EXHIBIT A

Final permit

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. BOX 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EMD / CWB

09020PMT.05

October 5, 2005

Reopener on page 16

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
7002 0510 0002 7869 2708

Mr. Aaron K. Fujinaka
Manager - Power Supply O&M Department
Hawaiian Electric Company, Inc.
P.O. Box 2750
Honolulu, Hawaii 96840

Dear Mr. Fujinaka:

In accordance with the provisions of the Clean Water Act, Chapter 342D, Hawaii Revised Statutes, and Chapters 11-54 and 11-55, Hawaii Administrative Rules, Department of Health, the Department has reviewed the following applications for a National Pollutant Discharge Elimination System (NPDES) permit and applicable Zone of Mixing to discharge wastewaters:

Facility	NPDES Permit No.	Zone of Mixing No.
Hawaiian Electric Company, Inc. Kahe Generating Station	HI 0000019	ZM-21

This agency has published a public notice of our proposed action in the Honolulu Star Bulletin on August 12, 2005, regarding the above applications.

After consideration of the expressed views of all interested persons and agencies, pertinent Federal and State statutes and rules regarding the discharge, the Department hereby issues the enclosed NPDES permit, including the Zone of Mixing, for the discharge referred to above. This action does not constitute a significant change from the tentative determination set forth in the public notice.

This permit will take effect on **November 4, 2005**.

Should you have any questions, please contact Mr. Mark Tomomitsu of the Engineering Section, Clean Water Branch, at 586-4309.

Sincerely,

FOR THOMAS E. ARIZUMI, P.E., CHIEF
Environmental Management Division

MT:cu

Enclosure: NPDES Permit

c: Water Division (WTR-5), CWA Standards and Permits Office, EPA, Region 9 (w/enclosure)

PERMIT NO. HI 0000019

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et seq.; the "Act") and Chapter 342D, Hawaii Revised Statutes, and Chapters 11-54 and 11-55, Hawaii Administrative Rules, Department of Health (DOH), State of Hawaii

HAWAIIAN ELECTRIC COMPANY, LIMITED

(hereinafter "PERMITTEE")
is authorized to discharge condenser cooling waters, treated metal cleaning wastes, low volume wastes, and storm water through Outfall Serial No. 001 at coordinates: Latitude 21°21'24.8"N and Longitude 158°08'07"W;

and storm water through Outfalls Serial Nos. and coordinates:

Outfall Serial No.	Latitude	Longitude
002	21°21'40"N	158°07'44"W
003	21°21'40"N	158°07'50"W
004	21°21'40"N	158°07'47"W
005	21°21'43"N	158°07'50"W
006	21°21'42"N	158°07'56"W
007	21°21'42"N	158°07'55"W
008	21°23'29"N	158°08'00"W

from its Kahe Generating Station located at 89-900 Farrington Highway, Waianae, Oahu, Hawaii,

to the receiving waters named Pacific Ocean near Kahe Point,

in accordance with the effluent limitations, monitoring requirements and other conditions set forth herein, and in the attached DOH "Standard NPDES Permit Conditions," dated December 31, 2002.

All references to Title 40 of the Code of Federal Regulations (CFR) are to regulations that are in effect on July 1, 2001, except as otherwise specified. Unless otherwise specified herein, all terms are defined as provided in the applicable regulations in Title 40 of the CFR.

This permit, including the Zone of Mixing (ZOM), will become effective **November 4, 2005.**

This permit, including the ZOM, and the authorization to discharge will expire at midnight, September 30, 2009.

Signed this 5th day of October 2005.

Wilfred K. Nagamine
(For) Director of Health

TABLE OF CONTENTS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

During the period beginning with the effective date of this permit and lasting through September 30, 2009, the Permittee is authorized to discharge from Outfall Serial Numbers 001, 002, 003, 004, 005, 006, 007, and 008. The discharges in excess of the following limits are prohibited (Based upon a total rated generating capacity of 638 MW).

1. The discharges of cooling water, low volume wastes, and treated metal cleaning wastes from Outfall Serial No. 001 in excess of the following limits are prohibited:

   a. The discharge from **Outfall Serial No. 001** shall be limited and monitored as specified below:

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Cooling Water					
Flow	a	861	MGD	Continuous/ Estimate	N/A
Temperature[b/]	Effluent shall not exceed 8.4°C above the influent temperature		°C	Continuous	Continuous
Total Residual Oxidants[c/]	40	40	ug/l	Once/Week	Grab
Low Volume Wastes (LVW)					
Flow	a	0.27	MGD	Continuous/ Recorder	N/A
Total Suspended Solids	30.0	100.0	mg/l	Once/Month	Grab
Oil and Grease	15.0	20.0	mg/l	Once/Month	Grab

N/A - Not Applicable

a - Monitoring and reporting required, no limitations at this time.

b - Both influent and effluent shall be monitored.

c - Total residual oxidants (TRO) means the value obtained using the amperometric titration method for total residual chlorine described in 40 CFR Part 136.

A.1.a. (Outfall Serial No. 001 Effluent Requirements Continued)

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Metal Cleaning Wastes (MCW)					
Flow	a	0.35	MGD	Continuous/ Recorder	N/A
Total Suspended Solids	30.0	100.0	mg/l	Once/Month	Grab
Oil and Grease	15.0	20.0	mg/l	Once/Month	Grab
Total Copper	1.0	1.0	mg/l	Once/Month	Grab
	1.325	1.325	kg/day	Once/Month	Grab
	2.919	2.919	lbs/day	Once/Month	Grab
Total Iron	1.0	1.0	mg/l	Once/Month	Grab
	1.325	1.325	kg/day	Once/Month	Grab
	2.919	2.919	lbs/day	Once/Month	Grab
Combined LVW and MCW					
pH	Not be less than 6.0 standard units nor greater than 9.0 standard units			Once/Month	Grab
Whole-Effluent Toxicity[b/]	NOEC $\leq$ 3.10 TU_c			Once/Quarter	Grab

N/A - Not Applicable

NOEC - No Observed Effect Concentration, is the highest tested concentration of an effluent at which no adverse effects are observed on the aquatic test organisms at a specific time of observation (EPA/505/2-90-001, March 1991).

a - Monitoring and reporting required, no limitations at this time.

b - The Permittee shall conduct whole-effluent toxicity monitoring as specified in Part B of this permit.

b. Temperature monitoring is required for both the influent and effluent. In no instance shall the termperature of effluent exceed 8.4°C above the influent

temperature of receiving water. The discharge shall not cause water termperatures which are greater than 2.0°C above the ambient termperature of the receiving waters to impinge on corals (including presently dead corals).

c. The pH of the LVW and MCW combined or inidvidually shall not be less than 6.0 standard units nor greater than 9.0 standard units.

d. No TRO may be discharged from any electricity generating unit for more than two (2) hours in any one (1) day and not more than one (1) unit in any plant may discharge TRO at any one time.

e. There shall be no discharge of polychlorinated biphenyl transformer fluid at any time.

f. There shall be no discharge of pollutants from water clarification and water softening treatment at any time.

g. There shall be no discharge of compounds used in closed-loop systems.

h. Samples taken in compliance with the monitoring requirements shall be taken at the following location(s):

(1) Condenser Cooling Water and Whole-Effluent Toxicity: Outfall Serial No. 001.

(2) Low Volume and Metal Cleaning Wastes: Upstream, prior to the combined discharge(s) with condenser cooling water(s).

(3) Combined LVW and MCW pH sample: Upstream, prior to the additions of the combined streams into the cooling water discharge(s).

i. The Permittee shall conduct the effluent sampling on the same day that the receiving water monitoring is conducted unless inclement weather or hazardous conditions exist which may endanger the lives of the Permittee's personnel.

j. Whole-Effluent Toxicity Monitoring

Whole-Effluent Toxicity Monitoring shall be conducted in accordance with the provisions of Part B of this permit. Whole-effluent toxicity sample shall be taken to coincide with the discharge of LVW and MCW.

k. Oil and Grease

Oil and Grease shall be measured using the EPA Method 1664, Revision A, which was approved on May 14, 1999 and effective on June 14, 1999.

2. Effluent Limitations and Monitoring Requirements for Storm Water Runoff discharged from **Outfall Serial Nos. 001, 002, 003, 004, 005, 006, 007, and 008**.

a. Storm Water Pollution Control Plan (SWPCP)

The Permittee shall:

(1) Continue to implement the SWPCP dated January 15, 2004, and subsequent submittals (if applicable), until the Permittee develops and submits the updated SWPCP to the Director of Health (Director).

(2) Submit an updated SWPCP within 90 days after the effective date of this permit.

(3) Implement the updated SWPCP upon its submittal to the Director.

(4) Review and update the SWPCP, as often as needed toward improving the storm water quality and/or control practices, or, as required by the Director.

(5) Report any changes to the SWPCP to the Director within 30 days from the date the changes were made.

(6) Maintain a copy of the SWPCP and documentation of all amendments, as applicable, at the facility.

b. Samples shall be collected from a discharge resulting from a representative storm. A representative storm means a rainfall that accumulates more than 0.1 inch of rain and occurs at least seventy-two hours after the previous measurable (greater than 0.1 inch) rainfall.

c. For storm water monitoring in accordance with Parts A.2.d and A.2.e, only:

Samples for analysis shall be collected during the first 15 minutes of the discharge and at 15-minute intervals thereafter for the duration of the

discharge. If the discharge lasts for over an hour, sample collection may cease.

The sample collected during the first 15 minutes shall be analyzed as a grab sample. If two or more samples are collected, they shall be analyzed as a composite sample.

"Composite sample" means a combination of at least two (2) sample aliquots, collected at periodic intervals. The composite must be flow proportional; either the time interval between each aliquot or the volume of each aliquot must be proportional to either the flow at the time of sampling or total flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

d. Monitoring Methods

(1) Conduct monitoring in accordance with test procedures approved under 40 CFR Part 136, or unless otherwise specified, with detection limits low enough to measure compliance with the discharge limitations specified in Part A.2.e. For cases where the discharge limitation is below the lowest detection limit of the appropriate test procedure, the Permittee shall use the test method with the lowest detection limit.

(2) The Director may specify additional monitoring requirements and limitations, in addition to the monitoring requirements specified in Part A.2.e of this permit.

e. Such storm water runoff associated with industrial activity shall be limited and monitored as follows:

MINIMUM MONITORING REQUIREMENTS

Parameter	Discharge Limitation {1}	Measurement Frequency	Sample Type
Flow (MGD)	{2}	Annually	Calculated or Estimated
Biochemical Oxygen Demand (5-Day) (mg/l)	{2}	Annually	Grab/Composite
Chemical Oxygen Demand (mg/l)	{2}	Annually	Grab/Composite
Total Suspended Solids (mg/l)	{2}	Annually	Grab/Composite
Total Phosphorus (ug P/l)	{2}	Annually	Grab/Composite
Total Nitrogen (ug N/l)	{2}	Annually	Grab/Composite
Nitrate + Nitrite Nitrogen ($ug(NO_3+NO_2)$-N/l)	{2}	Annually	Grab/Composite
Oil and Grease	15 mg/l	Annually	Grab
pH Range (Standard Unit)	7.0 to 8.6	Annually	Grab
Total Recoverable Lead {3}	140 ug/l	Annually	Grab/Composite
Total Recoverable Copper {3}	3 ug/l	Annually	Grab/Composite
Total Recoverable Arsenic {3}	69 ug/l	Annually	Grab/Composite

{1} Pollutant concentration levels shall not exceed the effluent limits or be outside the ranges indicated in the above table. Actual or measured levels which exceed those effluent limits or are outside those ranges shall be reported to the Director as required in Part D of this permit.

{2} No Limitation at this time. Only monitoring and reporting required.

{3} The Department may modify the numerical effluent limitations for total recoverable copper, lead, and arsenic if the site-specific translator between the dissolved fraction and total recoverable form has been developed by the Permittee and approved by the Department and EPA. Modification of these effluent limitations based on the development of an approved site-specific translator shall be considered a minor modification for the purposes of 40 CFR 124.

B. WHOLE-EFFLUENT TOXICITY REQUIREMENTS

1. Chronic Toxicity

The Permittee shall conduct quarterly chronic toxicity tests on grab samples.

a. Test Species and Methods

The Permittee shall conduct quarterly tests with the tropical sea urchin, *Tripneustes gratilla*, using the following methods. The Permittee shall use updated versions of these methods as they become available:

(1) Hawaiian Collector Urchin, *Tripneustes gratilla* (Hawa'e) Fertilization Test Method (Adapted by Amy Wagner, U.S. EPA, Region 9 Laboratory, Richmond, CA from a method developed by George Morrison, U.S. EPA Naragansett, RI and Diane Nacci, Science Applications International Corporation, ORD Naragansett, RI), 1998.

Important information for conducting this method (e.g., test acceptability criteria, data analysis, etc.), can be found in the *Arabacia punctulata* section of Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms (EPA-821-R-02-014, October 2002 or subsequent editions).

(2) The Permittee may temporarily conduct the whole-effluent toxicity testing using the one (1) currently suitable locally available species (i.e., *Tripneustes gratilla*) until such time that additional local species are authorized for use under this permit. Upon the establishment of additional suitable locally available species, the Permittee shall then be required to perform the whole-effluent toxicity testing using two (2) local species. The incorporation of the provisions for the use of the additional whole-effluent toxicity locally available species into this permit shall be considered a minor modification for the purpose of 40 CFR Part 124.

(3) If the locally available species, *Tripneustes gratilla*, becomes unavailable for whole-effluent toxicity testing the Permittee , upon obtaining written approval from the Director, may conduct chronic

toxicity testing on two (2) mainland species found in the EPA Methods manual referenced below:

Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organims (EPA-600-R-95-136, August 1995 or subsequent editions).

b. Definition of Toxicity

(1) Whole Effluent Toxicity Limitation: Toxicity is defined as greater than 3.10 TU_c for chronic NOEC tests.

(2) The chronic No Observed Effect Concentration (NOEC) is inversely related to the Toxic Unit Chronic (TU_c) representation, and is translated to TU_c by dividing 100 with the NOEC (i.e., 100/NOEC).

c. Quality Assurance

(1) A series of five (5) dilutions and a control shall be tested. The series shall include the instream waste concentration (IWC), two (2) dilutions below the IWC, and two (2) dilutions above the IWC (e.g., 12.5, 25, 50, 75, and 100 percent effluent, where in this example the IWC = 50). The chronic IWC for this discharge shall be 32.2 percent effluent.

(2) Concurrent testing with reference toxicants shall be conducted.

(3) Reference toxicant tests shall be conducted using the same test conditions as effluent toxicity tests (i.e., same test duration, etc.).

(4) If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods, then the Permittee must re-sample and re-test within 14 days.

(5) Control and dilution water should be receiving water or lab seawater, as described in the test methods. To maintain acceptable salinity when conducting tests with *Tripneustes gratilla*, effluent dilutions can be adjusted by adding hypersaline brine/GP2 salts and a second control using brine shall also be tested.

2. Toxicity Reduction Evaluation

a. Preparation of Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan

The Permittee shall (re)submit to the Director and USEPA an initial investigation TRE workplan (approximately 1-2 pages) within 90 days of the effective date of this permit. This workplan shall describe steps which the Permittee intends to follow in the event that toxicity (i.e., exceedence of whole-effluent toxicity limitation) is detected, and should include at minimum:

(1) A description of the investigation and evaluation techniques that would be used to identify potential causes/sources of toxicity, effluent variability, treatment system efficiency;

(2) A description of the facility's method of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in operation of the facility;

(3) Identification of the organization (e.g., contract laboratory, etc.) that will conduct the evaluation if a toxicity identification evaluation (TIE) becomes necessary.

b. Additional (Accelerated) Toxicity Testing

(1) If the Permittee violates the whole-effluent toxicity limitation, the Permittee, at a minimum, shall conduct six (6) additional tests: one (1) approximately every 14 days, over a 12-week period (or as applicable for more than six (6) tests). Effluent sampling for the first test of the six (6) additional tests shall commence within approximately 24 hours of receipt of the test results exceeding the toxicity discharge limitation.

(2) The Permittee shall continue the additional toxicity testing required by Part B.2.b.(1) of this permit until the Permittee has complied with the whole-effluent toxicity limitation six (6) consecutive times. Then the Permittee may return to the normal sampling frequency required in Part B.1 of this permit.

(3) However, *if implementation of the initial investigation TRE workplan indicates the source of the toxicity* (e.g., a temporary plant upset, etc.), then the Permittee shall conduct only the first test of the six (6) additional tests required above. If toxicity (as defined) is not detected in this first test, the Permittee may return to the normal sampling frequency required in Part B.1 of this permit. If toxicity (as defined) is detected in this first test, then Part B.3 of this permit shall apply.

(4) If a Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE) is initiated prior to completion of the accelerated testing schedule required in Part B.2.b.(2) of this permit, then accelerated testing may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Director and USEPA. At that time, the Permittee shall resume regular quarterly toxicity testing . This regular toxicity testing shall use, as directed by the Director and USEPA, either *Tripneustes gratilla* or a species in the most recent edition of USEPA's Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms.

3. Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE)

a. If toxicity (as defined) is detected in any of the six (6) additional tests, then, based on an evaluation of the test results and additional available information, the Director and USEPA may determine that the Permittee shall initiate a TRE, in accordance with the Permittee's initial investigation TRE workplan and Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA 833-B-99-002, 1999). Moreover, the Permittee shall develop a detailed TRE workplan which includes:

(1) Further actions to investigate/identify the cause(s) of toxicity;

(2) Actions the Permittee has taken/will take to mitigate the impact of the discharge, to correct the noncompliance, and to prevent the recurrence of toxicity;

(3) A schedule under which these actions will be implemented;

and shall submit this workplan to the Director of Health and USEPA for approval.

b. As part of this TRE process, the Permittee may initiate a TIE using the test methods manuals, EPA/600/6-91/005F (Phase I freshwater), EPA/600/R-96/054 (Phase I; marine), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), to identify the cause(s) of toxicity.

c. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Part B.2.b(2) of this permit, then, upon approval by the Director of Health and USEPA, the accelerated testing schedule may be modified or used as necessary in performing the TRE/TIE.

4. Reporting

a. The Permittee shall submit a full report of toxicity test results, including any toxicity testing required by Parts B.2.b and B.3 of this permit, with the Discharge Monitoring Report (DMR) in accordance with Part D.1 of this permit for the quarter or month (when Parts B.2.b and/or B.3 is/are applicable) in which the toxicity tests are conducted. A full report shall consist of: one (1) toxicity test results, including calculated sperm to egg ratio; (2) dates of sample collection and initiation of each toxicity test; and three (3) whole effluent toxicity limitation. Toxicity test results shall be reported according to the test methods manual chapter on Report Preparation.

b. Any violation of the whole-effluent toxicity limitation shall be reported in accordance with Part D.2 of this permit.

c. If the initial investigation TRE workplan is used to determine that additional (accelerated) toxicity testing is not required, in accordance with Part B.2.b(3) of this permit, then these results shall be submitted with the DMR for the month in which investigations conducted under the TRE Workplan occurred.

d. Within 14 days of receipt of test results exceeding the whole effluent toxicity limitation, the Permittee shall provide written notification to the Director and USEPA:

(1) Findings of the TRE or other investigation to identify the cause(s) of toxicity;

(2) Actions the Permittee has taken/will take, to mitigate the impact of the discharge and to prevent the recurrence of toxicity;

(3) When corrective actions, including a TRE, have not been *completed*, a schedule under which corrective actions will be implemented; or

(4) The reason for not taking corrective action, if no action has been taken.

5. Reopener

This permit may be modified, in accordance with 40 CFR122 and 124, to include conditions or limits to address demonstrated effluent toxicity based on newly available information.

[EPA Note: EPA's copy of this page appears to have an incorrect header. The page should be identified as PART B, Page 15.]

AUTHORIZATION TO DISCHARGE UNDER THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Clean Water Act, as amended, (33 U.S.C. 1251 et seq.; the "Act") and Hawaii Revised Statutes (HRS), Chapter 342D, and Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55, Department of Health (Department) State of Hawaii,

COUNTY OF KAUAI
DEPARTMENT OF PUBLIC WORKS

(hereinafter "PERMITTEE"),

is authorized to discharge secondary treated domestic wastewater from the Wailua Wastewater Treatment Plant, located at 4460 Nalu Road, Wailua, Kauai, Hawaii,

through Outfall Serial No. 001 at coordinates: Latitude 22°02'30"N and Longitude 159°20'10"W;

to the receiving waters named the Pacific Ocean,

in accordance with the effluent limitations, monitoring requirements and other conditions set forth herein, and in the attached Department Standard NPDES Permit Conditions," dated December 30, 2005.

All references to Title 40 of the Code of Federal Regulations (CFR) are to regulations that are in effect on July 1, 2004, except as otherwise specified. Unless otherwise specified herein, all terms are defined as provided in the applicable regulations in Title 40 of the CFR.

This permit, including the Zone of Mixing, will become effective **May 21, 2007**.

This permit, including the Zone of Mixing, and the authorization to discharge will expire at midnight, March 31, 2011.

Signed this 20th day of April 2007.

(For) Director of Health

TABLE OF CONTENTS

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (based on 0.066 m^3/sec or 1.5 MGD)

1. During the period beginning with the effective date of this permit and lasting through March 31, 2011 the Permittee is authorized to discharge secondary treated domestic wastewater from **Outfall Serial No. 001**.

   The discharge of effluent in excess of the following is prohibited:

Effluent Characteristics	Discharge Limitation				Monitoring Requirements	
	Monthly Average	Weekly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Flow	(a)	N/A	(a)	MGD	Continuous/ Recorder	N/A
Biochemical Oxygen Demand (5-day)[b]	30 171 375	45 256 563	N/A N/A N/A	mg/l kg/day lbs/day	1/Week 1/Week 1/Week	Composite Composite Composite
Suspended Solids[b]	30 171 375	45 256 563	N/A N/A N/A	mg/l kg/day lbs/day	1/Week 1/Week 1/Week	Composite Composite Composite
Enterococcus	192[c]	N/A	(a)	#/100 ml	4/month[d]	Grab
Total Residual Chlorine	(a)	N/A	412	ug/l	1/Week	Grab
Total Nitrogen	N/A	N/A	(a)	ug/l	1/Month	Composite
Ammonia-N	N/A	N/A	(a)	ug/l	1/Month	Composite
Nitrate + Nitrite-N	N/A	N/A	(a)	ug/l	1/Month	Composite
Total Phosphorus	N/A	N/A	(a)	ug/l	1/Month	Composite
pH	Not less than 6.0 nor greater than 9.0 standard units			pH units	1/Week	Grab
Whole Effluent Toxicity	NOEC $\geq$ 55 TU_c			TU_c	1/Month	Composite
Priority Pollutants	N/A	N/A	(a)	ug/l	1/Year	Composite

N/A - Not Applicable

NOEC - No Observed Effect Concentration, is the highest tested concentration of an effluent at which no adverse effects are observed on the aquatic test organisms at a specific time of observation (EPA/505/2-90-001, March 1991).

TU_c - Chronic Toxicity Units

[a] Monitoring and reporting required, no limitation at this time.

[b] Both influent and effluent shall be monitored

(c) Geometric mean

(d) At least twice per year, enterococcus shall be monitored at a minimum measurement frequency of 5/month. The minimum of 5/month measurement frequency shall be conducted during the same month the shoreline Recreational Waters Monitoring at Part C.6.b is conducted. Samples shall be equally spaced at six (6) day intervals or unequally spaced at five(5), six(6), seven(7), or eight(8) day intervals, provided that the total period covered is between 25 and 30 days. Consecutive samples shall not be collected on the same day of the week.

2. The arithmetic mean values for the effluent samples of BOD_5 and suspended solids collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for the influent samples collected at approximately the same time during the same period (85% removal).

3. Samples taken in compliance with the monitoring requirements specified above shall be taken at the following location(s):

   Influent samples shall be taken downstream from any additions to the trunk sewer and prior to treatment.

   Effluent samples shall be taken downstream from the chlorine contact chamber and prior to mixing with the receiving waters.

4. Enterococcus Test Procedures:

   The Permittee shall conduct enterococcus analyses in accordance with one (1) of the following procedures, as applicable:

   a. Standard Methods for the Examination of Water and Wastewater, APHA, by the Membrane Filter Techniques (Part 9230 C), 20th Edition 1995, or subsequent editions.

   b. Method 1600: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus Indoxyl-β-D-Glucoside Agar (mEI), EPA-821-R-04-023, April 2005.

   c. Method 1106.1: Enterococci in Water by Membrane Filtration Using membrane-Enterococcus-Esculin Iron Agar (mE-EIA), EPA-821-R-04-022, April 2005.

5. Whole-Effluent Toxicity Monitoring

   Whole-Effluent Toxicity Monitoring shall be conducted in accordance with the provisions of Part B of this permit.

6. Priority Pollutants

The annual EPA priority pollutant scan shall exclude asbestos. Detection levels shall be reported and shall meet the requirements of 40 CFR Part 136.

B. WHOLE-EFFLUENT TOXICITY REQUIREMENTS

1. Chronic Toxicity

The Permittee shall conduct monthly chronic toxicity tests flow-weighted 24-hour composite effluent samples in accordance with the procedures outlined below.

a. Test Species and Methods

The Permittee shall conduct monthly chronic toxicity testing on the following species using the methods specified below. The chronic toxicity testing shall be conducted at a minimum on one (1) of the two (2) species, listed below, each month. The two (2) species shall be rotated for the chronic toxicity testing on a monthly basis.

(1) The Permittee shall conduct chronic toxicity testing on the following species using the methods specified:

(a) *Ceriodaphnia dubia* using Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Freshwater Organisms (EPA-821-R-02-013, October 2002, or subsequent editions).

(b) *Tripneustes gratilla* using 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).

Important information for conducting this method (e.g., test acceptability criteria, data analysis, etc.), can be found in the *Arabacia punctulata* section of Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to Marine and Estuarine Organisms (EPA-821-R-02-014, October 2002 or subsequent editions).

(2) Upon written request by the Permittee and written approval by the Director, or upon request by the Director, the Permittee shall use updated versions of the methods referenced in the section above as they become available from Environmental Protection Agency (EPA).

(3) If the locally available species, *Tripneustes gratilla*, becomes unavailable for whole-effluent toxicity testing, and/or upon obtaining written approval from the Director, the Permittee may conduct chronic toxicity testing using test species and method found in the EPA Methods manual referenced below:

Short-Term Methods for Estimating the Chronic Toxicity of Effluent and Receiving Waters to West Coast Marine and Estuarine Organims (EPA-600-R-95-136, August 1995 or subsequent editions).

(4) If the salinity of effluent dilutions required under Part B.1.c. of this permit is higher than that tolerated by *Ceriodaphnia dubia*, and/or upon obtaining written approval from the Director, the Permittee may measure the presence of chronic toxicity by using a test species and method specified in Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms (EPA 600/R-95/136, 1995 or subsequent editions). This test species and method shall be submitted to the DOH and EPA for approval. To maintain acceptable salinity, effluent dilutions shall be adjusted by adding hypersaline brine or GP2 salts, as described in the test methods manual. If hypersaline brine or GP2 salts are added, then a brine control shall also be tested.

b. Definition of Chronic Toxicity

The whole-effluent toxicity of an effluent shall be measured by performing chronic toxicity testing. Chronic toxicity measures a sublethal effect (e.g., reduced growth) to experimental test organisms exposed to an effluent compared to that of the control organisms. The No Observed Effect Concentration (NOEC) is the highest effluent concentration to which organisms are exposed in a chronic test, that causes no observable adverse effect on the test organisms (e.g., the highest concentration of toxicant to which the values for the observed responses are not statistically significantly different from the controls). Test results shall be reported in TU_c, where $TU_c = 100/NOEC$.

(1) Whole-Effluent Toxicity Limitation: For this discharge whole-effluent toxicity shall be defined as greater than 55 TU_c for NOEC tests.

(2) The No Observed Effect Concentration (NOEC) is inversely related to the Toxic Unit Chronic (TU_c) representation, and is translated to TU_c by dividing 100 with the NOEC (i.e., 100/NOEC).

c. Quality Assurance

(1) A series of five (5) dilutions and a control shall be tested as part of the Outfall Serial No. 001 whole-effluent toxicity monitoring requirements. The series shall include the instream waste concentration (IWC), two (2) dilutions below

the IWC, and two (2) dilutions above the IWC (e.g., 12.5, 25, 50, 75, and 100 percent effluent, where in this example the IWC = 50). The chronic IWC for this discharge shall be 1.82 percent effluent.

(2) Concurrent testing with reference toxicants shall be conducted as part of the WET monitoring.

(3) Reference toxicant tests shall be conducted using the same test conditions as effluent toxicity tests (i.e., same test duration, etc.).

(4) If either the reference toxicant tests or the effluent tests do not meet all test acceptability criteria as specified in the test methods, then the Permittee must re-sample and re-test within 14 days.

(5) Control and dilution water should be receiving water or lab seawater, as described in the test methods. To maintain acceptable salinity when conducting tests with *Tripneustes gratilla*, effluent dilutions can be adjusted by adding hypersaline brine/GP2 salts and a second control using brine shall also be tested.

2. Toxicity Reduction Evaluation

a. Preparation of Initial Investigation Toxicity Reduction Evaluation (TRE) Workplan

The Permittee shall (re)submit to the Director of Health (Director) and USEPA an initial investigation TRE workplan (approximately 1-2 pages) within 90 days of the effective date of this permit. This workplan shall describe steps which the Permittee intends to follow in the event that toxicity (i.e., exceedence of whole-effluent toxicity limitation) is detected, and should include at minimum:

(1) A description of the investigation and evaluation techniques that would be used to identify potential causes/sources of toxicity, effluent variability, treatment system efficiency;

(2) A description of the facility's method of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in operation of the facility;

(3) Identification of the organization (e.g., contract laboratory, etc.) that will conduct the evaluation if a Toxicity Identification Evaluation (TIE) becomes necessary.

b. Additional (Accelerated) Toxicity Testing

(1) If the Permittee violates the whole-effluent toxicity limitation, the Permittee, at a minimum, shall conduct six (6) additional tests: one (1) approximately every 14 days, over a 12-week period (or as applicable for more than six (6) tests). Effluent sampling for the first test of the six (6) additional tests

shall commence within approximately 24 hours of receipt of the test results exceeding the toxicity discharge limitation.

(2) The Permittee shall continue the additional toxicity testing required by Part B.2.b.(1) of this permit until the Permittee has complied with the whole-effluent toxicity limitation six (6) consecutive times. Then the Permittee shall conduct the whole-effluent toxicity monitoring on a monthly basis, unless a reduction of the monitoring frequency is approved by the Director in accordance with Part B.6 of this permit.

(3) However, *if implementation of the initial investigation TRE workplan indicates the source of the toxicity* (e.g., a temporary plant upset, etc.), then the Permittee shall conduct only the first test of the six (6) additional tests required above. If toxicity (as defined) is not detected in this first test, the Permittee may return to the normal sampling frequency required in Part B.1 of this permit. If toxicity (as defined) is detected in this first test, then Part B.3 of this permit shall apply.

(4) If a Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE) is initiated prior to completion of the accelerated testing schedule required in Part B.2.b.(2) of this permit, then accelerated testing may be terminated, or used as necessary in performing the TRE/TIE, as determined by the Director and USEPA. At that time, the Permittee shall conduct monthly toxicity testing . This monthly toxicity testing shall use, as directed by the Director and USEPA, either *Tripneustes gratilla* or a species in the most recent edition of USEPA's Short Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms.

3. Toxicity Reduction Evaluation/Toxicity Identification Evaluation (TRE/TIE)

a. If toxicity (as defined) is detected in any of the six (6) additional tests, then, based on an evaluation of the test results and additional available information, the Director and USEPA may determine that the Permittee shall initiate a TRE, in accordance with the Permittee's initial investigation TRE workplan and Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants (EPA 833-B-99-002, 1999). Moreover, the Permittee shall develop a detailed TRE workplan which includes:

(1) Further actions to investigate/identify the cause(s) of toxicity;

(2) Actions the Permittee has taken/will take to mitigate the impact of the discharge, to correct the noncompliance, and to prevent the recurrence of toxicity;

(3) A schedule under which these actions will be implemented; and shall submit this workplan to the Director and USEPA for approval.

b. As part of this TRE process, the Permittee may initiate a TIE using the test methods manuals, EPA/600/6-91/005F (Phase I freshwater), EPA/600/R-96/054 (Phase I; marine), EPA/600/R-92/080 (Phase II), and EPA/600/R-92/081 (Phase III), to identify the cause(s) of toxicity.

c. If a TRE/TIE is initiated prior to completion of the accelerated testing schedule required by Part B.2.b(2) of this permit, then, upon approval by the Director and USEPA, the accelerated testing schedule may be modified or used as necessary in performing the TRE/TIE.

4. Reporting

a. The Permittee shall submit a full report of toxicity test results, including any toxicity testing required by Parts B.2.b and B.3 of this permit, with the Discharge Monitoring Report (DMR) in accordance with Part D.1 of this permit for the quarter or month (when Parts B.2.b and/or B.3 is/are applicable) in which the toxicity tests are conducted. A full report shall consist of: (1) toxicity test results, including calculated sperm to egg ratio, if applicable; (2) dates of sample collection and initiation of each toxicity test; and (3) whole effluent toxicity limitation. Toxicity test results shall be reported according to the test methods manual chapter on Report Preparation.

b. Any violation of the whole-effluent toxicity limitation shall be reported in accordance with Part D.2 of this permit.

c. If the initial investigation TRE workplan is used to determine that additional (accelerated) toxicity testing is not required, in accordance with Part B.2.b.(3) of this permit, then these results shall be submitted with the DMR for the month in which investigations conducted under the TRE Workplan occurred.

d. Within 14 days of receipt of test results exceeding the whole effluent toxicity limitation, the Permittee shall provide written notification to the Director and USEPA:

(1) Findings of the TRE or other investigation to identify the cause(s) of toxicity;

(2) Actions the Permittee has taken/will take, to mitigate the impact of the discharge and to prevent the recurrence of toxicity;

(3) When corrective actions, including a TRE, have not been *completed*, a schedule under which corrective actions will be implemented; or

(4) The reason for not taking corrective action, if no action has been taken.

5. Reopener

This permit may be modified, in accordance with 40 CFR122 and 124, to include conditions or limits to address demonstrated effluent toxicity based on newly available information.

6. Sampling Frequency Reduction

If, after 18 continuous monthly sampling as specified under Part B.1.a and the Permittee has not violated the toxicity limit, the Permittee may request a reduction in monitoring frequency. Any such reduction of the monitoring frequency must be approved by the Director in writing, and shall be at the Director's sole discretion. A reduction in frequency to not less than semiannually shall be considered a minor modification for the purpose of 40 CFR Part 124. If, after such a reduction in monitoring frequency, the Permittee violates the toxicity limit, the routine monitoring frequency shall automatically return to once per month until the expiration of the permit. Nothing in this paragraph waives any remedy or penalty applicable under Hawaii Revised Statutes, Chapter 342D.