipitation events, shoreline enterococci levels tend to be higher and can be higher than effluent enterococci levels. The County attributes precipitation-related shoreline enterococci levels with increased flow of the Wailua River which discharges to the ocean in relatively close proximity to the Wailua WWTP.

Appendix A includes copies of the Summary of Shoreline Monitoring Analytical Results reports for the reporting period.

Offshore Water Quality Monitoring Program

The Offshore Water Quality Monitoring Program monitors parameters including Total Nitrogen, Ammonia Nitrogen, Nitrate + Nitrite Nitrogen, Total Phosphorus, Chlorophyll a, Turbidity, pH, Dissolved Oxygen (DO), Temperature and Salinity. Grab samples for most of these parameters are collected at one meter below the water surface, two meters above the ocean floor, and a mid-depth sample, unless the water depth is less than 10 meters, in which case just the top and bottom samples are required. For the parameters pH, DO, Temperature and Salinity, a continuous depth profile (CDP) data presentation is required.

The monitoring stations consist of five locations, defined by latitude and longitude, which are the four corners of the defined Zone of Mixing (ZOM), plus an additional station adjacent to the outfall diffuser on the western boundary of the ZOM. These five stations, identified as S-1 through S-5, are the ZOM boundary stations. In addition, a

sixth monitoring station, identified as station S-6, is a control station located south of and remote from the ZOM boundary.

The monitoring stations are shown on Figure 1 and per the permit, are located at the following latitudes and longitudes shown in Table 1. Note that as discussed in the *Revised Final Wailua WWTP ZOM Dilution Analysis Study* Report prepared by Brown & Caldwell, Inc. (submitted on March 23, 2017), the coordinates of the ocean outfall and the ZOM boundary stations identified in the permit are not accurate.

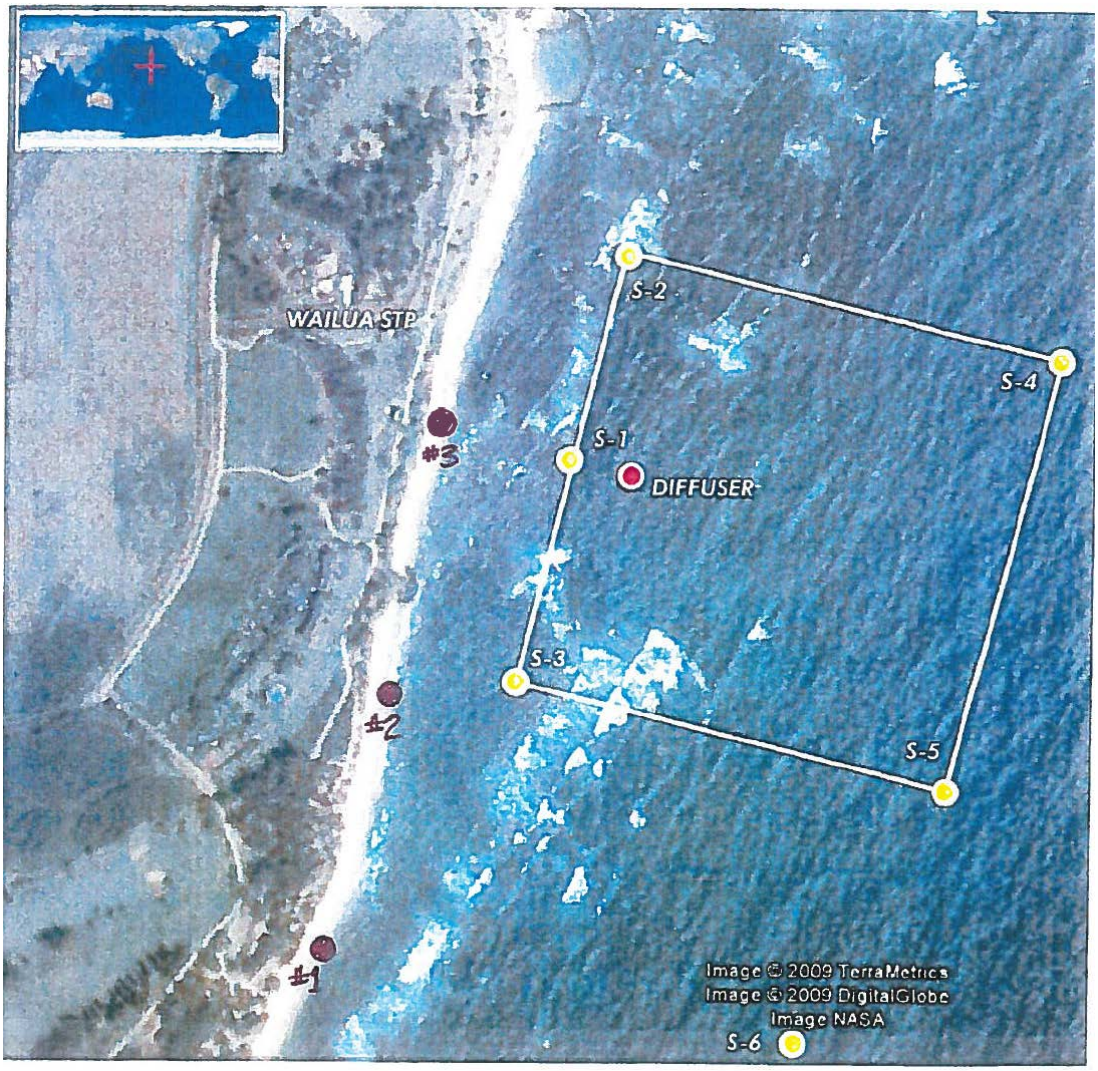


FIGURE 1
RECEIVING WATER MONITORING LOCATIONS

TABLE 1 – PERMIT COORDINATES FOR ZOM MONITORING

Station	**Latitude**	**Longitude**
S-1	22° 02’ 15” N	159° 20’ 04” W
S-2	22° 02’ 22” N	159° 20’ 02” W
S-3	22° 02’ 08” N	159° 20’ 05” W
S-4	22° 02’ 19” N	159° 19’ 46” W
S-5	22° 02’ 04” N	159° 19’ 51” W
S-6 (Control Station)	22° 01’ 56” N	159° 19’ 57” W

During 2019, the County conducted one complete set of Offshore Water Quality Monitoring on June 25, 2019. According to the current NPDES Permit, effective on November 1, 2019, Section I.4.d states that for quarterly permit sampling frequencies, sampling begins the first complete calendar quarter (i.e. January to March 2020). As such, a second set of Offshore Water Quality Monitoring for the second half of 2019 was not performed.

In the June 25, 2019 monitoring event, all monitoring parameters were analyzed. The location of the monitoring stations were recorded via GPS, and the latitude and longitude values recorded at each monitoring station were within one second accuracy for both latitude and longitude. During the monitoring event, the water depth at all stations were more than 10 meters and three samples were collected.

The 2019 monitoring data is summarized in Table 2. Appendix B includes copies of the Offshore Water Quality Monitoring Report for the 2019 monitoring period. The lab reports describe the analytical methods used. Depth profiles for pH, DO, Temperature and Salinity are included in the monitoring data reports in Appendix B.

TABLE 2
WATER QUALITY RESULTS, JUNE 25, 2019

Sampling Date: June 25, 2019 Sampling time: 07:43--09:29

STATION	SAMPLE ID	DEPTH (meters)	TN (µg/L)	NH_4^+ (N) (µg/L)	NO_3^-+NO_2^-(N) (µg/L)	TKN (µg/L)	PO_4^{3-} (µg/L)	TP (µg/L)	Chl-a (µg/L)	TURB (ntu)	pH (rel)	O2 (%saturation)	TEMP. °Centigrade	SALINITY (‰)
DATE OF ANALYSIS			7/8/19	7/8/19	7/8/19	7/8/19	7/8/19	7/8/19	6/25/19	6/25/19	6/25/19	6/25/19	6/25/19	6/25/19
1S	1	0.3	87.88	5.59	15.01	72.87	3.35	14.77	0.320	0.39	8.17	100.3	25.99	34.54
1M	2	3.3	80.63	1.54	15.96	64.66	4.62	15.36	0.370	0.72	8.16	100.7	25.99	34.54
1B	3	6.5	72.28	5.99	4.14	68.15	1.98	14.19	0.340	1.48	8.17	100.6	25.99	34.61
2S	4	0.3	85.34	4.56	2.90	82.44	2.14	15.35	0.360	1.45	8.17	98.0	25.97	34.61
2M	5	2.3	82.32	2.83	3.05	79.27	1.74	14.83	0.360	0.30	8.17	97.1	26.04	34.61
2B	6	4.5	86.24	1.78	2.89	83.35	1.09	10.70	0.360	0.70	8.17	95.7	26.14	34.58
3S	7	0.3	88.48	2.70	5.68	82.80	2.36	11.02	0.350	0.53	8.17	100.2	25.99	34.58
3M	8	1.8	90.22	3.05	5.85	84.37	2.42	11.47	0.470	0.67	8.16	99.4	25.98	34.51
3B	9	3.6	90.71	3.02	6.85	83.86	2.70	13.68	0.390	0.88	8.17	99.4	25.99	34.58
4S	10	0.3	89.64	3.05	3.08	86.56	1.98	14.02	0.280	0.64	8.19	95.8	25.89	34.47
4M	11	3.8	87.32	4.06	2.50	84.82	1.98	13.47	0.320	0.34	8.19	96.9	26.18	34.54
4B	12	7.6	87.00	1.97	2.47	84.53	1.83	14.48	0.330	0.28	8.20	95.7	26.04	34.62
5S	13	0.3	89.14	2.86	3.63	85.51	2.11	13.49	0.320	0.30	8.17	97.7	25.96	34.61
5M	14	4.7	88.96	2.52	2.31	86.64	1.67	14.11	0.380	0.52	8.19	98.3	26.16	34.69
5B	15	9.4	90.59	3.75	2.39	88.21	1.27	14.19	0.370	0.39	8.20	97.6	26.09	34.58
6S	16	0.3	114.24	7.38	0.93	113.31	0.62	12.40	0.330	0.14	8.21	97.0	25.81	34.55
6M	17	4.4	94.42	2.97	2.10	92.32	1.18	9.75	0.330	0.28	8.21	98.9	26.11	34.66
6B	18	8.8	92.50	2.41	2.36	90.13	1.74	8.85	0.350	0.13	8.20	97.7	26.08	34.65
Method			SM4500NC	EPA 350.1	EPA 353.2	EPA 351.4	EPA 365.5	EPA 365.1	SM 10200	EPA 180.1	EPA 150.1	SM4500OG	SM 2550B	SM 2520

ABBREVIATIONS

S=surface sample; M=mid-depth sample; B=bottom sample

(µg/L) = micrograms per liter

(NTU = nephelometric turbidity units

‰=parts per thousand

Detection limits (µg/L)

TP = 0.93 N-NO3-NO2 = 0.084

TN = 1.96 N-NH4 = 0.476

Bottom Biological Communities Monitoring Program.

The Bottom Biological Communities Monitoring Program requirement was revised via the new permit. The frequency required for performing this monitoring was reduced from once every four years to at least once every permit term. The County has not yet performed the Bottom Biological Communities Monitoring for the current permit term.

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
NPDES PERMIT NO. HI 0020257
WAILUA WASTEWATER TREATMENT PLANT (WWTP)
COUNTY OF KAUA'I, HAWAI'I

May 31, 2019

INTRODUCTION

This annual report covers the period from April 1, 2018 through March 31, 2019, and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua WWTP, owned and operated by the County of Kaua'i, Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The County's NPDES permit was issued by the State of Hawai'i, Department of Health (DOH), with an effective date of November 1, 2013.

FLOW

Influent and effluent flow meters are installed at the Wailua WWTP and daily records of plant flows are maintained. It should be noted that from December 2018 to February 2019, the County removed the existing Parshall flumes and replaced the existing influent flow meters with new laser flow meters. This work was performed by Wastewater Management Division staff. During this time, influent flow data submitted is based on effluent flows since we were not able to record influent flow data during this period.

The Wailua WWTP discharges effluent to both the Wailua Golf Course for reuse as R-2 recycled water and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. Plant records identify on a daily basis whether effluent is discharged to the golf course or the ocean. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily influent flow to the WWTP was reported as approximately 0.613 MGD. The maximum daily influent flow, recorded on October 30, 2018, was 0.935 MGD. The minimum daily influent flow, recorded on November 12, 2018, was 0.205 MGD. It is likely that there could have been an error in this reading since it is much lower than the other readings. The next lowest daily influent flow is 0.392 MGD.

During the current reporting period, the average daily effluent flow to the ocean for those days which some or all of the effluent flow was directed to the ocean was approximately 0.459 MGD. The maximum daily effluent flow, recorded on October 30, 2018, was 0.688 MGD. The minimum daily effluent flow, recorded on July 12, 2018, was 0.017 MGD.

During the period from April 1, 2018 through March 31, 2019, effluent was discharged to the ocean during all or a part of 197 calendar days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

Appendix A includes copies of the daily flow records for the reporting period.

BIOCHEMICAL OXYGEN DEMAND (BOD) LOADING

Influent and effluent BOD analyses are performed weekly and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs). The average influent BOD concentration was 297 milligrams per liter (mg/l). The maximum and minimum influent BOD concentrations observed during the reporting period were 500 mg/l and 200 mg/l, respectively. The average effluent BOD concentration was 4.6 mg/l. The maximum and minimum effluent BOD concentrations observed during the reporting period were 12.0 mg/l and 2.0 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume and is reported monthly in the DMRs in units of pounds per day (lb/d). The average influent and effluent BOD loading was 1,314 lb/d and 21 lb/d, respectively.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly and the results of these analyses are reported monthly in the DMRs. The average influent TSS concentration was 243 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 470 mg/l and 70 mg/l, respectively. The average effluent TSS concentration was 5.0 mg/l. The maximum and minimum effluent TSS concentrations observed during the reporting period were 20 mg/l and 0.9 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume and is reported monthly in the DMRs in units of lb/d. The influent and effluent TSS loading averaged approximately 1,087 lb/d and 23 lb/d, respectively.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity Testing. Chronic Toxicity permit testing requirements include monthly effluent testing using Whole Effluent Toxicity (WET) methods with the specific *Trypneustes gratilla*. The permit specifies the use of the Test of Significant Toxicity (TST) approach for evaluation of the chronic toxicity testing data.

The County performed the monthly WET testing as required except from April to June 2018 when the ocean outfall was covered with sand and unable to be used. For all of the months that a WET test was performed during this monitoring period, the results were reported as “Pass”. For the April to June 2018 testing, the County coordinated with

the DOH Clean Water Branch (CWB) and was advised not to take a sample at the effluent weir because the flow was not actually being directed to the outfall.

The County identified the plugged ocean outfall as an emergency condition and has contracted Sea Engineering, Inc. to provide the necessary permitting support and ultimately restore the use of the ocean outfall by dredging the area surrounding the outfall in the event that the outfall becomes plugged from sand. The County is currently coordinating the permit requirements with the CWB and the Army Corps of Engineers in the event dredging is needed in the future.

Priority Pollutant Analyses. Annual analyses for priority pollutants were performed in 2018 in accordance with the permit requirements. The annual 2018 priority pollutant sample was collected on November 29, 2018 and the results were submitted to the DOH in the DMR dated January 28, 2019.

In addition to the annual priority pollutant scan, the permit requires monthly monitoring for cyanide for influent and effluent samples. These results are reported monthly in the DMRs. Cyanide was not detected in any influent or effluent samples during the monitoring period.

Septic Waste Impacts. The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Population growth and the number of additional residences and businesses in the Wailua WWTP service area has increased as compared to recent years. Future growth rates and the corresponding timing are unknown and depend on individual developers' schedules. It is anticipated that some additional growth will occur in the near term. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa‘a. Proposed resorts and developments that could become significant new sources of wastewater flow to the Wailua WWTP are in various stages of permitting, design and construction. However, as of yet, there were no significant changes during the 2018-2019 reporting period. Additionally, the projected flows identified in the 2008 Facility Plan have not materialized.

Based on discussions with the County of Kaua‘i's Planning Department, the near term growth of larger developments will produce flows that are within the Wailua WWTP's existing permitted treatment capacity.

IMPACT OF NEW REGULATIONS

During the 2018-2019 reporting period, the Wailua WWTP has not been affected by any specific new regulations. The current NPDES permit, effective November 1, 2013 has

had a significant impact on the facility, particularly with the establishment of effluent limitations for ammonia nitrogen.

The permit (Part A, Paragraph 6 b.) established a 10-year compliance schedule for the implementation of improvements necessary to achieve compliance with new effluent limits for ammonia nitrogen. Based on the Compliance Alternatives Evaluation Study, the County decided to implement biological treatment system improvements, install a surface aquifer treatment (SAT) basin as a means of backup disposal and abandon the ocean outfall. However, in the recently provided draft NPDES permit (provided on April 17, 2019) the effluent limitations for ammonia nitrogen are no longer included. Additionally, the 10-year compliance schedule is no longer required.

BYPASSES AND OVERFLOWS

During the 2018-2019 reporting period, there was one spill that occurred within the collection system. It occurred on November 1, 2018, when a sewer main break created a blockage that led to the spill. Approximately 8,000 gallons of raw wastewater spilled on the highway and entered the Wailua River. Sampling was performed at the direction of the Department of Health. Sewer bypassing was implemented while the sewer main was replaced.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Periodic operations within the collection system include sewer line and lateral cleaning and repair on an as needed basis and routine cleaning of sewage pump station (SPS) wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of SPS equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP. The County has dedicated collection system maintenance staff and equipment necessary for this ongoing maintenance. Figure 1 shows the main components of the collection system.

During the 2018-2019 reporting period, the design documents to rehabilitate Wailua SPS No. 1 were finalized. The construction project should be bid out towards the end of 2019. The design documents to rehabilitate Wailua SPS No. 3 are currently being developed. The construction project should be bid out in the spring of 2020.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

TREATMENT CAPACITY

Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP and a lack of redundancy for some treatment processes at the WWTP, the 2008 Facility Plan recommended that the Wailua WWTP be considered a 1.0 MGD facility.

The County continues to work on the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. The County has two design projects underway, the Wailua WWTP Improvements Phase II project and the Wailua WWTP Alternative Effluent Disposal System Design.

The Wailua WWTP Improvements Phase II project includes significant upgrades to address treatment process redundancy and reliability. The design has been suspended in order wait for future funding (available in July 2019) to be able to update the scope of work to coordinate with the Wailua WWTP Alternative Effluent Disposal System Design project.

The Wailua WWTP Alternative Effluent Disposal System Design project is the result of the Effluent Limits Compliance Alternatives Evaluation Study. It includes biological treatment system improvements and installing infiltration trenches as a means of backup disposal. This will allow for the ocean outfall to be abandoned. This project is currently being re-evaluated since the County was recently provided with a draft NPDES permit and the ammonia nitrogen compliance schedule is no longer included in the permit.

ANNUAL REPORT
WASTEWATER POLLUTION PREVENTION PROGRAM
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COUNTY OF KAUA'I, HAWAI'I

May 20, 2020

INTRODUCTION

This annual report covers the period from April 1, 2019 through March 31, 2020 and has been prepared pursuant to the requirements of Part F of the National Pollutant Discharge Elimination System (NPDES) Permit No. HI 0020257 for the Wailua WWTP, owned and operated by the County of Kaua'i, Department of Public Works. The purpose of this annual report is to provide a summary of the critical parameters that impact the operation of the Wailua WWTP. The County's NPDES permit was issued by the State of Hawai'i, Department of Health (DOH), with an effective date of November 1, 2019.

FLOW

Influent and effluent flow meters are installed at the Wailua WWTP and daily records of plant flows are maintained. The Wailua WWTP discharges effluent to both the Wailua Golf Course for reuse as R-2 recycled water and to the Pacific Ocean via the ocean outfall identified in the NPDES permit. WWTP records identify on a daily basis whether effluent is discharged to the golf course or the ocean. The permitted maximum average daily flow for the WWTP is 1.5 million gallons per day (MGD).

During the current reporting period, the average daily influent flow to the WWTP was reported as approximately 0.498 MGD. The maximum daily influent flow, recorded on March 28, 2020, was 1.218 MGD. The minimum daily influent flow, recorded on March 24, 2020, was 0.3 MGD.

During the current reporting period, the average daily effluent flow to the ocean for those days which some or all of the effluent flow was directed to the ocean was approximately 0.435 MGD. The maximum daily effluent flow, recorded on March 17, 2020, was 0.878 MGD. The minimum daily effluent flow, recorded on January 30, 2020, was 0.071 MGD. It is likely that there could have been an error in this reading since it is last than a quarter of the average daily effluent flow.

During the period from April 1, 2019 through March 31, 2020, effluent was discharged to the ocean during all or a part of 259 calendar days. During the remainder of the period, the effluent was pumped to the Wailua Golf Course for irrigation reuse.

Appendix A includes copies of the daily flow records for the reporting period.

EXHIBIT "I-95"

BIOCHEMICAL OXYGEN DEMAND (BOD) LOADING

Influent and effluent BOD analyses are performed weekly and the results of these analyses are reported monthly in the Discharge Monitoring Reports (DMRs). The average influent BOD concentration was 253 milligrams per liter (mg/l). The maximum and minimum influent BOD concentrations observed during the reporting period were 490 mg/l and 60 mg/l, respectively. The average effluent BOD concentration was 5.0 mg/l. The maximum and minimum effluent BOD concentrations observed during the reporting period were 20.0 mg/l and 2.0 mg/l, respectively.

BOD loading is the product of BOD concentration and flow volume and is reported monthly in the DMRs in units of pounds per day (lb/d). The average influent and effluent BOD loading was 1,077 lb/d and 22 lb/d, respectively.

SUSPENDED SOLIDS LOADING

Influent and effluent Total Suspended Solids (TSS) analyses are performed weekly and the results of these analyses are reported monthly in the DMRs. The average influent TSS concentration was 187 mg/l. The maximum and minimum influent TSS concentrations observed during the reporting period were 510 mg/l and 60 mg/l, respectively. The average effluent TSS concentration was 3.1 mg/l. The maximum and minimum effluent TSS concentrations observed during the reporting period were 13.0 mg/l and 0.6 mg/l, respectively.

TSS loading is the product of TSS concentration and flow volume and is reported monthly in the DMRs in units of lb/d. The average influent and effluent TSS loading was 868 lb/d and 14 lb/d, respectively.

TOXIC POLLUTANTS AND SEPTIC WASTE IMPACTS

Chronic Toxicity Testing. Chronic Toxicity permit testing requirements include monthly effluent testing using Whole Effluent Toxicity (WET) methods with the specific *Trypneustes gratilla*. The permit specifies the use of the Test of Significant Toxicity (TST) approach for evaluation of the chronic toxicity testing data.

The County performed the monthly WET testing as required. For all of the months that a WET test was performed during this monitoring period, the results were reported as “Pass”.

Priority Pollutant Analyses. Annual analyses for priority pollutants were performed in 2019 in accordance with the permit requirements. The annual 2019 priority pollutant sample was collected on December 4, 2019 and the results were submitted to the DOH in the DMR dated May 11, 2020. The County was not sure if 2019 sampling and reporting was required since the new permit took effect on November 1, 2019 but the County took the sample on December 4, 2019. After coordination with the DOH Clean

Water Branch, the results of the priority pollutant analyses were submitted via the e-permitting portal.

Septic Waste Impacts. The Wailua WWTP does not accept septic system, cesspool or sludge from wastewater pumpers and haulers.

SERVICE AREA GROWTH POTENTIAL

Population growth and the number of additional residences and businesses in the Wailua WWTP service area has increased as compared to recent years. Future growth rates and the corresponding timing are unknown and depend on individual developers' schedules. It is anticipated that some additional growth will occur in the near term. The Wailua WWTP service area consists primarily of established businesses, resorts and residences along the coastal area of Wailua and Kapa‘a. Proposed resorts and developments that could become significant new sources of wastewater flow to the Wailua WWTP are in various stages of permitting, design and construction. However, as of yet, there were no significant changes during the 2019-2020 reporting period. Additionally, the projected flows identified in the 2008 Facility Plan have not materialized.

Based on discussions with the County of Kaua‘i's Planning Department, the near term growth of larger developments will produce flows that are within the Wailua WWTP's existing permitted treatment capacity.

IMPACT OF NEW REGULATIONS

During the 2019-2020 reporting period, the Wailua WWTP has not been affected by any specific new regulations. The new permit requires quarterly offshore water quality monitoring, which is an increase from the previous permit. However, the County feels that having more data will be beneficial.

BYPASSES AND OVERFLOWS

During the 2019-2020 reporting period, there were two spills that occurred at the Wailua WWTP. The first occurred on March 17, 2020 and the second occurred on March 28, 2020. Both were a result of the Wailua WWTP being overwhelmed by inflow/infiltration due to intense storms. The first spill was approximately 40,000 gallons after approximately 16-inches of rainfall occurred in the 24-hour period prior to the spill. The second spill was approximately 20,000 gallons after approximately 6-inches of rainfall occurred in the 8-hour period prior to the spill. Both spill responses consisted of coordinating with Department of Health staff on Kaua‘i.

COLLECTION SYSTEM EFFECTIVENESS AND CONDITION

Periodic operations within the collection system include sewer line and lateral cleaning and repair on an as needed basis and routine cleaning of sewage pump station (SPS)

wet wells to remove fat, oil and grease from the system. Scheduled maintenance activities include periodic replacement of SPS equipment, pumps and controls, as well as scheduled equipment replacement at the WWTP. The County has dedicated collection system maintenance staff and equipment necessary for this ongoing maintenance.

During the 2019-2020 reporting period, the federal requirements to obtain a Clean Water State Revolving Fund (CWSRF) loan to rehabilitate Wailua SPS No. 1 were finalized. The construction project should be bid out towards the fall of 2020. The design documents and the federal requirements to obtain a CWSRF loan to rehabilitate Wailua SPS No. 3 are currently being finalized. The construction project should be bid out in the winter of 2020.

PERMITTED CAPACITY

The permitted capacity of the Wailua WWTP is 1.5 MGD.

TREATMENT CAPACITY

Although the permitted capacity of the Wailua WWTP is 1.5 MGD, due to hydraulic bottlenecks, age and condition of process equipment at the WWTP and a lack of redundancy for some treatment processes at the WWTP, the 2008 Facility Plan recommended that the Wailua WWTP be considered a 1.0 MGD facility.

The County continues to work on the Facility Plan upgrades to address age and condition concerns and capacity redundancy and reliability. The County has two design projects underway, the Wailua WWTP Improvements Phase II project and the Wailua WWTP Alternative Effluent Disposal System Design.

The Wailua WWTP Improvements Phase II project includes significant upgrades to address treatment process redundancy and reliability.

The Wailua WWTP Alternative Effluent Disposal System Design project is the result of the Effluent Limits Compliance Alternatives Evaluation Study. It includes biological treatment system improvements (being performed in a future phase), expanding R-2 recycled water reuse infrastructure at the Wailua Golf Course and constructing an off-spec surface aquifer treatment (SAT) basin at the Wailua Golf Course as a means of backup disposal. This will allow for the ocean outfall to be a secondary backup.

[EXTERNAL] NPDES Permit HI 00202057 - WET Test Result, Fail

Jason Kagimoto <jkagimoto@kauai.gov>

Tue 8/25/2020 3:59 PM

To: CleanWaterBranch <cleanwaterbranch@doh.hawaii.gov>
Cc: Wong, Alec Y <alec.wong@doh.hawaii.gov>; Kurano, Matthew <matthew.kurano@doh.hawaii.gov>; Donn Kakuda <dkakuda@kauai.gov>; Jon Nakashima <jnakashima@kauai.gov>; Wailua Waste Water <wailuaww@kauai.gov>; Cale Fernandez <cfernandez@kauai.gov>; Priscilla Sobrinho <psobrinho@kauai.gov>

Aloha,

The County is providing notice to the DOH CWB that yesterday, 8/24/20, we received a "fail" result from our most recent WET test. According to our TRE Work Plan, the County will perform a comprehensive review of the WET test results with the testing laboratory. Additionally, the operational staff and records will be reviewed. A follow up WET test(s) will be performed within 14 calendar days of receipt of the failed WET test result. The number of WET tests will be dependent on whether the County is able to identify the apparent cause of the toxicity.

Feel free to let me know if you have any questions.

Mahalo.

Jason Kagimoto, P.E.
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EXHIBIT "I-96"