


June 25, 2019

MEMO TO: WAI-27 File

F R O M: Alice L. Lee, Chair   
Water and Infrastructure Committee

SUBJECT: **TRANSMITTAL OF INFORMATIONAL DOCUMENTS RELATING  
TO WATER USE REPORTS** (WAI-27)

The attached informational documents pertain to Item WAI-27 on the Committee's agenda.

wai:misc:027afile01:ckc

Attachments

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May 31, 2019

Ms. Suzanne D. Case, Chairperson  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, Hawaii 96809

Dear Chairperson Case:

**SUBJECT: MECO WATER USAGE**

After reviewing the water use reports from the State Commission on Water Resource Management for all registered well reporters for Maui County, it has come to my attention that Maui Electric Company (MECo) is using a significant amount of water each month. According to the reports, MECo used a total of 45.961 mgd in September 2018; 45.778 mgd in October 2018; 51.723 mgd in January 2019, and 38.987 mgd in March 2019.

Please advise how much water per day is MECo permitted to use and for what purpose the water is being used. Please also provide me the status of the sources of water that MECo withdraws from and indicate whether the water is recycled or discharged after being used. If it is discharged, where is the water being discharged and what process does it undergo before it is discharged?

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Thank you for your attention to this request. If you have any questions, please contact me at the Maui County Council Office at (808) 270-8010.

Sincerely,

A handwritten signature in cursive script, appearing to read "Alice L. Lee".

ALICE L. LEE  
Councilmember

Wai:ltr:27cwrn



STATE OF HAWAII  
DEPARTMENT OF LAND AND NATURAL RESOURCES  
**COMMISSION ON WATER RESOURCE MANAGEMENT**  
P.O. BOX 621  
HONOLULU, HAWAII 96809

June 12, 2019

The Honorable Alice L. Lee  
Member, Maui County Council  
200 S. High Street  
Wailuku, Maui, Hawai'i 96793

Aloha Councilmember Lee:

This is in response to your May 31, 2019 letter, inquiring about Maui Electric Company (MECo) water use and discharges. The Commission on Water Resource Management (Commission) confirms MECo's reported water use amounts for the months listed in your letter. Our records show that MECo utilizes 14 water wells, mostly for cooling water using salt water. All wells are located in the Kahului Aquifer System Area, which has not been designated as a ground water management area. As such, there is no water use permit in place, and MECo may pump up to the capacity of the installed pumps.

The following table lists MECo's wells on Maui island, the average withdrawal based on reported water use in 2018, the average chloride concentration of the pumped water (which is an indicator of salinity) in 2018, and the primary use of the pumped water. Should MECo wish to increase their capacity for withdrawal, a pump installation permit from the Commission is required.

MECo Wells Reporting Pumpage on the Island of Maui

Well No.	Reported Pumpage (2018 Average; mgd)	Reported Chloride Concentration* (2018 Average; mg/L or PPM)	Primary Use
6-4829-001	0.001	1091.70	Other
6-4829-002	0.000	10545.50	Industrial Power
6-4829-003	0.000	11416.70	Industrial Power
6-4829-004	0.103	9137.50	Industrial Power
6-5427-001	4.648	24166.70	Industrial Power
6-5427-002	4.648	24166.70	Industrial Power
6-5427-003	3.465	25000.00	Industrial Power
6-5427-004	3.465	25000.00	Industrial Power
6-5427-005	4.839	24583.30	Industrial Power
6-5427-006	4.839	24583.30	Industrial Power
6-5427-007	4.839	24583.30	Industrial Power
6-5427-009	5.216	24583.30	Industrial Power
6-5427-010	5.216	24583.30	Industrial Power
6-5427-011	5.216	24583.30	Industrial Power

\* Fresh Water is 0 – 250 mg/L or PPM  
Brackish Water is 251 – 16,999 mg/L or PPM  
Salt Water is 17,000 mg/L or PPM and higher

Honorable Alice L. Lee  
June 12, 2019  
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Regarding water discharges, our colleagues at the Department of Health's Clean Water Branch inform us that the Department of Health has issued one National Pollutant Discharge Elimination System (NPDES) permit to MECO for their Kahului Generating Station (NPDES Permit No. HI0000094). This permit authorizes the discharge of once-through cooling water, low volume wastes, and metal cleaning waste. The once-through cooling water is from ground water wells; circulates through the facility pipes to absorb heat from the condensers; and discharges via four (4) outfalls into Kahului Bay (Pacific Ocean). The design flow for each outfall is: Outfall 001 – 10.7 MGD, Outfall 002 – 10.7 MGD, Outfall 003 – 16 MGD, and Outfall 004 – 17.5 MGD. This NPDES permit is the only permit that authorizes MECO to discharge well water (once-through cooling water) to a State water (Kahului Bay).

NPDES Permit No. HI0000094 requires MECO to test the once-through cooling water and analyze/report flow, temperature, pH, turbidity, total nitrogen, ammonia nitrogen, nitrate + Nitrite nitrogen, total phosphorus, silica, total recoverable nickel, Whole Effluent Toxicity, and priority pollutants. This permit also contains water quality based effluent limitations for the once-through cooling water to ensure compliance with the State Water Quality Standards. Attached are the NPDES Permit No. HI0000094 and the rationale.

If you have any further questions regarding the well sources, please contact Roy Hardy at 587-0274. If you have any further questions regarding the water discharges, please contact Alec Wong at 586-4309.

Ola i ka wai,



M. KALEO MANUEL  
Deputy Director

Attachments: NPDES Permit No. HI0000094  
NPDES Permit No. HI0000094 Fact Sheet

c: Alec Wong, Clean Water Branch

PERMIT NO. HI 0000094

**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"); Hawaii Revised Statutes (HRS), Chapter 342D; and Hawaii Administrative Rules (HAR), Chapters 11-54 and 11-55, Department of Health (DOH), State of Hawaii,

**MAUI ELECTRIC COMPANY, LIMITED**

(hereinafter PERMITTEE),

is authorized to discharge once-through condenser cooling waters, low volume wastes, treated metal cleaning wastes, and storm water to the receiving waters named Kahului Bay, adjacent to the Pacific Ocean, through Outfall Serial Nos. 001, 002, 003, and 004 at Latitude 20°55'00"N and Longitude 156°27'55"W,

from its Kahului Generating Station located at 200 Hobron Lane, Kahului, Maui, Hawaii 96732,

in accordance with the effluent limitations, monitoring requirements and other conditions set forth herein, and in the DOH "Standard NPDES Permit Conditions," that is available on the DOH, Clean Water Branch (CWB) website at:  
<http://health.hawaii.gov/cwb/site-map/home/standard-npdes-permit-conditions/>.

All references to Title 40 of the Code of Federal Regulations (CFR) are to regulations that are in effect on July 1, 2014, 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 on **June 1, 2015**.

This permit, including the Zone of Mixing, and the authorization to discharge will expire at midnight, **May 13, 2020**.

Signed this 14th day of May, 2015.

  
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(For) Director of Health

**FINAL PERMIT  
May 14, 2015**

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- APPENDIX 1. MONITORING METHODS
- ATTACHMENT: STANDARD NPDES PERMIT CONDITIONS (VERSION 14)**

**A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS**

1. During the period beginning with the effective date of this permit and lasting through the expiration date of this permit, the Permittee is authorized to discharge treated effluent from Outfall Serial Nos. 001, 002, 003, and 004. The discharge shall be limited and monitored as specified below.

Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Maximum Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
<b>Cooling Water (001, 002, 003, and 004)</b>					
Flow (001)	1	10.7	MGD	Continuous/ Estimate	NA
Flow (002)	1	10.7	MGD	Continuous/ Estimate	NA
Flow (003)	1	16.0	MGD	Continuous/ Estimate	NA
Flow (004)	1	17.5	MGD	Continuous/ Estimate	NA
Temperature	95°	98°	°F	Continuous	Continuous
	35°	36.7°	°C	Continuous	Continuous
pH	1	1	s.u.	1/Month	Grab
Turbidity	1	1	NTU	1/Month	Grab
Total Nitrogen	200.0 <sup>2</sup>	350.0	µg/L	1/Quarter	Grab
Ammonia Nitrogen	6.0 <sup>2</sup>	13	µg/L	1/Quarter	Grab
Nitrate + Nitrite Nitrogen	8.0 <sup>2</sup>	20.0	µg/L	1/Quarter	Grab
Total Phosphorus	25.0 <sup>2</sup>	50.0	µg/L	1/Quarter	Grab
Silica	1	1	µg/L	1/Quarter	Grab
Nickel, Total Recoverable	33	75	µg/L	1/Quarter	Grab
Whole Effluent Toxicity	--	Pass <sup>3</sup>	TUc	1/Quarter <sup>4</sup>	Grab
Priority Pollutants (specified in Appendix 1)	--	1	µg/L	1/Permit Term <sup>5</sup>	<sup>6</sup>
<b>Low Volume Wastes (003 and 004) (prior to commingling with other wastewaters)</b>					
Flow	1	0.040	MGD	Continuous/ Recorder	NA
Total Suspended Solids	30.0	100.0	mg/L	1/Month	Grab
Oil and Grease	15.0	20.0	mg/L	1/Month	Grab
pH	Not less than 6.0 nor greater than 9.0		s.u.	1/Month	Grab
<b>Metal Cleaning Wastes (003 and 004) (prior to commingling with other wastewaters)</b>					
Flow	1	0.025	MGD	Continuous/ Recorder	NA



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Effluent Characteristics	Discharge Limitations			Monitoring Requirements	
	Maximum Monthly Average	Daily Maximum	Units	Measurement Frequency	Sample Type
Total Suspended Solids	30.0	100.0	mg/L	1/Month	Grab
Oil and Grease	15.0	20.0	mg/L	1/Month	Grab
Copper, Total Recoverable	1.0	1.0	mg/L	1/Month	Grab
	0.209	0.209	lbs/day	1/Month	Grab
Iron, Total Recoverable	1.0	1.0	mg/L	1/Month	Grab
	0.209	0.209	lbs/day	1/Month	Grab
pH	Not less than 6.0 nor greater than 9.0		s.u.	1/Month	Grab

MGD – Million Gallons per Day

- 1 Monitoring and reporting required; no limitation at this time.
- 2 The annual geometric mean is not to exceed the given value.
- 3 "Pass," as described in section B.3 of this Permit.
- 4 The whole effluent toxicity monitoring shall not be conducted for an outfall if that outfall discharges less than a total of 96 hours during the quarterly monitoring period.
- 5 The Permittee shall conduct monitoring at least once within the permit term and submit the results with the permit renewal application.
- 6 As specified in Appendix 1.
  - a. Effluent monitoring for total nitrogen, total phosphorus, ammonia nitrogen, nitrate plus nitrite nitrogen, and turbidity shall be conducted on the same day that receiving water monitoring for these pollutants is conducted.
  - b. There shall be no discharge of polychlorinated biphenyl transformer fluid at any time.
  - c. There shall be no discharge of chlorine at any time.
  - d. There shall be no discharge of pollutants from water clarification and water softening treatment at any time.
  - e. There shall be no discharge of compounds used in closed-loop systems.
  - f. Samples taken in compliance with the monitoring requirements in Part A of this permit shall be taken at the following location(s):
    - (1) Condenser Cooling Water and Whole Effluent Toxicity: All samples shall be taken at Outfall Serial Nos. 001, 002, 003, and 004.
    - (2) Low Volume and Metal Cleaning Wastes: All samples shall be taken upstream, prior to combined discharge(s) with condenser cooling water(s) or any other wastewaters.

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- g. Whole Effluent Toxicity Monitoring: Shall be conducted in accordance with the provisions in Part B of this permit. Whole effluent toxicity samples shall be taken to coincide with the discharge of Low Volume Wastes and Metal Cleaning Wastes if discharged during that quarter.
- h. Oil and Grease: Oil and grease shall be measured using the EPA Method 1664, Revision A, which was approved on May 14, 1999 and became effective on June 14, 1999. Upon notification to DOH, the Discharger may use additional EPA-approved analytical methods that are consistent with the requirements of 40 CFR 136.3.

2. Storm Water Runoff (Outfall Serial Nos. 003 and 004)

Effluent Characteristics	Discharge Limitations				Monitoring Requirements	
	Average Annual	Average Monthly	Maximum Daily	Units	Measurement Frequency	Sample Type
Flow	1	1	1	MGD	Annually	Calculated or Estimate
Biochemical Oxygen Demand 5-Day @ 20°C	1	1	1	mg/L	Annually	Grab/Composite
Chemical Oxygen Demand	1	1	1	mg/L	Annually	Grab/Composite
pH	Not less than 7.0 nor greater than 8.6			s.u.	Annually	Grab
Total Suspended Solids	1	1	1	mg/L	Annually	Grab/Composite
Arsenic, Total Recoverable	--	--	69	µg/L	Annually	Grab/Composite
Copper, Total Recoverable	--	--	3.0	µg/L	Annually	Grab/Composite
Lead, Total Recoverable	--	--	140	µg/L	Annually	Grab/Composite
Nickel, Total Recoverable	--	--	75	µg/L	Annually	Grab/Composite
Nitrate plus Nitrite Nitrogen	1	1	20 <sup>2</sup>	µg/L	Annually	Grab/Composite
Oil and Grease	--	15.0	--	mg/L	Annually	Grab
Total Nitrogen	1	1	350 <sup>2</sup>	µg/L	Annually	Grab/Composite
Total Phosphorus	1	1	1	µg/L	Annually	Grab/Composite
Zinc, Total Recoverable	--	--	95	µg/L	Annually	Grab/Composite

<sup>1</sup> No limitations at this time. Only monitoring and reporting is required.

<sup>2</sup> Not to exceed the given value more than 2% of the time.

**a. Storm Water Pollution Control Plan (SWPCP)**

The Permittee shall:

- (1) Continue to implement the current SWPCP and subsequent submittals (if applicable), until the Permittee develops and submits the updated SWPCP to the Director.
- (2) Submit an updated SWPCP to the Director within 90 calendar 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 discharge quality and/or control practices, or, as required by the Director.
- (5) Report any changes of amendments to the SWPCP to the Director within 30 calendar 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.

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 72 hours after the previous measurable (greater than 0.1 inch) rainfall.

For storm water monitoring in accordance with Parts A.2 and A.2.b 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 (2) or more samples are collected, they shall be analyzed as a composite sample.

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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.

b. **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 the table at Part A.2. 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 the table at Part A.2 of this Permit.

3. **Interim Effluent Limitations for Outfall Serial Nos. 001, 002, 003, and 004**

- a. The Permittee shall maintain compliance with the following interim effluent limitations for ammonia nitrogen, nitrate plus nitrite, total nitrogen, and total phosphorus at Outfall Serial Nos. 001, 002, 003, and 004. The interim effluent limitations shall be effective from the effective date of this permit through <9.5 years from effective date>, or 3 months after completion of Task 7 specified in Part A.3.b of this permit, whichever occurs first.

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
001	Ammonia Nitrogen	µg/L	2,367	4,463
	Nitrate + Nitrite Nitrogen	µg/L	9	53
	Total Nitrogen	µg/L	2,908	5,013
	Total Phosphorus	µg/L	116	150

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Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
002	Ammonia Nitrogen	µg/L	559	1,512
	Nitrate + Nitrite Nitrogen	µg/L	15	31
	Total Nitrogen	µg/L	852	1,792
	Total Phosphorus	µg/L	115	183

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
003	Ammonia Nitrogen	µg/L	94	327
	Nitrate + Nitrite Nitrogen	µg/L	33	274
	Total Nitrogen	µg/L	362	788
	Total Phosphorus	µg/L	98	169

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
004	Ammonia Nitrogen	µg/L	69	131
	Nitrate + Nitrite Nitrogen	µg/L	139	229
	Total Nitrogen	µg/L	345	497
	Total Phosphorus	µg/L	121	156

- b. The Permittee shall implement the following tasks to comply with the final effluent limitations for nutrients established in Part A.1 of this Permit. These tasks shall be completed as soon as reasonably possible, but no later than the compliance dates specified below.

**Compliance Schedule**

Task	Compliance Date
1. The Permittee shall define the generating capacity necessary to replace and retire the Facility and evaluate feasible and alternative sources of power. Further, the Permittee shall define the potential system upgrades to retire the Facility. An Initial Evaluation Report detailing the generating capacity to be replaced, the potential options to replace the necessary generating capacity, and an estimated time frame for the potential options, and a summary of the potential system upgrades shall be submitted to DOH.	<1 Years>
2. Starting 3 years after the effective date of the permit, Maui Electric's Adequacy of Supply (AOS) submissions shall reflect the Permittee's plan to discontinue electrical generation at the Facility no later than <9.5 years after the effective date of this permit >.	<3 Years>
3. Subsequent NPDES permit renewal application will incorporate the Permittee's plan to discontinue discharges to receiving waters from the Facility no later than <9.5 years after the effective date of this permit >.	<4.5 Years>
4. Prepare a Decommissioning Plan for discontinuing electrical generation at the Facility consistent with environmental and safety considerations.	<7.5 Years>
5. Commence implementation of Decommissioning Plan.	<8.5 Years>
6. The Permittee shall submit an annual report to DOH providing a status update of all tasks to date related to the discontinuation of discharges to receiving waters from the Facility. The report shall include: (1) a summary of any changes or delays including a detailed description of the cause for delays, (2) the status of any Public Utilities Commission (PUC) dockets to the extent they may affect the Permittee's plans to discontinue electrical generation at the Facility, and (3) a description of the steps necessary to ensure the discontinuation of discharges to receiving waters from the Facility by the final compliance date <9.5 years after the effective date of this permit>.	Annually
7. The Permittee shall discontinue all discharges to receiving waters from the Facility.	<9.5 Years>

- c. Fourteen (14) days prior to each interim date, the Permittee shall notify DOH in writing of its compliance or noncompliance with the above compliance schedules. If the Permittee did not comply with an interim compliance date, the Permittee shall provide the reason for the delay and a proposed schedule to comply with the applicable interim compliance task. The report shall further include status updates regarding compliance with all the specified interim tasks and discuss any known potential issues that may delay achieving compliance with any of the interim tasks or compliance with the final effluent limitations.

- d. If the Permittee fails or refuses to comply with the established compliance schedule, noncompliance shall constitute a violation of this permit for which the Director may modify, revoke and reissue, or terminate permit coverage or take direct enforcement action.

## B. WHOLE-EFFLUENT TOXICITY REQUIREMENTS

### 1. Monitoring Frequency

The Permittee shall conduct quarterly chronic toxicity tests using grab effluent samples, in accordance with the procedures outlined below. Whole-effluent toxicity monitoring is not required for an outfall if that outfall discharges less than a total of 96-hours during the quarterly monitoring period.

For whole effluent toxicity tests using *Tripneustes gratilla*, if the Permittee has unacceptable control performance while conducting the sea urchin sperm/fertilization bioassay during a monitoring period, the Permittee shall document its efforts, communicate all attempts to the Director, and report all attempts on the DMR for that monitoring period.

### 2. Test Species and Methods

The Permittee shall conduct chronic toxicity testing on *T. gratilla* using Hawaiian Collector Urchin, *Tripneustes gratilla* (Hawa'e) Fertilization Test Method (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) and follow Quality Assurance procedures as described in the test methods manual *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).

### 3. Chronic WET Permit Limit

All State waters shall be free from chronic toxicity as measured using the toxicity tests listed in HAR, Section 11-54-10, or other methods specified by the Director. For this discharge, the determination of "Pass" or "Fail" from a single-effluent concentration chronic toxicity test at the applicable IWC using the Test of Significant Toxicity (TST) approach described in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010). For any one chronic toxicity test, the chronic WET permit limit that must be met is rejection of the null hypothesis ( $H_0$ ):



IWC (100 percent effluent) mean response  $\leq 0.75 \times$  Control mean response.

- a. For Outfall Serial Nos. 001, 002, 003, and 004, an IWC of 100% shall be used.

A test result that rejects this null hypothesis is reported as "Pass" on the DMR form. A test result that does not reject this null hypothesis is reported as "Fail" on the DMR form. To calculate either "Pass" or "Fail", the permittee shall follow the instructions in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, Appendix A. If a test result is reported as "Fail", then the permittee shall follow Part B.6 (Accelerated Toxicity Testing and TRE/TIE Process) of this permit.

#### 4. Quality Assurance

- a. Quality assurance measures, instructions, and other recommendations and requirements are found in the chronic test methods manual previously referenced. Additional requirements are specified below.
- b. This discharge is subject to a determination of "Pass" or "Fail" from a single-effluent concentration chronic toxicity test at the IWC (for statistical flowchart and procedures, see National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document, Appendix A, Figure A-1). During Step 6 of Appendix A, the Permittee shall use an alpha value of 0.05 for *T. gratilla*. The chronic IWC for Outfall Serial Nos. 001, 002, 003, and 004 is 100 percent effluent.
- c. If organisms are not cultured in-house, then concurrent testing with a reference toxicant shall be conducted. If organisms are cultured in-house, then monthly reference toxicant testing is sufficient. Reference toxicant tests and effluent toxicity tests shall be conducted using the same test conditions (e.g., same test duration, etc.).
- d. All multi-concentration reference toxicant test results must be reviewed and reported according to EPA guidance on the evaluation of concentration-response relationships found in *Method Guidance and Recommendations for Whole Effluent Toxicity (WET) Testing* (40 CFR 136) (EPA/821/B-00/004, 2000).

- e. If either the reference toxicant or effluent toxicity tests do not meet all test acceptability criteria in the test methods manual, then the Permittee shall re-sample and re-test within 14 calendar days.

**5. Initial Investigation TRE Work Plan**

Within 90 calendar days of the permit effective date, the Permittee shall prepare and submit to the Director a copy of its Initial Investigation Toxicity Reduction Evaluation (TRE) Work Plan (1-2 pages) for review. This plan shall include steps the Permittee intends to follow if toxicity is measured above the chronic WET permit limit and shall include the following, at minimum:

- a. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.
- b. A description of methods for maximizing in-house treatment system efficiency, good housekeeping practices, and a list of all chemicals used in operations at the facility.
- c. An indication of who would conduct the TIEs if a Toxicity Identification Evaluation (TIE) is necessary (i.e., an in-house expert or outside contractor).
- d. A flow chart of the workplan steps.

**6. Accelerated Toxicity Testing and TRE/TIE Process**

- a. If the chronic WET permit limitation is exceeded and the source of toxicity is known (e.g., a temporary plant upset), then the Permittee shall conduct one additional toxicity test using the same species and test method. This toxicity test shall begin within 14 calendar days of receipt of a test result exceeding the chronic WET permit limit. If the additional toxicity test does not exceed the chronic WET permit limitation, then the Permittee may return to the regular testing frequency.
- b. If the chronic WET permit limit is exceeded and the source of toxicity is not known, then the Permittee shall conduct six (6) additional toxicity tests using the same species and test method, approximately every two (2) weeks, over a 12 week period. This testing shall begin within 14 calendar days of receipt of a test result exceeding the chronic WET

permit limit. If none of the additional toxicity tests exceed the chronic WET permit limit, then the Permittee may return to the regular testing frequency.

- c. If one (1) of the additional toxicity tests (in Paragraph Parts B.6.a or B.6.b) exceeds the chronic WET permit limitation, then, within 14 calendar days of receipt of this test result, the Permittee shall initiate a TRE using, according to the type of treatment facility, EPA manual *Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants* (EPA/833/B-99/002, 1999) or EPA manual *Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations* (EPA/600/2-88/070, 1989). In conjunction, the Permittee shall develop and implement a Detailed TRE Work Plan which shall include the following: further actions undertaken by the Permittee to investigate, identify, and correct the causes of toxicity; actions the Permittee will take to mitigate the effects of the discharge and prevent the recurrence of toxicity; and a schedule for these actions.
- d. The Permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test method and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). Further, the Permittee may be required by the Director to initiate a TIE as part of a TRE.
- e. Prior to conducting a TIE, the Permittee shall submit a TIE plan to the Director. The TIE plan, at a minimum shall:
  - (1) Discuss previous TIE efforts and other available data useful in developing TIE procedures;
  - (2) Evaluate available operations and effluent data;
  - (3) Identify and discuss site-specific considerations for the TIE effort;

- (4) Include a comprehensive quality control program;
- (5) Establish a monitoring program;
- (6) Identify test methods and statistical methods to be used for the TIE effort;
- (7) Identify the TIE procedures for the baseline toxicity tests and TIE manipulations;
- (8) Discuss additional potential analysis that might be helpful in evaluating the causative toxicant(s) or appropriate treatability, such as pollutant scans for toxic effluent;
- (9) Discuss the personnel and their qualifications for the team conducting the TIE results interpretation; and,
- (10) Include follow-up procedures for use if the TIE is inconclusive.

The Permittee shall incorporate all comments received from the Director within 14 calendar days of the TIE plan submittal. Within 14 calendar days of the TIE plan submittal, the Permittee shall commence with the TIE.

#### 7. Reporting of Chronic Toxicity Monitoring Results

- a. The Permittee shall report on the DMR for the month in which the toxicity test was conducted: "Pass" or "Fail" (based on the Welch's t-test result), the calculated "percent mean response at IWC," where:

percent mean response at IWC =  $((\text{Control mean response} - \text{IWC mean response}) \div \text{Control mean response}) \times 100$ ,

and to assist in evaluation of the test result, the standard deviations for the IWC mean response and the Control mean response.

- b. The Permittee shall submit a full laboratory report for all toxicity testing as an attachment to the DMR for the month in which the toxicity test was conducted. The laboratory report shall contain: the toxicity test results; the dates of sample collection and initiation of each toxicity test; all results for effluent parameters monitored concurrently with the toxicity test(s); and progress reports on TRE/TIE investigations.
- c. The Permittee shall notify the Director in writing within five (5) calendar days of exceedance of the chronic WET permit limitation. This notification shall describe actions the permittee has taken or will take to investigate, identify, and correct the causes of toxicity; the status of actions required by this permit; and schedule for actions not yet completed; or reason(s) that no action has been taken.

8. **Permit Reopener for Chronic Toxicity**

In accordance with 40 CFR Parts 122 and 124, this permit may be modified to include new effluent limitations or permit conditions to address chronic toxicity in the effluent or receiving waterbody, as a result of the discharge; or to implement new, revised, or newly interpreted water quality standards applicable to chronic toxicity.

**C. WATER QUALITY CRITERIA**

1. Basic Water Quality Criteria Applicable to All Waters:
  - a. The discharge shall comply with applicable water quality standards for receiving waters adopted by the DOH under HAR, Chapter 11-54, Water Quality Standards, effective October 21, 2012.
  - b. The discharge 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.
  - c. The discharge of effluent through Outfall Serial Nos. 001, 002, 003, and 004 shall not cause the following water quality criteria to be violated:
    - (1) All State waters shall be free from pollutants in concentrations which exceed the acute standards listed in HAR 11-54-4(b)(3). All State waters shall also be free from acute toxicity as measured using the toxicity tests listed in HAR 11-54-11, or other methods specified by the Director.
    - (2) All State waters shall be free from pollutants in concentrations which on average during any 24 hour period exceed the chronic standards listed in HAR 11-54(b)(3). All State waters shall also be free from chronic toxicity as measured using the toxicity tests listed in HAR 11-54-10, or other methods specified by the Director.
    - (3) All State waters shall be free from pollutants in concentrations which, on average during any 30-day period, exceed the "fish consumption" standards for non-carcinogens in HAR 11-54-4(b)(3). All State waters shall also be free from pollutants in concentrations, which on average during any 12-month period, exceed the "fish consumption" standards for pollutants identified as carcinogens in HAR 11-54-4-(b)(3).
    - (4) All waters shall be free of substances attributable to domestic, industrial, or other controllable sources of pollutants, include:
      - i. Material that will settle to form objectionable sludge or bottom deposits;
      - ii. Floating debris, oil, grease, scum, or other floating materials;

- iii. Substances in amounts sufficient to produce taste in the water or detectable off-flavor in the flesh of fish, or in amounts sufficient to produce objectionable color, turbidity or other conditions in the receiving waters;
- iv. High or low temperatures; biocides; pathogenic organisms; toxic, radioactive, corrosive, or other deleterious substances at levels or in combinations sufficient to be toxic or harmful to human, animal, plant, or aquatic life, or in amounts sufficient to interfere with any beneficial use of the water;
- v. Substances or conditions or combinations thereof in concentrations which produce undesirable aquatic life; and
- vi. Soil particles resulting from erosion on land involved in earthwork, such as the construction of public works; highways; subdivisions; recreational, commercial, or industrial developments; or the cultivation and management of agricultural lands.

**D. ZONE OF MIXING LIMITATIONS**

1. Zone of Mixing (ZOM)

The ZOM shall be established for the assimilation of once-through condenser cooling water, low volume wastes, and treated metal cleaning wastes at a design flows of:

Outfall Serial No.	Once-through cooling water (MGD)	Low Volume Wastes (MGD)	Metal Cleaning Wastes (MGD)
001	10.7	--	--
002	10.7	--	--
003	16.0	0.04	0.025
004	17.5		

The ZOM is within the area off Kahului of a radius 1,500 feet about the discharges located at Latitude 20°55'00"N and Longitude 156°27'55"W and areas 500 feet in width extending 3,000 feet along the shore on either sides of the discharge.

The discharge of treated wastewater through Outfall Serial Nos. 001, 002, 003, and 004 shall not cause the following water quality criteria to be violated in Class A Wet Embayments beyond the ZOM:

Parameter	Units	Geometric mean not to exceed the given value <sup>1</sup>	Not to exceed the given value more than 10% of the time <sup>1</sup>	Not to exceed the given value more than 2% of the time <sup>1</sup>
Chlorophyll a	µg/L	1.5	4.5	8.5
Turbidity	NTU	1.5	3.0	5.0
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	% saturation	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	ppt	Shall not vary more than 10 percent from natural or seasonal changes considering hydrologic input and oceanographic factors.		

<sup>1</sup> To be evaluated on an annual basis.



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The specific water quality criteria set forth in the table above may be exceeded within the boundaries of the ZOM and shall not constitute a violation of this permit. Compliance with the geometric mean shall be evaluated based on a calendar year.

## E. RECEIVING WATER MONITORING PROGRAM REQUIREMENTS

The Permittee shall conduct receiving water monitoring at offshore stations, as described below. Results may be used to evaluate compliance with water quality standards specified in Part D of this permit.

### 1. Offshore Water Quality Monitoring

Offshore water quality monitoring data are used to determine compliance with State water quality standards. Three (3) stations along the edge of the ZOM and two reference stations shall be monitored as noted below. The ZOM monitoring station locations (including applicable latitude and longitude) shall be specified in the Receiving Water Monitoring Program.

The following water quality parameters shall be sampled:

Parameter	Units	Sample Type	Monitoring Frequency
Total Nitrogen	µg/L	Grab	1/Quarter <sup>1</sup>
Ammonia Nitrogen	µg/L	Grab	1/Quarter <sup>1</sup>
Nitrate + Nitrite Nitrogen	µg/L	Grab	1/Quarter <sup>1</sup>
Total Phosphorus	µg/L	Grab	1/Quarter <sup>1</sup>
Chlorophyll <i>a</i>	µg/L	Grab	1/Quarter <sup>1</sup>
pH	s.u.	Grab	1/Quarter <sup>1</sup>
Temperature	°C	Grab	1/Quarter <sup>1</sup>
Silica	µg/L	Grab	1/Quarter <sup>1</sup>

<sup>1</sup> Monitoring is not required if the Facility discharges less than a total of 96 hours during the quarterly monitoring period.

Inability to conduct offshore monitoring due to inclement weather or hazardous conditions which may endanger the lives of the facility's personnel shall not constitute a violation of this permit.

Monitoring results shall be reported in quarterly DMRs. The DMRs submitted shall include monitoring results and probable sources and an explanation of any exceedances.

### 2. Bottom Biological Community Monitoring

Beginning on the effective date of this permit, the receiving water bottom biological communities shall be monitored at least once every two (2) years. The monitoring performed shall include the diversity and distribution of the bottom biological communities. On January 28<sup>th</sup> of each year, a report

summarizing the bottom biological communities monitoring performed during the past calendar year shall be submitted to the DOH. For the first calendar year of permit reissuance, the associated report shall summarize the biological communities monitoring performed during the remaining months in the year, upon obtaining program approval. A program of research to develop reasonable alternatives to the methods of treatment of control in use may be required if research is deemed prudent by the Director. This monitoring requirement may be waived upon demonstrating to the Director, with the concurrence of the EPA that the discharge does not impact the existing bottom biological communities or no bottom biological communities exist in the receiving water.

**F. REPORTING REQUIREMENTS**

1. Schedule of Submission

a. Effluent and Receiving Water Monitoring Programs

(1) Effluent Monitoring Program

Within 30 calendar days after the effective date of this permit, the Permittee shall submit an updated/revised Effluent Monitoring Program which complies with Part A of this permit to the Director for approval.

(2) Receiving Water Monitoring Program

Within 30 calendar days after the effective date of this permit, the Permittee shall submit an updated/revised Receiving Water Monitoring Program which complies with Part E of this permit to the Director for approval.

(3) The Programs(s) shall include at a minimum, but not be limited to the following:

- (a) Sampling location map;
- (b) Sample holding time;
- (c) Preservation techniques;
- (d) Test method and method detection level; and
- (e) Quality control measures.

The DOH reserves the right to require the Permittee to revise the approved program, as appropriate, pursuant toward compliance with the terms and conditions of this permit.

Monitoring shall be conducted according to test procedures approved under 40 CFR 136 with detection limits low enough to measure the compliance with Part A of this permit. For cases where the discharge limitation is below the lowest detection limit of the appropriate test procedure, the compliance shall be based upon the lowest detection limit of the method.

If a test method has not been promulgated for a particular constituent, the Permittee may use any suitable method for measuring the level of

the constituent in the discharge provided the Permittee submit a description of the method or a reference to a published method.

- (4) The Permittee shall submit to the Director by January 30<sup>th</sup> of each year, an annual summary of the quantities of all chemicals, listed by both chemical and trade names, which are used for cooling and/or boiler water treatment and which are discharged.
- (5) The Permittee shall submit a receiving water bottom biological communities monitoring program detailing the requirements in accordance with Part E.2 to the Director for approval within 60 calendar days after the effective date of the permit.
- (6) The Permittee shall submit an initial investigation TRE workplan in accordance with Part B.5 to the Director and EPA, Region 9 within 90 calendar days after the effective date of the modified permit.
- (7) Within 90 calendar days after the effective date of this permit, the Permittee shall submit an updated SWPCP in accordance with Part A.2.a to the Director.

## 2. Transmittal and Monitoring Results Reporting Requirements

### a. Certification of Transmittals

Submit all information in accordance with HAR, Section 11-55-07(b), with the following certification statement by an appropriate signatory:

**"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 or imprisonment for knowing violations."**

- b. Include **Permit No. HI 0000094** on each transmittal.

Failure to provide the assigned permit number for this facility on future correspondence or transmittals may be a basis for delay of the processing of the document(s).

- c. Reporting of Discharge and Monitoring Results

- (1) All effluent monitoring, sample preservation, and analyses shall be performed as described in the most recent edition of 40 CFR 136, unless otherwise specified in this permit. All receiving water monitoring, sample preservation, and analyses shall be performed as specified in this permit.
- (2) In accordance with 40 CFR 122.45(c), effluent analyses for metals shall be reported as total recoverable.
- (3) Monitoring results shall be reported on a Discharge Monitoring Report (DMR) form (EPA No. 3320-1). The results of all monitoring required by this permit shall be submitted in a format which allows direct comparison with the limitations in Part A and other requirements of this permit.
- (4) For the purposes of reporting, the Permittee shall use the reporting threshold equivalent to the laboratory's method detection limit (MDL). As such, the Permittee must conduct influent and effluent analyses in accordance with the method specified Appendix 1 of this permit and must utilize a standard calibration where the lowest standard point is equal to or less than the concentration of the minimum level (ML).
  - i. The MDL is defined as the minimum concentration of an analyte that can be detected with 99% confidence.
  - ii. The ML is defined as the concentration in a sample equivalent to the concentration of the lowest calibration standard analyzed in a specific analytical procedure, assuming that all the method-specific sample weights, volumes, and processing steps have been followed. Where a promulgated ML is not available, an interim ML is calculated using a factor of 3.18 times the MDL.

Analytical results at or above the laboratory's ML shall be reported on DMRs as the measured concentration. For analytical results between the MDL and the ML, the Permittee shall report in the comment section on the DMR the sigma ( $\sigma$ ) value (determined by the laboratory during the MDL study). Analytical results below the laboratory's MDL shall be reported as less than the MDL (i.e., "< 10").

(5) Should there be no discharges during the monitoring period, the DMR form shall so state.

d. Additional Monitoring by the Permittee

If the Permittee monitors any pollutant at location(s) designated herein more frequently than required by this permit, using approved analytical methods as specified in 40 CFR 136, the results of such monitoring shall be included in the calculation and reporting of the values required in the DMR form. The increased frequency shall also be indicated.

e. Submittal of Monitoring Results Using NetDMR

The Permittee shall submit DMRs required under this permit electronically using NetDMR. NetDMR is accessed from: <http://www.epa.gov/netdmr>.

DMRs shall be submitted electronically no later than the 28th day of the month following the completed reporting period. Once a Permittee begins submitting DMRs using NetDMR, it will no longer be required to submit hard copies of DMRs to the Director, unless otherwise requested by the Director.

f. Schedule of Submission

(1) The Permittee shall submit reports to the Director as specified below.

Report	Reporting Period	Report Due Date
Discharge Monitoring Report (Part F.2.e)	1/Month	28 <sup>th</sup> day of the month following completed reporting period
Effluent Monitoring Program (Part F.1.a.(1))	1/Permit Term	30 days after permit effective date
Receiving Water Monitoring Program (Part F.1.a.(2))	1/Permit Term	30 days after permit effective date
Annual Chemical Use Summary Report (Part F.1.a.(4))	1/Year	January 30 <sup>th</sup> of each year

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Report	Reporting Period	Report Due Date
Receiving Water Bottom Biological Communities Monitoring Program (Part F.1.a.(5))	1/Permit Term	60 days after permit effective date
Receiving Water Bottom Biological Communities Annual Report(Part E.2)	1/Year	January 28 <sup>th</sup> of each year
Initial Investigation TRE Workplan (Part F.1.a.(6))	1/Permit Term	90 days after permit effective date
Updated Storm Water Pollution Control Plan (Part F.1.a.(7))	1/Permit Term	90 days after permit effective date

Signed copies of monitoring and all other reports required by this permit, except those described in Part F.2.e of this permit, shall be submitted to the Director through the CWB Compliance Submittal Form for Individual NPDES Permits and NGPCs. This form is accessible through the e-Permitting Portal website at: <https://eha-cloud.doh.hawaii.gov/epermit/View/home.aspx>. You will be asked to do a one-time registration to obtain your login and password. After you register, click on the Application Finder tool to locate the form. Follow the instruction to complete and submit this form. All submissions shall include a CD or DVD containing the downloaded e-Permitting submission and a completed Transmittal Requirements and Certification Statement for e-Permitting NPDES/NGPC Compliance Submissions Form, with original signature and date.

(2) The Permittee shall submit reports to the Director as specified below.

Report	Reporting Period	Report Due Date
Offshore Water Quality Monitoring	1/Quarter	90 <sup>th</sup> day following completed reporting period
STORET (or equivalent) Data Submission Report (Submit to EPA Only)	1/Year	March 31 of each year

Signed copies of monitoring and all other reports required by this permit, except those described in Part F.2.e of this permit, shall be submitted to the Director through the CWB Compliance Submittal Form for Individual NPDES Permits and NGPCs. This form is accessible through the e-Permitting Portal website at: <https://eha-cloud.doh.hawaii.gov/epermit/View/home.aspx>.



3. Reporting of Noncompliance, Unanticipated Bypass, or Upset

The following requirements replace the 24-hour notice requirements for bypasses (Standard NPDES Conditions Section 17(d)(2)(B) and 40 CFR Section 122.41(1)(6)(ii)(A)) and upsets (Standard NPDES Conditions Section 18(c)(3) and 40 CFR Section 122.41(1)(6)(ii)(B)).

a. Immediate Reporting

- (1) In the event of a bypass, upset, or sewage spill resulting in or contributing to a discharge to State waters, the Permittee shall orally notify the DOH at the time the Permittee's authorized personnel become aware of the circumstances, but no later than 24 hours after the event.
- (2) In the event of a bypass, upset, or sewage spill resulting in or contributing to a discharge of 1,000 gallons or more to State waters, the Permittee shall orally notify the DOH and the AP news wire services at the time the Permittee's authorized personnel become aware of the circumstances, but no later than 24 hours after the event.
- (3) In the event of an exceedance of a daily maximum discharge limitation, if any exist, the Permittee shall orally notify the DOH at the time the Permittee's authorized personnel becomes aware of the circumstances, but no later than 24 hours after the event.

b. Contact for Oral Reports

- (1) The Permittee shall make oral reports during regular office hours (7:45 a.m. to 4:30 p.m.) to the DOH, Clean Water Branch (CWB) at 586-4309.
- (2) The Permittee shall make oral reports outside of regular office hours to the State-On-Scene Coordinator (SOSC) from the Office of Hazard Evaluation and Emergency Response (HEER) at 226-3799, or to the State Hospital Operator at 247-2191.

c. Written Submission

- (1) For those non-compliances requiring immediate reporting, the Permittee shall submit a written non-compliance report. The Permittee shall submit the report to the DOH, CWB, in accordance with Part F.3.a within

five working days after the Permittee's authorized personnel becomes aware of the noncompliance.

- (2) The report shall contain a description of the non-compliance and its cause; the period of non-compliance, including exact dates and times; if the non-compliance has not been corrected, the anticipated time it is expected to continue; public notice efforts, if any; clean-up efforts, if any; and steps taken or planned to reduce, eliminate and prevent reoccurrence of the non-compliance.
- (3) The Director may waive the written report or the five (5) working day deadline on a case-by-case basis for spills, bypasses, upsets, and violations of daily maximum discharge limitations if the oral report has been received within 24 hours of the non-compliance or when the Permittee's authorized personnel becomes aware of the non-compliance.

d. Other Non-Compliance

The Permittee shall report all other instances of non-compliance not reported under Part F.3.a at the time DMRs are submitted as required by Part F.2 of this permit. The non-compliance reports shall contain the information requested in Part F.3.c.(2) of this permit.

4. Other Reporting Requirements

The Permittee shall comply with the reporting requirements of 40 CFR 122.41(l)(1) through 122.41(l)(5), and 122.41(l)(8) as incorporated by Standard NPDES Permit Conditions, Section 16. Parts F.1 and F.2 of this permit supersede the requirements of 40 CFR 122.41(l)(6) and 122.41(l)(7).

5. Planned Changes

Any planned physical alterations or additions to the permitted facility, not covered by Standard Condition 16.a.(1), (2) or (3) shall be reported to the Director on a quarterly basis.

6. Types of Sample

- a. "Grab sample" means an individual sample collected at a randomly-selected time over a period not exceeding 15 minutes.

- b. "Composite sample" means a combination of at least eight (8) sample aliquots, collected at periodic intervals during the operating hours of the facility over a 24-hour period. 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 stream flow at the time of sampling or the total stream flow since the collection of the previous aliquot. Aliquots may be collected manually or automatically.

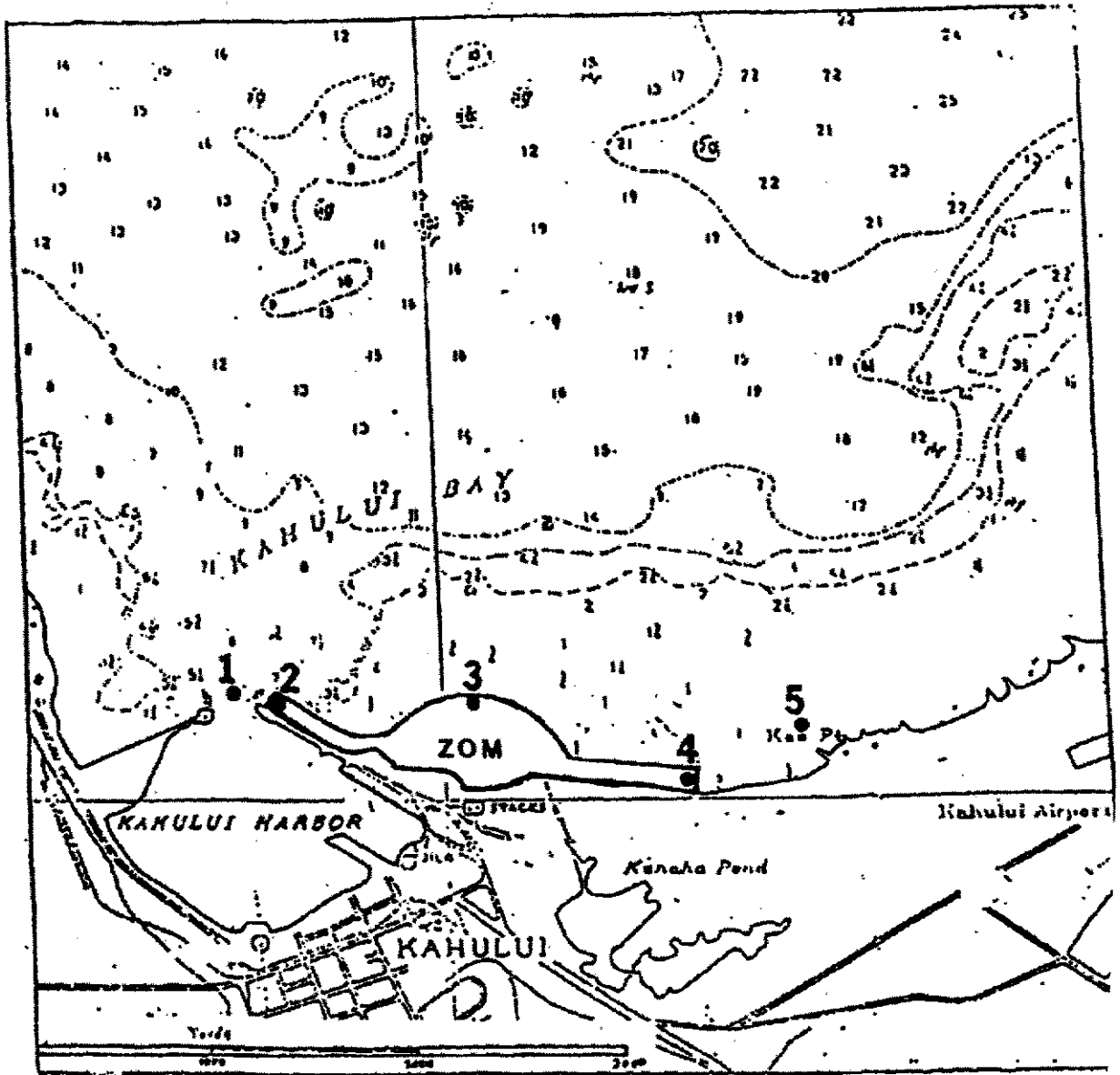
**G. SPECIAL CONDITIONS**

1. This permit may be reopened and modified, in accordance with NPDES regulations at 40 CFR 122 and 124, as necessary, to include additional conditions or limitations based on newly available information.

0000094.FNL.15

H. LOCATION AND ZOM AND RECEIVING WATER STATION MAPS

Figure H-1



Kahului Station Zone of Mixing and Sampling Station Locations

Figure H-2

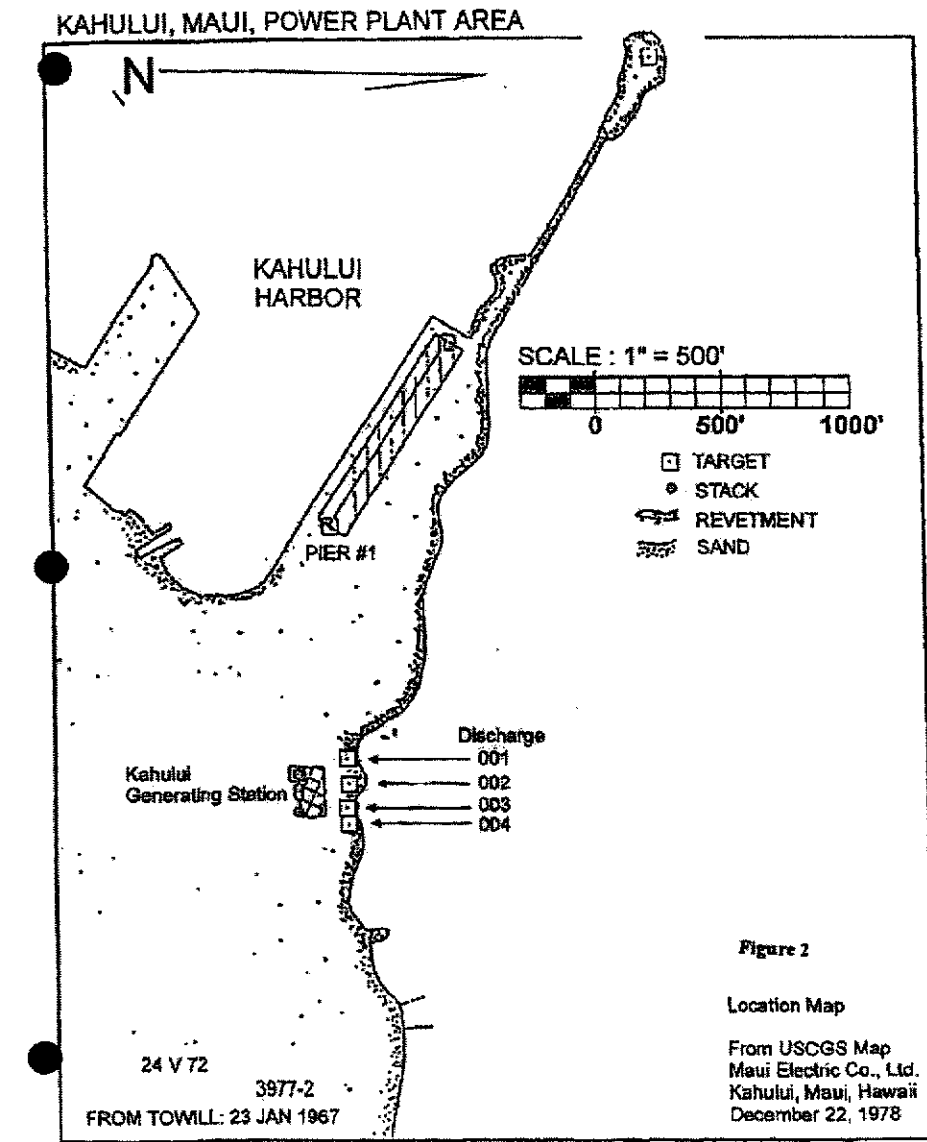
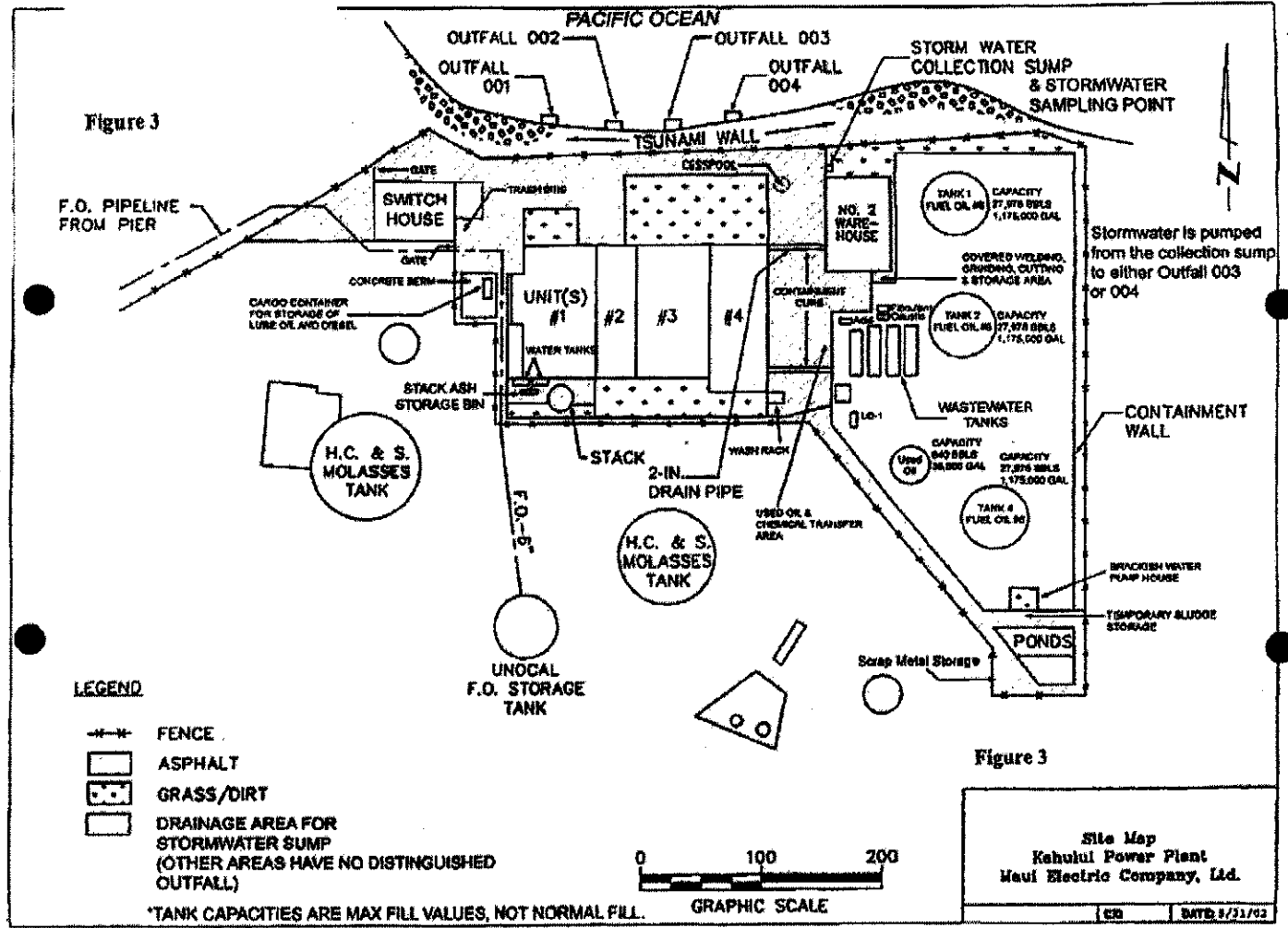


Figure H-3



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Figure H-4

Kahului Generating Station  
 Water Flow Diagram

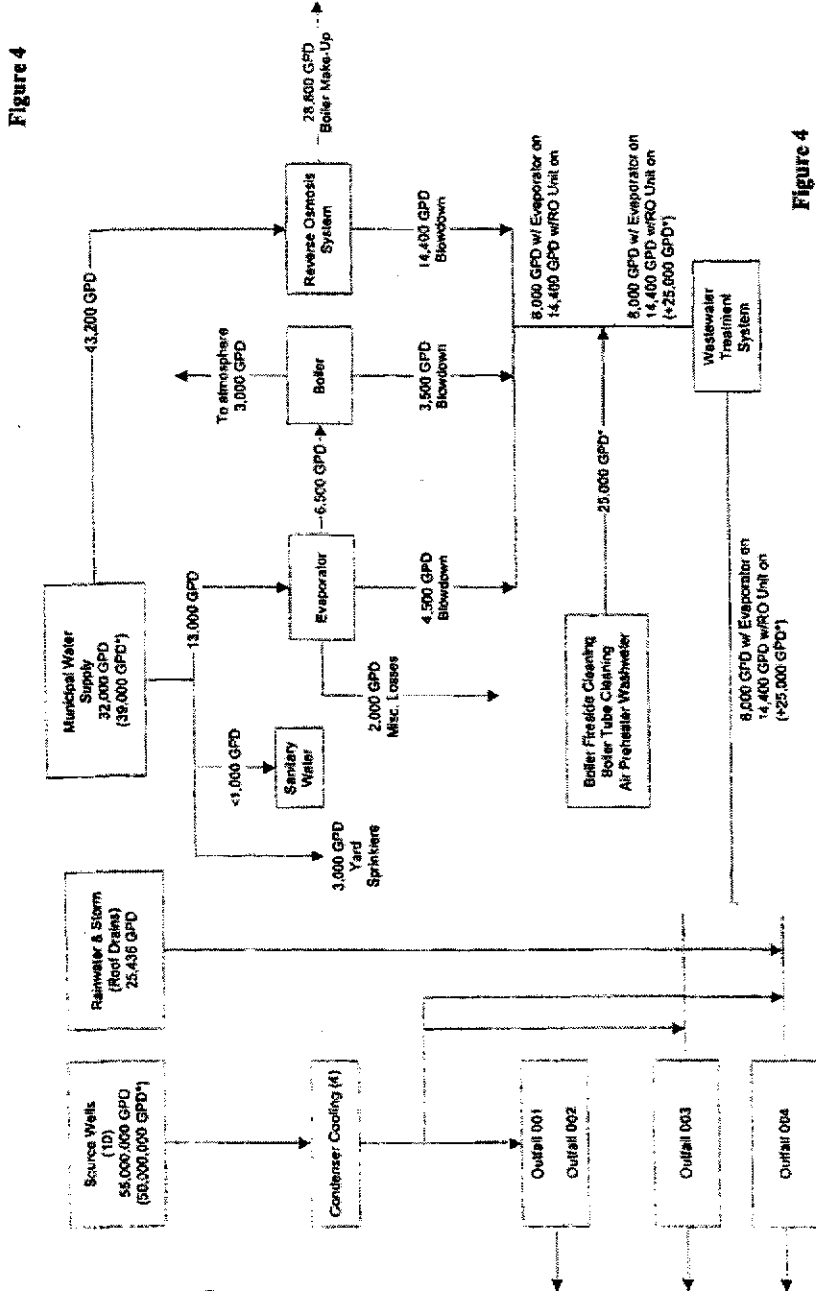


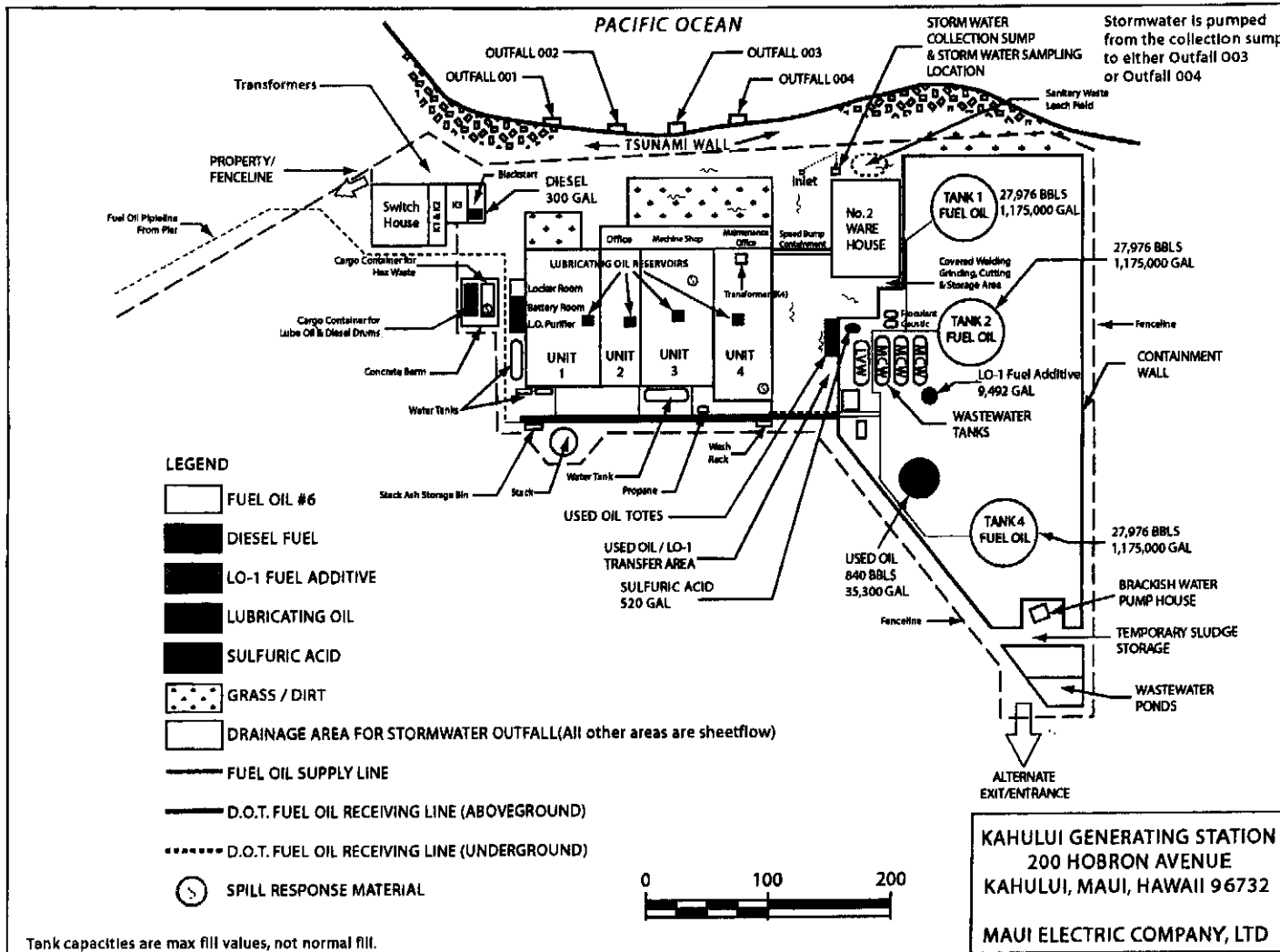
Figure 4

Figure 4

\*Flow rate during maintenance period  
 (Approximately 24 days/year)

See Attachment for more information  
 9/24/03





Tank capacities are max fill values, not normal fill.

Site Map - Kahului Generating Station

APPENDIX 1 – MONITORING METHODS

Discharge Parameter	Sample Type	Analytical Method
<b>Metals</b>		
Antimony	24-Hour Composite	As specified in 40 CFR 136
Arsenic	24-Hour Composite	As specified in 40 CFR 136
Beryllium	24-Hour Composite	As specified in 40 CFR 136
Cadmium	24-Hour Composite	As specified in 40 CFR 136
Chromium	24-Hour Composite	As specified in 40 CFR 136
Copper	24-Hour Composite	As specified in 40 CFR 136
Lead	24-Hour Composite	As specified in 40 CFR 136
Mercury	24-Hour Composite	As specified in 40 CFR 136
Nickel	24-Hour Composite	As specified in 40 CFR 136
Selenium	24-Hour Composite	As specified in 40 CFR 136
Silver	24-Hour Composite	As specified in 40 CFR 136
Thallium	24-Hour Composite	As specified in 40 CFR 136
Zinc	24-Hour Composite	As specified in 40 CFR 136
<b>Pesticides</b>		
Aldrin	24-Hour Composite	As specified in 40 CFR 136
Chlordane	24-Hour Composite	As specified in 40 CFR 136
Dieldrin	24-Hour Composite	As specified in 40 CFR 136
4,4'-DDT	24-Hour Composite	As specified in 40 CFR 136
4,4'-DDE	24-Hour Composite	As specified in 40 CFR 136
4,4'-DDD	24-Hour Composite	As specified in 40 CFR 136
Alpha-Endosulfan	24-Hour Composite	As specified in 40 CFR 136
Beta Endosulfan	24-Hour Composite	As specified in 40 CFR 136
Endosulfan Sulfate	24-Hour Composite	As specified in 40 CFR 136
Endrin	24-Hour Composite	As specified in 40 CFR 136
Endrin Aldehyde	24-Hour Composite	As specified in 40 CFR 136
Heptachlor	24-Hour Composite	As specified in 40 CFR 136
Heptachlor Epoxide	24-Hour Composite	As specified in 40 CFR 136
Alpha BHC	24-Hour Composite	As specified in 40 CFR 136
Beta BHC	24-Hour Composite	As specified in 40 CFR 136
Delta BHC	24-Hour Composite	As specified in 40 CFR 136
Gamma BHC (Lindane)	24-Hour Composite	As specified in 40 CFR 136
Toxaphene	24-Hour Composite	As specified in 40 CFR 136
PCB 1016	24-Hour Composite	As specified in 40 CFR 136
PCB 1221	24-Hour Composite	As specified in 40 CFR 136
PCB 1232	24-Hour Composite	As specified in 40 CFR 136
PCB 1242	24-Hour Composite	As specified in 40 CFR 136
PCB 1248	24-Hour Composite	As specified in 40 CFR 136
PCB 1254	24-Hour Composite	As specified in 40 CFR 136
PCB 1260	24-Hour Composite	As specified in 40 CFR 136
<b>Base/Neutral Extractables</b>		
Acenaphthene	24-Hour Composite	As specified in 40 CFR 136
Acenaphthylene	24-Hour Composite	As specified in 40 CFR 136
Anthracene	24-Hour Composite	As specified in 40 CFR 136
Benidine	24-Hour Composite	As specified in 40 CFR 136
Benzo(a)Anthracene	24-Hour Composite	As specified in 40 CFR 136
Benzo(a)Pyrene	24-Hour Composite	As specified in 40 CFR 136

Discharge Parameter	Sample Type	Analytical Method
Benzo(b)Fluoranthene	24-Hour Composite	As specified in 40 CFR 136
Benzo(g,h,i)Perylene	24-Hour Composite	As specified in 40 CFR 136
Benzo(k)Fluoranthene	24-Hour Composite	As specified in 40 CFR 136
Bis(2-Chloroethoxy)Methane	24-Hour Composite	As specified in 40 CFR 136
Bis(2-Chloroethyl)Ether	24-Hour Composite	As specified in 40 CFR 136
Bis(2-Chloroisopropyl)Ether	24-Hour Composite	As specified in 40 CFR 136
Bis(2-Ethylhexyl)Phthalate	24-Hour Composite	As specified in 40 CFR 136
4-Bromophenyl Phenyl Ether	24-Hour Composite	As specified in 40 CFR 136
Butyl Benzyl Phthalate	24-Hour Composite	As specified in 40 CFR 136
2-Chloronaphthalene	24-Hour Composite	As specified in 40 CFR 136
Chrysene	24-Hour Composite	As specified in 40 CFR 136
Dibenzo(a,h)Anthracene	24-Hour Composite	As specified in 40 CFR 136
4-Chlorophenyl Phenyl Ether	24-Hour Composite	As specified in 40 CFR 136
1,2-Dichlorobenzene	24-Hour Composite	As specified in 40 CFR 136
1,3-Dichlorobenzene	24-Hour Composite	As specified in 40 CFR 136
1,4-Dichlorobenzene	24-Hour Composite	As specified in 40 CFR 136
3,3-Dichlorobenzidine	24-Hour Composite	As specified in 40 CFR 136
Diethyl Phthalate	24-Hour Composite	As specified in 40 CFR 136
Dimethyl Phthalate	24-Hour Composite	As specified in 40 CFR 136
Di-N-Butyl Phthalate	24-Hour Composite	As specified in 40 CFR 136
2,4-Dinitrotoluene	24-Hour Composite	As specified in 40 CFR 136
2,6-Dinitrotoluene	24-Hour Composite	As specified in 40 CFR 136
1,2-Diphenylhydrazine (as Azobenzene)	24-Hour Composite	As specified in 40 CFR 136
Di-N-Octyl Phthalate	24-Hour Composite	As specified in 40 CFR 136
Fluoranthene	24-Hour Composite	As specified in 40 CFR 136
Fluorene	24-Hour Composite	As specified in 40 CFR 136
Hexachlorobenzene	24-Hour Composite	As specified in 40 CFR 136
Hexachlorobutadiene	24-Hour Composite	As specified in 40 CFR 136
Hexachlorocyclopentadiene	24-Hour Composite	As specified in 40 CFR 136
Hexachloroethane	24-Hour Composite	As specified in 40 CFR 136
Indeno(1,2,3-cd)Pyrene	24-Hour Composite	As specified in 40 CFR 136
Isophorone	24-Hour Composite	As specified in 40 CFR 136
Naphthalene	24-Hour Composite	As specified in 40 CFR 136
Nitrobenzene	24-Hour Composite	As specified in 40 CFR 136
N-Nitrosodimethylamine	24-Hour Composite	As specified in 40 CFR 136
N-Nitrosodi-N-Propylamine	24-Hour Composite	As specified in 40 CFR 136
N-Nitrosodiphenylamine	24-Hour Composite	As specified in 40 CFR 136
Phenanthrene	24-Hour Composite	As specified in 40 CFR 136
Pyrene	24-Hour Composite	As specified in 40 CFR 136
1,2,4-Trichlorobenzene	24-Hour Composite	As specified in 40 CFR 136
<b>Acid Extractables</b>		
2-Chlorophenol	24-Hour Composite	As specified in 40 CFR 136
2,4-Dichlorophenol	24-Hour Composite	As specified in 40 CFR 136
2,4-Dimethylphenol	24-Hour Composite	As specified in 40 CFR 136
4,6-Dinitro-O-Cresol	24-Hour Composite	As specified in 40 CFR 136
2,4-Dinitrophenol	24-Hour Composite	As specified in 40 CFR 136
2-Nitrophenol	24-Hour Composite	As specified in 40 CFR 136

Discharge Parameter	Sample Type	Analytical Method
4-Nitrophenol	24-Hour Composite	As specified in 40 CFR 136
P-Chloro-M-Cresol	24-Hour Composite	As specified in 40 CFR 136
Pentachlorophenol	24-Hour Composite	As specified in 40 CFR 136
Phenol	24-Hour Composite	As specified in 40 CFR 136
2,4,6-Trichlorophenol	24-Hour Composite	As specified in 40 CFR 136
<b>Volatile Organics</b>		
Acrolein	Grab	As specified in 40 CFR 136
Acrylonitrile	Grab	As specified in 40 CFR 136
Benzene	Grab	As specified in 40 CFR 136
Bromoform	Grab	As specified in 40 CFR 136
Carbon Tetrachloride	Grab	As specified in 40 CFR 136
Chlorobenzene	Grab	As specified in 40 CFR 136
Chlorodibromomethane	Grab	As specified in 40 CFR 136
Chloroethane	Grab	As specified in 40 CFR 136
2-Chloroethyl Vinyl Ether	Grab	As specified in 40 CFR 136
Chloroform	Grab	As specified in 40 CFR 136
Dichlorobromomethane	Grab	As specified in 40 CFR 136
1,1-Dichloroethane	Grab	As specified in 40 CFR 136
1,2-Dichloroethane	Grab	As specified in 40 CFR 136
1,1-Dichloroethylene	Grab	As specified in 40 CFR 136
1,2-Dichloropropane	Grab	As specified in 40 CFR 136
1,3-Dichloropropylene	Grab	As specified in 40 CFR 136
Ethylbenzene	Grab	As specified in 40 CFR 136
Methyl Bromide	Grab	As specified in 40 CFR 136
Methyl Chloride	Grab	As specified in 40 CFR 136
1,1,2,2-Tetrachloroethane	Grab	As specified in 40 CFR 136
Tetrachloroethylene	Grab	As specified in 40 CFR 136
Toluene	Grab	As specified in 40 CFR 136
1,2-Trans-Dichloroethylene	Grab	As specified in 40 CFR 136
1,1,1-Trichloroethane	Grab	As specified in 40 CFR 136
1,1,2-Trichloroethane	Grab	As specified in 40 CFR 136
Trichloroethylene	Grab	As specified in 40 CFR 136
Vinyl Chloride	Grab	As specified in 40 CFR 136
<b>Miscellaneous</b>		
Cyanide	Grab	As specified in 40 CFR 136
Asbestos (Not required unless specified)	24-Hour Composite	As specified in 40 CFR 136
2,3,7,8-Tetrachlorodibenzon-P-Dioxin (TCDD)	24-Hour Composite	As specified in 40 CFR 136
<b>301(h) Pesticides</b>		
Demeton	24-Hour Composite	As specified in 40 CFR 136
Guthion	24-Hour Composite	As specified in 40 CFR 136
Parathion	24-Hour Composite	As specified in 40 CFR 136
Malathion	24-Hour Composite	As specified in 40 CFR 136
Mirex	24-Hour Composite	As specified in 40 CFR 136
Methoxychlor	24-Hour Composite	As specified in 40 CFR 136



DAVID Y. IGE  
GOVERNOR OF HAWAII



VIRGINIA PRESSLER, M.D.  
DIRECTOR OF HEALTH

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

In reply, please refer to:  
EMDC/WB

**05022PKP.15a**  
**DATE: May 14, 2015**  
**NPDES PERMIT NO. HI 0000094**

**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: MAUI ELECTRIC COMPANY, LTD. (MAUI ELECTRIC)**

**FACILITY: KAHULUI GENERATING STATION**

**FACILITY ADDRESS**

Maui Electric Company  
Kahului Generating Station  
200 Hobron Lane  
Kahului, Maui, Hawaii 96732

**PERMITTEE MAILING ADDRESS**

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Company, Ltd.  
Kahului Generating Station  
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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 Kahului Generating Station (hereinafter, Facility).

**Table F-1. Facility Information**

<b>Permittee</b>	Maui Electric Company			
<b>Name of Facility</b>	Kahului Generating Station			
<b>Facility Address</b>	200 Hobron Lane Kahului, Maui, HI 96732			
<b>Facility Contact, Title, and Phone</b>	Sharon Suzuki, President, (808) 871-2331			
<b>Authorized Person to Sign and Submit Reports</b>	Greggory Kresge, Power Supply Manager, (808) 871-2355			
<b>Mailing Address</b>	P. O. Box 398 Kahului, Maui, HI 96732			
<b>Billing Address</b>	P. O. Box 398 Kahului, Maui, HI 96732			
<b>Type of Facility</b>	Generating Station			
<b>Pretreatment Program</b>	Not Applicable			
<b>Reclamation Requirements</b>	Not Applicable			
<b>Facility Design Flow</b>	<b>Outfall Serial No.</b>	<b>Once-through cooling water (MGD)</b>	<b>Low Volume Wastes (MGD)</b>	<b>Metal Cleaning Wastes (MGD)</b>
	001	10.7	--	--
	002	10.7	--	--
	003	16.0	0.040	0.025
	004	17.5		
<b>Receiving Waters</b>	Kahului Bay (Pacific Ocean): Marine			
<b>Receiving Water Type</b>	Marine			
<b>Receiving Water Classification</b>	Class A Wet Embayment (HAR, Section 11-54-06(a)(2)(b))			

1. NPDES Permit No. HI 0000094, including ZOM, became effective on November 7, 2009, and expired on March 31, 2014. The Permittee reapplied for an NPDES permit and ZOM on September 27, 2013. The Hawaii Department of Health (hereinafter DOH) administratively extended the NPDES permit, including the ZOM, pending the reapplication process.
2. The Director of Health (hereinafter Director) proposes to issue a permit to discharge to the waters of the state until **five years after the date of issuance** 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 Hawaii Revised Statutes, Chapter 342D.



## **B. Facility Setting**

### **1. Facility Operation and Location**

The Maui Electric Company, Ltd (Maui Electric) owns and operates the Kahului Generating Station located at 200 Hobron Lane, Kahului, Maui, Hawaii. The Facility is an oil-fired steam electric plant which uses four steam turbine generators (Unit Nos. 1 through 4) with a total rated generating capacity of 37.6 megawatts (MW). Fuel for the Facility's four boilers is delivered from the Port of Kahului via pipeline and is stored on site in three aboveground storage tanks with combined capacity of 77,856 barrels. Operation of the Facility utilizes once-through cooling water systems which discharge through four (4) outfalls. In January 2014, Units 1 and 2 were deactivated. The Facility continues to run the circulating water pumps as preventative maintenance to ensure proper startup of the units when a need to reactivate the units to meet system load demands occurs.

Up to 54.9 MGD of once-through cooling water, up to 0.040 MGD of low volume wastes, and 0.025 MGD of metal cleaning wastes may be discharged through Outfall Serial Nos. 001, 002, 003, or 004 into the Pacific Ocean in Kahului Bay.

Outfall Serial No. 001 may discharge up to 10.7 MGD of once-through cooling water; Outfall Serial No. 002 may discharge up to 10.7 MGD of once-through cooling water; Outfall Serial No. 003 may discharge up to 16 MGD of once-through cooling water, 0.040 MGD of low volume wastes, and 0.025 MGD of metal cleaning wastes; and Outfall Serial No. 004 may discharge up to 17.5 MGD of once-through cooling water, 0.040 MGD of low volume wastes, and 0.025 MGD of metal cleaning wastes. Treated effluent is discharged to the Pacific Ocean in Kahului Bay at coordinates Latitude 20°55'00"N and Longitude 156°27'55"W.

Storm water is collected by a single sump located on the North side of the Facility and is discharged through either Outfall Serial No. 003 and/or Outfall Serial No. 004.

Figure H-1 of the draft permit provides a map of the ZOM and sampling station locations. Figure H-2 of the draft permit provides a map showing the location of the facility and outfalls.

### **2. Receiving Water Classification**

The Kahului Bay, is designated as "Class A Wet Embayment" under Section 11-54-06(a), 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 the 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 September 20, 2013, the EPA approved the 2012 State of Hawaii Water Quality Monitoring and Assessment Report, which includes the 2012 303(d) List of Impaired Water Bodies in the State of Hawaii.

Kahului Bay is listed in the 2012 303(d) list. Kahului Bay is listed as impaired for total nitrogen, nitrate + nitrite, chlorophyll a, and ammonia nitrogen. At present, no TMDLs have been established for this waterbody, and the waterbody priority is listed as “low.”

**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 Nos. 001, 002, 003, and 004, as well as representative monitoring data from DMRs (January 2009 through May 2014), ZOM monitoring data (March 2009 through March 2014), and permit renewal application Form 2C, are presented in the following tables.

**Table F-2. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 001, 002, 003, and 004 Cooling Water**

Parameter	Units	Effluent Limitation			Reported Data		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
<b>Outfall Serial No. 001 (Cooling Water)</b>							
Flow	MGD	--	--	10.7	9.3 <sup>1</sup>	--	10.7 <sup>1</sup>
Temperature	°F	95°	--	98°	85	--	104
	°C	35°	--	36.7°	29.6 <sup>1</sup>	--	40 <sup>1</sup>
Total Nitrogen	µg/L	--	--	<sup>2</sup>	5,013 <sup>3</sup>	--	5,013 <sup>3</sup>
Ammonia	µg/L	--	--	<sup>2</sup>	4,463 <sup>3</sup>	--	4,463 <sup>3</sup>

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Parameter	Units	Effluent Limitation			Reported Data		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Nitrogen							
Nitrate + Nitrite Nitrogen	µg/L	--	--	2	89 <sup>3</sup>	--	89 <sup>3</sup>
Total Phosphorus	µg/L	--	--	2	150 <sup>3</sup>	--	150 <sup>3</sup>
Silica	µg/L	--	--	2	34,700 <sup>3</sup>	--	34,700 <sup>3</sup>
Whole Effluent Toxicity	% Fertilization	70% mean fertilization in 100% effluent			74 <sup>4</sup>		
<b>Outfall Serial No. 002 (Cooling Water)</b>							
Flow	MGD	--	--	10.7	9.3 <sup>1</sup>	--	10.6 <sup>1</sup>
Temperature	°F	95°	--	98°	83	--	97
	°C	35°	--	36.7°	28.3 <sup>1</sup>	--	36.1 <sup>1</sup>
Total Nitrogen	µg/L	--	--	2	1,792 <sup>3</sup>	--	1,792 <sup>3</sup>
Ammonia Nitrogen	µg/L	--	--	2	2,408 <sup>3</sup>	--	2,408 <sup>3</sup>
Nitrate + Nitrite Nitrogen	µg/L	--	--	2	31 <sup>3</sup>	--	31 <sup>3</sup>
Total Phosphorus	µg/L	--	--	2	183 <sup>3</sup>	--	183 <sup>3</sup>
Silica	µg/L	--	--	2	33,400 <sup>3</sup>	--	33,400 <sup>3</sup>
Whole Effluent Toxicity	% Fertilization	70% mean fertilization in 100% effluent			73 <sup>4</sup>		
<b>Outfall Serial No. 003 (Cooling Water)</b>							
Flow	MGD	--	--	16.0	15.98 <sup>1</sup>	--	15.98 <sup>1</sup>
Temperature	°F	95°	--	98°	89	--	95
	°C	35°	--	36.7°	31.9 <sup>1</sup>	--	35 <sup>1</sup>
Total Nitrogen	µg/L	--	--	2	788 <sup>3</sup>	--	788 <sup>3</sup>
Ammonia Nitrogen	µg/L	--	--	2	327 <sup>3</sup>	--	327 <sup>3</sup>
Nitrate + Nitrite Nitrogen	µg/L	--	--	2	274 <sup>3</sup>	--	274 <sup>3</sup>
Total Phosphorus	µg/L	--	--	2	169 <sup>3</sup>	--	169 <sup>3</sup>
Silica	µg/L	--	--	2	32,200 <sup>3</sup>	--	32,200 <sup>3</sup>
Whole Effluent Toxicity	% Fertilization	70% mean fertilization in 100% effluent			75 <sup>4</sup>		
<b>Outfall Serial No. 004 (Cooling Water)</b>							
Flow	MGD	--	--	17.5	17.3 <sup>1</sup>	--	17.3 <sup>1</sup>
Temperature	°F	95°	--	98°	90	--	98
	°C	35°	--	36.7°	32.3 <sup>1</sup>	--	36.7 <sup>1</sup>
Total Nitrogen	µg/L	--	--	2	594 <sup>3</sup>	--	594 <sup>3</sup>
Ammonia Nitrogen	µg/L	--	--	2	131 <sup>3</sup>	--	131 <sup>3</sup>
Nitrate + Nitrite Nitrogen	µg/L	--	--	2	229 <sup>3</sup>	--	229 <sup>3</sup>
Total Phosphorus	µg/L	--	--	2	156 <sup>3</sup>	--	156 <sup>3</sup>
Silica	µg/L	--	--	2	36,300 <sup>3</sup>	--	36,300 <sup>3</sup>
Whole Effluent Toxicity	% Fertilization	70% mean fertilization in 100% effluent			75 <sup>4</sup>		

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Parameter	Units	Effluent Limitation			Reported Data		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily

- <sup>1</sup> Obtained from Form 2C.  
<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.  
<sup>3</sup> Obtained from ZOM and effluent monitoring data submitted by Permittee.  
<sup>4</sup> Lowest reported percent fertilization.

**Table F-3. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 003 and 004 Low Volume Wastes**

Parameter	Units	Effluent Limitation			Reported Data <sup>1</sup>		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Flow	MGD	<sup>2</sup>	--	0.040	0.201	--	0.24
Total Suspended Solids	mg/L	30.0	--	100.0	16	--	16
Oil and Grease	mg/L	15.0	--	20.0	<5.0	--	<5.0
pH	s.u.	Not less than 6.0 nor greater than 9.0			6.1 – 9.0		

- <sup>1</sup> Monitoring data available from October 2009 through June 2014.  
<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

**Table F-4. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 003 and 004 Metal Cleaning Wastes**

Parameter	Units	Effluent Limitation			Reported Data <sup>1</sup>		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Flow	MGD	<sup>2</sup>	--	0.040	0.023	--	0.023
Total Suspended Solids	mg/L	30.0	--	100.0	3.3	--	3.3
Oil and Grease	mg/L	15.0	--	20.0	<5.0	--	<5.0
pH	s.u.	Not less than 6.0 nor greater than 9.0			6.0 – 8.9		
Copper, Total Recoverable	mg/L	1.0	--	1.0	0.004	--	0.004
	kg/day	0.095	--	0.095	0.00011	--	0.00016
	lbs/day	0.209	--	0.209	NR	--	NR
Iron, Total Recoverable	mg/L	1.0	--	1.0	0.43	--	0.43
	kg/day	0.095	--	0.095	0.0116	--	0.023
	lbs/day	0.209	--	0.209	NR	--	NR

- NR = Not Reported  
<sup>1</sup> Monitoring data available from October 2009 through June 2014.  
<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

**Table F-5. Historic Effluent Limitations and Monitoring Data – Outfall Serial Nos. 003 and 004 Storm Water**

Parameter	Units	Effluent Limitation			Reported Data <sup>1</sup>		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Flow	MGD	--	--	<sup>2</sup>	--	--	0.14
Biochemical Oxygen Demand 5-Day @ 20°C	mg/L	--	--	<sup>2</sup>	--	--	2.1

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Parameter	Units	Effluent Limitation			Reported Data <sup>1</sup>		
		Average Monthly	Average Weekly	Maximum Daily	Average Monthly	Average Weekly	Maximum Daily
Chemical Oxygen Demand	mg/L	--	--	<sup>2</sup>	--	--	26
pH	s.u.	Not less than 7.0 nor greater than 8.6			7.1 – 8.51		
Total Suspended Solids	mg/L	--	--	<sup>2</sup>	--	--	59
Arsenic, Total Recoverable	µg/L	--	--	69	--	--	48
Copper, Total Recoverable	µg/L	--	--	3	--	--	274
Lead, Total Recoverable	µg/L	--	--	140	--	--	134
Nitrate + nitrite Nitrogen	µg/L	--	--	<sup>2</sup>	--	--	257
Oil and Grease	mg/L	15	--	--	<5	--	--
Total Nitrogen	mg/L	--	--	<sup>2</sup>	--	--	587
Total Phosphorus	µg/L	--	--	<sup>2</sup>	--	--	212

<sup>1</sup> Monitoring data available from applicable storm events during 2009, 2010, 2011, and 2013.

<sup>2</sup> No effluent limitations for this pollutant in the previous permit, only monitoring required.

## 6. Compliance Summary

The following table lists effluent limitation violations as identified in the monthly, quarterly, and annual DMRs submitted by the Permittee as well as the permit renewal application package from 2009 through 2014.

**Table F-6. Summary of Compliance History**

Monitoring Period	Violation Type	Pollutant	Reported Value	Permit Limitation	Units
2009 Storm Water	Daily Max	Copper	274	3.0	µg/L
2010 Storm Water	Daily Max	Copper	16	3.0	µg/L
November 2010, Low Volume Wastes	Daily Max	Flow	0.24	0.025	MGD
2011 Storm Water	Daily Max	Copper	88	3.0	µg/L
July 2012 Cooling Water (001)	Daily Max	Temperature	40	36.7	°C
2013 Storm Water	Daily Max	Copper	41.2	3.0	µg/L
2013 Storm Water	Daily Max	Copper	37	3.0	µg/L

## 7. Planned Changes

The Permittee is gradually retiring the Facility so changes in relation to this will likely occur during the term of the proposed permit. As previously discussed, Units 1 and 2 have been deactivated, but the Permittee continues to run cooling water through these units periodically for maintenance purposes in the event Units 1 and 2 are needed in the future.

## **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; October 21, 2012; and the most recent amendment was on December 6, 2013. 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 in Kahului Bay.

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; October 21, 2012; and the most recent amendment was on December 6, 2013. 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**

CWA Section 301(b) and 40 CFR 122.44(a) require that permits include applicable technology-based limitations and standards. The CWA requires that technology-based effluent limitations be established based on best practicable treatment and control technology (BPT), best available technology economically achievable (BAT), best conventional pollutant control technology (BCT), and New Source Performance Standards (NSPS).

###### **b. Applicable Technology-Based Effluent Limitations**

Pursuant to CWA Section 306(b)(1)(B), EPA has established standards of performance (technology-based limitations and standards) for steam electric power plants at 40 CFR 423, *Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Steam Electric Power Generating Point Source Category* (ELGs).

ELGs at 40 CFR 423 contain effluent limitations based on BPT, BAT, and NSPS. This Facility is not considered a new source as defined in 40 CFR 122.2, since it was constructed before the NSPS on November 19, 1982. Therefore, the draft permit includes effluent limitations based on BPT and BAT.

The Facility discharges final effluent to Kahului Bay through Outfall Serial Nos. 001, 002, 003, and 004. The total flow from the Facility into Kahului Bay is a combination of once-through cooling water, low volume wastes, and metal cleaning wastes. The Facility can also discharge storm water through Outfall Serial Nos. 003 and 004.

Effluent limitations in 40 CFR 423.12(b)(11) and 423.13(g) specify that, at the permitting authority's discretion, effluent limitations may be expressed as a concentration based limitation instead of mass based limitations. HAR Section 11-55-20 requires that mass-based effluent limitations be established when possible.

This permit establishes the following technology-based effluent limitations at the specified discharge locations.

**(1) Flow.** Discharge shall not exceed the following flow limitations.

**Table F-7. Effluent Flow Limitations**

<b>Location</b>	<b>Flow (MGD)</b>
Outfall Serial No. 001 (Once-through Cooling Water)	10.7
Outfall Serial No. 002 (Once-through Cooling Water)	10.7
Outfall Serial No. 003 (Once-through Cooling Water)	16.0
Outfall Serial No. 004 (Once-through Cooling Water)	17.5
Outfall Serial No. 003 and 004 (Low Volume Wastes)	0.040
Outfall Serial No. 003 and 004 (Metal Cleaning Wastes)	0.025

**(2) pH.** The pH of low volume wastes and metal cleaning wastes shall not be less than 6.0 standard units nor greater than 9.0 standard units. This effluent limitation is based on 40 CFR 423 and retained from the previous permit.

**(3) Polychlorinated Biphenyl Compounds (PCBs).** The discharge PCBs, such as those commonly used in transformer fluid, is prohibited from any discharge location. This effluent limitation is based on 40 CFR 423 and is retained from the previous permit.

**(4) Chlorine.** There will be no discharge of chlorine. No chlorination is performed at this Facility so the BAT limit for chlorine contained in 40 CFR 423. The prohibition to discharge chlorine at anytime is retained from the previous permit.

**(5) Low Volume Wastes.** 40 CFR 423.12(b)(3) establishes effluent limitations based on BPT for low volume wastes. Effluent limitations for TSS and oil and grease are applicable upstream to combined discharge with condenser cooling water and are retained from the previous permit.



**(6) Metal Cleaning Wastes.** 40 CFR 423.12(b)(5) establishes effluent limitations based on BPT for metal cleaning wastes and 40 CFR 423.13(e) establishes effluent limitations for metal cleaning wastes based on BAT. Effluent limitations for TSS, oil and grease, total copper, and total iron are applicable upstream to combined discharge with condenser cooling water and are retained from the previous permit.

**(7) Other Prohibited Pollutants**

**(a)** There shall be no discharge of pollutants from water clarification and water softening treatment at any time. This prohibition is consistent with similar facilities in the state and is retained from the previous permit.

**(b)** There shall be no discharge of compounds used in closed-loop systems. The Facility is permitted to discharge once-through cooling water and discharge of water from a closed-loop system is prohibited. This prohibition is retained from the previous permit.

**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 Kahului Bay, which is classified as a marine Class A Wet Embayment 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 (6) 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 Nos. 001, 002, 003, and 004 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 nutrients contained in HAR, Chapter 11-54-6, a direct comparison of the receiving water concentrations at the edge of the ZOM 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, Chapter 11-54-6, are provided as geometric means and exceedances of these WQS are less sensitive to effluent variability, the RPA for pollutants in HAR, Chapter 11-54-6, was conducted by doing a direct comparison of the maximum annual geometric mean effluent concentrations to the most stringent applicable WQS after consideration of dilution, where applicable.

Discharges of LVW and MCWs occur through Outfall Serial Nos. 003 and 004 after being commingled with cooling water. Compliance with technology-based effluent limitations is required prior to commingling with any other discharges and is evaluated prior to discharging to the receiving water. Because cooling water (which contains commingled LVW and MCWs) must meet applicable water quality-based effluent limitations,

an RPA is not necessary for LVW and MCWs, nor is the establishment of water quality-based effluent limitations for LVW and MCWs.

**(2) Effluent Data.** The RPAs for Outfall Serial Nos. 001, 002, 003, and 004 are based on effluent monitoring data for priority pollutants submitted to the DOH in the May 2013 DMR and for nutrients in the January 2009 through May 2014 DMRs and ZOM data from March 2009 through March 2014.

**(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.

HAR chapter 11-54-9, 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(a)(3) parameters, when assimilative capacity is available in the receiving water, 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 sufficient dilution and assimilative capacity exists to meet WQS at the edge of the ZOM. Where assimilative capacity is not available in the receiving water, a comparison of effluent data and the applicable WQS must be conducted.

Where reasonable potential has been determined for Section 11-54-6(a)(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(a)(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(a)(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. Additionally, if the receiving water is 303(d) listed for the pollutant of concern, assimilative capacity will not be granted.

A ZOM dilution study is not being included in this permit because the Facility is not granted assimilative capacity for any discharges other than temperature.

**(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(a)(3) water quality standard, and result of the RPA for pollutants discharged from Outfall Serial Nos. 001, 002, 003, and 004 are presented in Table F-8 - 11, below. Only pollutants detected in the discharge are presented in Table F-8 – 11. All other pollutants were not detected and therefore, no reasonable potential exists.

**Table F-8. Summary of RPA Results – Outfall Serial No. 001**

Parameter	Units	Number of Samples	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Cadmium, Total Recoverable	µg/L	1	0.16	0.76 <sup>1</sup>	9.4	No
Copper, Total Recoverable	µg/L	1	<0.20	0.94 <sup>1</sup>	3.5	No
Lead, Total Recoverable	µg/L	1	0.16	0.75 <sup>1</sup>	5.9	No
Nickel, Total Recoverable	µg/L	1	20	96 <sup>1</sup>	8.4	Yes
Thallium, Total Recoverable	µg/L	1	0.41	1.9 <sup>1</sup>	16	No
Zinc, Total Recoverable	µg/L	1	12	56 <sup>1</sup>	91	No
Ammonia Nitrogen	µg/L	43	2,367 <sup>2</sup>	--	6.0 <sup>3</sup>	Yes
Nitrate + Nitrite Nitrate	µg/L	43	8.9 <sup>2</sup>	--	8.0 <sup>3</sup>	Yes
Nitrogen, Total	µg/L	43	2,908 <sup>2</sup>	--	200 <sup>3</sup>	Yes
Phosphorus, Total	µg/L	43	116 <sup>2</sup>	--	25 <sup>3</sup>	Yes

<sup>1</sup> Projected Maximum Effluent Concentration was determined assuming no dilution.

<sup>2</sup> Maximum annual geometric mean.

<sup>3</sup> Geometric mean not to exceed this given value.

**Table F-9. Summary of RPA Results – Outfall Serial No. 002**

Parameter	Units	Number of Samples	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Cadmium, Total Recoverable	µg/L	1	0.22	1.05 <sup>1</sup>	9.4	No
Nickel, Total Recoverable	µg/L	1	22	104 <sup>1</sup>	8.4	Yes
Thallium, Total Recoverable	µg/L	1	0.6	2.7 <sup>1</sup>	16	No
Zinc, Total Recoverable	µg/L	1	5.6	26 <sup>1</sup>	91	No
Ammonia Nitrogen	µg/L	43	559 <sup>2</sup>	--	6.0 <sup>3</sup>	Yes
Nitrate + Nitrite Nitrate	µg/L	43	15 <sup>2</sup>	--	8.0 <sup>3</sup>	Yes
Nitrogen, Total	µg/L	43	852 <sup>2</sup>	--	200 <sup>3</sup>	Yes
Phosphorus, Total	µg/L	43	115 <sup>2</sup>	--	25 <sup>3</sup>	Yes

<sup>1</sup> Projected Maximum Effluent Concentration was determined assuming no dilution.

<sup>2</sup> Maximum annual geometric mean.

<sup>3</sup> Geometric mean not to exceed this given value.

**Table F-10. Summary of RPA Results – Outfall Serial No. 003**

Parameter	Units	Number of Samples	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Cadmium, Total Recoverable	µg/L	1	0.25	1.2 <sup>1</sup>	9.4	No
Copper, Total Recoverable	µg/L	1	0.58	2.7 <sup>1</sup>	3.5	No
Lead, Total Recoverable	µg/L	1	0.07	0.31 <sup>1</sup>	5.9	No
Nickel, Total Recoverable	µg/L	1	16.1	76 <sup>1</sup>	8.4	Yes
Thallium, Total Recoverable	µg/L	1	0.53	2.5 <sup>1</sup>	16	No
Zinc, Total Recoverable	µg/L	1	6.9	32 <sup>1</sup>	91	No
Ammonia Nitrogen	µg/L	43	94 <sup>2</sup>	--	6.0 <sup>3</sup>	Yes
Nitrate + Nitrite Nitrate	µg/L	43	33 <sup>2</sup>	--	8.0 <sup>3</sup>	Yes
Nitrogen, Total	µg/L	43	362 <sup>2</sup>	--	200 <sup>3</sup>	Yes
Phosphorus, Total	µg/L	43	98 <sup>2</sup>	--	25 <sup>3</sup>	Yes

<sup>1</sup> Projected Maximum Effluent Concentration was determined assuming no dilution.

<sup>2</sup> Maximum annual geometric mean.

<sup>3</sup> Geometric mean not to exceed this given value.

**Table F-11. Summary of RPA Results – Outfall Serial No. 004**

Parameter	Units	Number of Samples	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Cadmium, Total Recoverable	µg/L	1	0.25	1.2 <sup>1</sup>	9.4	No
Copper, Total Recoverable	µg/L	1	0.66	3.1 <sup>1</sup>	3.5	No
Lead, Total Recoverable	µg/L	1	0.07	0.32 <sup>1</sup>	5.9	No
Nickel, Total Recoverable	µg/L	1	18	84 <sup>1</sup>	8.4	Yes
Thallium, Total Recoverable	µg/L	1	0.33	1.5 <sup>1</sup>	16	No
Zinc, Total Recoverable	µg/L	1	8.0	38 <sup>1</sup>	91	No
Ammonia Nitrogen	µg/L	43	69 <sup>2</sup>	--	6.0 <sup>3</sup>	Yes
Nitrate + Nitrite Nitrate	µg/L	43	139 <sup>2</sup>	--	8.0 <sup>3</sup>	Yes
Nitrogen, Total	µg/L	43	345 <sup>2</sup>	--	200 <sup>3</sup>	Yes
Phosphorus, Total	µg/L	43	121 <sup>2</sup>	--	25 <sup>3</sup>	Yes

- <sup>1</sup> Projected Maximum Effluent Concentration was determined assuming no dilution.  
<sup>2</sup> Maximum annual geometric mean.  
<sup>3</sup> Geometric mean not to exceed this given value.

**(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 for Outfall Serial Nos. 001, 002, 003, and 004:

- 1,2,4,5-Tetrachlorobenzene
- 2,3,5,6-Tetrachlorophenol
- Trans-1,1-dichloroethylene
- Cis-1,3-dichloropropylene
- Trans-1,3-dichloropropylene
- Dioxin TEQ
- 4,4'-DDD
- 4,4'-DDE
- 4,4'-DDT
- Aldrin
- alpha-BHC
- alpha-Endosulfan
- Asbestos
- Benzo(b)fluoranthene
- beta-BHC
- beta-Endosulfan
- Chlordane
- Chlorpyrifos
- delta-BHC
- Demeton
- Dieldrin
- Endosulfan sulfate
- Endrin
- Endrin aldehyde
- Lindane
- Guthion
- Heptachlor
- Heptachlor epoxide
- Malathion
- Methoxychlor
- Mirex
- N-Nitrosodibutylamine
- N-Nitrosodiethylamine
- N-Nitrosopyrrolidine
- Parathion
- PCBs
- Pentachlorobenzene
- Pentachloroethane
- Toxaphene
- Tributyltin

**(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(a)(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 Tables F-8 – 11 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 nitrogen, nickel, nitrate + nitrite, total nitrogen, and total phosphorus have reasonable potential to cause or contribute to an excursion above state water quality standards for Outfall Serial Nos. 001, 002, 003, and 004.

Further, effluent temperatures from Outfall Serial Nos. 001 through 004 have been reported as high as 36.1°C, significantly greater than the ambient annual geometric averages of 24 to 25°C reported by the Permittee for receiving water control stations. This is greater than the 1°C allowable variance from ambient conditions established in HAR, Chapter 11-54-6(a)(3). Because effluent temperatures exceed ambient conditions by more than 1°C, reasonable potential has been determined for temperature.

Thus, WQBELs have been established in this draft permit at Outfall Serial Nos. 001, 002, 003, and 004 for ammonia nitrogen, nickel, nitrate + nitrite, total nitrogen, total phosphorus, and temperature.

The WQBELs were calculated based on water quality standards 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 an outfall that is not submerged. 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, no dilution has been established.

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

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

Where:

RWC = Receiving water concentration

- MEC = Maximum effluent concentration reported  
99%<sub>ratio</sub> = The 99% ratio from Table 3-1 in the TSD or calculated using methods in Section 3.3.2 of the TSD.  
Dm = Percent of effluent at the edge of the mixing zone.

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) Nickel**

- i. **Nickel Water Quality Standards.** The most stringent applicable WQS for nickel, expressed as dissolved nickel, are chronic and acute marine WQS, 8.4 µg/L and 75 µg/L, respectively. These WQS convert to total recoverable nickel WQS of 8.4 µg/L for chronic and 76 µg/L for acute, as specified in HAR, Chapter 11-54. The fish consumption standard for nickel is 33 µg/L.
- ii. **RPA Results.** Outfall Serial Nos. 001, 002, 003, and 004 each had one data point for nickel (n =1), resulting in a CV = 0.6. Based on a CV of 0.6 and one sample, the 99% multiplier calculated using methods described in section 3.3.2 of the TSD was 4.7. As discussed in Part D.2.c.(3), the Facility is not granted dilution. Therefore, Dm = 100%. RPA calculations for each outfall are discussed in detail below.

**(A) Outfall Serial No. 001.** The maximum effluent concentration for nickel at Outfall Serial No. 001 was 20.4 µg/L.

$$\begin{aligned} \text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times \text{Dm} \\ &= (20.4 \mu\text{g/L}) \times 4.7 \times 1 \\ &= 96 \mu\text{g/L} \end{aligned}$$

$$\text{HAR 11-54 Water Quality Standard} = 8.4 \mu\text{g/L}$$

The projected maximum receiving water concentration (96 µg/L) exceeds the most stringent applicable WQS for this pollutant (8.4 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for nickel at Outfall Serial No. 001.

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- (B) Outfall Serial No. 002.** The maximum effluent concentration for nickel at Outfall Serial No. 002 was 22.2 µg/L.

$$\begin{aligned}\text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times D_m \\ &= (22.2 \text{ } \mu\text{g/L}) \times 4.7 \times 1 \\ &= 104 \text{ } \mu\text{g/L}\end{aligned}$$

$$\text{HAR 11-54 Water Quality Standard} = 8.4 \text{ } \mu\text{g/L}$$

The projected maximum receiving water concentration (104 µg/L) exceeds the most stringent applicable WQS for this pollutant (8.4 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for nickel at Outfall Serial No. 002.

- (C) Outfall Serial No. 003.** The maximum effluent concentration for nickel at Outfall Serial No. 003 was 16.1 µg/L.

$$\begin{aligned}\text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times D_m \\ &= (16.1 \text{ } \mu\text{g/L}) \times 4.7 \times 1 \\ &= 76 \text{ } \mu\text{g/L}\end{aligned}$$

$$\text{HAR 11-54 Water Quality Standard} = 8.4 \text{ } \mu\text{g/L}$$

The projected maximum receiving water concentration (76 µg/L) exceeds the most stringent applicable WQS for this pollutant (8.4 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for nickel at Outfall Serial No. 003.

- (D) Outfall Serial No. 004.** The maximum effluent concentration for nickel at Outfall Serial No. 004 was 17.8 µg/L.

$$\begin{aligned}\text{Projected Maximum RWC} &= \text{MEC} \times 99\%_{\text{ratio}} \times D_m \\ &= (17.8 \text{ } \mu\text{g/L}) \times 4.7 \times 1 \\ &= 84 \text{ } \mu\text{g/L}\end{aligned}$$

$$\text{HAR 11-54 Water Quality Standard} = 8.4 \text{ } \mu\text{g/L}$$

The projected maximum receiving water concentration (84 µg/L) exceeds the most stringent applicable WQS for this pollutant (8.4 µg/L), demonstrating reasonable potential. Therefore, the draft permit establishes effluent limitations for nickel at Outfall Serial No. 004.

iii. **Nickel WQBELs.** WQBELs for nickel are calculated using STCP procedures and are based on the human health and acute saltwater standard. The draft permit establishes a monthly average effluent limitation of 33 µg/L and a daily maximum effluent limitation of 75 µg/L for nickel for Outfall Serial Nos. 001, 002, 003, and 004.

iv. **Feasibility.** The maximum effluent concentration reported for nickel from Outfall Serial Nos. 001, 002, 003, and 004 during the term of the previous permit were 20.4 µg/L, 22.2 µg/L, 16.1 µg/L, and 17.8 µg/L, respectively. Since the effluent concentrations are less than the proposed effluent limitation of 33 µg/L for each outfall, the Director has determined that the Facility will be able to immediately comply with the proposed nickel effluent limitations.

**(b) Ammonia Nitrogen**

HAR Chapter 11-54-6(a)(3) established 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)	6.00	13.00	20.00

As demonstrated in Tables F-8 – 11 of this Fact Sheet, reasonable potential to exceed applicable WQS for ammonia nitrogen has been determined.

ZOM data from January 2009 through May 2014 for Outfall Serial Nos. 001, 002, 003, and 004 indicate that assimilative capacity is not available for ammonia nitrogen in the receiving water. Assimilative capacity was evaluated as specified below:

- i. Review EPA's 303(d) list to determine if the water body is impaired for ammonia nitrogen.

The water body is listed in EPA's 303(d) list for ammonia nitrogen, thus assimilative capacity is not available.

- ii. Identify nearby control stations to determine the "decision unit" for analysis.

Control Stations 1B, 1M, 1S, and 5S are the available reference station and have been identified as the applicable control stations

for evaluating assimilative capacity and constitute the decision unit for the analysis.

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

The resulting geometric means were:

Year	Result (µg/L)
2009	8.6
2010	4.4
2011	5.9
2012	10
2013	8.9
2014	7.3

The highest annual geometric mean for the decision unit of 10 µg/L is greater than 90 percent of the applicable WQS (5.4 µg/L). Based on this objective, assimilative capacity is not present in the receiving water.

- iv. Consider other available information if available, including studies, reports, and receiving water data trends.

The annual geometric means for the last three years of data show a trend of decreasing concentrations of ammonia nitrogen in the receiving water. However, all values are greater than the threshold value of 5.4 µg/L. Therefore assimilative capacity has not been granted for ammonia nitrogen based on receiving water trends.

Because assimilative capacity is not available in the receiving water, dilution cannot 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 10<sup>th</sup> percentile established as a single sample maximum, will be protective of water quality. Establishing a single sample maximum based on the 10<sup>th</sup> percentile effectively prohibits the discharge of pollutants greater than the 10<sup>th</sup> percentile value, and is protective of the 2<sup>nd</sup> percentile WQS.

Anti-backsliding regulations are satisfied because effluent limitations were not established in the previous permit for ammonia nitrogen, thus these limitations are at least as stringent as the previous permit.

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Effluent data for ammonia nitrogen from January 2009 through May 2014 at Outfall Serial Nos. 001, 002, 003, and 004 indicated the following:

<b>Outfall Serial Number</b>	<b>Maximum Ammonia Nitrogen (µg/L)</b>	<b>Average Ammonia Nitrogen (µg/L)</b>
001	4,463	2,085
002	2,408	430
003	327	85
004	131	43

It is not feasible for the Permittee to immediately comply with final end-of-pipe effluent limitations for ammonia nitrogen. In regards to the nutrient limitations for Outfall Serial Nos. 001, 002, 003, and 004, a April 16, 2014 letter to DOH, the Permittee states that the Facility will be retired within 9.5 years and requests a compliance schedule to replace the generating capacity of the Facility and implement transmission system upgrades to address low voltage and transformer overloads on the 23kV transmission system.

Although a compliance schedule cannot be granted for the development of site-specific objectives or dilution studies, DOH finds that compliance with the applicable effluent limitations will take substantial and costly facility alterations, and that retiring the Facility will ultimately result in compliance with applicable NPDES permit requirements and the conditions of HAR, Chapter 11-54.

The schedule of compliance is being proposed for a parameter that was not limited at the proposed level 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.

The compliance schedule proposed by the Permittee indicates that up to 9.5 years may be necessary for replacing the generating capacity and performing all necessary transmission system upgrades before retiring the Facility and full compliance (no discharge) is possible. As such, the compliance schedule requires compliance as soon as possible, consistent with the requirements of 40 CFR 122.47(1) and HAR 11-55-21.

During the compliance schedule, the Permittee is required to maintain current effluent quality. 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 May 2014 at Outfall

Serial Nos. 001, 002, 003, and 004. Single sample maximum effluent limitations have been established equal to the maximum effluent concentration for each outfall and annual geometric mean effluent limitation has been established based on the highest observed annual geometric mean for each outfall.

**Table F-12. Interim Effluent Limitations for Ammonia Nitrogen**

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	4,463	2,367
002	1,512	559
003	327	94
004	131	69

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 to be necessary to ensure compliance with the final effluent limitations.

The proposed schedule of compliance is considered by the DOH to be in accordance with HAR, Section 11-55-21(b) and 40 CFR 122.47. HAR, Section 11-55-21(b) states, *"When a schedule specifies compliance longer than one year after permit issuance, the schedule of compliance shall specify interim requirements and the dates for their achievement and in no event shall more than one year elapse between interim dates. If the time necessary for completion of interim requirement (such as the construction of a treatment facility) exceeds one year and is not readily divided into stages for completion, the schedule shall specify interim dates for the submission of reports of progress towards completion of the interim requirements."*

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 not greater than one (1) year apart, and to ensure consistent progress toward compliance with final effluent limitations.

**(c) Nitrate + Nitrite Nitrogen**

HAR Chapter 11-54-6(a)(3) establishes the following WQS for nitrate + nitrite nitrogen:

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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)	8.00	20.00	35.00

As demonstrated in Tables F-8 – 11 of this Fact Sheet, reasonable potential to exceed applicable WQS for nitrate + nitrite has been determined.

ZOM data from January 2009 through May 2014 indicate that assimilative capacity is not available for nitrate + nitrite in the receiving water. Assimilative capacity was determined as specified below:

- i. Review EPA's 303(d) list to determine if the water body is impaired for nitrate + nitrite.

The water body is listed in EPA's 303(d) list for nitrate + nitrite, thus assimilative capacity is not available.

- ii. Identify nearby control stations to determine the "decision unit" for analysis.

Control Stations 1B, 1M, 1S and 5S are the available reference station and have been identified as the applicable control stations for evaluating assimilative capacity and constitutes the decision unit for the analysis.

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

The resulting geometric means were:

Year	Result (µg/L)
2009	25
2010	18
2011	15
2012	29
2013	9.3
2014	5.1

The highest annual geometric mean for the decision unit of 29 µg/L is greater than 90 percent of the applicable WQS (7.2 µg/L).



- iv. Consider other available information if available, including studies, reports, and receiving water data trends.

The annual geometric means for the last three (3) years of data show a trend of decreasing concentrations of nitrate + nitrite in the receiving water. However, because the receiving water is listed as impaired on the 303(d) list, assimilative capacity cannot be granted.

Effluent limitations will be included in this draft permit for nitrate + nitrite.

Anti-backsliding regulations are satisfied because effluent limitations were not established in the previous permit for nitrate + nitrite, thus these limitations are at least as stringent as the previous permit.

Effluent concentrations for nitrate + nitrite from January 2009 through May 2014 at Outfalls Serial Nos. 001, 002, 003, and 004 indicate the following:

<b>Outfall Serial Number</b>	<b>Maximum Nitrate + Nitrite (µg/L)</b>	<b>Average Nitrate + Nitrite (µg/L)</b>
001	53	11
002	31	11
003	274	23
004	229	70

It is not feasible for the Permittee to immediately comply with final end-of-pipe effluent limitations for nitrate + nitrite. In regards to the nutrient limitations for Outfall Serial Nos. 001, 002, 003, and 004, an April 16, 2014 letter to DOH, the Permittee states that the Facility will be retired within 9.5 years and requests a compliance schedule to replace the generating capacity of the Facility and implement transmission system upgrades to address low voltage and transformer overloads on the 23kV transmission system.

Although a compliance schedule cannot be granted for the development of site-specific objectives or dilution studies, DOH finds that compliance with the applicable effluent limitations will take substantial and costly facility alterations, and that retiring the Facility will ultimately result in compliance with applicable NPDES permit requirements and the conditions of HAR, Chapter 11-54.

The schedule of compliance is being proposed for a parameter that was not limited at the proposed level 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.

The compliance schedule proposed by the Permittee indicates that up to 9.5 years may be necessary for replacing the generating capacity and performing all necessary transmission system upgrades before retiring the Facility and full compliance (no discharge) is possible. As such, the compliance schedule requires compliance as soon as possible, consistent with the requirements of 40 CFR 122.47(1) and HAR 11-55-21.

During the compliance schedule, the Permittee is required to maintain current effluent quality. Interim effluent limitations for nitrate + nitrite have been established until the final effluent limitations become effective. Interim effluent limitations have been established based on effluent data from January 2009 through May 2014 at Outfall Serial Nos. 001, 002, 003, and 004. Single sample maximum effluent limitations have been established equal to the maximum effluent concentration for each outfall and annual geometric mean effluent limitation has been established based on the highest observed annual geometric mean for each outfall.

**Table F-13. Interim Effluent Limitations for Nitrate + Nitrite**

<b>Outfall Serial Number</b>	<b>Single Sample Maximum (µg/L)</b>	<b>Annual Geometric Mean (µg/L)</b>
001	53	9
002	31	15
003	274	33
004	229	139

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 to be necessary to ensure compliance with the final effluent limitations.

The proposed schedule of compliance is considered by the DOH to be in accordance with HAR, Section 11-55-21(b) and 40 CFR 122.47. HAR, Section 11-55-21(b) states, "*When a schedule specifies compliance longer than one year after permit issuance, the schedule of compliance shall specify interim requirements and the dates for their achievement and in no event shall more than one year elapse between interim dates. If the time necessary for completion of interim requirement (such as the construction of a treatment facility) exceeds one year and is not readily divided into stages for completion, the*

*schedule shall specify interim dates for the submission of reports of progress towards completion of the interim requirements."*

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 not greater than one (1) year apart, and to ensure consistent progress toward compliance with final effluent limitations.

**(d) Total Nitrogen**

HAR Chapter 11-54-6(a)(3) establishes the following WQS for total nitrogen:

Parameter	Geometric Mean	Value not to exceed more than 10% of the time	Value not to exceed more than 2% of the time
Total Nitrogen (µg/L)	200.0	350.0	500.0

As demonstrated in Tables F-8 – 11 of this Fact Sheet, reasonable potential to exceed applicable WQS for total nitrogen has been determined.

ZOM data from January 2009 through May 2014 indicate that assimilative capacity is not available for total nitrogen in the receiving water. Assimilative capacity was determined as specified below:

- i. Review EPA's 303(d) list to determine if the water body is impaired for total nitrogen.

The water body is listed in EPA's 303(d) list for total nitrogen, thus assimilative capacity is not available.

- ii. Identify nearby control stations to determine the "decision unit" for analysis.

Control Stations 1B, 1M, 1S and 5S are the available reference station and have been identified as the applicable control stations for evaluating assimilative capacity and constitutes the decision unit for the analysis.

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

The resulting geometric means were:

Year	Result (µg/L)
2009	293
2010	394
2011	209
2012	115
2013	109
2014	104

The highest annual geometric mean for the decision unit of 394 µg/L is greater than 90 percent of the applicable WQS (180 µg/L).

- iv. Consider other available information if available, including studies, reports, and receiving water data trends.

The annual geometric means for the last three (3) years of data show a trend of decreasing concentrations of total nitrogen in the receiving water. However, because the receiving water is listed as impaired on the 303(d) list, assimilative capacity cannot be granted.

Effluent limitations will be included in this draft permit for total nitrogen.

Anti-backsliding regulations are satisfied because effluent limitations were not established in the previous permit for total nitrogen, thus these limitations are at least as stringent as the previous permit.

Effluent concentrations for total nitrogen from January 2009 through May 2014 at Outfalls Serial Nos. 001, 002, 003, and 004 indicate the following:

Outfall Serial Number	Maximum Total Nitrogen (µg/L)	Average Total Nitrogen (µg/L)
001	5,013	2,522
002	1,792	636
003	788	248
004	497	252

It is not feasible for the Permittee to immediately comply with final end-of-pipe effluent limitations for total nitrogen. In regards to the nutrient limitations for Outfall Serial Nos. 001, 002, 003, and 004, an April 16, 2014 letter to DOH, the Permittee states that the Facility will be retired within 9.5 years and requests a compliance schedule to replace the generating capacity of the Facility and implement transmission system upgrades to address low voltage and transformer overloads on the 23kV transmission system.

Although a compliance schedule cannot be granted for the development of site-specific objectives or dilution studies, DOH finds that compliance with the applicable effluent limitations will take substantial and costly facility alterations, and that retiring the Facility will ultimately result in compliance with applicable NPDES permit requirements and the conditions of HAR, Chapter 11-54.

The schedule of compliance is being proposed for a parameter that was not limited at the proposed level 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.

The compliance schedule proposed by the Permittee indicates that up to 9.5 years may be necessary for replacing the generating capacity and performing all necessary transmission system upgrades before retiring the Facility and full compliance (no discharge) is possible. As such, the compliance schedule requires compliance as soon as possible, consistent with the requirements of 40 CFR 122.47(1) and HAR 11-55-21.

During the compliance schedule, the Permittee is required to maintain current effluent quality. Interim effluent limitations for total 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 May 2014 at Outfall Serial Nos. 001, 002, 003, and 004. Single sample maximum effluent limitations have been established equal to the maximum effluent concentration for each outfall and annual geometric mean effluent limitation has been established based on the highest observed annual geometric mean for each outfall.

**Table F-14. Interim Effluent Limitations for Total Nitrogen**

<b>Outfall Serial Number</b>	<b>Single Sample Maximum (µg/L)</b>	<b>Annual Geometric mean (µg/L)</b>
001	5,013	2,908
002	1,792	852
003	788	362
004	497	345

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 to be necessary to ensure compliance with the final effluent limitations.

The proposed schedule of compliance is considered by the DOH to be in accordance with HAR, Section 11-55-21(b) and 40 CFR 122.47. HAR, Section 11-55-21(b) states, *“When a schedule specifies compliance longer than one year after permit issuance, the schedule of compliance shall specify interim requirements and the dates for their achievement and in no event shall more than one year elapse between interim dates. If the time necessary for completion of interim requirement (such as the construction of a treatment facility) exceeds one year and is not readily divided into stages for completion, the schedule shall specify interim dates for the submission of reports of progress towards completion of the interim requirements.”*

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 not greater than one (1) year apart, and to ensure consistent progress toward compliance with final effluent limitations.

**(e) Total Phosphorus**

HAR Chapter 11-54-6(a)(3) establishes the following WQS for total phosphorus:

Parameter	Geometric Mean	Value not to exceed more than 10% of the time	Value not to exceed more than 2% of the time
Total Phosphorus (µg/L)	25.0	50.0	75.0

As demonstrated in Tables F-8 – 11 of this Fact Sheet, reasonable potential to exceed applicable WQS for total phosphorus has been determined.

ZOM data from January 2009 through May 2014 indicate that assimilative capacity is not available for total phosphorus in the receiving water. Assimilative capacity was determined as specified below:

- i. Review EPA’s 303(d) list to determine if the water body is impaired for total phosphorus.

The water body is listed in EPA’s 303(d) list for total phosphorus, thus assimilative capacity is not available.

- ii. Identify nearby control stations to determine the “decision unit” for analysis.

Control Stations 1B, 1M, 1S and 5S are the available reference station and have been identified as the applicable control stations for evaluating assimilative capacity and constitutes the decision unit for the analysis.

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

The resulting geometric means were:

<b>Year</b>	<b>Result (µg/L)</b>
2009	20
2010	25
2011	19
2012	14
2013	15
2014	13

The highest annual geometric mean for the decision unit of 25 µg/L is greater than 90 percent of the applicable WQS (22.5 µg/L).

- iv. Consider other available information if available, including studies, reports, and receiving water data trends.

The annual geometric means for the last three (3) years of data show a trend of decreasing concentrations of total phosphorus in the receiving water. However, because the receiving water is listed as impaired on the 303(d) list, assimilative capacity cannot be granted.

Effluent limitations will be included in this draft permit for total phosphorus.

Anti-backsliding regulations are satisfied because effluent limitations were not established in the previous permit for total phosphorus, thus these limitations are at least as stringent as the previous permit.

Effluent concentrations for total phosphorus from January 2009 through May 2014 at Outfalls Serial Nos. 001, 002, 003, and 004 indicate the following:

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<b>Outfall Serial Number</b>	<b>Maximum Total Phosphorus (µg/L)</b>	<b>Average Total Phosphorus (µg/L)</b>
001	150	93
002	183	84
003	169	75
004	156	100

It is not feasible for the Permittee to immediately comply with final end-of-pipe effluent limitations for total phosphorus. In regards to the nutrient limitations for Outfall Serial Nos. 001, 002, 003, and 004, a April 16, 2014 letter to DOH, the Permittee states that the Facility will be retired within 9.5 years and requests a compliance schedule to replace the generating capacity of the Facility and implement transmission system upgrades to address low voltage and transformer overloads on the 23kV transmission system.

Although a compliance schedule cannot be granted for the development of site-specific objectives or dilution studies, DOH finds that compliance with the applicable effluent limitations will take substantial and costly facility alterations, and that retiring the Facility will ultimately result in compliance with applicable NPDES permit requirements and the conditions of HAR, Chapter 11-54.

The schedule of compliance is being proposed for a parameter that was not limited at the proposed level 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.

The compliance schedule proposed by the Permittee indicates that up to 9.5 years may be necessary for replacing the generating capacity and performing all necessary transmission system upgrades before retiring the Facility and full compliance (no discharge) is possible. As such, the compliance schedule requires compliance as soon as possible, consistent with the requirements of 40 CFR 122.47(1) and HAR 11-55-21.

During the compliance schedule, the Permittee is required to maintain current effluent quality. Interim effluent limitations for total phosphorus have been established until the final effluent limitations become effective. Interim effluent limitations have been established based on effluent data from January 2009 through May 2014 at Outfall Serial Nos. 001, 002, 003, and 004. Single sample maximum effluent limitations have been established equal to the maximum effluent concentration for each outfall and annual geometric mean effluent



limitation has been established based on the highest observed annual geometric mean for each outfall.

**Table F-15. Interim Effluent Limitations for Total Phosphorus**

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	150	116
002	183	115
003	169	98
004	156	121

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 to be necessary to ensure compliance with the final effluent limitations.

The proposed schedule of compliance is considered by the DOH to be in accordance with HAR, Section 11-55-21(b) and 40 CFR 122.47. HAR, Section 11-55-21(b) states, *"When a schedule specifies compliance longer than one year after permit issuance, the schedule of compliance shall specify interim requirements and the dates for their achievement and in no event shall more than one year elapse between interim dates. If the time necessary for completion of interim requirement (such as the construction of a treatment facility) exceeds one year and is not readily divided into stages for completion, the schedule shall specify interim dates for the submission of reports of progress towards completion of the interim requirements."*

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 not greater than one (1) year apart, and to ensure consistent progress toward compliance with final effluent limitations.

**(f) Temperature**

The applicable WQS for temperature is the receiving water is to be within 1 °C of ambient temperatures. The permittee was previously granted a ZOM for temperature and end-of-pipe effluent limitations of 35 °C as a monthly maximum and 36.7 ° as a daily maximum. To evaluate if the previously limitations continue to be protective of applicable WQS, receiving water temperatures at the edge of the ZOM were compared to ambient temperatures at reference locations taken on the same day. An aggregate geometric mean of the reference stations (Stations 1 and 5, including the entire depth profile

when available) for each date was compared to the receiving water temperature at the edge of the ZOM (only surface samples were available). A summary of this comparison is provided below.

**Table F-16. Temperature Evaluation**

Date	Reference Stations (1 and 5)	Station 2S		Station 3S		Station 4S	
		Measurement	Delta	Measurement	Delta	Measurement	Delta
3/17/2009	23.1	23.1	0.1	23.6	0.5	24.1	1.0
4/15/2009	23.6	23.6	0.1	23.3	0.3	23.7	0.1
7/29/2009	25.4	25.4	0.3	25.6	0.2	25.5	0.1
10/5/2009	26.0	26.0	0.3	26.3	0.3	26.8	0.8
2/16/2010	24.0	24.0	0.1	24.2	0.2	23.5	0.5
5/27/2010	24.4	24.4	0.2	24.7	0.3	25.7	1.3
8/19/2010	25.5	25.5	0.9	26.4	0.9	25.6	0.1
10/13/2010	24.8	24.8	0.3	25.0	0.2	24.6	0.2
2/16/2011	24.8	24.8	0.4	25.1	0.3	25	0.2
4/12/2011	23.7	23.7	0.4	24.0	0.3	23.3	0.4
8/17/2011	25.3	25.3	0.0	25.1	0.2	25.2	0.1
10/27/2011	25.5	25.5	0.1	25.5	0.0	25.4	0.1
3/13/2012	22.9	22.9	0.1	22.8	0.1	22.9	0.0
4/11/2012	22.9	22.9	0.8	23.1	0.2	23.1	0.2
7/5/2012	24.4	24.4	0.0	24.5	0.1	24.5	0.1
11/26/2012	24.6	24.6	0.0	24.3	0.3	24.1	0.5
3/14/2013	23.7	23.7	0.3	23.6	0.1	23.7	0.0
6/3/2013	24.9	24.9	0.3	24.4	0.5	24.4	0.5
9/11/2013	24.8	24.8	0.2	24.8	0.0	24.6	0.2
12/5/2013	25.4	25.4	0.5	25.7	0.3	25.2	0.2
3/12/2014	25.0	25.0	0.4	25.2	0.2	25.5	0.5

A review of available data from March 2009 through March 2014 indicates a single instantaneous exceedance of 1.0 °C at the edge of the mixing zone by 0.3 °C out of 63 total measurements. There are no exceedances based on annual geometric means (not shown). As such, the current end-of-pipe effluent limitations, combined with ZOM limitations applied at the edge of the mixing zone, are protective of applicable WQS for temperature and a 316(a) waiver for alternative temperature limitations is not necessary.

Section 316(a) of the CWA authorizes alternative limitations for heat to be established if the Permittee can demonstrate that the alternative limitations are protective of a “balanced indigenous population of fish, shellfish, and wildlife in and on the water body to which the discharge is made.” Although alternative 316(a) limitations are not applicable, the Permittee has submitted a Thermal Discharge Effects Analysis Report, dated August 25, 2014. The report evaluates the effects of the discharge of cooling water from the Facility relative to criteria in EPA 316(a) guidance to evaluate if discharges from the Facility appear to have resulted in “appreciable harm” to the maintenance of a balanced indigenous population (BIP).

Receiving water monitoring studies at the Facility began in the early 1970s. The first of these determined the extent of the thermal plume (designated in the original NPDES permit as the ZOM). The ZOM established the area within which excess water temperatures greater than 1.0 °C above ambient conditions may occur. Biological studies undertaken from 1972 to 1973 by Hawaiian Electric Company, Inc. (Hawaiian Electric) and Bernice P. Bishop Museum (Bishop Museum) (1975) concluded that the thermal discharge was not significantly influencing the distribution and abundance of reef-flat algal and invertebrate assemblages, and had only very localized effects on biota in the immediate vicinity of the discharge. Subsequent quarterly temperature monitoring at the edge of the ZOM showed that average temperatures were less than 0.5 °C from ambient. As predicted by the studies of the thermal plume, the largest deviations were measured at the station to the west of the discharge at the end of the Kahului Harbor breakwater. The temperature at the station to the east of the Facility discharge at the edge of the ZOM (4S) is elevated by 0.1°C on average.

Additionally, biological monitoring of the receiving waters within the ZOM was required starting with the NPDES permit issued in 1990, and was conducted annually from 1991 through 1994 and then once every two years. The analysis in the report attempts to demonstrate that current/historic plant operation (and current thermal effluent limitations) is consistent with maintenance of a BIP as required under 316(a). The analysis considers:

- i. Whether communities at stations close to the discharge (near-field) were reasonably similar in composition and in dynamic equilibrium with the stations more distant from the discharge (far-field);
- ii. To identify species or taxa that were primarily responsible for any patterns of change in the data; and

- iii. Whether changes in taxa abundance can be explained as a response to temperature changes resulting from the discharge or other potential factors unrelated to the thermal discharge.

The Permittee found that no substantial differences in the abundances of motile invertebrates or fishes could be discerned in the NPDES monitoring data between near-field and far-field stations, but there was a significant difference between areas in the community of habitat formers that included algae and sessile invertebrates. The difference was largely driven by changes in *Zoanthus pacificus*, a locally-abundant species related to sea anemones that colonized expanses of low-relief rock and rubble in front, and to the east, of the Facility's thermal discharge. The species was not found during the extensive biological sampling conducted during 1972–73. *Zoanthus* declined in abundance between 1991 through 2006 in the ZOM at the far-field stations but remained in relatively high abundance at the near-field stations. Coincident with the decrease in *Zoanthus* at the far-field stations was an increase in total algal cover relative to the near-field stations. These increases are reportedly due to the dominant cover of a non-native invasive algal species (*Acanthophora spicifera*), which also occurred at a lesser degree at the near-field stations.

The Permittee suggests that these changes are not a result of the thermal discharges from the Facility, but are associated with high nutrient concentrations in nearshore waters from anthropogenic sources.

Based largely on the data from the biological surveys undertaken since 1991 and the biological surveys conducted from 1972 to 1973 and other reports on community abundance patterns for the area, the Permittee concludes there is no evidence to indicate that the discharge from the Facility results in “appreciable harm” to the BIP.

Because a 316(a) waiver for an alternative temperature limitations is not required, 316(a) requirements have not been carried over.

#### (g) pH

The Permittee was previously granted a ZOM for pH. The pH value at the ZOM monitoring stations was between 8.16 – 8.24 s.u., for all stations, and is within the water quality standards for open coastal waters in HAR, Section 11-54-6(a)(3). Thus, the technology-based effluent limitations of between 6.0 to 9.0 at all times appears to be protective of water quality outside the ZOM and has been carried over.

**e. Summary of Interim Effluent Limitations**

A summary of the interim effluent limitations discussed in Parts D.2.d.(3).(a) through D.2.d.(3).(e) is provided below.

**Table F-17. Summary of Interim Effluent Limitations, Outfall No. 001**

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
001	Ammonia Nitrogen	µg/L	2,367	4,463
	Nitrate + Nitrite Nitrogen	µg/L	9	53
	Total Nitrogen	µg/L	2,908	5,013
	Total Phosphorus	µg/L	116	150

**Table F-18. Summary of Interim Effluent Limitations, Outfall No. 002**

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
002	Ammonia Nitrogen	µg/L	559	1,512
	Nitrate + Nitrite Nitrogen	µg/L	15	31
	Total Nitrogen	µg/L	852	1,792
	Total Phosphorus	µg/L	115	183

**Table F-19. Summary of Interim Effluent Limitations, Outfall No. 003**

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
003	Ammonia Nitrogen	µg/L	94	327
	Nitrate + Nitrite Nitrogen	µg/L	33	274
	Total Nitrogen	µg/L	362	788
	Total Phosphorus	µg/L	98	169

**Table F-20. Summary of Interim Effluent Limitations, Outfall No. 004**

Outfall	Parameter	Units	Effluent Limitations	
			Annual Geometric Mean	Single Sample Maximum
004	Ammonia Nitrogen	µg/L	69	131
	Nitrate + Nitrite Nitrogen	µg/L	139	229
	Total Nitrogen	µg/L	345	497
	Total Phosphorus	µg/L	121	156

**f. Storm Water – Outfall Serial Nos. 003 and 004**

The storm water discharges from the facility are subject to the Storm Water Discharges Associated With Industrial Activity NPDES requirements under 40 CFR Part 122.26(b)(14)(ix). Accordingly, the proposed storm water runoff discharge conditions and requirements are incorporated in the draft permit based on Appendix B of HAR, Chapter 11-55, NPDES General Permit for Storm Water Associated with Industrial Activities. The Permittee is also required to update and implement its Storm Water Pollution Control Plan (SWPCP), as discussed in Part G.5.c.6 of this Fact Sheet. The storm water requirements and SWPCP requirements are retained from the previous permit, however, with some additions. The RPA for storm water was performed using data submitted from representative storm events during 2009, 2010, and 2013.

The STCP states that for discharges without submerged outfalls, the daily maximum should equal to the acute water quality standards for aquatic life shall be imposed. It also states that the human health-based limits should be used for continuous, major discharges that has the potential to cause long-term impact on water quality. It also states that intermittent discharge should have little potential to cause human health impacts. Because of the intermittent nature of storm water runoff, in accordance with the STCP, only the acute aquatic life criteria was considered for the RPA.

**Table F-22. Summary of RPA Results – Storm Water Outfall Serial Nos. 003 and 004**

Parameter	Units	Maximum Effluent Concentration	Maximum Projected Concentration	Applicable Water Quality Standard	RPA Results
Antimony, Total Recoverable	µg/L	12.0	56.4	NA	No
Arsenic, Total Recoverable	µg/L	48.0	226	69	Yes
Beryllium, Total Recoverable	µg/L	0.09	0.41	NA	No
Cadmium, Total Recoverable	µg/L	3.1	14.6	43.3	No
Chromium, Hexavalent	µg/L	6.8	32	1,108	No
Copper, Total Recoverable	µg/L	274	1,288	3.5	Yes
Lead, Total Recoverable	µg/L	134	630	147.2	Yes
Nickel, Total Recoverable	µg/L	28.8	135	75.8	Yes
Silver, Total Recoverable	µg/L	0.11	0.52	2.7	No
Thallium, Total Recoverable	µg/L	0.038	0.18	710	No
Zinc, Total Recoverable	µg/L	257	1,208	100.4	Yes

**i. Arsenic, Total Recoverable.** The previous permit contained a daily maximum effluent limitation for arsenic of 69 µg/L measured annually. Storm water monitoring results gathered between December 2009 and December 2013 demonstrates that arsenic has reasonable potential to exceed applicable WQS. The maximum effluent concentration of arsenic

in the storm water discharge was 48 µg/L which exceeds the most stringent applicable WQS for this pollutant (69 µg/L) when applying a factor of 4.7 due to limited data. A maximum daily effluent limitation of 69 µg/L has been established for total recoverable arsenic in this draft permit.

- ii. **Copper, Total Recoverable.** The previous permit contained storm water effluent limitations for copper of a daily maximum of 3 µg/L. Storm water monitoring results gathered between December 2009 and December 2013 demonstrates that copper has reasonable potential to exceed applicable WQS. The maximum effluent concentration of copper in the storm water discharge was 274 µg/L which exceeds the most stringent applicable WQS for this pollutant (3.5 µg/L as total recoverable) when applying a factor of 4.7 due to limited data. A maximum daily effluent limitation of 3.0 µg/L has been established for copper in this draft permit based on the previous effluent limitation.
- iii. **Lead, Total Recoverable.** The previous permit contained storm water effluent limitations for lead of a daily maximum of 140 µg/L. Storm water monitoring results gathered between December 2009 and December 2013 demonstrates that lead has reasonable potential to exceed applicable WQS. The maximum effluent concentration of lead in the storm water discharge was 134 µg/L which exceeds the most stringent applicable WQS for this pollutant (140 µg/L) when applying a factor of 4.7 due to limited data. A maximum daily effluent limitation of 140 µg/L has been established for lead in this draft permit.
- iv. **Nickel, Total Recoverable.** The previous permit did not contain storm water effluent limitations for nickel. Storm water monitoring results gathered between December 2009 and December 2013 demonstrates that nickel has reasonable potential to exceed applicable WQS. The maximum effluent concentration of nickel in the storm water discharge was 28.8 µg/L which exceeds the most stringent applicable WQS for this pollutant (75 µg/L) when applying a factor of 4.7 due to limited data. A maximum daily effluent limitation of 75 µg/L has been established for nickel in this draft permit.
- v. **Zinc, Total Recoverable.** The previous permit did not contain storm water effluent limitations for zinc. Storm water monitoring results gathered between December 2009 and December 2013 demonstrate that zinc has reasonable potential to exceed applicable WQS. The maximum effluent concentration of zinc in the storm water discharge was 257 µg/L which exceeds the most stringent applicable WQS for this pollutant (95 µg/L) when applying a factor of 4.7 due to limited data. A maximum daily

effluent limitation of 95 µg/L has been established for zinc in this draft permit.

**g. 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 (2) 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 Nos. 001, 002, 003, and 004 for *Tripneustes gratilla*.

Whole effluent toxicity data for the time period between October 2009 and June 2011 using the test species *T. gratilla* did not result in an exceedance of the chronic toxicity effluent limitation of 70% mean fertilization.

Due to the presence of toxic pollutants in the effluent above applicable WQS for the protection of aquatic life, a chronic WET effluent limitation has been established at Outfall Serial Nos. 001, 002, 003 and 004. In addition, the Permittee has requested to exclude WET monitoring for monitoring periods in which discharges occur for less than a total of 96-hours. Due to historic data indicating limited toxicity within the effluent, and the reduced potential for toxic impacts within the receiving water during periods of minimum discharge, and considering the expense associated with conducting WET monitoring, DOH waived required WET monitoring during monitoring periods in which the Permittee discharges less than 96 hours.

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 Nos. 001, 002, 003, and 004 is consistent with the TST method using *T. gratilla*. The use of *T. gratilla* is representative of 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 (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).

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 any one chronic toxicity test, the chronic WET permit limit that must be met is rejection of the null hypothesis ( $H_0$ ):

IWC (100 percent effluent) mean response  $\leq 0.75 \times$  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  $\beta$  and  $\alpha$  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<sup>1</sup>).

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.

**h. 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 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:

$$\text{lbs/day} = 8.34 * \text{concentration (mg/L)} * \text{flow (MGD)}$$

Mass-based effluent limitations in the previous permit were established in kg/day. However, to be consistent with other permits in the State, the draft permit establishes mass-based effluent limitations in lbs/day. Limitations expressed as kg/day are duplicative and therefore have not been established. The limitations established in this permit meet applicable anti-backsliding and antidegradation requirements, as discussed in Part D.2.i and D.2.j 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-23. Summary of Final Effluent Limitations**

Effluent Characteristics	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations	
	Units	Monthly Average	Daily Maximum	Maximum Monthly Average	Daily Maximum
<b>Cooling Water (001, 002, 003, and 004)</b>					
Flow (001)	MGD	1	10.7	--	10.7
Flow (002)	MGD	1	10.7	--	10.7

<sup>1</sup> 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.

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Effluent Characteristics	Effluent Limitations Contained in the Previous Permit			Proposed Effluent Limitations	
	Units	Monthly Average	Daily Maximum	Maximum Monthly Average	Daily Maximum
Flow (003)	MGD	1	16.0	--	16.0
Flow (004)	MGD	1	17.5	--	17.5
Temperature	°F	95°	98°	95°	98°
	°C	35°	36.7°	35°	36.7°
Total Nitrogen	µg/L	--	1	200.0 <sup>2</sup>	350.0 <sup>2</sup>
Ammonia Nitrogen	µg/L	--	1	6.0 <sup>3</sup>	13.0 <sup>3</sup>
Nitrate + Nitrite Nitrogen	µg/L	--	1	8.0 <sup>4</sup>	20.0 <sup>4</sup>
Total Phosphorus	µg/L	--	1	25.0 <sup>5</sup>	50.0 <sup>5</sup>
Silica	µg/L	--	1	1	1
Nickel, Total Recoverable	µg/L	--	--	--	33
Whole Effluent Toxicity	TUc	--	--	--	Pass <sup>6</sup>
<b>Low Volume Wastes (003 and 004)</b>					
Flow	MGD	1	0.040	1	0.040
Total Suspended Solids	mg/L	30.0	100.0	30.0	100.0
Oil and Grease	mg/L	15.0	20.0	15.0	20.0
pH	s.u.	Not less than 6.0 nor greater than 9.0		Not less than 6.0 nor greater than 9.0	
<b>Metal Cleaning Wastes (003 and 004)</b>					
Flow	MGD	1	0.025	1	0.025
Total Suspended Solids	mg/L	30.0	100.0	30.0	100.0
Oil and Grease	mg/L	15.0	20.0	15.0	20.0
Copper, Total Recoverable	µg/L	1.0	1.0	1.0	1.0
	kg/day	0.095	0.095	--	--
	lbs/day	0.209	0.209	0.209	0.209
Iron, Total Recoverable	µg/L	1.0	1.0	1.0	1.0
	kg/day	0.095	0.095	--	--
	lbs/day	0.209	0.209	0.209	0.209
pH	s.u.	Not less than 6.0 nor greater than 9.0		Not less than 6.0 nor greater than 9.0	

<sup>1</sup> Monitoring and reporting required, no limitations.

<sup>2</sup> **Final Effluent Limitations.** (effective <9.5 years after effective date>): Discharge from the Facility shall not exceed an annual geometric mean of 200 µg/L nor a single sample maximum of 350 µg/L.

**Interim Effluent Limitations.** (effective through -9.5 years after effective date>): Discharge from the Facility shall not exceed:

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	5,013	2,908
002	1,792	852
003	788	362
004	497	345

<sup>3</sup> **Final Effluent Limitations.** (effective <9.5 years after effective date>): Discharge from the Facility shall not

exceed an annual geometric mean of 6 µg/L nor a single sample maximum of 13 µg/L.

**Interim Effluent Limitations.** (effective through -9.5 years after effective date>): Discharge from the Facility shall not exceed:

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	4,463	2,367
002	1,512	559
003	327	94
004	131	69

4 **Final Effluent Limitations.** (effective <9.5 years after effective date>): Discharge from the Facility shall not exceed an annual geometric mean of 8.0 µg/L nor a single sample maximum of 20 µg/L.

**Interim Effluent Limitations.** (effective through -9.5 years after effective date>): Discharge from the Facility shall not exceed:

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	53	9.0
002	31	15
003	274	33
004	229	139

5 **Final Effluent Limitations.** (effective <9.5 years after effective date>): Discharge from the Facility shall not exceed an annual geometric mean of 25 µg/L nor a single sample maximum of 50 µg/L.

**Interim Effluent Limitations.** (effective through -9.5 years after effective date>): Discharge from the Facility shall not exceed:

Outfall Serial Number	Single Sample Maximum (µg/L)	Annual Geometric mean (µg/L)
001	150	116
002	183	115
003	169	98
004	156	121

6 "Pass", as described in section D.2.g of this Fact Sheet.

**i. 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).

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. The draft permit retains all effluent limitations from the previous permit. Therefore, effluent limitations and requirements for all pollutants are at least as stringent as those in the previous permit and are consistent with State and federal anti-backsliding regulations.

**j. Satisfaction of Anti-degradation 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. 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 and applicable ZOM water quality criteria from 11-54-6(a)(3).

**Table F-24. ZOM Monitoring Data**

Outfall	Parameter	Units	Applicable Water Quality Standard	Maximum Reported Concentration <sup>1</sup>
001	Total Nitrogen	µg/L	200 <sup>2</sup>	2,908
	Ammonia Nitrogen	µg/L	6.0 <sup>2</sup>	2,367
	Nitrate + Nitrite	µg/L	8.0 <sup>2</sup>	8.3
	Total Phosphorus	µg/L	25 <sup>2</sup>	116
	Chlorophyll <u>a</u>	µg/L	1.5 <sup>2</sup>	NR
	Turbidity	NTU	1.5 <sup>2</sup>	NR
	Temperature	°C	<sup>5</sup>	NR
002	Salinity	ppm	<sup>6</sup>	NR
	Total Nitrogen	µg/L	200 <sup>2</sup>	852
	Ammonia Nitrogen	µg/L	6.0 <sup>2</sup>	559
	Nitrate + Nitrite	µg/L	8.0 <sup>2</sup>	15
	Total Phosphorus	µg/L	25 <sup>2</sup>	115
	Chlorophyll <u>a</u>	µg/L	1.5 <sup>2</sup>	NR
	Turbidity	NTU	1.5 <sup>2</sup>	NR
003	Temperature	°C	<sup>5</sup>	NR
	Salinity	ppm	<sup>6</sup>	NR
	Total Nitrogen	µg/L	200 <sup>2</sup>	362
	Ammonia Nitrogen	µg/L	6.0 <sup>2</sup>	94
	Nitrate + Nitrite	µg/L	8.0 <sup>2</sup>	33
	Total Phosphorus	µg/L	25 <sup>2</sup>	98
	Chlorophyll <u>a</u>	µg/L	1.5 <sup>2</sup>	NR
003	Turbidity	NTU	1.5 <sup>2</sup>	NR
	Temperature	°C	<sup>5</sup>	NR

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Outfall	Parameter	Units	Applicable Water Quality Standard	Maximum Reported Concentration <sup>1</sup>
	Salinity	ppm	<sup>6</sup>	NR
004	Total Nitrogen	µg/L	200 <sup>2</sup>	345
	Ammonia Nitrogen	µg/L	6.0 <sup>2</sup>	69
	Nitrate + Nitrite	µg/L	8.0 <sup>2</sup>	139
	Total Phosphorus	µg/L	25 <sup>2</sup>	121
	Chlorophyll <i>a</i>	µg/L	1.5 <sup>2</sup>	NR
	Turbidity	NTU	1.5 <sup>2</sup>	NR
	Temperature	°C	<sup>5</sup>	NR
	Salinity	ppm	<sup>6</sup>	NR

- <sup>1</sup> Source: ZOM Application.
- <sup>2</sup> Water quality standard expressed as a geometric mean.
- <sup>3</sup> 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, storm drain, or groundwater discharge may depress the pH to a minimum level of 7.0.
- <sup>4</sup> Dissolved oxygen shall not be less than 75 percent saturation.
- <sup>5</sup> Temperature shall not vary more than 1° Celsius from ambient conditions.
- <sup>6</sup> 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. Offshore Stations**

The following are a summary of the geometric mean values calculated from each offshore monitoring location, reported in the ZOM analysis from March 2009 through March 2014.

**Table F-25. Offshore Monitoring Stations**

Station	Geometric Mean <sup>1,2</sup>							
	Total Nitrogen	Ammonia Nitrogen	Nitrate + Nitrite	Total Phosphorus	Chlorophyll <i>a</i>	Silica	pH	Temperature
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	s.u.	°C
1B (Control Station)	343	12	16	24	0.74	541	8.2	25
1M (Control Station)	325	13	31	24	0.93	1,175	8.2	25
1S (Control Station)	485	18	75	31	1.2	2,435	8.2	25
2S	392	12	50	28	0.48	1,755	8.2	25
3S	384	10	13	27	0.53	952	8.2	25
4S	456	11	75	43	0.81	2,366	8.2	26
5S (Control Station)	446	8.4	45	27	0.84	2,244	8.2	25

Station	Geometric Mean <sup>1,2</sup>							
	Total Nitrogen	Ammonia Nitrogen	Nitrate + Nitrite	Total Phosphorus	Chlorophyll <u>a</u>	Silica	pH	Temperature
	µg/L	µg/L	µg/L	µg/L	µg/L	µg/L	s.u.	°C
Applicable Water Quality Standard	200	6.0	8.0	25.0	1.5	--	3	4

- <sup>1</sup> Source: ZOM Analysis, March 2009 through March 2014.
- <sup>2</sup> Reported geometric mean is the maximum annual geometric mean.
- <sup>3</sup> 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.
- <sup>4</sup> Shall not vary more than 1°C from ambient conditions.

**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) Kahului Bay is designated as "Class A Embayment." 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 Kahului Bay.

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 (1,000 feet) 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 (5) samples which shall be spaced to cover a period between 25 and 30 calendar days. No single sample shall exceed the single sample maximum of 104 CFU per 100 milliliters.

Based on the State Enterococcus standard at the time of reissuance, the previous permit included a geometric mean of 7 CFU per 100 milliliters but did not establish a single sample maximum. 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 CFU per 100 milliliters and a single sample maximum value of 104 CFU 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. The draft permit establishes the new enterococcus standards from HAR, Section 11-54-8(b) for recreational waters within 300 meters (1,000 feet) of shoreline. Since the new water quality standards were adopted by the DOH and EPA for all marine recreational waters, DOH has determined that the impact the new water quality standards established in the draft permit will be insignificant and the level of water quality necessary to protect the existing uses will be maintained and protected.

- (b) At locations where sampling is less frequent than five (5) 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 Embayments”**

**Table F-26. 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	200.00	350.00	500.00
Ammonia Nitrogen	µg/L	6.00	13.00	20.00
Nitrate + Nitrite Nitrogen	µg/L	8.00	20.00	35.00
Total Phosphorus	µg/L	25.00	50.00	75.00
Chlorophyll <u>a</u>	µg/L	1.50	4.50	8.50
Turbidity	NTU	1.50	3.00	5.00
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	% saturation	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	ppt	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(a)(3) for “Class A Wet Embayments” shall apply to the treated effluent through Outfall Serial Nos. 001, 002, 003 and 004 as seen in the table above, at the edge of the mixing zone, with exceptions for ammonia nitrogen, total nitrogen, nitrate + nitrite, and total phosphorus. Because the receiving water is impaired for ammonia nitrogen, total nitrogen, nitrate + nitrite, and total phosphorus and a ZOM cannot be granted for these parameters, end-of-pipe effluent limitations have been established for ammonia nitrogen, total nitrogen, nitrate + nitrite, and total phosphorus.

The discharges from Outfall Serial Nos. 001, 002, 003, and 004 shall comply with the values listed in the table above (with the exception of ammonia nitrogen, total nitrogen, nitrate + nitrite, and total phosphorus), except that the specific water quality criteria for the parameters may be exceeded within the boundaries of the ZOM.

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

**c. Zone of Mixing (ZOM) (ZM-37)**

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 be retained. Consistent with the current permit, the ZOM requested is 1,500 feet radius about the discharges and areas 500 feet in width extending 3,000 feet along the shore on either side of the discharges.

- (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 indicates that the existing physical environment is a Class A marine discharge. The ZOM application indicates that no major physical effects are expected due to the continuation of the ZOM.
  - (b) Effluent data and receiving water data are provided in Tables F-8 – 11, Table F-24, and Table F-25 of this Fact Sheet. The effluent and receiving water data indicate there is a potential for nutrient (ammonia nitrogen) impairment as previously discussed in this Fact Sheet.
- (2) HAR 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 11-54-9(c)(5):
  - (a) The Facility discharges once-through condenser cooling water, treated low volume waste, and treated metal cleaning wastes that develop in the process of generating electricity for the island of Maui.
  - (b) The level of treatment of the discharge and the depth and distance of the outfall offshore does not 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. 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 previously in 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 Nos. 001, 002, 003, and 004 discharges with the applicable water quality criteria, as described further in Section F.9 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. Effluent Monitoring – Cooling Water at Outfall Serial No. 001**

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

- a. Monitoring requirements for flow, temperature, total nitrogen, ammonia nitrogen, nitrate + nitrite, total phosphorus, silica and whole effluent toxicity retained from the previous permit to determine compliance with effluent limitations, where applicable, and to enable comparison with the receiving water ZOM monitoring results determine if the Facility effluent is contributing to elevated concentrations of said pollutants.
- b. Monitoring requirements for nickel have been added to the draft permit to characterize the effluent and evaluate compliance with applicable effluent limitations.
- c. Monitoring requirements for pH and turbidity have been added to the draft permit to characterize the effluent and evaluate the potential impacts of the effluent on the receiving water.
- d. Monitoring requirements for priority pollutants have been established once during the permit term to evaluate reasonable potential for future permit renewals.

**2. Effluent Monitoring – Cooling Water at Outfall Serial No. 002**

The following monitoring requirements are applicable at Outfall Serial No. 002 for cooling water.

- a. Monitoring requirements for flow, temperature, total nitrogen, ammonia nitrogen, nitrate + nitrite, total phosphorus, silica and whole effluent toxicity retained from the previous permit to determine compliance with effluent limitations, where applicable, and to enable comparison with the receiving water ZOM monitoring results determine if the Facility effluent is contributing to elevated concentrations of said pollutants.

- b. Monitoring requirements for nickel have been added to the draft permit to characterize the effluent and evaluate compliance with applicable effluent limitations.
- c. Monitoring requirements for pH and turbidity have been added to the draft permit to characterize the effluent and evaluate the potential impacts of the effluent on the receiving water.
- d. Monitoring requirements for priority pollutants have been established once during the permit term to evaluate reasonable potential for future permit renewals.

**3. Effluent Monitoring – Cooling Water at Outfall Serial No. 003**

The following monitoring requirements are applicable at Outfall Serial No. 003 for cooling water.

- a. Monitoring requirements for flow, temperature, total nitrogen, ammonia nitrogen, nitrate + nitrite, total phosphorus, silica and whole effluent toxicity retained from the previous permit to determine compliance with effluent limitations, where applicable, and to enable comparison with the receiving water ZOM monitoring results determine if the Facility effluent is contributing to elevated concentrations of said pollutants.
- b. Monitoring requirements for nickel have been added to the draft permit to characterize the effluent and evaluate compliance with applicable effluent limitations.
- c. Monitoring requirements for pH and turbidity have been added to the draft permit to characterize the effluent and evaluate the potential impacts of the effluent on the receiving water.
- d. Monitoring requirements for priority pollutants have been established once during the permit term to evaluate reasonable potential for future permit renewals.

**4. Effluent Monitoring – Cooling Water at Outfall Serial No. 004**

The following monitoring requirements are applicable at Outfall Serial No. 004 for cooling water.

- a. Monitoring requirements for flow, temperature, total nitrogen, ammonia nitrogen, nitrate + nitrite, total phosphorus, silica and whole effluent toxicity retained from the previous permit to determine compliance with effluent limitations, where applicable, and to enable comparison with the receiving water ZOM monitoring results determine if the Facility effluent is contributing to elevated concentrations of said pollutants.
- b. Monitoring requirements for nickel have been added to the draft permit to characterize the effluent and evaluate compliance with applicable effluent limitations.
- c. Monitoring requirements for pH and turbidity have been added to the draft permit to characterize the effluent and evaluate the potential impacts of the effluent on the receiving water.
- d. Monitoring requirements for priority pollutants have been established once during the permit term to evaluate reasonable potential for future permit renewals.

**5. Effluent Monitoring – Low Volume Wastes at Outfall Serial Nos. 003 and 004**

The following monitoring requirements are applicable at Outfall Serial Nos. 003 and 004 for low volume wastes.

- a. Monitoring requirements for flow, total suspended solids, oil and grease, and pH have been retained from the previous permit to determine compliance with effluent limitations.

**6. Effluent Monitoring – Metal Cleaning Wastes at Outfall Serial Nos. 003 and 004**

The following monitoring requirements are applicable at Outfall Serial Nos. 003 and 004 for metal cleaning wastes.

- a. Monitoring requirements for flow, total suspended solids, oil and grease, copper, iron, and pH have been retained from the previous permit to determine compliance with effluent limitations.

**7. Whole Effluent Toxicity Monitoring**

Consistent with the previous permit, quarterly 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.

## **8. Receiving Water Quality Monitoring Requirements**

### **a. 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 offshore waters at three stations along the boundary of the ZOM and two control stations outside the ZOM. All monitoring requirements for offshore stations are retained from the previous permit and included in Part E.1 of the draft permit.

## **G. Rationale for Provisions**

### **1. Standard Provisions**

The Permittee is required to comply with DOH Standard NPDES Permit Conditions (Version 14), 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 (Version 14).

### **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 – Not Applicable**

**5. Other Special Provisions**

- a. **Section 316(b) Clean Water Act Phase II Cooling Water Intake Structure(s) Application Submittal Requirements.** No Section 316(b) Clean Water Act Phase II cooling water intake structure(s) requirements are incorporated into the draft permit since no cooling water intake structure is used as part of the operation of the Facility. The source for the once-through cooling water used at the Facility is obtained from the brackish water wells constructed at the Facility site.
- b. **Other Requirements.** The proposed schedule of submission at Part D of the draft permit specifies the Permittee to submit the following items by the specified time frames to the Director:
- (1) Effluent Monitoring Program within 30 calendar days after the effective date of the permit.
  - (2) Receiving Water Monitoring Program within 30 calendar days after the effective date of the permit.
  - (3) Annual summary of the quantities of all chemicals, listed by both chemical and trade names, which are used for cooling and/or boiler water treatment and which are discharged by January 30<sup>th</sup> of each year.
  - (4) Receiving water bottom biological communities monitoring program within 60 calendar days after the effective date of the permit.
  - (5) Whole Effluent Toxicity Initial Investigation Toxicity Reduction Evaluation Workplan within 60 calendar days after the effective date of the permit.
  - (6) Updated Storm Water Pollution Control Plan within 90 calendar days after the effective date of the 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



