

North Coast Regional Water Quality Control Board

**ORDER NO. R1-2013-0023**  
**NPDES NO. CA0024333**  
**WDID NO. 1B840350SON**

**WASTE DISCHARGE REQUIREMENTS**  
**FOR THE**  
**UNIVERSITY OF CALIFORNIA - DAVIS**  
**BODEGA MARINE LABORATORY**  
**SONOMA COUNTY**

The following Permittee is subject to waste discharge requirements as set forth in this Order:

**Table 1. Permittee Information**

|                                 |                                   |
|---------------------------------|-----------------------------------|
| <b>Permittee</b>                | University of California - Davis  |
| <b>Name of Facility</b>         | Bodega Marine Laboratory          |
| <b>Facility Address</b>         | 2099 Westside Road                |
|                                 | Bodega Bay, CA 94923              |
|                                 | Sonoma County                     |
| <b>Maximum Anticipated Flow</b> | 1.0 million gallons per day (mgd) |
| <b>Type of Facility</b>         | Marine Laboratory                 |

**Table 2. Discharge Locations**

| <b>Discharge Point</b> | <b>Effluent Description</b>        | <b>Discharge Point Latitude</b> | <b>Discharge Point Longitude</b> | <b>Receiving Water</b> |
|------------------------|------------------------------------|---------------------------------|----------------------------------|------------------------|
| 001                    | Waste seawater and filter backwash | 38° 19' 00" N                   | 123° 04' 00" W                   | Pacific Ocean          |
| 002                    | Once-through freshwater            | 38° 19' 10" N                   | 123° 04' 14" W                   | Groundwater            |
| 003                    | Storm water                        | 38° 19' 9" N                    | 123° 04' 18" W                   | Freshwater Marsh       |
| 004                    | Storm water                        | 38° 19' 4" N                    | 123° 04' 12" W                   | Freshwater Marsh       |
| 016                    | Storm water                        | 38° 19' 2" N                    | 123° 04' 13" W                   | Pacific Ocean          |

**Table 3. Administrative Information**

|  |                         |
|--|-------------------------|
| This Order was adopted by the Regional Water Quality Control Board on:   | <b>June 13, 2013</b>    |
| This Order shall become effective on:  | <b>August 1, 2013</b>   |
| This Order shall expire on:  | <b>July 31, 2018</b>    |
| The Permittee shall file a Report of Waste Discharge as an application for renewal of waste discharge requirements in accordance with title 23, California Code of Regulations, no later than: | <b>February 1, 2018</b> |
| The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a minor discharge.   |                         |

IT IS HEREBY ORDERED, that in order to meet the provisions contained in division 7 of the California Water Code (commencing with section 13000) and regulations adopted thereunder and the provisions of the federal Clean Water Act and regulations and guidelines adopted thereunder, the Permittee shall comply with the requirements in this Order.

I, Matthias St. John, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, North Coast Region, on **June 13, 2013**.

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Matthias St. John, Executive Officer

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## I. FACILITY INFORMATION

Information describing the University of California – Davis, Bodega Marine Laboratory (hereinafter Facility) is summarized in Table 1 of this Order and in sections I and II of the Fact Sheet (Attachment F). Section I of the Fact Sheet also includes information regarding the University of California - Davis's permit application.

## II. FINDINGS

The California Regional Water Quality Control Board, North Coast Region (hereinafter Regional Water Board), finds:

- A. Legal Authorities.** This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this Facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).
- B. Basis and Rationale for Requirements.** The Regional Water Board developed the requirements in this Order based on information submitted as part of the Permittee's application, monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F) contains information and rationale for the requirements in this Order, and is hereby incorporated into this Order and constitutes the Findings for this Order. Attachments A through E are also incorporated into this Order.
- C. Provisions and Requirements Implementing State Law.** The provisions/requirements in subsections IV.B and V.B. of this Order and sections VI, VII, and VIII.C of the Monitoring and Reporting Program (MRP) are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.
- D. Notification of Interested Parties.** The Regional Water Board has notified the Permittee and interested agencies and persons of its intent to prescribe Waste Discharge Requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet of this Order.
- E. Consideration of Public Comment.** The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet of this Order

### **III. DISCHARGE PROHIBITIONS**

- A.** The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.
- B.** Creation of pollution, contamination, or nuisance, as defined by section 13050 of the California Water Code (Water Code) is prohibited.
- C.** The discharge of waste at any point not described in section II.B of the Fact Sheet or regulated by a permit issued by the State Water Resources Control Board (State Water Board) or another Regional Water Board is prohibited.
- D.** The discharge of exotic organisms (non-endemic, non-naturalized plants, animals and microorganisms, including gametes, spores, larvae, and parts of such organisms) is prohibited.
- E.** The discharge of waste to land that is not under the control of the Permittee is prohibited, except as authorized under Section VI.C.7.d (Solids Disposal).
- F.** The discharge of waste resulting from cleaning activities is prohibited.
- G.** The discharge of waste containing detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.
- H.** The discharge of constituents to the ocean at levels exceeding the water quality objectives established by Table B of the Ocean Plan (2009) is prohibited.
- I.** The discharge rate from the seawater system shall not exceed 1.0 mgd.
- J.** Discharges of non-storm water facility runoff to the ocean (i.e., any discharge of runoff from the facility that reaches the ocean and that is not composed entirely of storm water), except those associated with the waste seawater system and emergency firefighting, are prohibited.
- K.** The discharge of any radiological or biological warfare agent into waters of the state is prohibited under Water Code section 13375.

**IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS**

**A. Effluent Limitations**

**1. Final Effluent Limitations – Discharge Point 001**

- a. The discharge of seawater as defined by the numerical limitations below, shall maintain compliance with the following effluent limitations at Discharge Point 001, during periods of discharge, with compliance measured at Monitoring Location EFF-001 as described in the MRP (Attachment E).

**Table 4. Final Effluent Limitations – Discharge Point 001 (Discharge to the Pacific Ocean)**

| Parameter                                   | Units   | Effluent Limitations |                  |               |                         |                |
|---|---------|----------------------|------------------|---------------|-------------------------|----------------|
|   |         | Average Monthly      | Average Weekly   | Maximum Daily | Instantaneous Maximum   | 6-Month Median |
| Total Suspended Solids                      | mg/L    | 1                    | 1                | 1             | 60                      | --             |
| Settleable Solids                           | mL/L-hr | 1.0 <sup>1</sup>     | 1.5 <sup>1</sup> | 1             | 3.0                     | --             |
| pH  | s.u.    | --                   | --               | --            | 6.0 – 9.0 <sup>2</sup>  | --             |
| Bis (2-Ethylhexyl) Phthalate                | µg/L    | 3.5                  | --               | --            | --                      | --             |
| Chromium VI, Total Recoverable <sup>3</sup> | µg/L    | --                   | --               | 8.0           | 20                      | 2.0            |
| Copper, Total Recoverable                   | µg/L    | --                   | --               | 12            | 30                      | 3.0            |
| Lead, Total Recoverable                     | µg/L    | --                   | --               | 8.0           | 20                      | 2.0            |
| Nickel, Total Recoverable                   | µg/L    | --                   | --               | 20            | 50                      | 5.0            |
| Silver, Total Recoverable                   | µg/L    | --                   | --               | 2.8           | 7.0                     | 0.70           |
| Zinc, Total Recoverable                     | µg/L    | --                   | --               | 80            | 200                     | 20             |
| Total Residual Chlorine                     | mg/L    | --                   | --               | --            | Non Detect <sup>4</sup> | --             |

**Table Notes:**

1. The discharge shall not contain concentrations of suspended and settleable solids higher than those found in the influent at Monitoring Location INF-001 and shall not cause nuisance or adversely affect beneficial uses. In no case shall effluent concentrations exceed the Table A Ocean Plan objectives.
2. Not less than 6.0 nor greater than 9.0 at any time.
3. The Permittee may at their option meet this limitation as a total chromium limitation.
4. As defined in the Monitoring and Reporting Program.

**2. Interim Effluent Limitations – Discharge Point 001 (Discharge to the Pacific Ocean) – Not Applicable**

**B. Land Discharge Specifications**

**1. Land Discharge Specifications – Discharge Point 002**

- a. Water, of freshwater origin, to be discharged from the Salmon Research Facility, shall be discharged to a groundwater recharge area in the sand dunes adjacent to the laboratory, and not to adjacent marsh / wetlands areas or to the Ocean.
- b. The Permittee shall maintain compliance with the following effluent limitations at Discharge Point 002, with compliance measured at Monitoring Location EFF-002 as described in the attached MRP.

**Table 5. Final Effluent Limitations – Discharge Point 002 (Discharge to the Groundwater Recharge Area)**

| Parameter                    | Units   | Effluent Limitations |                        |
|------------------------------|---------|----------------------|------------------------|
|                              |         | Average Monthly      | Maximum Daily          |
| Total Suspended Solids (TSS) | mg/L    | 8 <sup>1</sup>       | 15 <sup>1</sup>        |
| Settleable Solids            | mL/L-hr | 0.1 <sup>1</sup>     | 0.2 <sup>1</sup>       |
| pH                           | s.u.    | --                   | 6.5 – 8.5 <sup>2</sup> |
| Salinity <sup>3</sup>        | mg/L    | --                   | 1                      |

**Table Notes:**

1. Limitations reflect a net increase above influent concentrations.
2. Not less than 6.5 nor greater than 8.5.
3. The salinity limitation at Discharge Point 002 is in effect only during months that smoltification is occurring in the Salmon Research Facility or during months when the Permittee is adjusting salinity in its freshwater system. Salinity may be reported as electrical conductivity in µmhos/cm.

**C. Reclamation Specifications – Not Applicable**

**D. Other Requirements**

1. The Permittee is required to implement and maintain a Storm Water Management Plan (SWMP), which must include Best Management Practices (BMPs) that eliminate or reduce the presence of pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality. Requirements for the development of a SWMP are described in section VI.C.7.a of the Order.

**V. RECEIVING WATER LIMITATIONS**

**A. Surface Water Limitations**

Receiving water limitations are based on water quality objectives contained in the Ocean Plan, State Water Board Resolution No. 2007-0058, and the Basin Plan and are a required part of this Order. Compliance with water quality objectives contained in the Ocean Plan

and Resolution No. 2007-0058 shall be determined from samples collected at stations representative of the area within the waste field; and for natural / background water quality, for constituents other than indicator bacteria, samples shall be collected at the reference station in the Ocean near Mussel Point. In situations where water quality objectives from the Ocean Plan and from Resolution No. 2007-0058 may both be applicable, the more stringent water quality objective shall apply. Compliance with other water quality objectives established in the Basin Plan shall be determined by appropriate receiving water monitoring when evidence suggests that the discharges from the freshwater system to the groundwater recharge area have the reasonable potential to cause or contribute to an exceedance of applicable water quality objectives. Receiving water conditions not in conformance with the limitation are not necessarily a violation of this Order. The Regional Water Board may require an investigation to determine cause and culpability prior to asserting that a violation has occurred.

If monitoring indicates that natural ocean water quality is not maintained, but there is sufficient evidence that a discharge is not contributing to the alteration of natural water quality, then the Regional Water Board may make that determination. In this case, sufficient information must include runoff and seawater system effluent data that has equal or lower concentrations for the range of constituents at the applicable reference area(s).

Discharges from the Facility shall not cause the following in the receiving water:

**1. State Water Resources Control Board Resolution No. 2007-0058**

Natural water quality conditions in receiving waters, seaward of the surf zone, shall not be altered as a result of discharges from the Facility. The surf zone is defined as the area between the breaking waves and the shoreline at any one time. Natural water quality shall be defined by Regional Water Board staff in consultation with the State Water Board's Division of Water Quality.

**2. Ocean Plan**

**a. Bacterial Characteristic**

- i. Water-Contact Standards.** Within a zone bounded by the shoreline and a distance of 1,000 feet from the shoreline or the 30-foot depth contour, whichever is further from the shoreline, and in areas outside this zone designated for water contact recreation use by the Regional Water Board, but including all kelp beds, the following bacteriological objectives shall be maintained throughout the water column.

(a) 30-Day Geometric Mean – The following standards are based on the geometric mean of the five most recent samples from each receiving water monitoring location.

(1) Total coliform density shall not exceed 1,000 per 100 mL;

(2) Fecal coliform density shall not exceed 200 per 100 mL; and

(3) Enterococcus density shall not exceed 35 per 100 mL.

(b) Single Sample Maximum;

(1) Total coliform density shall not exceed 10,000 per 100 mL;

(2) Fecal coliform density shall not exceed 400 per 100 mL;

(3) Enterococcus density shall not exceed 104 per 100 mL; and

(4) Total coliform density shall not exceed 1,000 per 100 mL when the fecal coliform to total coliform ratio exceeds 0.1.

**b. Shellfish Harvesting Standards.** At all areas where shellfish may be harvested for human consumption, as determined by the Regional Water Board, the following bacterial objectives shall be maintained throughout the water column:

i. The median total coliform density shall not exceed 70 per 100 mL, and not more than 10 percent of the samples shall exceed 230 per 100 mL.

**c. Physical Characteristics**

i. Floating particulates and oil and grease shall not be visible.

ii. The discharge of waste shall not cause aesthetically undesirable discoloration of the ocean surface.

iii. Natural light shall not be significantly reduced at any point outside the initial dilution zone as the result of the discharge of waste.

iv. The rate of deposition of inert solids and the characteristics of inert solids in ocean sediments shall not be changed such that benthic communities are degraded.

**d. Chemical Characteristics**

- i.** The dissolved oxygen concentration shall not at any time be depressed more than 10 percent from that which occurs naturally, as the result of the discharge of oxygen demanding waste materials.
- ii.** The pH shall not be changed at any time more than 0.2 units from that which occurs naturally.
- iii.** The dissolved sulfide concentration of waters in and near sediments shall not be significantly increased above that present under natural conditions.
- iv.** The concentration of substances set forth in Chapter II, Table B of the Ocean Plan shall not be increased in marine sediments to levels which would degrade indigenous biota.
- v.** The concentration of organic materials in marine sediments shall not be increased to levels that would degrade marine life.
- vi.** Nutrient materials shall not cause objectionable aquatic growths or degrade indigenous biota.
- vii.** Discharges shall not cause exceedances of water quality objectives for ocean waters of the State established in Table B of the Ocean Plan.
- viii.** Discharge of radioactive waste shall not degrade marine life.

**e. Biological Characteristics**

- i.** Marine communities, including vertebrate, invertebrate and plant species, shall not be degraded.
- ii.** The natural taste, odor, and color of fish, shellfish, or other marine resources used for human consumption shall not be altered.
- iii.** The concentration of organic materials in fish, shellfish, or other marine resources used for human consumption shall not bioaccumulate to levels that are harmful to human health.

**f. General Standards**

- i.** The discharge shall not cause a violation of any applicable water quality standard for the receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA and regulations adopted thereunder.

- ii.** Waste management systems that discharge to the ocean must be designed and operated in a manner that will maintain the indigenous marine life and a healthy and diverse marine community.
- iii.** Waste discharged to the ocean must be essentially free of:
  - (a)** Material that is floatable or will become floatable upon discharge.
  - (b)** Settleable material or substances that may form sediments which will degrade benthic communities or other aquatic life.
  - (c)** Substances which will accumulate to toxic levels in marine waters, sediments or biota.
  - (d)** Substances that significantly decrease the natural light to benthic communities and other marine life.
  - (e)** Materials that result in aesthetically undesirable discoloration of the ocean surface.
- iv.** Waste effluents shall be discharged in a manner which provides sufficient initial dilution to minimize the concentrations of substances not removed in the treatment.
- v.** Location of waste discharges must be determined after a detailed assessment of the oceanographic characteristics and current patterns to assure that:
  - (a)** Pathogenic organisms and viruses are not present in areas where shellfish are harvested for human consumption or in areas used for swimming or other body-contact sports.
  - (b)** Natural water quality conditions are not altered in areas designated as being of special biological significance or areas that existing marine laboratories use as a source of seawater.
  - (c)** Maximum protection is provided to the marine environment.
  - (d)** The discharge does not adversely affect recreational beneficial uses such as surfing and beach walking.

### **3. Basin Plan**

- a.** The waste discharge shall not cause the dissolved oxygen concentration of the receiving waters to be depressed below 7.0 mg/l. In the event that the receiving waters are determined to have dissolved oxygen concentration of less than 7.0

mg/l, the discharge shall not depress the dissolved oxygen concentration below the existing level.

- b.** The discharge shall not cause the pH of the receiving waters to be depressed below 6.5 nor raised above 8.5. Within this range, the discharge shall not cause the pH of the receiving waters to be changed at any time more than 0.5 units from that which occurs naturally. If the pH of the receiving water is less than 6.5, the discharge shall not cause a further depression of the pH of the receiving water. If the pH of the receiving water is greater than 8.5, the discharge shall not cause a further increase in the pH of the receiving water.
- c.** The discharge shall not cause receiving waters to contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.
- d.** The discharge shall not cause the receiving waters to contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
- e.** The discharge shall not cause the receiving waters to contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.
- f.** The discharge shall not cause coloration of the receiving waters that causes nuisance or adversely affects beneficial uses.
- g.** The discharge shall not cause bottom deposits in the receiving waters to the extent that such deposits cause nuisance or adversely affect beneficial uses.
- h.** The discharge shall not cause or contribute to the receiving waters concentrations of biostimulants that promote objectionable aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses of the receiving waters.
- i.** The discharge shall not cause the receiving waters to contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life. Compliance with this objective will be determined by use of indicator organisms, analyses of species diversity, population density, growth anomalies, bioassays of appropriate duration, or other appropriate methods, as specified by the Regional Water Board.
- j.** The discharge shall not alter the natural temperature of the receiving waters.

- k.** The discharge shall not cause an individual pesticide or combination of pesticides to be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation of pesticide concentrations found in bottom sediments or aquatic life as a result of the discharge.
- l.** The discharge shall not cause the receiving waters to contain concentrations of pesticides in excess of the limiting concentrations set forth in Table 3-2 of the Basin Plan.
- m.** The discharge shall not cause the receiving waters to contain oils, greases, waxes, or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or that otherwise adversely affect beneficial uses.
- n.** The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board as required by the CWA, and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.
- o.** The discharge shall not cause concentrations of chemical constituents to occur in excess of limits specified in Table 3-2 of the Basin Plan.

## **B. Groundwater Limitations**

Discharges and other activities at the Facility shall not cause exceedance/deviation from the following water quality objectives for groundwater established by the Basin Plan.

- 1.** Groundwater shall not contain taste or odor producing substances in concentrations that adversely affect beneficial uses.
- 2.** Groundwater used for domestic or municipal supply shall possess a median concentration of less than 1.1 MPN/100 mL of coliform organisms over any 7-day period, or less than 1 colony per 100 mL.
- 3.** Groundwater used for domestic or municipal supply shall not contain concentrations of radionuclides in excess of the maximum contaminant levels (MCLs) established by the Department of Public Health (DPH) in title 22 of the California Code of Regulations, section 64443 (Table 4) and listed in Table 3-2 of the Basin Plan.
- 4.** Groundwater used for domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs established by DPH in title 22 of the

California Code of Regulations section 64435 (Tables 2 and 3) and section 64444.5 (Table 5), as listed in Table 3-2 of the Basin Plan.

## **VI. PROVISIONS**

### **A. Standard Provisions**

- 1. Federal Standard Provisions.** The Permittee shall comply with all Standard Provisions included in Attachment D of this Order.
- 2. Regional Water Board Standard Provisions.** The Permittee shall comply with the following Regional Water Board standard provisions. In the event there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply.
  - a.** Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Permittee to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Permittee to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
  - b.** In the event the Permittee does not comply or will be unable to comply for any reason, with any prohibition, interim or final effluent limitation, land discharge specification, receiving water limitation, or provision of this Order that may result in a significant threat to human health or the environment, such as inundation of treatment components, breach of pond containment, sanitary sewer overflow, irrigation runoff, etc., that results in a discharge to a drainage channel or a surface water, the Permittee shall notify Regional Water Board staff within 24 hours and report orally and in writing to the Regional Water Board staff of having knowledge of such noncompliance. The written notification shall state the nature, time, duration, and cause of the noncompliance, and shall describe the measures being taken to remedy the current noncompliance and prevent recurrence including, where applicable, a schedule of implementation.

### **B. Monitoring and Reporting Program (MRP) Requirements**

The Permittee shall comply with the MRP, included as Attachment E of this Order, and future revisions thereto.

### **C. Special Provisions**

#### **1. Reopener Provisions**

- a. **Standard Revisions.** If applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA, or amendments thereto, the Regional Water Board may reopen this Order and make modifications in accordance with such revised standards.
- b. **Reasonable Potential.** This Order may be reopened for modification to include an effluent limitation, if monitoring establishes that the discharge causes, or has the reasonable potential to cause or contribute to, an excursion above a water quality criterion or objective applicable to the receiving water.
- c. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a new chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.
- d. **303(d)-Listed Pollutants.** If an applicable total maximum daily load (TMDL) (see Fact Sheet section III.C) program is adopted, this Order may be reopened and effluent limitations for the pollutant(s) that are the subject of the TMDL modified or imposed to conform this Order to the TMDL requirements.
- e. **Salt and Nutrient Management Plans.** The Recycled Water Policy adopted by the State Water Board on February 3, 2009 and effective May 14, 2009 recognizes the fact that some groundwater basins in the state contain salts and nutrients that exceed or threaten to exceed water quality objectives in the applicable Basin Plans, and that not all Basin Plans include adequate implementation procedures for achieving or ensuring compliance with the water quality objectives for salt or nutrients. This Order may be reopened to incorporate provisions consistent with any salt and nutrient management plan(s) adopted by the Regional Water Board.
- f. **Regional Monitoring Program.** If the Permittee chooses to participate in a regional monitoring program to investigate intertidal benthic marine life, bioaccumulation, and sediment toxicity in consultation with the State Water Board Division of Water Quality, this Order may be reopened to amend Special Provisions VI.C.2.b, VI.C.2.c, VI.C.2.d, and/or VI.C.7.c to allow participation in a regional monitoring program to satisfy the applicable study requirements.

## 2. Special Studies, Technical Reports and Additional Monitoring Requirements

### a. Toxicity Reduction Requirements

- i. **Whole Effluent Toxicity.** The MRP of this Order requires routine monitoring for whole effluent toxicity of Discharge Point 001 at Monitoring Location EFF-001 and of Discharge Point 016 at Monitoring Location EFF-016 as described in

section V of the MRP, to determine compliance with the Ocean Plan's water quality objectives for chronic toxicity. As established by the MRP, if the results of chronic toxicity tests show a significant difference from the control at 100 percent effluent or receiving water, the Permittee shall conduct accelerated toxicity monitoring.

Results of accelerated toxicity monitoring will indicate a need to conduct a Toxicity Reduction Evaluation (TRE), if toxicity persists; or it will indicate that a return to routine toxicity monitoring is justified because persistent toxicity has not been identified by accelerated monitoring. TREs shall be conducted in accordance with the TRE workplan prepared by the Permittee pursuant to Section VI. C. 2. a. ii. of this Order, below.

- ii. **Toxicity Reduction Evaluation Workplan.** The Permittee submitted a TRE Workplan to the Regional Water Board on December 10, 2008. This plan shall be reviewed at least once every five years and updated as necessary in order to remain current and applicable to the discharge and discharge facilities.
- iii. The Permittee shall notify the Regional Water Board of this review and submit any revisions of the TRE Workplan with each Report of Waste Discharge. **Toxicity Reduction Evaluations Implementation.** The TRE shall be conducted in accordance with the following:
  - (a) The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring testing, required by Section V.A.9 of the MRP, observed to exceed either the acute or chronic toxicity parameter.
  - (b) The TRE shall be conducted in accordance with the Permittee's TRE workplan.
  - (c) The TRE shall be in accordance with current technical guidance and reference material including, at a minimum, the USEPA manual EPA/600/2-88/070.
  - (d) The TRE may end at any stage if, through monitoring results, it is determined that there is no longer consistent toxicity. The Permittee shall notify the Regional Water Board of this determination.
  - (e) The Permittee may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. TIEs shall be conducted in accordance with current technical guidance and reference material, including, at a minimum, the Permittee shall use the USEPA acute and chronic manuals, EPA/600/6-91/005F (Phase I), EPA/600/R-92/080 (Phase II), and EPA-600/R-92/081 (Phase III).

- (f) As toxic substances are identified or characterized, the Permittee shall continue the TRE by determining the source(s) and evaluating alternative strategies for reducing or eliminating the substances from the discharge. All reasonable steps shall be taken to reduce toxicity to levels consistent with chronic toxicity parameters.
- (g) Many recommended TRE elements accompany required efforts of source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. To prevent duplication of efforts, evidence of complying with requirements of recommendations of such programs may be acceptable to comply with requirements of the TRE.
- (h) The Regional Water Board recognizes that chronic toxicity may be episodic and identification of a reduction of sources of chronic toxicity may not be successful in all cases. Consideration of enforcement action by the Regional Water Board will be based in part on the Permittee's actions and efforts to identify and control or reduce sources of consistent toxicity.

**b. Intertidal Benthic Marine Life Survey**

At least once during the five year term of this Order, a quantitative Survey of Intertidal Benthic Marine Life shall be performed near the point of discharge to the ocean and at a reference site. The Regional Water Board, in consultation with the State Water Board's Division of Water Quality, must approve the survey design. The results of the survey must be completed and submitted to the State and Regional Water Boards within at least 6 months before the end of the permit term. If available, data from other intertidal and subtidal surveys performed by other researchers in the Bodega ASBS must be included with the Permittee's submittal to the State and Regional Water Boards.

**c. Bioaccumulation Study**

Once during the 5 year term of this Order, a Bioaccumulation Study using resident California mussels (*Mytilus californianus*) shall be conducted to determine the concentrations of metals at near field (outfall station) and far field (Mussel Point station) monitoring stations. The Regional Water Board, in consultation with the State Water Board's Division of Water Quality, must approve the study design. The survey must be completed and results submitted to the Regional Water Board at least 6 months prior to the permit expiration date. Based on the study results, or on participation in an appropriate regional or state-wide ASBS monitoring effort, the Regional Water Board, in consultation with the State Water Board's

Division of Water Quality, may adjust the study design in subsequent permits, or add additional test organisms.

**d. Sediment Monitoring/Study**

Once annually, in accordance with section IX. C of the MRP, the Permittee shall monitor the subtidal sediment in Horseshoe Cove for the Ocean Plan Table B constituents. For sediment toxicity testing, an acute toxicity test using the amphipod *Eohaustorius estuarius* must be performed during the first year of the permit term. Based on the first year toxicity monitoring results, the Regional Water Board will determine specific constituents in the sediment to be tested during the remainder of each permit cycle, except that sediment must be monitored annually for acute toxicity.

Participation in a collaborative regional or statewide ASBS monitoring effort is encouraged. After the first year of monitoring results are reviewed, the Regional Water Board, in conjunction with the State Water Board's Division of Water Quality, may modify sediment, receiving water, and bioaccumulation monitoring requirements that are established by this Order, based on the Permittee's participation in an appropriate regional or statewide monitoring program.

**3. Best Management Practices and Pollution Prevention**

**a. Pollutant Minimization Program (PMP)**

- i. The Permittee shall, as required by the Executive Officer, develop and conduct a PMP as further described below when there is evidence (e.g., sample results reported as detected, but not quantified (DNQ) when the effluent limitation is less than the method detection limit (MDL), sample results from analytical methods more sensitive than those methods required by this Order, presence of whole effluent toxicity, health advisories for fish consumption, results of benthic or aquatic organism tissue sampling) that a priority pollutant is present in the effluent above an effluent limitation and either:
  - a) A sample result is reported as DNQ and the effluent limitation is less than the RL; or
  - b) A sample result is reported as ND and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section X.B.4.
- ii. The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

- a) An annual review and semi-annual monitoring of potential sources of the reportable priority pollutant(s), which may include fish tissue monitoring and other bio-uptake sampling;
- b) Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;
- c) Submittal of a control strategy designed to proceed toward the goal of maintaining concentrations of the reportable priority pollutant(s) in the effluent at or below the effluent limitation;
- d) Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and
- e) An annual status report that shall be submitted as part of the Annual Facility Report due March 1st to the Regional Water Board and shall include:
  - 1) All PMP monitoring results for the previous year;
  - 2) A list of potential sources of the reportable priority pollutant(s);
  - 3) A summary of all actions undertaken pursuant to the control strategy; and
  - 4) A description of actions to be taken in the following year.

#### **4. Compliance Schedules – Not Applicable**

This section is not applicable to the Permittee.

#### **5. Construction, Operation and Maintenance Specifications**

- a. The Permittee shall notify the Regional Water Board 180 days prior to any construction activity that could result in any new or altered discharge or habitat modification in the Bodega ASBS. In accordance with Section III.E.2 of the Ocean Plan, the Permittee must receive approval from and comply with any conditions regarding such a discharge that are imposed by the Regional Water Board, prior to performing any significant modification, re-building or renovation of the facilities within the ASBS.
- b. The ultraviolet disinfection/filtration system must be constructed, operated, and maintained in accordance with approved design specifications and other conditions as determined by California Department of Fish and Wildlife.

#### **6. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable**

#### **7. Other Special Provisions**

- a. Storm Water Management Plan/Program.** The Permittee shall comply with the monitoring and reporting requirements regarding the discharge of storm water at Discharge Point 016, 003, and 004, as required by section IV.A.3 of the MRP (Attachment E). The Permittee developed and submitted *Bodega Marine Laboratory Stormwater Management Plan* in 2012. The Permittee shall implement the SWMP to comply with the conditions of State Water Board Resolution No. 2007-0058.
- i.** The SWMP must specifically address the prohibition of non-storm water runoff and the reduction of pollutants in storm water discharges draining to the ASBS;
  - ii.** The SWMP must describe the measures by which non-storm water discharges have been eliminated, how these measures will be maintained over time, and how these measures are monitored and documented;
  - iii.** The SWMP must address storm water discharges, and how pollutants have been and will be reduced in storm water runoff into the ASBS, through the implementation of BMPs. The SWMP must describe the BMPs currently employed and BMPs planned (including those for construction activities) and must include an implementation schedule for planned BMPs. The BMPs and implementation schedule must be designed to ensure natural water quality conditions in the receiving water, due to either a restriction of flows from impervious surfaces, or reduction in pollutants, or some combination thereof. The BMPs must include the measures taken to prevent the runoff of herbicides and pesticides from the Facility and the Reserve into the ASBS.
  - iv.** The implementation schedule for BMPs are currently planned or will be added during the term of this Order must be developed to ensure that the BMPs are implemented as soon as practicable .
  - v.** The SWMP must include a map of surface drainage of storm water runoff, including areas of sheet runoff, and any structural BMPs employed. The map must also show the storm water conveyances in relation to other facility features such as the laboratory seawater system and discharges, service areas, sewage treatment, and waste and hazardous materials storage areas. The SWMP must also include a procedure for updating the map and plan when other changes are made to the facilities.
  - vi.** If the results of Horseshoe Cove receiving water monitoring indicate that the storm water runoff is causing or contributing to an alteration of natural water quality in the ASBS, as measured at the reference station at Mussel Point, the Permittee is required to submit a report to the Regional Water Board within

30 days of receiving the results. Those constituents in storm water that alter natural water quality or Ocean Plan receiving water objectives must be identified in that report. The report must describe BMPs that are currently being implemented, BMPs that are planned for in the SWMP, and additional BMPs that may be added to the SWMP. The report shall include a new or modified implementation schedule. The Regional Water Board may require modifications to the report. Within 30 days following approval of the report by the Regional Water Board, the Permittee must revise its SWMP to incorporate any new or modified BMPs that have been and will be implemented, the implementation schedule, and any additional monitoring required. As long as the Permittee has complied with the procedures described above and is implementing the revised SWMP, then the Permittee does not have to repeat the same procedure for continuing or recurring exceedances of the same constituent.

**b. Waterfront and Marine Operations Non-Point Source Management Plan**

The Permittee submitted a Waterfront and Marine Operations Non-Point Source Management Plan to the Regional Water Board on October 30, 2012. Once approved, the Permittee shall implement this Plan to address the prohibition against discharges of pollutants from non-point sources, established by Prohibition III.J of this Order.. The Regional Water Board, in consultation with the State Water Board's Policy for Implementation and Enforcement of the Nonpoint Source Pollution Control Program, shall review the plan. The Waterfront and Marine Operations Non-Point Source Management Plan must be implemented within 6 months of its approval.

**c. Program for Prevention of Biological Pollutants**

The Permittee submitted a Program for Prevention of Biological Pollutants to the Regional Water Board on October 20, 2009. The Permittee shall implement the Program in consultation with the California Department of Fish and Wildlife, Marine Fisheries Branch. Any non-native species found in the Bodega ASBS must be reported to the State and Regional Water Boards, and the California Department of Fish and Wildlife.

**d. Solids Disposal**

Screenings, sludge, and other solids removed from liquid wastes shall be disposed of at a legal point of disposal, and in accordance with the provisions of the Water Code and title 27 of the California Code of Regulations.

## **VII. COMPLIANCE DETERMINATION**

Compliance with the effluent limitations contained in section IV of this Order will be determined as specified below.

### **A. General**

Compliance with effluent limitations for priority pollutants, when effluent limitations have been established, shall be determined using sample reporting protocols defined in the MRP and Attachment A of this Order. For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Permittee shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL). For purposes of reporting and administrative enforcement by the Regional and State Water Boards, the Permittee shall be deemed out of compliance with effluent limitations if the concentration of pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported minimum level (ML).

Permittees are out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCB's) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as ND or DNQ.

### **B. Multiple Sample Data**

When determining compliance with an AMEL for priority pollutants, and more than one sample result is available, the Permittee shall compute the arithmetic mean unless the data set contains one or more reported determinations of "Detected, but Not Quantified" (DNQ) or "Not Detected" (ND). In those cases, the Permittee shall compute the median in place of the arithmetic mean in accordance with the following procedure.

1. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
2. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

**C. Average Monthly Effluent Limitation (AMEL)**

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar month exceeds the AMEL for a given parameter, this will represent a single violation, though the Permittee will be considered out of compliance for each day of that month for that parameter (e.g., resulting in 31 days of non-compliance in a 31-day month). If only a single sample is taken during the calendar month and the analytical result for that sample exceeds the AMEL, the Permittee will be considered out of compliance for that calendar month. The Permittee will only be considered out of compliance for days when the discharge occurs. For any one calendar month during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar month.

**D. Average Weekly Effluent Limitation (AWEL)**

If the average (or when applicable, the median determined by subsection B above for multiple sample data) of daily discharges over a calendar week exceeds the AWEL for a given parameter, this will represent a single violation, though the Permittee will be considered out of compliance for each day of that week for that parameter, resulting in 7 days of non-compliance. If only a single sample is taken during the calendar week and the analytical result for that sample exceeds the AWEL, the Permittee will be considered out of compliance for that calendar week. The Permittee will only be considered out of compliance for days when the discharge occurs. For any one calendar week during which no sample (daily discharge) is taken, no compliance determination can be made for that calendar week.

**E. Maximum Daily Effluent Limitation (MDEL)**

If a daily discharge (or when applicable, the median determined by subsection B, above, for multiple sample data of a daily discharge) exceeds the MDEL for a given parameter, the Permittee will be considered out of compliance for that parameter for that 1 day only within the reporting period. For any 1 day during which no sample is taken, no compliance determination can be made for that day.

**F. Instantaneous Minimum Effluent Limitation**

If the analytical result of a single grab sample is lower than the instantaneous minimum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both are lower than the instantaneous minimum effluent limitation would result in two instances of non-compliance with the instantaneous minimum effluent limitation).

### **G. Instantaneous Maximum Effluent Limitation**

If the analytical result of a single grab sample is higher than the instantaneous maximum effluent limitation for a parameter, the Permittee will be considered out of compliance for that parameter for that single sample. Non-compliance for each sample will be considered separately (e.g., the results of two grab samples taken within a calendar day that both exceed the instantaneous maximum effluent limitation would result in two instances of non-compliance with the instantaneous maximum effluent limitation).

### **H. Bacteriological Limitations (Total Coliform)**

1. Median. The median is the central tendency concentration of the pollutant. The data set shall be ranked from low to high, ranking the ND concentrations lowest, followed by quantified values. The median value is determined based on the number of data points in the set. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, the median is the average of the two middle values, unless one or both points are ND or DNQ, in which case the median value shall be the lower of the two middle data points. DNQ is lower than a detected value, and ND is lower than DNQ.

### **I. Compliance with TSS and Settleable Solids**

For TSS and settleable solids in seawater discharges, the determination of changes to “natural water quality” as defined in Resolution No. 2007-0058 is determined by statistical comparison of the influent and effluent concentrations. The Permittee shall collect samples at Monitoring Locations INF-001 and EFF-001 at approximately the same time. Each sample shall be split into three triplicates and analyzed for TSS and settleable solids. The Permittee shall conduct a t-test to determine if there is a statistical difference between the influent and effluent concentrations. Significant difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95<sup>th</sup> percent confidence level. If the average influent concentration is lower than the average effluent concentration and the difference is statistically significant, then the discharge is out of compliance. If the average influent concentration is higher than the effluent concentration or if the difference between the average influent and effluent concentrations is not determined to be statistically significant, then the discharge is in compliance.

## ATTACHMENT A – DEFINITIONS

### Acute Toxicity:

a. Acute Toxicity (TUa)

Expressed in Toxic Units Acute (TUa)

$$TUa = \frac{100}{96\text{-hr LC } 50\%}$$

b. Lethal Concentration 50% (LC 50)

LC 50 (percent waste giving 50% survival of test organisms) shall be determined by static or continuous flow bioassay techniques using standard marine test species as specified in Ocean Plan Appendix III. If specific identifiable substances in wastewater can be demonstrated by the Permittee as being rapidly rendered harmless upon discharge to the marine environment, but not as a result of dilution, the LC 50 may be determined after the test samples are adjusted to remove the influence of those substances.

When it is not possible to measure the 96-hour LC 50 due to greater than 50 percent survival of the test species in 100 percent waste, the toxicity concentration shall be calculated by the expression:

$$TUa = \frac{\log (100 - S)}{1.7}$$

where:

S = percentage survival in 100% waste. If S > 99, TUa shall be reported as zero.

**Area of Special Biological Significance (ASBS):** Those areas designated by the State Water Board as ocean areas requiring protection of species or biological communities to the extent that alteration of natural water quality is undesirable. All Areas of Special Biological Significance are also classified as a subset of STATE WATER QUALITY PROTECTION AREAS.

**Arithmetic Mean ( $\mu$ ):** also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean =  $\mu = \Sigma x / n$       where:  $\Sigma x$  is the sum of the measured ambient water concentrations, and n is the number of samples.

**Average Monthly Effluent Limitation (AMEL):** the highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

**Average Weekly Effluent Limitation (AWEL):** the highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

**Bioaccumulative Pollutants:** substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

**Carcinogenic Pollutants:** substances that are known to cause cancer in living organisms.

**Chlordane:** the sum of chlordane-alpha, chlordane-gamma, chlordene-alpha, chlordene-gamma, nonachlor-alpha, nonachlor-gamma, and oxychlordane.

**Chronic Toxicity:**

This parameter shall be used to measure the acceptability of waters for supporting a healthy marine biota until improved methods are developed to evaluate biological response.

a. Chronic Toxicity (TUc)

Expressed as Toxic Units Chronic (TUc)

$$TUc = \frac{100}{NOEL}$$

b. No Observed Effect Level (NOEL)

The NOEL is expressed as the maximum percent effluent or receiving water that causes no observable effect on a test organism, as determined by the result of a critical life stage toxicity test listed in Appendix III, Table III-1 of the Ocean Plan.

**Coefficient of Variation (CV):** a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

**Daily Discharge:** Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass; or (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of one day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.

**DDT:** the sum of 4,4'DDT, 2,4'DDT, 4,4'DDE, 2,4'DDE, 4,4'DDD, and 2,4'DDD.

**Degradation:** Determined by comparison of the waste field and reference site(s) for characteristic species diversity, population density, contamination, growth anomalies, debility, or supplanting of normal species by undesirable plant and animal species. Degradation occurs if there are significant differences in any of three major biotic groups, namely, demersal fish, benthic invertebrates, or attached algae. Other groups may be evaluated where benthic species are not affected, or are not the only ones affected.

**Detected, but Not Quantified (DNQ):** sample results less than the RL, but greater than or equal to the laboratory's MDL.

**Dichlorobenzenes:** the sum of 1,2- and 1,3-dichlorobenzene.

**Dilution Credit:** the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

**Downstream Ocean Waters:** waters downstream with respect to ocean currents.

**Effective Concentration (EC):** a point estimate of the toxicant concentration that would cause an adverse effect on a quantal, "all or nothing," response (such as death, immobilization, or serious incapacitation) in a given percent of the test organisms. If the effect is death or immobility, the term lethal concentration (LC) may be used. EC values may be calculated using point estimation techniques such as probit, logit, and Spearman-Kärber. EC25 is the concentration of toxicant (in percent effluent) that causes a response in 25 percent of the test organisms.

**Effluent Concentration Allowance (ECA):** a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

**Enclosed Bays:** indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

**Endosulfan:** the sum of endosulfan-alpha and -beta and endosulfan sulfate.

**Estimated Chemical Concentration:** the estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

**Estuaries and Coastal Lagoons:** waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters during a major portion of the year. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

**Halomethanes:** the sum of bromoform, bromomethane (methyl bromide) and chloromethane (methyl chloride).

**HCH:** the sum of the alpha, beta, gamma (lindane) and delta isomers of hexachlorocyclohexane.

**Inhibition Concentration (IC):** the IC25 is typically calculated as a percentage of effluent. It is the level at which the organisms exhibit 25 percent reduction in biological measurement such as reproduction or growth. It is calculated statistically and used in chronic toxicity testing.

**Initial Dilution:** the process which results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge.

For a submerged buoyant discharge, characteristic of most municipal and industrial wastes that are released from the submarine outfalls, the momentum of the discharge and its initial buoyancy act together to produce turbulent mixing. Initial dilution in this case is completed when the diluting wastewater ceases to rise in the water column and first begins to spread horizontally.

For shallow water submerged discharges, surface discharges, and nonbuoyant discharges, characteristic of cooling water wastes and some individual discharges, turbulent mixing results primarily from the momentum of discharge. Initial dilution, in these cases, is considered to be completed when the momentum induced velocity of the discharge ceases to produce significant mixing of the waste, or the diluting plume reaches a fixed distance from the discharge to be specified by the Regional Board, whichever results in the lower estimate for initial dilution.

**Inland Surface Waters:** all surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

**Instantaneous Maximum Effluent Limitation:** the highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

**Instantaneous Minimum Effluent Limitation:** the lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

**Kelp Beds:** For purposes of the bacteriological standards of the Ocean Plan, are significant aggregations of marine algae of the genera *Macrocystis* and *Nereocystis*. Kelp beds include the total foliage canopy of *Macrocystis* and *Nereocystis* plants throughout the water column.

**Mariculture:** the culture of plants and animals in marine waters independent of any pollution source.

**Maximum Daily Effluent Limitation (MDEL):** the highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

**Median:** the middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements ( $n$ ) is odd, then the median =  $X_{(n+1)/2}$ . If  $n$  is even, then the median =  $(X_{n/2} + X_{(n/2)+1})/2$  (i.e., the midpoint between the  $n/2$  and  $n/2+1$ ).

**Method Detection Limit (MDL):** the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in title 40 of the Code of Federal Regulations, Part 136, Attachment B, revised as of July 3, 1999.

**Minimum Level (ML):** the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

**Natural Light:** Reduction of natural light may be determined by the Regional Board by measurement of light transmissivity or total irradiance, or both, according to the monitoring needs of the Regional Board.

**Not Detected (ND):** those sample results less than the laboratory's MDL.

**Ocean Waters:** the territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. If a discharge outside the territorial waters of the State could affect the quality of the waters of the State, the discharge may be regulated to assure no violation of the Ocean Plan will occur in ocean waters.

**PAHs (polynuclear aromatic hydrocarbons):** the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-cd]pyrene, phenanthrene and pyrene.

**PCBs (polychlorinated biphenyls):** the sum of chlorinated biphenyls whose analytical characteristics resemble those of Aroclor-1016, Aroclor-1221, Aroclor-1232, Aroclor-1242, Aroclor-1248, Aroclor-1254 and Aroclor-1260.

**Persistent Pollutants:** substances for which degradation or decomposition in the environment is nonexistent or very slow.

**Pollutant Minimization Program (PMP):** waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Regional Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

**Pollution Prevention:** any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

**Publicly Owned Treatment Works (POTW):** a treatment works as defined in section 212 of the Clean Water Act (CWA), which is owned by a State or municipality as defined by section 502(4) of the CWA. [Section 502(4) of the CWA defines a municipality as a city, town, borough, county, parish, district, association, or other public body created by or pursuant to State law and having jurisdiction over disposal of sewage, industrial wastes, or other wastes). This definition includes any devices and systems used in the storage, treatment, recycling, and reclamation of municipal sewage or industrial wastes of a liquid nature. It also includes sewers, pipes and other conveyances only if they convey wastewater to a POTW Treatment Plant. The term also means the municipality as defined in section 502(4) of the Clean Water Act, which has jurisdiction over the Indirect Discharges to and the discharges from such a treatment works.

**Reporting Level (RL):** the ML (and its associated analytical method) used for reporting and compliance determination. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Regional Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML is based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ML depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ML in the computation of the RL.

**Shellfish:** organisms identified by the California Department of Public Health as shellfish for public health purposes (i.e., mussels, clams, and oysters).

**Significant:** difference is defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

**Six-Month Median Effluent Limitation:** The highest allowable moving median of all daily discharges for any 180-day period.

**State Water Quality Protection Areas (SWQPAs):** Non-terrestrial marine or estuarine areas designated to protect marine species or biological communities from an undesirable alteration in natural water quality. All AREAS OF SPECIAL BIOLOGICAL SIGNIFICANCE (ASBS) that were previously designated by the State Water Board in Resolution No's 74-28, 74-32, and 75-61 are now also classified as a subset of State Water Quality Protection Areas and require special protections afforded by the Ocean Plan.

**Standard Deviation ( $\sigma$ ):** a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

x is the observed value;

$\mu$  is the arithmetic mean of the observed values; and

n is the number of samples.

**TCDD Equivalents:**

The sum of the concentrations of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) multiplied by their respective toxicity factors, as shown in the table below.

| Isomer Group        | Toxicity Equivalence Factor |
|---------------------|-----------------------------|
| 2,3,7,8-tetra CDD   | 1.0                         |
| 2,3,7,8-penta CDD   | 0.5                         |
| 2,3,7,8-hexa CDDs   | 0.1                         |
| 2,3,7,8-hepta CDD   | 0.01                        |
| octa CDD            | 0.001                       |
| 2,3,7,8 tetra CDF   | 0.1                         |
| 1,2,3,7,8 penta CDF | 0.05                        |
| 2,3,4,7,8 penta CDF | 0.5                         |
| 2,3,7,8 hexa CDFs   | 0.1                         |
| 2,3,7,8 hepta CDFs  | 0.01                        |
| octa CDF            | 0.001                       |

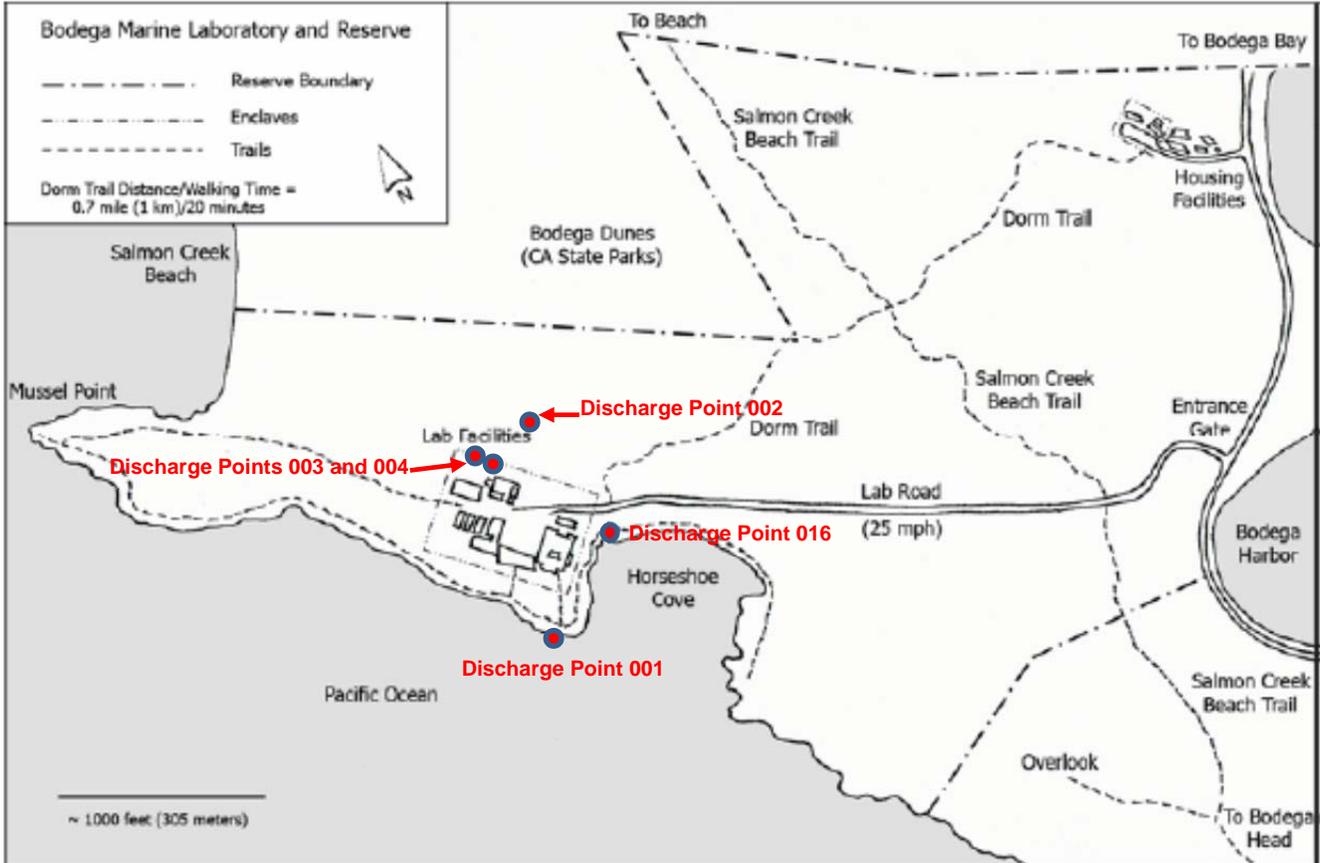
**Toxicity Reduction Evaluation (TRE):** a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first

steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

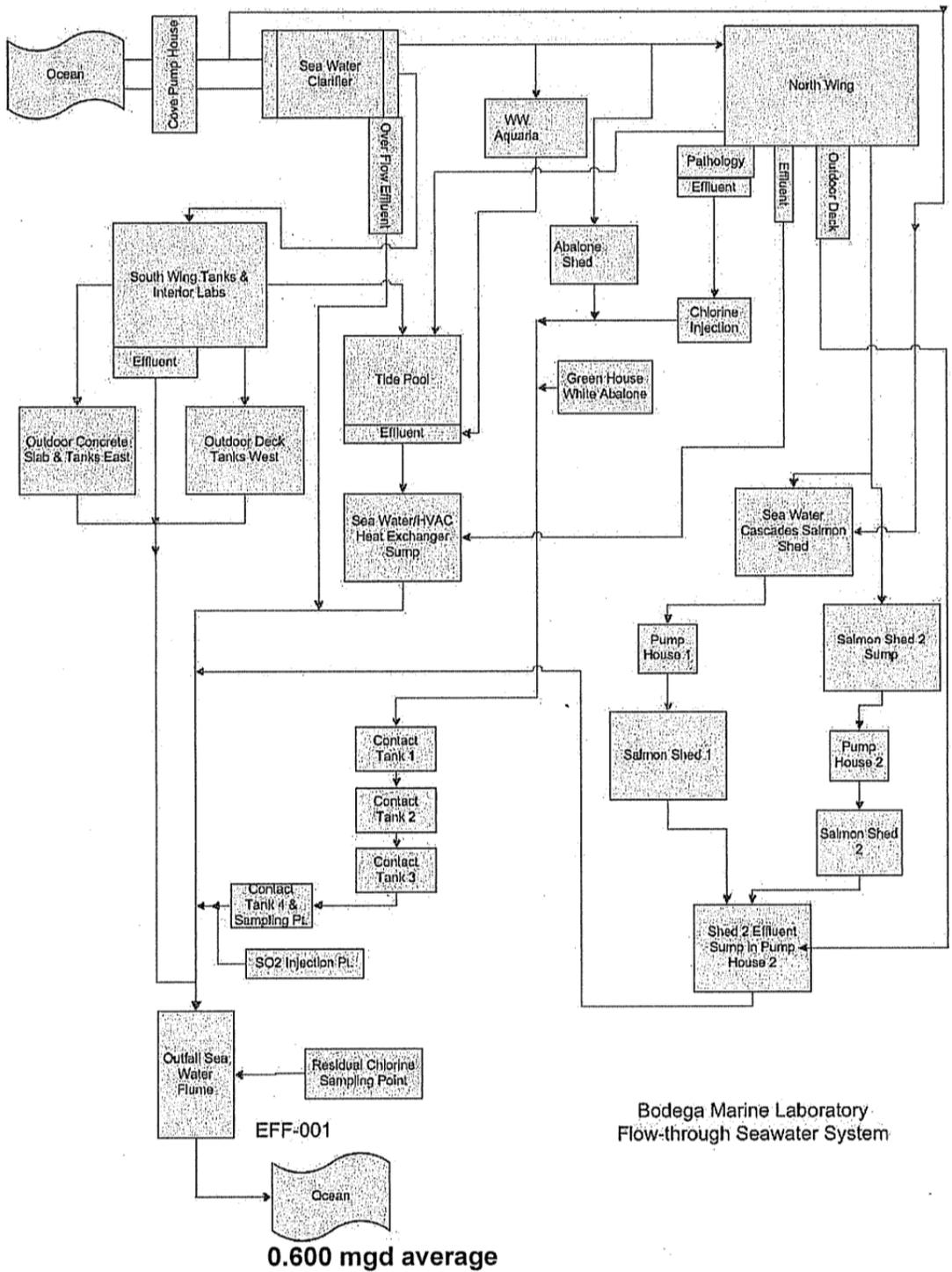
**Waste:** As used in the Ocean Plan, waste includes a discharger's total discharge, of whatever origin, i.e., gross, not net, discharge.

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**ATTACHMENT B – MAP OF UNIVERSITY OF CALIFORNIA - DAVIS, BODEGA MARINE LABORATORY**



**ATTACHMENT C – SEAWATER DISCHARGE SYSTEM FLOW SCHEMATIC**



## **ATTACHMENT D - STANDARD PROVISIONS**

### **I. STANDARD PROVISIONS - PERMIT COMPLIANCE**

#### **A. Duty to Comply**

1. The Permittee must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR § 122.41(a).)
2. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR § 122.41(a)(1).)

#### **B. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for a Permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR § 122.41(c).)

#### **C. Duty to Mitigate**

The Permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR. § 122.41(d).)

#### **D. Proper Operation and Maintenance**

The Permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Permittee to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Permittee only when necessary to achieve compliance with the conditions of this Order. (40 CFR § 122.41(e).)

### **E. Property Rights**

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR § 122.41(g).)
2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR § 122.5(c).)

### **F. Inspection and Entry**

The Permittee shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR § 122.41(i); Water Code, § 13383):

1. Enter upon the Permittee 's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR § 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR § 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR § 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR § 122.41(i)(4).)

### **G. Bypass**

1. Definitions
  - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR § 122.41(m)(1)(i).)
  - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not

mean economic loss caused by delays in production. (40 CFR § 122.41(m)(1)(ii).)

- 2.** Bypass not exceeding limitations. The Permittee may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR § 122.41(m)(2).)
- 3.** Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Permittee for bypass, unless (40 CFR § 122.41(m)(4)(i)):
  - a.** Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR § 122.41(m)(4)(i)(A));
  - b.** There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR § 122.41(m)(4)(i)(B)); and
  - c.** The Permittee submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.6 below. (40 CFR § 122.41(m)(4)(i)(C).)
- 4.** Burden of Proof. In any enforcement proceeding, the Permittee seeking to establish the bypass defense has the burden of proof.
- 5.** The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR § 122.41(m)(4)(ii).)
- 6.** Notice
  - a.** Anticipated bypass. If the Permittee knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR § 122.41(m)(3)(i).)

- b.** Unanticipated bypass. The Permittee shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR § 122.41(m)(3)(ii).)

## **H. Upset**

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR § 122.41(n)(1).)

- 1.** Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR § 122.41(n)(2).)
- 2.** Conditions necessary for a demonstration of upset. A Permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR § 122.41(n)(3)):
  - a.** An upset occurred and that the Permittee can identify the cause(s) of the upset (40 CFR § 122.41(n)(3)(i));
  - b.** The permitted facility was, at the time, being properly operated (40 CFR § 122.41(n)(3)(ii));
  - c.** The Permittee submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR § 122.41(n)(3)(iii)); and
  - d.** The Permittee complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR § 122.41(n)(3)(iv).)
- 3.** Burden of proof. In any enforcement proceeding, the Permittee seeking to establish the occurrence of an upset has the burden of proof. (40 CFR § 122.41(n)(4).)

## **II. STANDARD PROVISIONS – PERMIT ACTION**

### **A. General**

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Permittee for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR § 122.41(f).)

### **B. Duty to Reapply**

If the Permittee wishes to continue an activity regulated by this Order after the expiration date of this Order, the Permittee must apply for and obtain a new permit. (40 CFR § 122.41(b).)

### **C. Transfers**

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Permittee and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR § 122.41(l)(3); § 122.61.)

## **III. STANDARD PROVISIONS – MONITORING**

**A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR § 122.41(j)(1).)

**B.** Monitoring results must be conducted according to test procedures under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503 unless other test procedures have been specified in this Order. (40 CFR § 122.41(j)(4); § 122.44(i)(1)(iv).)

## **IV. STANDARD PROVISIONS – RECORDS**

**A.** Except for records of monitoring information required by this Order related to the Permittee 's sewage sludge use and disposal activities, which shall be retained for a period of at least five years (or longer as required by Part 503), the Permittee shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR § 122.41(j)(2).)

**B. Records of monitoring information shall include:**

1. The date, exact place, and time of sampling or measurements (40 CFR § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 CFR § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 CFR § 122.41(j)(3)(iii));
4. The individual(s) who performed the analyses (40 CFR § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 CFR § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 CFR § 122.41(j)(3)(vi).)

**C. Claims of confidentiality for the following information will be denied (40 CFR § 122.7(b)):**

1. The name and address of any permit applicant or Permittee (40 CFR § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 CFR § 122.7(b)(2).)

**V. STANDARD PROVISIONS – REPORTING**

**A. Duty to Provide Information**

The Permittee shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Permittee shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR § 122.41(h); Water Code, § 13267.)

**B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR § 122.41(k).)
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior

executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR § 122.22(a)(3).)

3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR § 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR § 122.22(b)(2)); and
  - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR § 122.22(b)(3).)
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR § 122.22(c).)
5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.” (40 CFR § 122.22(d).)

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR § 122.22(l)(4).)
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR § 122.41(l)(4)(i).)
3. If the Permittee monitors any pollutant more frequently than required by this Order using test procedures approved under Part 136 or, in the case of sludge use or disposal, approved under Part 136 unless otherwise specified in Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR § 122.41(l)(4)(ii).)
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR § 122.41(l)(4)(iii).)

### **D. Compliance Schedules**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR § 122.41(l)(5).)

### **E. Twenty-Four Hour Reporting**

1. The Permittee shall report any noncompliance that may endanger health or the environment. Any information shall be provided orally within 24 hours from the time the Permittee becomes aware of the circumstances. A written submission shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR § 122.41(l)(6)(i).)
2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR § 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR § 122.41(l)(6)(ii)(A).)



**I. Other Information**

When the Permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Permittee shall promptly submit such facts or information. (40 CFR § 122.41(l)(8).)

**VI. STANDARD PROVISIONS – ENFORCEMENT**

- A.** The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

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**ATTACHMENT E – MONITORING AND REPORTING PROGRAM NO. R1-2013-0023**

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**ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)**

The Code of Federal Regulations (CFR) at 40 CFR 122.48 requires that all National Pollutant Discharge Elimination System (NPDES) permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the Regional Water Quality Control Board (Regional Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program (MRP) establishes monitoring and reporting requirements, which implement the federal and California regulations.

**I. GENERAL MONITORING PROVISIONS**

- A. Wastewater Monitoring Provision.** Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed 2 hours.
- B.** If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved by 40 CFR Part 136 or as specified in this Order, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the monthly and annual discharge monitoring reports.
- C.** Laboratories analyzing monitoring samples shall be certified by the California Department of Public Health (CDPH) in accordance with the provisions of Water Code section 13176, and must include quality assurance / quality control data with their analytical reports.
- D.** Compliance and reasonable potential monitoring analyses shall be conducted using commercially available and reasonably achievable detection limits that are lower than the applicable effluent limitation. If no Minimum Level (ML) value is below the effluent limitations, the lowest ML shall be selected as the Reporting Level (RL). Table E-1 lists the test methods the Permittee may use for compliance and reasonable potential monitoring to analyze priority pollutants with effluent limitations.

**Table E-1. Test Methods and MLs for Priority Pollutants**

| CTR # | Constituent               | Types of Analytical Methods<br>MLs (µg/L) |                               |                         |  |  |   |
|-------|---------------------------|---|-------------------------------|-------------------------|--|--|---|
|       |                           | Graphite Furnace Atomic Absorption        | Flame Atomic Absorption (FAA) | Gas Chromatography (GC) | Gas Chromatography/ Mass Spectroscopy (GCMS) | High Pressure Liquid Chromatography (HPLC) | Inductively Coupled Plasma/ Mass Spectroscopy (ICPMS) |
| 4     | Cadmium                   | 0.5                                       | --                            | --                      | --   | --   | 0.2   |
| 5b    | Chromium (VI)             | --  | 5                             | --                      | --   | --   | --  |
| 6     | Copper, Total Recoverable | --  | --                            | --                      | --   | --   | 0.5   |
| 7     | Lead, Total Recoverable   | --  | --                            | --                      | --   | --   | 0.5   |

| CTR # | Constituent                         | Types of Analytical Methods<br>MLs (µg/L) |                               |                         |   |  |  |
|-------|-------------------------------------|---|-------------------------------|-------------------------|---|--|--|
|       |                                     | Graphite Furnace Atomic Absorption        | Flame Atomic Absorption (FAA) | Gas Chromatography (GC) | Gas Chromatography/Mass Spectroscopy (GCMS) | High Pressure Liquid Chromatography (HPLC) | Inductively Coupled Plasma/Mass Spectroscopy (ICPMS) |
| 9     | Nickel, Total Recoverable           | --  | --                            | --                      | --  | --   | 1  |
| 11    | Silver, Total Recoverable           | --  | --                            | --                      | --  | --   | 0.2  |
| 13    | Zinc, Total Recoverable             | --  | --                            | --                      | --  | --   | 1  |
| 20    | Bromoform <sup>1</sup>              | --  | --                            | 0.5                     | 2   | --   | --   |
| 34    | Bromomethane <sup>1</sup>           | --  | --                            | 1                       | 2   | --   | --   |
| 35    | Chloromethane <sup>1</sup>          | --  | --                            | 0.5                     | 2   | --   | --   |
| 57    | Acenaphthylene <sup>2</sup>         | --  | --                            | --                      | 10  | 0.2  | --   |
| 58    | Anthracene <sup>2</sup>             | --  | --                            | --                      | 10  | 2  | --   |
| 60    | 1,2-Benzanthracene <sup>2</sup>     | --  | --                            | --                      | 10  | 2  | --   |
| 61    | Benzo(a)pyrene <sup>2</sup>         | --  | --                            | --                      | 10  | 2  | --   |
| 62    | 3,4-Benzofluoranthene <sup>2</sup>  | --  | --                            | --                      | 10  | 10   | --   |
| 63    | 1,12-Benzoperylene <sup>2</sup>     | --  | --                            | --                      | 5   | 0.1  | --   |
| 64    | Benzo(k)fluoranthene <sup>2</sup>   | --  | --                            | --                      | 10  | 2  | --   |
| 68    | Bis (2-Ethylhexyl) Phthalate        | --  | --                            | --                      | 5   | --   | --   |
| 73    | Chrysene <sup>2</sup>               | --  | --                            | --                      | 10  | 5  | --   |
| 74    | Dibenzo(a,h)anthracene <sup>2</sup> | --  | --                            | --                      | 10  | 0.1  | --   |
| 87    | Fluorene <sup>2</sup>               | --  | --                            | --                      | 10  | 0.1  | --   |
| 92    | Indeno(1,2,3-cd)pyrene <sup>2</sup> | --  | --                            | --                      | 10  | 0.05                                       | --   |
| 99    | Phenanthrene <sup>2</sup>           | --  | --                            | --                      | 5   | 0.05                                       | --   |
| 100   | Pyrene <sup>2</sup>                 | --  | --                            | --                      | 10  | 0.05                                       | --   |

**Table Notes:**

1. These priority pollutants are categorized as halomethanes. Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).
2. These priority pollutants are categorized as polynuclear aromatic hydrocarbons (PAHs). PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo(k)fluoranthene, 1,12-benzoperylene, benzo(a)pyrene, chrysene, dibenzo(a,h)anthracene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, and pyrene.

**II. MONITORING LOCATIONS**

The Permittee shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

**Table E-2. Monitoring Station Locations**

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description   |
|----------------------|--------------------------|---|
| --                   | INF-001                  | A location where representative samples of seawater can be collected prior to its introduction to the laboratory system.            |
| --                   | INF-002                  | A location where representative samples of freshwater can be collected prior to introduction into the freshwater laboratory system. |

| Discharge Point Name | Monitoring Location Name | Monitoring Location Description   |
|----------------------|--------------------------|---|
| 001                  | EFF-001                  | A location where representative samples of discharges from the seawater system can be collected, following all treatment and contributions to the waste stream, including dechlorination, but prior to contact with the receiving water.    |
| 002                  | EFF-002                  | A location where representative samples of discharges from the freshwater system can be collected, following all treatment and contributions to the waste stream, but prior to actual discharge to the sand dune groundwater recharge area. |
| 003                  | EFF-003                  | A location where representative samples of storm water, discharged to the upper marsh area, can be collected before contact with the receiving water.   |
| 004                  | EFF-004                  | A location where representative samples of storm water, discharged to the vicinity of the marsh outlet culvert, can be collected before contact with the receiving water.   |
| 016                  | EFF-016                  | A location where representative samples of storm water, discharged from the marsh at Discharge Point 016, can be collected before contact with the receiving water.   |
| --                   | RSW-001                  | Receiving water in Horseshoe Cove adjacent to Discharge Point 016 and immediately seaward of the surf zone.   |
| --                   | REF-001                  | The reference station in the ocean near Mussel Point, representing background/natural water quality conditions.   |
| --                   | SED-001, SED-002, etc.   | Subtidal sediment monitoring locations in Horseshoe Cove.   |

**III. INFLUENT MONITORING REQUIREMENTS**

**A. Monitoring Location INF-001**

1. The Permittee shall monitor the intake water to the seawater system at Monitoring Location INF-001 as follows:

**Table E-3. Influent Monitoring – Monitoring Location INF-001**

| Parameter              | Units   | Sample Type <sup>1</sup> | Minimum Sampling Frequency <sup>2,3</sup> | Required Analytical Test Method |
|------------------------|---------|--------------------------|---|---------------------------------|
| Total Suspended Solids | mg/L    | Composite                | Monthly                                   | Standard Methods <sup>4</sup>   |
| Settleable Solids      | mL/L-hr | Composite                | Monthly                                   | Standard Methods                |
| pH                     | s.u.    | Grab                     | Monthly                                   | Standard Methods                |

| Parameter   | Units | Sample Type <sup>1</sup> | Minimum Sampling Frequency <sup>2,3</sup> | Required Analytical Test Method |
|---|-------|--------------------------|---|---------------------------------|
| <b>Table Notes:</b>   |       |                          |   |                                 |
| <ol style="list-style-type: none"> <li>Composite samples for non-Ocean Plan Table B parameters may be taken by a proportional sampling device approved by the Executive Officer or by grab sample composites. In compositing grab samples, the sampling interval shall not exceed 2 hours. A grab sample is defined as an individual sample of at least 100 mL collected over a period not exceeding 15 minutes. Grab samples shall be collected over a shorter period if necessary to ensure that the parameter in the sample is the same as that at the sampling location at the time the sample is collected.</li> <li>Monitoring of intake water shall occur near simultaneously with monitoring of the discharge from the seawater system at Monitoring Location EFF-001.</li> <li>Each sample shall be split into three triplicates and analyzed for TSS, settleable solids, and pH.</li> <li>In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.</li> </ol> |       |                          |   |                                 |

**B. Monitoring Location INF-002**

- The Permittee shall monitor the intake water to the freshwater system at Monitoring Location INF-002 as follows:

**Table E-4. Influent Monitoring – Monitoring Location INF-002**

| Parameter              | Units   | Sample Type <sup>1</sup> | Minimum Sampling Frequency <sup>2</sup> | Required Analytical Test Method |
|------------------------|---------|--------------------------|---|---------------------------------|
| Total Suspended Solids | mg/L    | Composite                | Monthly                                 | Standard Methods <sup>3</sup>   |
| Settleable Solids      | mL/L-hr | Composite                | Monthly                                 | Standard Methods                |
| pH                     | s.u.    | Grab                     | Monthly                                 | Standard Methods                |
| Salinity <sup>4</sup>  | s.u.    | Composite                | Monthly                                 | Standard Methods                |
| Nitrate (as N)         | mg/L    | Composite                | Monthly                                 | Standard Methods                |

|  |  |  |  |  |
|--|--|--|--|--|
| <b>Table Notes:</b>  |  |  |  |  |
| <ol style="list-style-type: none"> <li>Composite samples for non-Ocean Plan Table B parameters may be taken by a proportional sampling device approved by the Executive Officer or by grab sample composites. In compositing grab samples, the sampling interval shall not exceed 2 hours. A grab sample is defined as an individual sample of at least 100 mL collected over a period not exceeding 15 minutes. Grab samples shall be collected over a shorter period if necessary to ensure that the parameter in the sample is the same as that at the sampling location at the time the sample is collected.</li> <li>Monitoring of intake water shall occur near simultaneously with monitoring of the discharge from the freshwater system at Monitoring Location EFF-002.</li> <li>In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.</li> <li>Salinity monitoring is required only during periods when smoltification is occurring in the Salmon Research Facility or when the Permittee is adjusting salinity in its freshwater system. Salinity may be measured and reported as electrical conductivity in <math>\mu\text{mhos/cm}</math>, as salinity in salinity units, or as salinity in parts per thousand.</li> </ol> |  |  |  |  |

**IV. EFFLUENT MONITORING REQUIREMENTS**

**A. Monitoring Location EFF-001**

1. The Permittee shall monitor the waste seawater and filter backwash water discharge prior to contact with the receiving water at Monitoring Location EFF-001 as follows:

**Table E-5. Effluent Monitoring – Monitoring Location EFF-001**

| Parameter   | Units                              | Sample Type <sup>1</sup> | Minimum Sampling Frequency | Required Analytical Test Method |
|---|------------------------------------|--------------------------|----------------------------|---------------------------------|
| Flow  | gpd                                | Meter                    | Continuous                 | --                              |
| Total Suspended Solids                                | mg/L                               | Composite                | Monthly <sup>3</sup>       | Standard Methods <sup>2</sup>   |
| Settleable Solids                                     | mL/L-hr                            | Composite                | Monthly <sup>3</sup>       | Standard Methods                |
| Salinity <sup>4</sup>                                 | s.u.                               | Grab                     | Monthly                    | Standard Methods                |
| Temperature   | °C                                 | Grab                     | Monthly                    | Standard Methods                |
| pH  | s.u.                               | Grab                     | Monthly <sup>3</sup>       | Standard Methods                |
| Ammonia, Total (as N)                                 | mg/L                               | Grab                     | Monthly                    | Standard Methods                |
| Chlorine, Total Residual                              | mg/L                               | Meter                    | Continuous <sup>5</sup>    | Standard Methods <sup>6</sup>   |
| Halomethanes <sup>7</sup>                             | µg/L                               | Grab                     | Monthly <sup>5</sup>       | Standard Methods                |
| Polynuclear Aromatic Hydrocarbons (PAHs) <sup>8</sup> | µg/L                               | Composite                | Annually                   | Standard Methods                |
| Bis (2-Ethylhexyl) Phthalate                          | µg/L                               | Grab                     | 2X/Year                    | Standard Methods                |
| Chromium VI, Total Recoverable <sup>9</sup>           | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Copper, Total Recoverable                             | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Lead, Total Recoverable                               | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Nickel, Total Recoverable                             | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Silver, Total Recoverable                             | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Zinc, Total Recoverable                               | µg/L                               | Composite                | 2X/Year <sup>10</sup>      | Standard Methods                |
| Ocean Plan Table B Metals                             | µg/L                               | Composite                | 2X/Year <sup>11</sup>      | Standard Methods                |
| Ocean Plan Table B Pollutants                         | µg/L                               | Composite <sup>12</sup>  | 2X/Year <sup>13</sup>      | Standard Methods                |
| Chronic Toxicity                                      | TUc                                | Grab                     | 2X/Year <sup>15</sup>      | See Section V below             |
| Chronic Toxicity (narrative)                          | Passed/<br>Triggered <sup>14</sup> |                          |                            | --                              |

| Parameter   | Units | Sample Type <sup>1</sup> | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-------|--------------------------|----------------------------|---------------------------------|
| <p><b>Table Notes:</b></p> <ol style="list-style-type: none"> <li>1. Composite samples for non-Ocean Plan Table B parameters may be taken by a proportional sampling device approved by the Executive Officer or by grab sample composites. In compositing grab samples, the sampling interval shall not exceed 2 hours. For Ocean Plan Table B parameters, a composite sample is defined as an individual sample of at least 100 mL collected at periodic intervals during the operating hours of the Facility over a 24-hour period. For volatile constituents, aliquots shall be combined in the laboratory immediately before analysis. Aliquots may be collected manually or automatically. A grab sample is defined as an individual sample of at least 100 mL collected over a period not exceeding 15 minutes. Grab samples shall be collected over a shorter period if necessary to ensure that the parameter in the sample is the same as that at the sampling location at the time the sample is collected.</li> <li>2. In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.</li> <li>3. Monitoring for TSS, settleable solids, and pH shall coincide with monitoring at Monitoring Location INF-001. Each sample shall be split into three triplicates and analyzed for TSS, settleable solids, and pH.</li> <li>4. Salinity may be measured and reported as electrical conductivity in <math>\mu\text{mhos/cm}</math>, as salinity in salinity units, or as salinity in parts per thousand.</li> <li>5. Monitoring for total residual chlorine and halomethanes is not required upon startup of the ultraviolet light (UV) disinfection system and discontinuation of the use of sodium hypochlorite for disinfection. If monitoring for total residual chlorine and halomethanes is discontinued, the Permittee shall certify in each monthly self-monitoring report (SMR) that the use of its chlorine-based disinfection system and the use of other chlorine-containing agents in the seawater system did not occur during the monitoring period. The Permittee must immediately restart monitoring for total residual chlorine and halomethanes using grab samples upon any planned (e.g., maintenance activities) or unplanned use of chlorine in the seawater system.</li> <li>6. The Permittee shall monitor total residual chlorine in the seawater effluent continuously using an analytical method with a reporting limit (RL) of 50 <math>\mu\text{g/L}</math> or as low as technically feasible. Alternatively, sulfite may be monitored continuously as a proxy for assuring that the discharge meets effluent limitations for total residual chlorine. Bench top total residual chlorine measurements shall also be performed at least once per month with a minimum detection limit of 10 <math>\mu\text{g/L}</math> and an RL of 13 <math>\mu\text{g/L}</math>.</li> <li>7. Halomethanes shall mean the sum of bromoform, bromomethane (methyl bromide), and chloromethane (methyl chloride).</li> <li>8. PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo(k)fluoranthene, 1,12-benzoperylene, benzo(a)pyrene, chrysene, dibenzo(ah)anthracene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene and pyrene.</li> <li>9. The Permittee may at their option monitor for total chromium instead of hexavalent chromium.</li> <li>10. Analytical results for this pollutant generated to meet monitoring requirements for the Ocean Plan Table B pollutants or Ocean Plan Table B metals will satisfy this semi-annual monitoring requirement if the analysis is performed in the appropriate semi-annual period.</li> <li>11. The 10 metals identified in Ocean Plan Table B (i.e., arsenic, cadmium, hexavalent chromium, copper, lead, mercury, nickel, selenium, silver, and zinc) shall be sampled twice during the first year of the permit term, once during dry weather and once during wet weather. In accordance with State Water Board Resolution No. 2007-0058, the Regional Water Board will determine the frequency of monitoring for the Table B metals; however, the Table B metals shall be monitored once per year, at a minimum, following the first year of the permit term. Metals shall be analyzed by the approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry, as described in Appendix II of the Ocean Plan (2009).</li> <li>12. Grab samples shall be used for volatile chemicals listed in Table II-1 of the Ocean Plan (2009). Composite samples shall be used for all other Ocean Plan Table B parameters.</li> </ol> |       |                          |                            |                                 |

| Parameter   | Units | Sample Type <sup>1</sup> | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-------|--------------------------|----------------------------|---------------------------------|
| <p>13. In accordance with State Water Board Resolution No. 2007-0058, the parameters identified in Ocean Plan Table B and pH, salinity, and temperature shall be monitored twice during the first year of the permit term, once during dry weather and once during a storm event. Based on the results of the first year of monitoring, the Regional Water Board will determine the frequency of monitoring as well as the specific Table B parameters to be monitored thereafter; however, monitoring shall be required, at a minimum, once per year during wet weather. All wet weather monitoring events shall coincide with monitoring required for Table B parameters at Monitoring Locations REF-001, EFF-016, and RSW-001.</p> <p>14. The Permittee shall include reporting regarding compliance with the narrative toxicity objective in Receiving Water Limitation V.A.10 by reporting whether the chronic toxicity test “passed” or “triggered” in relation to the chronic toxicity trigger of 1.0 TUc (where TUc =100/NOEC) as a daily maximum. For narrative chronic toxicity reporting, “Passed” shall be reported when chronic toxicity effluent results do not trigger accelerated testing (e.g., a single sample result of ≤1.0 TUc. “Triggered” shall be reported when chronic toxicity effluent results trigger accelerated testing by exceeding the chronic toxicity trigger of 1.0 TUc for a single sample.</p> <p>15. Chronic whole effluent toxicity testing shall be conducted twice during the first year of the permit term, once during dry weather and once during wet weather). In accordance with State Water Board Resolution No. 2007-0058, the Regional Water Board will determine the frequency of monitoring for chronic whole effluent toxicity; however, chronic whole effluent toxicity testing shall be conducted once per year, at a minimum, following the first year of the permit term.</p> |       |                          |                            |                                 |

**B. Storm Water Runoff Monitoring at Monitoring Locations EFF-003 and EFF-004**

- The Permittee shall monitor storm water runoff at Monitoring Locations EFF-003 and EFF-004 discharged to the freshwater marsh as follows:

**Table E-6. Storm Water Runoff Monitoring – Monitoring Locations EFF-003 and EFF-004**

| Parameter              | Units    | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|------------------------|----------|-------------|----------------------------|---------------------------------|
| Total Suspended Solids | mg/L     | Grab        | 2X/Year <sup>1,2</sup>     | Standard Methods <sup>3</sup>   |
| pH                     | s.u.     | Grab        | 2X/Year <sup>1,2</sup>     | Standard Methods                |
| Specific Conductance   | µmhos/cm | Grab        | 2X/Year <sup>1,2</sup>     | Standard Methods                |
| Total Organic Carbon   | mg/L     | Grab        | 2X/Year <sup>1,2</sup>     | Standard Methods                |

| Parameter  | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|--|-------|-------------|----------------------------|---------------------------------|
| <u>Table Notes</u>   |       |             |                            |                                 |
| <ol style="list-style-type: none"> <li>1. Storm water samples shall be collected during the first hour of discharge from 1) the first storm event of the wet season and 2) at least on other storm event in the wet season. If the Permittee is unable to collect samples from the first storm event of the wet season, the Discharge shall collect a sample from a subsequent rain event and shall explain in the Annual Report why the first storm event was not sampled. For 2X/Year monitoring, no less than two storm events are to be sampled during any wet season. For the purpose of monitoring storm water to the freshwater marsh, the monitoring year shall be defined as the wet season, which typically begins on October 1 and ends on May 30.</li> <li>2. The Permittee may conduct sample collection and visual observation more than 1 hour after discharge begins if the Permittee determines that the objectives of this section will be better satisfied. The Permittee shall include an explanation in the Annual Report why sample collection and/or visual observations were conducted after the first hour of discharge.</li> <li>3. In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.                     <ol style="list-style-type: none"> <li>a. The Permittee shall visually observe storm water discharges from one storm event per month during the wet season (October 1 through May 30). These observations shall occur during the first hour of discharge at all discharge locations. Visual observations are only required during daylight hours that are preceded by at least 3 working days without storm water discharges and that occur during scheduled Facility operating hours. Visual observation shall document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and any source of pollutants.</li> <li>b. The Permittee shall visually observe all drainage areas within its Facility for the presence of unauthorized non-storm water discharges and their sources. Visual observations shall occur quarterly, during daylight hours, on days with no storm water discharges, and during scheduled Facility operating hours. Visual observation shall document the presence of any floating and suspended material, oil and grease, discolorations, turbidity, odor, and any source of pollutants.</li> </ol> </li> </ol> |       |             |                            |                                 |

**C. Storm Water Runoff Monitoring at Monitoring Location EFF-016**

1. The Permittee shall monitor storm water runoff at Monitoring Location EFF-016 as follows:

**Table E-7. Storm Water Runoff Monitoring – Monitoring Location EFF-016**

| Parameter               | Units | Sample Type                    | Minimum Sampling Frequency | Required Analytical Test Method |
|-------------------------|-------|--------------------------------|----------------------------|---------------------------------|
| Storm Water Runoff Flow | mgd   | Meter or Estimate <sup>1</sup> | Each Storm Event           | --                              |

| Parameter   | Units                             | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-----------------------------------|-------------|----------------------------|---------------------------------|
| Chronic Toxicity                                      | TUc                               | Grab        | Annually <sup>3,4</sup>    | See Section V below             |
| Chronic Toxicity (narrative)                          | Passed/<br>Triggered <sup>2</sup> |             |                            | --                              |
| Ocean Plan Table B Pollutants                         | µg/L                              | Grab        | Annually <sup>3,4</sup>    | Standard Methods <sup>5</sup>   |
| Polynuclear Aromatic Hydrocarbons (PAHs) <sup>6</sup> | µg/L                              | Grab        | Annually <sup>3,4</sup>    | Standard Methods                |
| Total Coliform  | MPN/100 mL                        | Grab        | Annually <sup>3,4,7</sup>  | Standard Methods                |
| <i>Enterococcus</i>                                   | MPN/100 mL                        | Grab        | Annually <sup>3,4,7</sup>  | Standard Methods <sup>8</sup>   |
| Fecal Coliform  | MPN/100 mL                        | Grab        | Annually <sup>3,4,7</sup>  | Standard Methods <sup>8</sup>   |

**Table Notes**

- In accordance with State Water Board Resolution No. 2007-0058, methods for calculating flow must be approved by the Regional Water Board.
- The Permittee shall include reporting regarding compliance with the narrative toxicity objective in Receiving Water Limitation V.A.10 by reporting whether the chronic toxicity test “passed” or “triggered” in relation to the chronic toxicity trigger of 1.0 TUc (where TUc =100/NOEC) for each single sample. For narrative chronic toxicity reporting, “Passed” shall be reported when chronic toxicity effluent results do not trigger accelerated testing (e.g., a single sample result of ≤1.0 TUc. “Triggered” shall be reported when chronic toxicity effluent results trigger accelerated testing by exceeding the chronic toxicity trigger of 1.0 TUc for a single sample.
- Storm water samples shall be collected during the first hour of discharge from the first storm event of the wet season. If the Permittee is unable to collect samples from the first storm event of the wet season, the Discharge shall collect a sample from a subsequent rain event and shall explain in the Annual Report why the first storm event was not sampled. For the purpose of monitoring storm water discharges at Monitoring Location EFF-016, the monitoring year shall be defined as the wet season, which typically begins on October 1 and ends on May 30.
- In accordance with State Water Board Resolution No. 2007-0058, the parameters identified in Table B of the Ocean Plan shall be monitored one time during a storm event in the first year of the permit term. Based on results of the first year of monitoring, the Regional Water Board will determine which specific Table B parameters shall be monitored on an annual basis thereafter. All monitoring events for the Table B parameters at Monitoring Location EFF-016 shall coincide with monitoring required for Table B parameters in the seawater discharge (Monitoring Location EFF-001), at the ocean reference station (Monitoring Location REF-001), and at Horseshoe Cove (Monitoring Location RSW-001). The Table B metals shall be analyzed by an approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry), as described in the Ocean Plan (2009).
- In accordance with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.
- PAHs shall mean the sum of acenaphthylene, anthracene, 1,2-benzanthracene, 3,4-benzofluoranthene, benzo[k]fluoranthene, 1,12-benzoperylene, benzo[a]pyrene, chrysene, dibenzo[ah]anthracene, fluorene, indeno[1,2,3-dc]pyrene, phenanthrene and pyrene.
- Monitoring for bacteria shall occur once per year during a storm event and shall coincide with monitoring for bacteria in Horseshoe Cove (Monitoring Location RSW-001).
- Detection methods for *Enterococcus* and fecal coliform bacteria shall be those presented in Table 1A of 40 CFR Part 136, unless alternative methods have been approved in advance by the USEPA pursuant to 40 CFR Part 136.

**V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS**

Although effluent limitations for whole effluent toxicity (WET) are not established by the Order, WET testing of discharges and receiving water is required by this MRP to determine compliance with water quality objectives established by the Ocean Plan for acute and chronic WET. In certain circumstances, accelerated WET testing and/or a Toxicity Reduction Evaluation (TRE) are required by the MRP when WET “triggers” are exceeded. Table E-8, below, summarizes the WET testing requirements of the MRP. Note that sediment toxicity testing requirements are addressed in section IX.C. of this MRP and not as part of the WET testing requirements.

**Table E-8. Summary of WET Testing Requirements**

| Monitoring Location | WET Testing Requirement   |
|---------------------|---|
| EFF-001             | Chronic WET shall be tested twice in the first year of the permit term, and at the discretion of the Regional Water Board thereafter. However, chronic WET shall be tested at least once per year after the first year (three species initially and thereafter the most sensitive). |
| EFF-016             | Chronic WET shall be tested once in the first year of the permit term, and at the discretion of the Regional Water Board thereafter (three species initially and thereafter the most sensitive).  |
| REF-001             | Chronic WET shall be tested twice in the first year of the permit term, and at the discretion of the Regional Water Board thereafter (three species initially and thereafter the most sensitive).   |
| RSW-001             | Chronic WET shall be tested once in the first year of the permit term, and at the discretion of the Regional Water Board thereafter. However, chronic WET shall be tested at least once per year after the first year (three species initially and thereafter the most sensitive).  |

**A. Chronic Toxicity Testing**

The Permittee shall conduct chronic toxicity testing to demonstrate compliance with the Ocean Plan’s water quality objective for chronic toxicity. The Permittee shall meet the following chronic toxicity testing requirements:

1. **Test Frequency.** The Permittee shall conduct chronic WET testing in accordance with the schedule established by this MRP while discharging at Discharge Points 001 and 016, as summarized in MRP section IV.A and Table E-8, above.
2. **Sample Type.** For 96-hour static renewal or 96-hour static non-renewal testing, the effluent samples shall be 24-hour composite samples and shall be representative of the volume and quality of the discharge. Effluent samples shall be collected at Monitoring Locations EFF-001 and EFF-016. When tests are conducted off-site, a minimum of three samples shall be collected, in accordance with USEPA test methods.

**3. Test Species.** Critical life stage bioassay testing shall be conducted using an approved test, and test species, as described by Table III-1 of the Ocean Plan and presented below. Initial testing for the first suite of tests, shall be conducted with a vertebrate, an invertebrate, and a plant species, and thereafter, monitoring can be reduced to the most sensitive species. At least once every 5 years, the Permittee shall rescreen once with the three species listed above, and continue to monitor with the most sensitive species.

**Table E-9. Summary of WET Testing Requirements**

| Species  | Test   | Tier <sup>1</sup> | Reference <sup>2</sup> |
|--|--|-------------------|------------------------|
| Giant kelp, <i>Macrocystis pyrifera</i>  | percent germination;<br>germ tube length           | 1                 | a, c                   |
| Red abalone, <i>Haliotis rufescens</i>   | abnormal shell<br>development                      | 1                 | a, c                   |
| Oyster, <i>Crassostrea gigas</i> ; mussels,<br><i>Mytilus spp.</i>                           | abnormal shell<br>development; percent<br>survival | 1                 | a, c                   |
| Urchin, <i>Strongylocentrotus purpuratus</i> ;<br>sand dollar, <i>Dendraster excentricus</i> | percent normal<br>development                      | 1                 | a, c                   |
| Urchin, <i>Strongylocentrotus purpuratus</i> ;<br>sand dollar, <i>Dendraster excentricus</i> | percent fertilization                              | 1                 | a, c                   |
| Shrimp, <i>Homesimysis costata</i>   | percent survival;<br>growth                        | 1                 | a, c                   |
| Shrimp, <i>Americamysis bahia</i><br>( <i>Mysidopsis bahia</i> )                             | percent survival;<br>fecundity                     | 2                 | b, d                   |
| Topsmelt, <i>Atherinops affinis</i>  | larval growth rate;<br>percent survival            | 1                 | a, c                   |
| Silverside, <i>Menidia beryllina</i>   | larval growth rate;<br>percent survival            | 2                 | b, d                   |

**Table Notes:**

1. First tier methods are preferred for compliance monitoring. If first tier organisms are not available, the Permittee can use a second tier test method following approval by the Regional Water Board.
2. Protocol References:
  - a. Chapman, G.A., D.L. Denton, and J.M. Lazorchak. 1995. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms*. U.S. EPA Report No. EPA/600/R-95/136.
  - b. Klemm, D.J., G.E. Morrison, T.J. Norberg-King, W.J. Peltier, and M.A. Heber. 1994. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms*. U.S. EPA Report No. EPA-600-4-91-003.
  - c. SWRCB 1996. *Procedures Manual for Conducting Toxicity Tests Developed by the Marine Bioassay Project*. 96-1WQ.
  - d. Weber, C.I., W.B. Horning, I.I., D.J. Klemm, T.W. Nieheisel, P.A. Lewis, E.L. Robinson, J. Menkedick and F. Kessler (eds). 1998. *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*. EPA/600/4-87/028. National Information Service, Springfield, VA.

**4. Test Methods.** The presence of chronic toxicity shall be estimated as specified in USEPA’s *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and*

*Receiving Water to West Coast Marine and Estuarine Organisms* (USEPA Report No. EPA/600/R-95/136, or subsequent editions), *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Water to Marine and Estuarine Organisms* (USEPA Report No. EPA-821-R-02-014 or subsequent editions), or other methods approved by the Executive Officer.

5. **Test Dilutions.** All chronic WET tests on effluent samples collected at Monitoring Locations EFF-001 and EFF-016 and on receiving water samples collected at Monitoring Locations REF-001 and RSW-001, shall be conducted using 100 percent effluent and 100 percent receiving water, respectively, with control samples being laboratory synthesized water or receiving water samples collected beyond the influence of the discharges.
6. **Reference Toxicant.** If organisms are not cultured in-house, concurrent testing with a reference toxicant shall be conducted. Where organisms are cultured in-house, monthly reference toxicant testing is sufficient. Reference toxicant tests also shall be conducted using the same test conditions as the effluent toxicity tests (e.g., same test duration, etc).
7. **Test Failure.** If a chronic toxicity test does not meet all test acceptability criteria, as specified in the test method, the Permittee shall re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.
8. **Notification.** The Permittee shall notify the Regional Water Board verbally within 72 hours and in writing within 14 days after the receipt of test results exceeding the chronic toxicity trigger during regular or accelerated monitoring.
9. **Accelerated Monitoring Requirements.** For this Permittee, accelerated monitoring requirements in this section apply only to chronic toxicity results of effluent containing seawater and not results from storm water only discharges or receiving water monitoring. If the result of any routine chronic toxicity test, for discharges containing seawater, exceeds the chronic toxicity monitoring trigger of 1.0 TUC, as specified in section VI.C.2.a. of the Order, and the testing meets all test acceptability criteria, the Permittee shall initiate accelerated monitoring. Accelerated monitoring shall consist of four additional samples – with one test conducted approximately every week over a four week period.

Testing shall commence within 14 days of receipt of initial sample results which indicated an exceedance of the chronic toxicity trigger. If the discharge will cease before the additional samples can be collected, the Permittee shall contact the Executive Officer within 21 days with a plan to address elevated levels of chronic toxicity in effluent and/or receiving water. The following protocol shall be used for accelerated monitoring and TRE implementation:

- a.** If the result of any accelerated toxicity test exceeds 1.0 TUC, the Permittee shall cease accelerated monitoring and, within thirty (30) days of the date of completion of the accelerated monitoring test, initiate the TRE Workplan developed in accordance with section VI.C.2.a.(2) of the Order to investigate the cause(s) and identify corrective actions to reduce or eliminate the chronic toxicity. Within thirty (30) days of completing the TRE Workplan implementation, the Permittee shall submit a report to the Regional Water Board including, at a minimum:
  - i.** Specific actions the Permittee took to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
  - ii.** Specific actions the Permittee took to mitigate the impact of the discharge and prevent the recurrence of toxicity;
  - iii.** Recommendations for further actions to mitigate continued toxicity, if needed; and
  - iv.** A schedule for implementation of recommended actions.
- b.** If the results of four consecutive accelerated monitoring tests do not exceed 1.0 TUC, the Permittee may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, if there is adequate evidence of a pattern of effluent toxicity, the Regional Water Board's Executive Officer may require that the Permittee initiate a TRE.
- c.** If the source(s) of the toxicity is easily identified (i.e. temporary upset), the Permittee shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring "trigger." Upon confirmation that the chronic toxicity has been removed, the Permittee may cease accelerated monitoring and resume regular chronic toxicity monitoring.

## **B. Chronic Toxicity Reporting**

- 1. Routine Reporting.** All toxicity test reports shall include the contracting laboratory's complete report provided to the Permittee and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals and this Monitoring and Reporting Program.

Regular chronic toxicity monitoring results shall be submitted within 30 days following completion of the test. The WET test report shall contain a narrative report that includes details about WET test procedures and results, including the following:

**a. Test Procedures**

- i.** receipt and handling of the effluent sample that includes a tabular summary of initial water quality characteristics;
- ii.** the source and make-up of the lab control/diluent water used for the test;
- iii.** any manipulations done to lab control/diluent and effluent such as filtration, nutrient addition, etc.;
- iv.** identification of any reference toxicant testing performed;
- v.** tabular summary of test results for control water and each effluent dilution and statistics summary to include calculation of NOEC, TUC and IC25;
- vi.** identification of any anomalies or nuances in the test procedures or results; and
- vii.** summary and conclusions section.

**b. Test Results**

- i.** Test results shall include, at a minimum, for each test:
- ii.** Sample date(s);
- iii.** Test initiation date;
- iv.** Test species;
- v.** End point values for each dilution (e.g., number of young, growth rate, percent survival);
- vi.** NOEC value(s) in percent effluent;
- vii.** IC15, IC25, IC40, and IC50 values (or EC15, EC25...etc.) in percent effluent;
- viii.** TUC values (100/NOEC);
- ix.** Mean percent mortality ( $\pm$ s.d.) after 96 hours in 100 percent effluent (if applicable);
- x.** NOEC and LOEC values for reference toxicant test(s);
- xi.** IC50 or EC50 value(s) for reference toxicant test(s);
- xii.** Available water quality measurements for each test (e.g., pH, DO, temperature, conductivity, hardness, salinity, ammonia);
- xiii.** Statistical methods used to calculate endpoints;
- xiv.** The statistical output page, which includes the calculation of percent minimum significant difference (PMSD); and

xv. Results of applicable reference toxicant data with the statistical output page identifying the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD and dates tested; the reference toxicant control charts for each endpoint, to include summaries of reference toxicant tests performed by the contracting laboratory; and any information on deviations from standard test procedures or problems encountered in completing the test and how the problems were resolved.

**2. Quality Assurance Reporting.** Because the permit requires sublethal hypothesis testing endpoints from methods 1006 and 1007.0 in the test methods manual titled *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms* (EPA-821-R-02-014, 2002), with-in test variability must be reviewed for acceptability and variability criteria (upper and lower PMSD bounds) must be applied, as directed under section 10.2.8 – *Test Variability* of the test methods manual. Under section 10.2.8, the calculated PMSD for both reference toxicant test and effluent toxicity test results must be compared with the upper and lower PMSD bounds variability criteria specified in Table 6 – *Variability Criteria (Upper and Lower PMSD Bounds) for Sublethal Hypothesis Testing Endpoints Submitted Under NPDES Permits*, following the review criteria in paragraphs 10.2.8.2.4.1 through 10.2.8.2.4.5 of the test methods manual. Based on this review, only accepted effluent toxicity test results shall be reported.

**3. Compliance Summary.** The monthly self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUc, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency (routine, accelerated, or TRE). The final report shall clearly demonstrate that the Permittee is in compliance with effluent limitations and other permit requirements.

**VI. LAND DISCHARGE MONITORING REQUIREMENTS**

**A. Land Discharge Monitoring Location EFF-002**

1. The Permittee shall monitor the discharge from the freshwater system at Monitoring Location EFF-002 as follows:

**Table E-10. Land Discharge Monitoring Requirements – Monitoring Location EFF-002**

| Parameter              | Units   | Sample Type <sup>1</sup> | Minimum Sampling Frequency | Required Analytical Test Method |
|------------------------|---------|--------------------------|----------------------------|---------------------------------|
| Flow                   | mgd     | Meter                    | Continuous                 | --                              |
| Total Suspended Solids | mg/L    | Composite                | Monthly                    | Standard Methods <sup>2</sup>   |
| Settleable Solids      | mL/L-hr | Composite                | Monthly                    | Standard Methods                |

| Parameter             | Units | Sample Type <sup>1</sup> | Minimum Sampling Frequency | Required Analytical Test Method |
|-----------------------|-------|--------------------------|----------------------------|---------------------------------|
| pH                    | s.u.  | Grab                     | Monthly                    | Standard Methods                |
| Salinity <sup>3</sup> | s.u.  | Grab                     | Daily                      | Standard Methods                |
| Nitrate (as N)        | mg/L  | Composite                | Monthly <sup>7</sup>       | Standard Methods                |

**Table Notes:**

1. Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab sample composites. In compositing grab samples, the sampling interval shall not exceed 2 hours. A grab sample is defined as an individual sample of at least 100 mL collected over a period not exceeding 15 minutes. Grab samples shall be collected over a short period if necessary to ensure that the parameter in the sample is the same as that at the sampling location at the time the sample is collected.
2. In accordance with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.
3. Salinity monitoring is required only during periods when smoltification is occurring in the Salmon Research Facility or with the Permittee is adjusting salinity in its freshwater system. Salinity may be measured and reported as electrical conductivity in  $\mu\text{mhos/cm}$ , as salinity in salinity units, or as salinity in parts per thousand.

**VII. RECLAMATION MONITORING REQUIREMENTS – NOT APPLICABLE**

This section of the NPDES permit is not applicable to the Permittee.

**VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER**

**A. Surface Water Monitoring Location REF-001**

1. The Permittee shall monitor the Reference Site at Monitoring Location REF-001 as follows:

**Table E-11. Receiving Water Monitoring Requirements – Monitoring Location REF-001**

| Parameter                     | Units           | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|-------------------------------|-----------------|-------------|----------------------------|---------------------------------|
| pH                            | s.u.            | Grab        | 2X/Year <sup>1</sup>       | Standard Methods <sup>2</sup>   |
| Salinity <sup>3</sup>         | s.u.            | Grab        | 2X/Year <sup>1</sup>       | Standard Methods                |
| Temperature                   | °C              | Grab        | 2X/Year <sup>1</sup>       | Standard Methods                |
| Ocean Plan Table B Pollutants | $\mu\text{g/L}$ | Grab        | 2X/Year <sup>4</sup>       | Standard Methods                |
| Chronic Toxicity              | TUc             | Grab        | 2X/Year <sup>5</sup>       | See Section V                   |

| Parameter   | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-------|-------------|----------------------------|---------------------------------|
| <b>Table Notes:</b>   |       |             |                            |                                 |
| 1. These constituents shall be monitored whenever samples are collected at Monitoring Location REF-001 to satisfy the requirements of footnote 4 below.   |       |             |                            |                                 |
| 2. In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.   |       |             |                            |                                 |
| 3. Salinity may be measured and reported as electrical conductivity in $\mu\text{mhos/cm}$ , as salinity in salinity units, or as salinity in parts per thousand.   |       |             |                            |                                 |
| 4. In accordance with State Water Board Resolution No. 2007-0058, the parameters identified in Table B of the Ocean Plan shall be monitored at Monitoring Location REF-001 twice during the first year of the permit term (once during dry weather and once during a storm event), coinciding with monitoring events for the Table B parameters at Monitoring Location EFF-001. Based on results of the first year of monitoring, the Regional Water Board will determine the frequency of monitoring as well as the specific Table B parameters to be monitored at Monitoring Location REF-001 thereafter. Wet weather samples at Monitoring Location REF-001 may be collected immediately after a storm event, but in no case more than 24 hours after, if sampling conditions are unsafe during the storm. The Table B metals shall be analyzed by an approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry), as described by the Ocean Plan (2009). |       |             |                            |                                 |
| 5. In accordance with State Water Board Resolution No. 2007-0058, chronic whole effluent toxicity testing shall be conducted twice during the first year of the permit term, at a minimum, and at the discretion of the Regional Water Board thereafter.  |       |             |                            |                                 |

**B. Surface Water Monitoring Location RSW-001**

1. The Permittee shall monitor the receiving water at Monitoring Location RSW-001 as follows:

**Table E-12. Receiving Water Monitoring Requirements - Monitoring Location RSW-001**

| Parameter  | Units           | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|--|-----------------|-------------|----------------------------|---------------------------------|
| Ocean Plan Table B Pollutants  | $\mu\text{g/L}$ | Grab        | Annually <sup>1</sup>      | Standard Methods <sup>2</sup>   |
| Chronic Toxicity   | TUc             | Grab        | Annually                   | See Section V                   |
| Total Coliform   | MPN/100 mL      | Grab        | Annually <sup>3</sup>      | Standard Methods                |
| Fecal Coliform   | MPN/100 mL      | Grab        | Annually <sup>3</sup>      | Standard Methods <sup>4</sup>   |
| <i>Enterococcus</i>  | MPN/100 mL      | Grab        | Annually <sup>3</sup>      | Standard Methods <sup>4</sup>   |
| <b>Table Notes:</b>  |                 |             |                            |                                 |
| 1. In accordance with State Water Board Resolution No. 2007-0058, the parameters identified in Table B of the Ocean Plan shall be monitored one time during a storm event in the first year of the permit term. Based on results of the first year of monitoring, the Regional Water Board will determine which specific Table B parameters shall be monitored on an annual basis thereafter. Chronic toxicity shall be monitored annually during a storm event (three species initially and thereafter the most sensitive species). Monitoring events for |                 |             |                            |                                 |

| Parameter   | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-------|-------------|----------------------------|---------------------------------|
| the Table B parameters at Monitoring Location RSW-001 shall coincide with monitoring required for Table B parameters in the seawater discharge at Monitoring Location EFF-001, at the ocean reference station at Monitoring Location REF-001, and at the storm water outfall at Monitoring Location EFF-016. The Table B metals shall be analyzed by an approved analytical method with the lowest minimum detection limits (currently Inductively Coupled Plasma/Mass Spectrometry, EPA Method 1640), as described by the Ocean Plan (2009). |       |             |                            |                                 |
| 2. In accordance with the current edition of <i>Standard Methods for Examination of Water and Wastewater</i> (American Public Health Administration) or current test procedures specified in 40 CFR Part 136.   |       |             |                            |                                 |
| 3. Monitoring for bacteria shall occur once per year during a storm event and shall coincide with monitoring for bacteria at Monitoring Location EFF-016.   |       |             |                            |                                 |
| 4. Detection methods for <i>Enterococcus</i> and fecal coliform bacteria shall be those presented in Table 1A of 40 CFR Part 136, unless alternative methods have been approved in advance by the USEPA pursuant to 40 CFR Part 136.  |       |             |                            |                                 |

**C. Groundwater – Not Applicable**

This section of the NPDES permit is not applicable to the Permittee.

**IX. OTHER MONITORING REQUIREMENTS**

**A. Intertidal Benthic Marine Life Survey**

Once during the 5 year term of this Order, the Permittee shall conduct a quantitative Survey of Intertidal Benthic Marine Life in accordance with section VI.C.2.b. of the Order.

**B. Bioaccumulation Study**

Once during the 5 year term of this Order, the Permittee shall conduct a Bioaccumulation Study in accordance with section VI.C.2.c. of the Order.

**C. Sediment Monitoring/Study**

In accordance with section VI.C. 2.d. of the Order, the Permittee shall monitor subtidal sediment at Monitoring Location SED-001 in Horseshoe Cove in accordance with the following schedule.

**Table E-13. Sediment Monitoring Requirements – Monitoring Location SED-001**

| Parameter                     | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|-------------------------------|-------|-------------|----------------------------|---------------------------------|
| Ocean Plan Table B Pollutants | µg/L  | Grab        | Annually <sup>1</sup>      | 2                               |
| Acute Toxicity                | TUa   | Grab        | Annually                   | 3                               |

| Parameter   | Units | Sample Type | Minimum Sampling Frequency | Required Analytical Test Method |
|---|-------|-------------|----------------------------|---------------------------------|
| <u>Table Notes:</u>   |       |             |                            |                                 |
| 1. In accordance with State Water Board Resolution No. 2007-0058, subtidal sediment in Horseshoe Cove shall be monitored annually. Based on results of the first year of sediment monitoring, the Regional Water Board will determine which specific Table B parameters shall be monitored on an annual basis thereafter.   |       |             |                            |                                 |
| 2. All samples will be tested in accordance with USEPA or American Society for Testing and Materials (ASTM) methodologies where such methods exist. Where no USEPA or ASTM methods exist, the State Water Board or Regional Water Boards (collectively Water Boards) shall approve the use of other methods. Analytical tests shall be conducted by laboratories certified by the California Department of Public Health in accordance with Water Code Section 13176. |       |             |                            |                                 |
| 3. The presence of sediment toxicity shall be estimated as specified in USEPA's <i>Methods for Assessing the Toxicity of Sediment-Associated Contaminants with Estuarine and Marine Amphipods</i> (USEPA Report 600/R-94/025, June 1994), using the amphipod <i>Eohaustorius estuarius</i> .  |       |             |                            |                                 |

**D. Chemical and Drug Use**

Annually, the Permittee shall report on chemicals and drugs used for disease control, disinfection, and health maintenance at the Facility with sufficient information to determine compliance with Discharge Prohibition III.G. Reporting shall include the following information:

1. Product name, active ingredients, and reasons for use;
2. Duration of treatment and method of application (batch or continuous);
3. The location where treatment was applied (seawater or freshwater laboratories, etc.);
4. Application rates of products;
5. The amount of medicated feed used, including active medicinal ingredients; and
6. The fate of chemicals and drugs (e.g., discharged, transported off-site, etc.).

**X. REPORTING REQUIREMENTS**

**A. General Monitoring and Reporting Requirements**

1. The Permittee shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.

**B. Self-Monitoring Reports (SMRs)**

1. The Permittee shall submit electronic Self-Monitoring Reports (eSMRs) using the State Water Board's California Integrated Water Quality System (CIWQS) Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). The CIWQS Web site

will provide additional directions for SMR submittal in the event there will be service interruption for electronic submittal. The Permittee shall maintain sufficient staffing and resources to ensure it submits eSMRs that are complete and timely. This includes provision of training and supervision of individuals (e.g., Permittee personnel or consultant) on how to prepare and submit eSMRs.

2. The Permittee shall report in the SMR the results for all monitoring specified in this MRP under sections III through IX. The Permittee shall submit monthly SMRs including the results of all required monitoring using USEPA-approved test methods or other test methods specified in this Order. If the Permittee monitors any pollutant more frequently than required by this Order, the results of this monitoring shall be included in the calculations and reporting of the data submitted in the SMR.
3. All monitoring results reported shall be supported by the inclusion of the complete analytical report from the laboratory that conducted the analyses.
4. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-14. Monitoring Periods and Reporting Schedule**

| Sampling Frequency      | Monitoring Period Begins On...   | Monitoring Period  | SMR Due Date   |
|-------------------------|--|--|--|
| Continuous              | Permit effective date  | All  | First day of second calendar month following month of sampling |
| Daily                   | Permit effective date  | (Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling | First day of second calendar month following month of sampling |
| Weekly                  | Sunday following permit effective date or on permit effective date if on a Sunday  | Sunday through Saturday  | First day of second calendar month following month of sampling |
| Monthly                 | First day of calendar month following permit effective date or on permit effective date if that date is first day of the month | First day of calendar month through last day of calendar month   | First day of second calendar month following month of sampling |
| Quarterly               | Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date                                    | January through March<br>April through June<br>July through September<br>October through December                    | First day of second calendar month following end of quarter    |
| Semi-annually (2X/Year) | Closest of January 1 or July 1 following (or on) permit effective date   | January through June<br>July through December  | September 1, each year<br>March 1, each year                   |

| Sampling Frequency | Monitoring Period Begins On...                    | Monitoring Period             | SMR Due Date       |
|--------------------|---|-------------------------------|--------------------|
| Annually           | January 1 following (or on) permit effective date | January 1 through December 31 | March 1, each year |

**5. Reporting Protocols.** The Permittee shall report with each sample result the applicable ML, the RL and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Permittee shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- a. Sample results greater than or equal to the reported ML shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- b. Sample results less than the RL, but greater than or equal to the laboratory’s MDL, shall be reported as “Detected, but Not Quantified,” or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words “Estimated Concentration” (may be shortened to “Est. Conc.”). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- c. Sample results less than the laboratory’s MDL shall be reported as “Not Detected,” or ND.
- d. Permittees are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the Permittee to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

**6.** The Permittee shall submit SMRs in accordance with the following requirements:

- a. The Permittee shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The reported data shall include calculation of all effluent limitations that require averaging, taking of a median, or other computation. The Permittee is not required to duplicate the submittal of

data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Permittee shall electronically submit the data in a tabular format as an attachment.

- b.** The Permittee shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify:
  - (a)** Facility name and address;
  - (b)** WDID number;
  - (c)** Applicable period of monitoring and reporting;
  - (d)** Violations of the WDRs (identified violations must include a description of the requirement that was violated and a description of the violation);
  - (e)** Corrective actions taken or planned; and
  - (f)** The proposed time schedule for corrective actions.
- c.** SMRs must be submitted to the Regional Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the CIWQS Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). In the event that paper submittal of SMRs is required, the Permittee shall submit the SMR to the address listed below:

Regional Water Quality Control Board  
North Coast Region  
5550 Skylane Blvd., Suite A  
Santa Rosa, CA 95403

### **C. Discharge Monitoring Reports (DMRs)**

DMRs are required for facilities designated as major dischargers. This Facility is a minor discharger; therefore, DMR requirements do not apply at this time.

### **D. Other Reports**

- 1.** The Permittee shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, PMP, and Pollution Prevention Plan required by Special Provisions – VI.C.2 and VI.C.3 of this Order.
- 2. Annual Report.** The Permittee shall submit an annual report to the Regional Water Board for each calendar year through the CIWQS Program Web site. In the event that a paper copy of the annual report is required, the Permittee shall submit the report to

the address in section X.B.6.c., above. The report shall be submitted by March 1<sup>st</sup> of the following year. The report shall, at a minimum, include the following:

- a. Both tabular and, where appropriate, graphical summaries of the monitoring data and disposal records from the previous year. If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved under 40 CFR, section 136 or as specified in this Order, the results of this monitoring shall be included in the calculation and report of the data submitted SMR.
- b. A comprehensive discussion of the Facility's compliance (or lack thereof) with all effluent limitations and other WDRs, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Order.
- c. The names and general responsibilities of all persons employed at the Facility;
- d. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations;
- e. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration;
- f. **Storm Water Reporting.** The Permittee shall submit, as part of its annual report to the Regional Water Board, an evaluation of the effectiveness of the Permittee's best management practices (BMPs) to control storm water, as well as activities to maintain and upgrade these BMPs.

**ATTACHMENT F – FACT SHEET**

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**ATTACHMENT F – FACT SHEET**

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

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Permittee. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Permittee.

**I. PERMIT INFORMATION**

The following table summarizes administrative information related to the University of California – Davis, Bodega Marine Laboratory.

**Table F-1. Facility Information**

|   |   |
|---|---|
| <b>WDID</b>   | 1B840350SON   |
| <b>Permittee</b>                                    | University of California – Davis  |
| <b>Name of Facility</b>                             | Bodega Marine Laboratory  |
| <b>Facility Address</b>                             | 2099 Westside Road  |
|   | Bodega Bay, CA 94923  |
|   | Sonoma County   |
| <b>Facility Contact, Title and Phone</b>            | Nita Puig-Albert, Associate Director, (707) 875-1958                            |
| <b>Authorized Person to Sign and Submit Reports</b> | Nita Puig-Albert, Associate Director  |
| <b>Mailing Address</b>                              | P.O. Box 247, Bodega Bay, CA 94923  |
| <b>Billing Address</b>                              | Same as Mailing Address   |
| <b>Type of Facility</b>                             | Marine Laboratory   |
| <b>Major or Minor Facility</b>                      | Minor   |
| <b>Threat to Water Quality</b>                      | 3   |
| <b>Complexity</b>                                   | C   |
| <b>Pretreatment Program</b>                         | NA  |
| <b>Reclamation Requirements</b>                     | NA  |
| <b>Facility Design and Permitted Flow</b>           | 1.0 million gallons per day (mgd), maximum pump capacity of the seawater system |
| <b>Watershed</b>                                    | Russian/Bodega Watershed Management Area (WMA)                                  |
| <b>Receiving Water</b>                              | Pacific Ocean   |
| <b>Receiving Water Type</b>                         | Marine  |

- A.** The University of California – Davis (hereinafter Permittee) is the owner and operator of the Bodega Marine Laboratory (hereinafter Facility), a marine laboratory, as shown in Attachment B.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Permittee herein.

- B.** The Facility discharges waste seawater, filter backwash, and storm water to the Pacific Ocean, a water of the United States.
- C.** The Permittee filed a Report of Waste Discharge (ROWD) and applied for a National Pollutant Discharge Elimination System (NPDES) permit authorization to discharge up to 1.0 mgd of treated waste seawater, filter backwash, and storm water from the Facility on October 22, 2012. The Permittee provided supplemental information on February 5, 2013. The permit application was deemed complete on February 5, 2013.

## **II. FACILITY DESCRIPTION**

The Permittee owns and operates the Facility, a teaching and marine research institution. Researchers at the Facility investigate population dynamics of marine invertebrates and fishes, fisheries management, fish health, aquaculture, invertebrate diseases, and many other topics. Annually, approximately 1,000 undergraduate students participate in classes and field trips, and marine science graduate students conduct thesis research at the Facility. The Facility is not a public aquarium, but tours are provided to approximately 10,000 visitors per year for public education regarding the science conducted at the laboratory and maintaining healthy coastal marine ecosystems.

Two points of discharge from the Facility are to the Pacific Ocean. The first is Discharge Point 001, which discharges once-through seawater and filter backwash. The Facility utilizes a flow-through seawater system in the majority of the research laboratories. Seawater for the flow-through system is pumped continuously from the Pacific Ocean with two intake lines located approximately 260 feet offshore in Horseshoe Cove. Each line is fitted with intake screens that are removed, cleaned, and replaced three to four times per year. Two centrifugal pumps provide up to 500 gallons per minute (gpm) to a clarification system, which can be bypassed for researchers requiring unfiltered seawater. The clarification system removes large debris with screens and includes a settling pre-chamber for large-grained sediment. Six parallel light weight gravel beds filter the seawater through passive upwelling of the seawater before it is pumped to the north and south wing storage reservoirs. From the storage reservoirs, seawater is distributed to research laboratories by gravity flow. The pre-chamber is cleaned by shovel, and the gravel beds are back-washed once per week using high volume, low pressure air, and the backwash drains to the waste seawater outfall at Discharge Point 001.

Approximately 10 percent of the seawater, up to 60 gpm, is used in pathology labs. To prevent escape of any disease-causing organisms, effluent from the pathology laboratories is chlorinated with sodium hypochlorite, and then de-chlorinated with gaseous sulfur dioxide before commingling with untreated seawater prior to discharge. The chlorine concentration in the treatment system is computer-controlled between 12 and 15 mg/L in a cascade system through successive tanks. Alarms activate backup systems when the chlorine concentration falls outside the desired treatment concentration or when a discharge concentration of 0.025 mg/L is detected. Discharge Point 001 is located in near shore waters of the Pacific Ocean, near Horseshoe Cove, waters of the United States. Based on flow data collected since 2008, the maximum pumping rate for waste seawater at Discharge Point 001 was 1.0 mgd and the average daily discharge flow was 0.6 mgd.

The second discharge to the Pacific Ocean is storm water runoff from the grounds of the Facility that drains over the surrounding soil and vegetation before draining into a nearby freshwater marsh, located approximately 220 feet from the beach at Horseshoe Cove. The flow continues through the marsh to a culvert pipe and concrete trough, which carry storm water to Horseshoe Cove Beach at Discharge Point 016. As storm water flows over the vegetation and through the marsh, natural treatment of the run-off may occur. The freshwater marsh is a water of the State and potentially a water of the United States. The Permittee implements appropriate storm water BMPs and storm water monitoring to minimize the discharge of pollutants in the storm water runoff that enters the freshwater marsh at Discharge Points 003 and 004 from the parking lot and operations support areas.

The receiving water for the ocean discharges is designated by the State Water Resources Control Board (State Water Board) as the Bodega Area of Special Biological Significance (Bodega ASBS). The California Ocean Plan prohibits waste discharges to ASBSs. The State Water Board contacted the Permittee on October 18, 2004 to inform the Permittee that its discharges into the ASBS are subject to the Ocean Plan waste discharge prohibition. On January 31, 2005, the Permittee applied for an exception to the California Ocean Plan for discharge into the Bodega ASBS. An Initial Study and Mitigated Negative Declaration (IS/MND) was circulated for public review, and on September 18, 2007, the State Water Board approved this Exception and the Initial Study/Negative Declaration (IS/MND) with Resolution No. 2007-0058.

The Facility also discharges once-through freshwater at Discharge Point 002 to a groundwater recharge area. The Permittee utilizes freshwater produced from a well on its property in its Salmon Research Facility. With a salinity of 3 parts per thousand, the well water does not meet potable standards. The well water is first filtered using two sequential gravel beds and then distributed to Salmon Sheds I and II via open pressure lines. Within Salmon Shed I, the water is directed to three settling tanks, and then to the pumphouse. Within the Salmon Shed I pumphouse there are three pumps. Pump I water passes through two 30 micron pleated cartridge filters and a chiller, and is rerouted back to the settling tanks or directly to Salmon Shed I tanks. Pump II water is filtered through two pleated

cartridge filters and re-routed back to the settling tanks or directly to Salmon Shed I tanks. Pump III water is filtered through one cartridge filter prior to use in the pathology laboratory. Salmon Shed I water is currently flow-through but can be recirculated. Salmon Shed II freshwater is delivered from the gravel beds to an underground tank before being pumped through filter canisters without filters, unless the water appears murky, in which case filters are used. Salmon Shed II is drained to a small settlement catch basin before being recirculated, at not less than 15 gpm. Waste freshwater is discharged to a groundwater recharge area at Discharge Point 002 in the sand dunes adjacent to the laboratory. The freshwater discharge to groundwater is subject to Waste Discharge Requirements (WDRs) that are incorporated into this Order, but is not regulated under the NPDES program.

Salmon research at the Facility can entail raising newly hatched or young fish to adult salmon. Some projects may include introducing the young salmon to seawater when they are at smolting age. Smolting is a physiological hormonal process that allows salmon to gradually transition from fresh water to seawater. During smoltification periods, which may last up to 21 days per year, a portion of the freshwater flow is mixed with seawater to create waters with varying salinities for the Salmon Research Facility. This brackish water is discharged with the waste seawater effluent. When salmon are held in the Fish Pathology Lab in low salinity water, the effluent must pass through the chlorination/dechlorination system and can contribute up to 4% of the seawater discharge.

A Housing Enclave is located approximately 1 mile from the laboratory, and includes a visiting scientist lodge and two dormitories, providing a total of 63 beds plus a bunkhouse. Domestic wastewater from the Housing Enclave and the laboratory is treated using septic tank-leachfield systems, and is not regulated by this Order.

#### **A. Description of Wastewater Treatment or Controls**

Except for a small portion of the seawater system, which is chlorinated and dechlorinated following use in pathology laboratories, the Permittee does not employ physical, chemical, or biological wastewater treatment processes prior to discharging. The Permittee does employ storm water BMPs, however, to control and minimize the discharge of pollutants from the Facility.

#### **B. Discharge Points and Receiving Waters**

Discharge Point 001 is located in near shore waters of the Pacific Ocean, a water of the United States, near Horseshoe Cove. Discharge Point 016 is located at Horseshoe Cove Beach and also discharges to the Pacific Ocean. The Facility and Discharge Points 001 and 016 are located in the Russian/Bodega WMA within the Bodega ASBS.

1. Waste seawater is discharged at Discharge Point 001 to the Pacific Ocean, a water of the United States, at latitude 38° 19' 00" N and longitude 123° 04' 00" W.

2. Storm water is discharged at Discharge Point 016 to the Pacific Ocean, a water of the United States, at latitude 38° 19' 02" N and longitude 123° 04' 13" W.
3. The Ocean Plan prohibits discharges to ASBS waters, unless an exception to the prohibition is granted by the State Water Board. The Ocean Plan states that the State Water Board may, in compliance with California Environmental Quality Act (CEQA), subsequent to a public hearing, and with the concurrence of USEPA, grant exceptions where the Board determines: (a) the exception will not compromise protection of ocean waters for beneficial uses, and (b) the public interest will be served.

The State Water Board granted an exception to this prohibition for the Facility on September 18, 2007 with Resolution No. 2007-0058, which establishes terms and conditions of approval that must be incorporated into this Order. The following table provides a summary of these terms and conditions, and reference to the section of the Order in which they are located.

**Table F-2. Terms and Conditions of Resolution No. 2007-0058 Incorporated into the Order**

| Resolution Provision | Description of Provision  | Order Section Number   |
|----------------------|---|--|
| 2.a                  | Mussel Point station to be used to determine natural water quality conditions.  | Order Section V.A.1  |
| 2.a                  | Natural water quality conditions in the receiving water shall not be altered as a result of the discharge.  | Order Section V.A, MRP Sections VIII.A and VIII.B                |
| 2.b                  | Constituents in excess of Ocean Plan Table B water quality objectives shall not be discharged.  | Order Discharge Prohibition III.H                                |
| 2.b                  | Chemical additives including, but not limited to, antibiotics, shall not be discharged in the seawater system effluent. Discharge of halomethanes and chlorine must be minimized. | Order Discharge Prohibition III.G,                               |
| 2.c                  | Total residual chlorine shall be continuously monitored.  | MRP Section IV.A   |
| 2.d                  | The current approved analytical method with the lowest detection limit shall be used for metals analyses.   | MRP Sections I, IV.A, IV.C, VIII.A, and VIII.B                   |
| 2.e                  | The waste seawater effluent flow rate shall not exceed 1.5 mgd. Storm water effluent flow rate shall be measured or calculated.   | Order Discharge Prohibition III.I and MRP Section IV.A. and IV.C |
| 2.f                  | Freshwater discharge must be discharged to the groundwater recharge area in the sand dunes adjacent to the laboratory.  | Order Discharge Prohibition C, MRP Section II                    |
| 2.g                  | Non-storm water facility runoff, except for the waste seawater discharge and emergency fire-fighting runoff, must be prevented.   | Order Discharge Prohibition III.J                                |

| <b>Resolution Provision</b> | <b>Description of Provision</b>  | <b>Order Section Number</b>                    |
|-----------------------------|--|--|
| 2.h                         | A Storm Water Management Plan/Program (SWMP) shall be developed and address the prohibition on non-storm water runoff and the reduction of pollutants in storm water discharges to the ASBS.                     | Order Section VI.C.7.a                         |
| 2.i                         | The SWMP must include measures that describe how non-storm water discharges have been eliminated and how the measures are maintained, monitored, and documented.   | Order Section IV.C.7.a.ii                      |
| 2.j                         | The SWMP must include a map of storm water runoff and BMPs employed.   | Order Section IV.C.7.a.ii                      |
| 2.k                         | The SWMP must address how pollutants have been and will be reduced in storm water runoff into the ASBS, and the BMPs employed and BMPs planned, with an implementation plan for those BMPs.                      | Order Section VI.C.7.a.iii                     |
| 2.l                         | A quantitative survey of intertidal benthic life must be performed near the discharge and a reference site at least once per permit term.  | Order Section VI.C.2.b and MRP Section IX.A    |
| 2.m                         | A bioaccumulation study using California mussels must be performed near the discharge and a reference site once per permit term.   | Order Section VI.C.2.c and MRP Section IX.B    |
| 2.n                         | Sampling for the waste seawater effluent and the reference station must occur twice the first year of the permit term and annually thereafter for analysis of Table B parameters, pH, salinity, and temperature. | MRP Sections IV.A and VIII.A                   |
| 2.o                         | Storm water runoff and the Horseshoe Cove receiving water must be sampled once annually for Table B parameters and Ocean Plan indicator bacteria.  | MRP Sections IV.C and VIII.B                   |
| 2.p                         | Subtidal sediment in Horseshoe Cove must be sampled annually for Table B parameters.   | Order Section VI.C.2.d and MRP Section IX.C    |
| 2.q                         | If Horseshoe Cove receiving water monitoring indicates that storm water runoff is altering natural water quality, a report must be submitted 30 days within receiving the results.                               | Order Section VI.C.7.a.vi and MRP Section IX.A |
| 2.r                         | A program for prevention of biological pollutants must be developed and implemented.   | Order Section VI.C.7.c                         |
| 2.s                         | A waterfront and marine operations non-point source management plan must be prepared.  | Order Section VI.C.7.b                         |
| 2.t                         | The Regional Water Board must be notified 180 days prior to any construction activity that could result in any discharge or habitat modification in the ASBS.  | Order Section VI.C.5                           |
| 2.u                         | The conditions of approval (described above) shall be included in the NPDES Permit.  | Throughout                                     |

**C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data**

The existing Order, Order R1-2008-0002 contains effluent limitations for direct discharge to the Pacific Ocean at Discharge Point 001. Effluent limitations contained in Order R1-2008-0002 for discharges from Discharge Point 001 and representative monitoring data from the term of the existing Order are presented below:

**Table F-3. Historic Effluent Limitations and Monitoring Data**

| Parameter (units)        | Units            | Effluent Limitations       |                                    |                             | Monitoring Data (From May 2008 to August 2012) |                                      |                               |                   |
|--------------------------|------------------|----------------------------|------------------------------------|-----------------------------|--|--------------------------------------|-------------------------------|-------------------|
|                          |                  | Maximum Daily <sup>1</sup> | Instantaneous Maximum <sup>1</sup> | 6-Month Median <sup>1</sup> | Highest Daily Result                           | Highest Instantaneous Maximum Result | Highest 6-Month Median Result | No. of Violations |
| Total Suspended Solids   | (mg/L)           | 2                          | 2                                  | 2                           | 4.9 <sup>3</sup>                               | 4.9 <sup>3</sup>                     | -1.9 <sup>3</sup>             | 0                 |
| Settleable Solids        | (ml/L)           | 2                          | 2                                  | 2                           | ND <sup>4</sup>                                | ND <sup>4</sup>                      | ND <sup>4</sup>               | 0                 |
| pH                       | (standard units) | --                         | 6.0 – 9.0                          | --                          | --   | 7.33 – 8.1                           | --                            | 0                 |
| Chlorine, Total Residual | (mg/L)           | --                         | ND <sup>5</sup>                    | --                          | --   | 199                                  | --                            | 7                 |
| Cadmium                  | (µg/L)           | 4.0                        | 10                                 | 1.0                         | 0.13   | 0.13                                 | 0.13                          | 0                 |
| Copper                   | (µg/L)           | 12                         | 30                                 | 3.0                         | 2.72   | 2.72                                 | 2.4                           | 0                 |
| Silver                   | (µg/L)           | 2.8                        | 7.0                                | 0.7                         | 0.69 <sup>6</sup>                              | 0.69 <sup>6</sup>                    | 0.222 <sup>6</sup>            | 0                 |

**Table Notes:**

1. See Attachment A Definitions
2. The discharge shall not contain concentrations of suspended and settleable solids higher than those found in the influent and shall not cause nuisance or adversely affect beneficial uses.
3. Represents the maximum observed difference between the influent and effluent concentrations. Influent and effluent concentrations were reported as the average of three triplicate pours from the same sample. Statistical analysis was determined for each influent and effluent sample pair using a t-test. No significantly different results of effluent TSS or settleable solids higher than the influent were observed.
4. Settleable solids were not detected in any effluent samples.
5. As defined in the Monitoring Reporting Program of Order R1-2008-0002.
6. Silver was also detected in the method blank.

**D. Compliance Summary**

**1. Violations Summary**

During the term of the existing Order, the Permittee experienced multiple violations of the effluent limitation for total residual chlorine.

## 2. Enforcement Action Summary

Enforcement actions taken against the Permittee related to violations of waste discharge and NPDES requirements are summarized below.

- a. **Administrative Civil Liability (ACL) Complaint No. R1-2008-0056.** This ACL Complaint was issued by the Regional Water Board Executive Officer on May 1, 2008, to address violations of effluent limitations contained in the Permittee's NPDES permit (Order No. R1-2000-23) that occurred between January 1, 2000 and February 29, 2008. The ACL Complaint assessed a \$63,000 penalty for numerous violations, including exceedances of effluent limitations for total suspended solids (TSS), chlorine residual, and settleable solids.
- b. **ACL Order No. R1-2009-0024.** This ACL Order allowed the Permittee to complete a supplemental environmental project (SEP) in lieu of paying the full amount of applicable mandatory minimum penalties (MMPs) identified in ACL Complaint No. R1-2008-0056. The Permittee's SEP consisted of a project to provide data about pH in the ocean offshore of the Sonoma Coast. On March 1, 2010, the Permittee submitted its final report of completion to the Regional Water Board Executive Officer who agreed that the Permittee had fulfilled its obligation to complete a SEP and permanently suspended the remaining unpaid penalty of \$39,000.
- c. **ACL Complaint No. R1-2009-0101.** This ACL Complaint was issued by the Regional Water Board Executive Officer on September 24, 2009, to address violations of effluent limitations contained in the Permittee's NPDES permit (Order No. R1-2008-0002) that occurred between March 1, 2008, and March 31, 2009. The ACL Complaint assessed a \$15,000 penalty for numerous violations, including exceedances of effluent limitations for total residual chlorine.
- d. **ACL Order No. R1-2009-0024.** This ACL Order allowed the Permittee to complete a SEP in lieu of paying the full amount of applicable MMPs identified in ACL Complaint No. R1-2009-0101. The Permittee's SEP consisted of a project to upgrade and refurbish the tidepool mesocosm display. On December 2, 2010, the Permittee submitted its final report of completion to the Regional Water Board Executive Officer who agreed that the Permittee had fulfilled its obligation to complete a SEP and permanently suspended the remaining unpaid penalty of \$10,000.

## E. Planned Changes

The Permittee recently received funding to replace the chlorination/dechlorination system with a microfiltration and ultraviolet light (UV) disinfection system. The proposed modifications will eliminate all use of highly reactive chemicals (i.e., chlorine and sulfur dioxide) at the Facility. The project will also include renovation of the current greenhouse

facility into a state-of-the-art holding and experimental facility for non-indigenous/invasive species.

The proposed system will utilize existing subsurface concrete tanks placed beneath the existing process shed. The concrete tanks will be divided into three partitions providing opportunity for use as both influent and effluent storage, process leveling, and pre-settling of some solids. The system will have full redundancy for primary operating equipment, including pumps, level sensors, filters and UV sterilizers. The design capacity of the system will be 150 gpm, which is projected to serve peak laboratory use. Seawater collected in the influent tank will be pumped through one of two parallel 21  $\mu\text{m}$  rotating drum screens and then to one of two parallel UV reactors capable of providing 200,000  $\mu\text{W}\cdot\text{s}/\text{cm}^2$  at peak flow before discharge. Drum screen backwash will be collected for sanitary discharge as allowable or hauled for disposal. The system will include alarms and remote telemetry to alert operators of status changes, as well as provisions for automated switching between units and recycling to ensure consistent effluent quality. The greenhouse renovations will include installation of opaque roofing, rearrangement of existing tanks, and new seawater and air lines with drains plumbed to the UV and filtration system.

### **III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in this Order are based on the requirements and authorities described in this section.

#### **A. Legal Authorities**

This Order is issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. Environmental Protection Agency (USEPA) and chapter 5.5, division 7 of the California Water Code (commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

#### **B. California Environmental Quality Act (CEQA)**

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100 through 21177. Before the Regional Water Board could consider adoption of this NPDES permit, however, the Permittee was required to seek an exception to the California Ocean Plan to allow discharges to the Bodega ASBS. On September 18, 2007, with Resolution No. 2007-0058, the State Water Board approved an exception to the California Ocean Plan for the Facility, a decision that was subject to the requirements of CEQA. The State Water Board, as the lead agency for the CEQA analysis, prepared and circulated an IS/MND for the proposed exception; held a public hearing on June 30, 2007 to hear comments regarding the

exception and the IS/MND; and formally responded to comments. Based on the entire record, including the IS/MND, comments received, and the response to comments, the State Water Board concluded that there was no substantial evidence that approval of such an exception would have a significant effect on the environment, so long as the Permittee applied for coverage under the NPDES permit program and that specific terms and conditions were incorporated into the Facility's NPDES permit. Resolution No. 2007-0058, therefore, approved an exception to the California Ocean Plan, approved a MND, and required that certain specific terms and conditions be included into the NPDES permit to ensure on-going protection of the Bodega ASBS. These actions satisfy CEQA requirements for Discharge Point 001.

The issuance of WDRs for the discharge of once-through freshwater at Discharge Point 002 is not covered by an exemption from the provisions of CEQA under Water Code section 13389. Nonetheless, the WDRs for Discharge Point 002 are exempt from CEQA under California Code of Regulations section 15301, which exempts from the requirements of CEQA the permitting of an existing facility where there is negligible expansion of use.

### **C. State and Federal Regulations, Policies, and Plans**

- 1. Water Quality Control Plans.** The Regional Water Board adopted a *Water Quality Control Plan for the North Coast Region* (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which establishes State policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. With high concentrations of total dissolved solids, ocean waters meet an exception to State Water Board Resolution No. 88-63; and therefore, the MUN designation is not applicable to the ocean receiving water for this Permittee. The Basin Plan, at page 2-18.00, establishes beneficial uses for groundwater as municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, and freshwater supply. Thus, beneficial uses applicable to the Pacific Ocean, area groundwater, and the freshwater marsh are summarized in Table F-4, below:

**Table F-4. Basin Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s)  |
|-----------------|----------------------|--|
| 001 and 016     | Pacific Ocean        | <p><u>Existing:</u><br/>                     Navigation (NAV);<br/>                     Water contact recreation (REC-1);<br/>                     Non-contact water recreation (REC-2);<br/>                     Commercial and sport fishing (COMM);<br/>                     Wildlife habitat (WILD);<br/>                     Rare, threatened, or endangered species (RARE);<br/>                     Marine habitat (MAR);<br/>                     Migration of aquatic organisms (MIGR);<br/>                     Spawning, reproduction, and/or early development (SPAWN);<br/>                     Shellfish harvesting (SHELL);<br/>                     Aquaculture (AQUA); and<br/>                     Preservation of Areas of Special Biological Significance (ASBS).</p> <p><u>Potential:</u><br/>                     Industrial water supply (IND); and<br/>                     Industrial process supply (PRO).</p> |
| 002             | Groundwater          | <p><u>Existing:</u><br/>                     Municipal and domestic supply (MUN);<br/>                     Agricultural supply (AGR);<br/>                     Industrial service supply (IND); and<br/>                     Native American Culture (CUL).</p> <p><u>Potential:</u><br/>                     Industrial process supply (PRO)<br/>                     Aquaculture</p>   |

| Discharge Point | Receiving Water Name | Beneficial Use(s)  |
|-----------------|----------------------|--|
| 003 and 004     | Freshwater marsh     | <p><u>Existing:</u><br/>Wetland habitat (WET).</p> <p><u>Potential:</u><br/>Municipal and domestic supply (MUN);<br/>Agricultural supply (AGR);<br/>Industrial service supply (IND);<br/>Groundwater recharge (GWR);<br/>Freshwater replenishment (FRSH);<br/>Navigation (NAV);<br/>Water contact recreation (REC-1);<br/>Non-contact water recreation (REC-2);<br/>Commercial and sport fishing (COMM);<br/>Warm freshwater habitat (WARM);<br/>Cold freshwater habitat (COLD);<br/>Wildlife habitat (WILD);<br/>Rare, threatened, or endangered species (RARE);<br/>Migration of aquatic organisms (MIGR);<br/>Spawning, reproduction, and/or early development (SPWN);<br/>Shellfish harvesting (SHELL);<br/>Estuarine habitat (EST);<br/>Aquaculture (AQUA);<br/>Native American culture (CUL);<br/>Flood peak attenuation/flood water storage (FLD); and<br/>Water quality enhancement (WQE).</p> |

Requirements of this Order implement the Basin Plan.

- 2. Thermal Plan.** The State Water Board adopted a *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Water and Enclosed Bays and Estuaries of California* (Thermal Plan) on May 18, 1972, and amended this plan on September 18, 1975. The Permittee does not discharge thermal waste; therefore, the Order does not include effluent limitations for temperature in response to the requirements of the Thermal Plan.
- 3. California Ocean Plan.** The State Water Board adopted the *Water Quality Control Plan for Ocean Waters of California, California Ocean Plan* (Ocean Plan) in 1972 and amended it in 1978, 1983, 1988, 1990, 1997, 2000, 2005, and 2009. The State Water Board adopted the latest amendment on September 15, 2009 and it became effective on March 10, 2010. The Ocean Plan is applicable, in its entirety, to point source discharges to the Pacific Ocean. In order to protect the beneficial uses, the Ocean Plan establishes water quality objectives and a program for implementation. The Ocean Plan identifies the beneficial uses of ocean waters of the State to be protected as summarized below:

**Table F-5. Ocean Plan Beneficial Uses**

| Discharge Point | Receiving Water Name | Beneficial Use(s)   |
|-----------------|----------------------|---|
| 001             | Pacific Ocean        | <p><u>Existing:</u><br/>                     Industrial water supply;<br/>                     Water contact and non-contact recreation, including aesthetic enjoyment;<br/>                     Navigation;<br/>                     Commercial and sport fishing;<br/>                     Mariculture;<br/>                     Preservation and enhancement of designated Areas of Special Biological Significance (ASBS);<br/>                     Rare and endangered species;<br/>                     Marine habitat;<br/>                     Fish migration;<br/>                     Fish spawning; and<br/>                     Shellfish harvesting.</p> |

Requirements of this Order implement the Ocean Plan.

- 4. Compliance Schedules and Interim Requirements.** The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*, which includes compliance schedule policies for pollutants that are not addressed by the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). This Policy became effective on August 27, 2008.

This Order does not include a compliance schedules or interim effluent limitations.

- 5. Alaska Rule.** On March 30, 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards (WQS) become effective for CWA purposes (40 CFR § 131.21, 65 Fed. Reg. 24641 (April 27, 2000)). Under the revised regulation (also known as the Alaska Rule), new and revised standards submitted to USEPA after May 30, 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by May 30, 2000, may be used for CWA purposes, whether or not approved by USEPA.
- 6. Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California’s antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board’s Basin Plan

implements, and incorporates by reference, both the State and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16. As discussed in detail in section IV.D.2 of this Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

- 7. Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 CFR 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed.
- 8. Endangered Species Act.** This Order does not authorize an act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the State. The Permittee is responsible for meeting all requirements of the applicable Endangered Species Act.

#### **D. Impaired Water Bodies on CWA 303(d) List**

Section 303(d) of the federal CWA requires states to identify waterbodies that do not meet water quality standards and are not supporting their beneficial uses after implementation of technology-based effluent limitations on point sources. Each state must submit an updated list, the 303(d) List of Impaired Waterbodies, to USEPA by April of each even numbered year. In addition to identifying the waterbodies that are not supporting beneficial uses, the 303(d) list also identifies the pollutant or stressor causing impairment and establishes a schedule for developing a control plan to address the impairment. The CWA requires development of a total maximum daily load (TMDL) for each 303(d) listed pollutant and water body contaminant. TMDLs establish the maximum quantity of a given pollutant that can be added to a water body from all sources without exceeding the applicable water quality standard for that pollutant and determine wasteload allocations (the portion of a TMDL allocated to existing and future point sources) and load allocations (the portion of a TMDL attributed to existing and future nonpoint sources).

On October 11, 2011, the USEPA provided final approval of the 2008-2010 303(d) list of impaired water bodies prepared by the State. The coastal waters which are the receiving waters for this Facility are not listed on the 303(d) list as being impaired; however, there are several sections of the Pacific Ocean which are on the 303(d) list. The nearest 303(d) listed waters are 810 acres of Bodega Harbor, which are listed as impaired by invasive

species. It is not anticipated that the discharge will affect the 303(d) listed waters of Bodega Harbor because the discharge of exotic species is prohibited by Discharge Prohibition III.D of this Order.

#### **E. Other Plans, Policies and Regulations**

1. On September 18, 2007, with Resolution No. 2007-0058, the State Water Board approved an exception to the California Ocean Plan's prohibition regarding discharges to ASBS, thereby allowing continued discharges from the Facility to the Bodega ASBS. In its CEQA analysis, the State Water Board concluded that there was no substantial evidence that approval of such an exception would have a significant effect on the environment, so long as specific terms and conditions were incorporated into the Facility's NPDES permit. Resolution No. 2007-0058, therefore, included several specific terms and conditions that have been incorporated into this Order (refer to Table F-2, in Section II.B.3 of this Fact Sheet).
2. Prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a decrease of flow in any portion of a watercourse, the Permittee must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).

#### **IV. 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. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include water quality-based effluent limitations (WQBELs) to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where a reasonable potential to exceed those criteria exist.

##### **A. Discharge Prohibitions**

1. **Discharge Prohibition III.A.** The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.

Because limitations and other requirements of the Order have been established based on the current understanding of Facility operations by Regional Water Board staff, as provided by the Permittee, discharges not addressed by the Order have not been properly considered by the Regional Water Board and are viewed as unauthorized discharges.

- 2. Discharge Prohibition III.B.** Creation of pollution, contamination, or nuisance, as defined by section 13050 of the California Water Code (Water Code) is prohibited.

This prohibition is based on section 13050 of the Water Code and section 5411 of the California Health and Safety Code. It is a standard condition/prohibition included in NPDES permits and waste discharge requirements adopted by the Regional Water Board.

- 3. Discharge Prohibition III.C.** The discharge of waste at any point not described in Finding II.B of the Fact Sheet or authorized by a permit issued by the State Water Board or another Regional Water Board is prohibited.

This prohibition is a general prohibition that allows the Permittee to discharge waste only in accordance with WDRs. It is based on sections 301 and 402 of the federal CWA and section 13263 of the Water Code.

- 4. Discharge Prohibition III.D.** The discharge of exotic organisms (non-endemic, non-naturalized plants, animals and microorganisms, including gametes, spores, larvae, and parts of such organisms) is prohibited.

This prohibition reflects the North Coast Water Board's concern regarding the introduction of non-native and/or exotic species and/or fish pathogens to the Bodega ASBS. This prohibition is particularly important in light of the fact that Bodega Harbor is 303(d) listed as impaired by invasive species.

- 5. Discharge Prohibition III.E.** The discharge of waste to land that is not under the control of the Permittee is prohibited, except as authorized under Section VI.C.7.d (Solids Disposal).

This prohibition is retained from Order No. R1-2008-0002. Land used for the application of wastewater must be owned by the Permittee or be under the control of the Permittee by contract so that the Permittee maintains a means for ultimate disposal of treated wastewater.

- 6. Discharge Prohibition III.F.** The discharge of waste resulting from cleaning activities is prohibited.

This prohibition is retained from Order No. R1-2008-0002. This prohibition is contained in the Basin Plan *Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations*.

- 7. Discharge Prohibition III.G.** The discharge of waste containing detectable levels of chemicals used for the treatment and control of disease, other than salt (NaCl), is prohibited.

This prohibition is retained from Order No. R1-2008-0002 and reflects the importance of protecting the Bodega ASBS. This prohibition is contained in the Basin Plan *Policy on the Regulation of Fish Hatcheries, Fish Rearing Facilities, and Aquaculture Operations*. This prohibition is also consistent with Provision 2.b of State Water Board Resolution No. 2007-0058, which requires that chemical additives including, but not limited to, antibiotics, shall not be discharged in the seawater system effluent and that the Permittee must minimize its discharge of halomethanes and chlorine residual.

- 8. Discharge Prohibition III.H.** The discharge of constituents to the Ocean at levels exceeding the water quality objectives established by Table B of the Ocean Plan (2009) is prohibited.

This prohibition is contained in State Water Board Resolution No. 2007-0058, which required inclusion of this specific prohibition in the discharge permit for discharges to the Bodega ASBS.

- 9. Discharge Prohibition III.I.** The discharge rate from the seawater system shall not exceed 1.0 mgd.

State Water Board Resolution No. 2007-0058 approved an exception to the Ocean Plan's prohibition against discharges to the Bodega ASBS from the Facility. This flow prohibition is established based on the maximum flow estimate provided by the Permittee in the October 22, 2012 ROWD.

- 10. Discharge Prohibition III.J.** Discharges of non-storm water facility runoff to the ocean (i.e., any discharge of runoff from the facility that reaches the ocean and that is not composed entirely of storm water), except those associated with the waste seawater system and emergency firefighting, are prohibited.

This prohibition is contained in State Water Board Resolution No. 2007-0058, which required inclusion of this specific prohibition in the discharge permit for discharges to the Bodega ASBS.

- 11. Discharge Prohibition III.K.** The discharge of any radiological or biological warfare agent into waters of the state is prohibited under Water Code section 13375.

This prohibition is established by this Order and is based on the discharge prohibitions contained in section III.I. of the Ocean Plan.

## **B. Technology-Based Effluent Limitations**

### **1. Scope and Authority**

Section 301(b) of the CWA and implementing USEPA permit regulations at section 40 CFR 122.44, require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Best Professional Judgment (BPJ) in accordance with 40 CFR section 125.3.

The CWA requires that technology-based effluent limitations be established based on several levels of controls:

- a.** Best practicable treatment control technology (BPT) represents the average of the best existing performance by well-operated facilities within an industrial category or subcategory. BPT standards apply to toxic, conventional, and non-conventional pollutants.
- b.** Best available technology economically achievable (BAT) represents the best existing performance of treatment technologies that are economically achievable within an industrial point source category. BAT standards apply to toxic and non-conventional pollutants.
- c.** Best conventional pollutant control technology (BCT) represents the control from existing industrial point sources of conventional pollutants including biochemical oxygen demand (BOD), TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering a two-part reasonableness test. The first test compares the relationship between the costs of attaining a reduction in effluent discharge and the resulting benefits. The second test examines the cost and level of reduction of pollutants from the discharge from publicly owned treatment works to the cost and level of reduction of such pollutants from a class or category of industrial sources. Effluent limitations must be reasonable under both tests.
- d.** New source performance standards (NSPS) represent the best available demonstrated control technology standards. The intent of NSPS guidelines is to set limitations that represent state-of-the-art treatment technology for new sources.

The CWA requires USEPA to develop effluent limitations, guidelines (ELGs) and standards representing application of BPT, BAT, BCT, and NSPS. Section 402(a)(1) of the CWA and 40 CFR section 125.3 authorize the use of BPJ to derive technology-based effluent limitations on a case-by-case basis where ELGs are not available for

certain industrial categories and/or pollutants of concern. Where BPJ is used, the Regional Water Board must consider specific factors outlined in 40 CFR section 125.3.

## 2. Applicable Technology-Based Effluent Limitations

Table A of the Ocean Plan specifies effluent limitations that apply only to publicly owned treatment works and industrial discharges for which ELGs have not been established pursuant to Sections 301, 302, 304, or 306 of the Federal CWA. Compliance with Table A effluent limitations, or EPA ELGs for industrial discharges, based on BCT, shall be the minimum level of treatment acceptable under the Ocean Plan, and shall define reasonable treatment and waste control technology. The Facility is not subject to ELGs at this time. Therefore, technology-based limitations contained in Table A of the Ocean Plan are applicable to the Permittee.

The terms contained in Resolution No. 2007-0058 require that the *“natural water quality conditions in the receiving water, seaward of the surf zone, must not be altered as a result of the discharge.”* Therefore, the Permittee must not add pollutants beyond what is present in the receiving water at the discharge site. Since elevated TSS and settleable solids are common in filter backwash, this Order limits effluent TSS and settleable solids concentrations to the concentrations in the influent water at the time of discharge. Procedures for determining compliance with this limitation are described in the Order section VII.I. In any event, effluent TSS and settleable solids concentrations must not exceed Ocean Plan Table A limitations. Requirements for TSS, settleable solids, and pH reflect a reasonable level of pollutant control for facilities that hold and grow aquatic organisms.

**Table F-6. Summary of Technology-Based Effluent Limitations**

| Parameter  | Units   | Effluent Limitations                |                                   |               |                        |
|--|---------|-------------------------------------|-----------------------------------|---------------|------------------------|
|  |         | Average Monthly<br>(30-day Average) | Average Weekly<br>(7-day Average) | Maximum Daily | Instantaneous Maximum  |
| Total Suspended Solids   | mg/L    | 1                                   | 1                                 | 1             | 60                     |
| Settleable Solids  | ml/L-hr | 1.0 <sup>1</sup>                    | 1.5 <sup>1</sup>                  | 1             | 3.0                    |
| pH   | s.u.    | --                                  | --                                | --            | 6.0 – 9.0 <sup>2</sup> |
| <p><b>Table Notes:</b></p> <p>1. The discharge shall not contain concentrations of solids higher than those found in the influent at Monitoring Location INF-001 and shall not cause nuisance or adversely affect beneficial uses. In no case shall effluent concentrations exceed the Table A Ocean Plan objectives.</p> <p>2. The discharge pH shall be within a limit of 6.0 to 9.0 at all times.</p> |         |                                     |                                   |               |                        |

## C. Water Quality-Based Effluent Limitations (WQBELs)

### 1. Scope and Authority

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards.

40 CFR 122.44(d)(1)(i) requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA 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, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Ocean Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

### 2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

- a. **Beneficial Uses.** Beneficial use designations for receiving waters for discharges from the Facility are presented in section III.C.1 of this Fact Sheet.
- b. **Ocean Plan Water Quality Objectives.** Water quality criteria applicable to ocean waters of the Region are established by the Ocean Plan, which includes general provisions and water quality objectives for bacterial characteristics, physical characteristics, chemical characteristics, biological characteristics, and radioactivity. These water quality objectives from the Ocean Plan are incorporated as receiving water limitations into the Order. Table B of the Ocean Plan contains numeric water quality objectives for 83 toxic pollutants for the protection of marine aquatic life and human health. Pursuant to NPDES regulations at 40 CFR 122.44(d)(1), and in accordance with procedures established by the Ocean Plan, the Regional Water Board has performed an Ocean Plan RPA to determine the need for effluent limitations for the Table B toxic pollutants.

Attachment F-1 includes a summary of Reasonable Potential Analysis (RPA) results for all priority toxic pollutants with water quality criteria/objectives that are applicable to the Pacific Ocean.

### 3. 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.

- a. Ocean Plan Reasonable Potential Analysis RPA.** Procedures for performing a RPA for ocean dischargers are described in Section III. C. and Appendix VI of the Ocean Plan. In general, the procedure is a statistical method that projects an effluent data set while taking into account the averaging period of water quality objectives, the long term variability of pollutants in the effluent, limitations associated with sparse data sets, and uncertainty associated with censored data sets. The procedure assumes a lognormal distribution of the effluent data set, and compares the 95th percentile concentration at 95 percent confidence of each Table B pollutant, accounting for dilution, to the applicable water quality criterion. The RPA results in one of three following endpoints.

Endpoint 1 – There is “reasonable potential,” and a WQBEL and monitoring are required.

Endpoint 2 – There is “no reasonable potential.” WQBELs are not required, and monitoring is required at the discretion of the North Coast Regional Water Board.

Endpoint 3 – The Ocean Plan RPA is inconclusive. Existing WQBELs are retained, and monitoring is required.

The State Water Resources Control Board has developed a reasonable potential calculator, which is available at <http://www.waterboards.ca.gov/plnspols/docs/oplans/rpcalc.zip>. The calculator (RPcalc 2.0) was used in conducting the RPA and considers several pathways in the determination of reasonable potential.

**i. First Path**

If available information about the receiving water or the discharge supports a finding of reasonable potential without analysis of effluent data, the Regional Water Board may decide that WQBELs are necessary after a review of such information. Such information may include: the facility or discharge

type, solids loading, lack of dilution, history of compliance problems, potential toxic effects, fish tissue data, 303 (d) status of the receiving water, or the presence of threatened or endangered species or their critical habitat, or other information.

**ii. Second Path**

If any pollutant concentration, adjusted to account for dilution, is greater than the most stringent applicable water quality objective, there is reasonable potential for that pollutant.

**iii. Third Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), and all values in the data set are at or above the ML, a parametric RPA is conducted to project the range of possible effluent values. The 95th percentile concentration is determined at 95 percent confidence for each pollutant, and compared to the most stringent applicable water quality objective to determine reasonable potential. A parametric analysis assumes that the range of possible effluent values is distributed log normally. If the 95th percentile value is greater than the most stringent applicable water quality objective, there is reasonable potential for that pollutant.

**iv. Fourth Path**

If the effluent data contains three or more detected and quantified values (i.e., values that are at or above the ML), but at least one value in the data set is less than the ML, a parametric RPA is conducted according to the following steps.

- (a)** If the number of censored values (those expressed as a “less than” value) account for less than 80 percent of the total number of effluent values, calculate the ML (the mean of the natural log of transformed data) and SL (the standard deviation of the natural log of transformed data) and conduct a parametric RPA, as described above for the Third Path.
- (b)** If the number of censored values account for 80 percent or more of the total number of effluent values, conduct a non-parametric RPA, as described below for the Fifth Path. (A non-parametric analysis becomes necessary when the effluent data is limited, and no assumptions can be made regarding its possible distribution.)

**v. Fifth Path**

A non-parametric RPA is conducted when the effluent data set contains less than 3 detected and quantified values, or when the effluent data set contains 3 or more detected and quantified values but the number of censored values accounts for 80 percent or more of the total number of effluent values. A non-parametric analysis is conducted by ordering the data, comparing each result to the applicable water quality objective, and accounting for ties. The sample number is reduced by one for each tie, when the dilution adjusted method detection limit (MDL) is greater than the water quality objective. If the adjusted sample number, after accounting for ties, is greater than 15, the pollutant has no reasonable potential to exceed the water quality objective. If the sample number is 15 or less, the RPA is inconclusive, monitoring is required, and any existing effluent limitations in the expiring permit are retained.

**b. Reasonable Potential Determination**

The RPA for the waste seawater effluent was conducted using effluent monitoring data generated from two monitoring events in September 2008 and March 2009 for all Ocean Plan Table B parameters and from routine monitoring events for acute and chronic toxicity, ammonia, bis (2-ethylhexyl) phthalate, halomethanes, polynuclear aromatic hydrocarbons (PAHs), and the Table B metals as required by the Monitoring and Reporting Program for Order R1-2008-0002. Results from the RPA have been used to determine the need for effluent limitations for Table B parameters given in the Ocean Plan. No credit for dilution was allowed in conducting the RPA.

The table below identifies the RPA endpoint for each Table B parameter, and shows the analysis reaches an Endpoint 3 for most of the parameters analyzed. An Endpoint 3 RPA is inconclusive and results when a majority of the effluent data is reported as ND (not detected). In these circumstances, the Regional Water Board views the "inconclusive" result as an indication of no concern for a particular pollutant; however, additional monitoring will be required for those parameters during the term of the permit.

The RPAs conducted for the Facility demonstrated reasonable potential (Endpoint 1) for discharges from the Facility to cause or contribute to exceedances of applicable water quality criteria for chromium VI, copper, lead, nickel, silver, zinc, and bis (2-ethylhexyl) phthalate.

The following tables summarize the RPAs for each priority pollutant that was reported in detectable concentrations in the effluent or the receiving water (detected values are indicated in bold type). The MECs, most stringent water

quality objectives (WQO), and background concentrations (B) used in the RPA are presented, along with the RPA results for each toxic pollutant analyzed. No other pollutants with applicable numeric water quality criteria from the Ocean Plan were measured above detectable concentrations or analyzed for during the monitoring events conducted by the Permittee.

The results of the RPAs indicate reasonable potential for bis (2-ethylhexyl) phthalate, chromium VI, copper, lead, nickel, silver, and zinc, for the waste seawater discharged through Discharge Point 001. Attachment F-1 to this Order summarizes the RPAs for all constituents.

**Table F-7. Summary of Reasonable Potential Analysis Results – Seawater Effluent**

| Table B Pollutant                                       | Most Stringent WQO (µg/L) | No. of Samples | No. of Non-Detects | Max Effluent Conc. (µg/L) <sup>1</sup> | Upper 95 <sup>th</sup> Percentile Confidence Bound (µg/L) <sup>2</sup> | RPA Results, Comment  |
|---|---------------------------|----------------|--------------------|--|--|---|
| <b>Objectives for Protection of Marine Aquatic Life</b> |                           |                |                    |  |  |   |
| Ammonia (as N)  | 600                       | 51             | 51                 | <0.2                                   | N/A  | Endpoint 2- An effluent limitation is not required for this pollutant. Monitoring may be required as appropriate. |
| Arsenic   | 8.0                       | 5              | 0                  | 1.64                                   | 2.8756   | Endpoint 2- An effluent limitation is not required for this pollutant. Monitoring may be required as appropriate. |
| Cadmium   | 1.0                       | 12             | 0                  | 0.13                                   | 0.1876   | Endpoint 2- An effluent limitation is not required for this pollutant. Monitoring may be required as appropriate. |
| Total Residual Chlorine                                 | 2.0                       | 7              | NR <sup>3</sup>    | 199,000                                | N/A  | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |

| Table B Pollutant | Most Stringent WQO (µg/L) | No. of Samples | No. of Non-Detects | Max Effluent Conc. (µg/L) <sup>1</sup> | Upper 95 <sup>th</sup> Percentile Confidence Bound (µg/L) <sup>2</sup> | RPA Results, Comment  |
|-------------------|---------------------------|----------------|--------------------|--|--|---|
| Chromium VI       | 2.0                       | 5              | 0                  | 4.98 <sup>4</sup>                      | 165.0858   | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| Chronic Toxicity  | 1 TUc                     | 16             | 16                 | <1.0 TUc                               | 1.0099   | Endpoint 2- An effluent limitation is not required for this pollutant. Monitoring may be required as appropriate. |
| Copper            | 3.0                       | 12             | 0                  | 2.72                                   | 5.1070   | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| Lead              | 2.0                       | 5              | 1                  | 1.5                                    | 31.0674  | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| Mercury           | 0.04                      | 5              | 5                  | <0.010                                 | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |
| Nickel            | 5.0                       | 5              | 0                  | 2.897                                  | 30.4611  | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| Selenium          | 15                        | 5              | 5                  | <0.096                                 | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |

| Table B Pollutant  | Most Stringent WQO (µg/L) | No. of Samples | No. of Non-Detects | Max Effluent Conc. (µg/L) <sup>1</sup> | Upper 95 <sup>th</sup> Percentile Confidence Bound (µg/L) <sup>2</sup> | RPA Results, Comment  |
|--|---------------------------|----------------|--------------------|--|--|---|
| Silver   | 0.7                       | 12             | 10                 | 0.69                                   | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |
| Zinc   | 20                        | 5              | 1                  | 4.4                                    | 39.4534  | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| <b>Objectives for Protection of Human Health – Non-Carcinogens</b> |                           |                |                    |  |  |   |
| Antimony   | 1,200                     | 3              | 0                  | 0.20                                   | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |
| <b>Objectives for Protection of Human Health – Carcinogens</b>     |                           |                |                    |  |  |   |
| Bis (2-ethylhexyl) Phthalate                                       | 3.5                       | 5              | 2                  | 1.451                                  | 24.5616  | Endpoint 1- An effluent limitation must be developed for this pollutant. Monitoring is required.                  |
| Halomethanes   | 130                       | 51             | 2                  | 3.1                                    | 3.0804   | Endpoint 2- An effluent limitation is not required for this pollutant. Monitoring may be required as appropriate. |
| PAHs   | 0.0088                    | 5              | 5                  | <0.020                                 | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |
| TCDD Equivalents   | 3.9 x 10 <sup>-9</sup>    | 2              | 2                  | <4.46 x 10 <sup>-7</sup>               | N/A  | Endpoint 3- RPA is inconclusive. Less than 3 detects or greater than 80% ND.                                      |

| Table B Pollutant   | Most Stringent WQO (µg/L) | No. of Samples | No. of Non-Detects | Max Effluent Conc. (µg/L) <sup>1</sup> | Upper 95 <sup>th</sup> Percentile Confidence Bound (µg/L) <sup>2</sup> | RPA Results, Comment |
|---|---------------------------|----------------|--------------------|--|--|----------------------|
| <b>Table Notes:</b>   |                           |                |                    |  |  |                      |
| 1. Minimum Probable Dilution for this discharge is 0.<br>The Maximum Effluent Concentration is the expected concentration after complete mixing, in accordance with reasonable potential procedure in Appendix VI of the Ocean Plan.  |                           |                |                    |  |  |                      |
| 2. Upper 95 <sup>th</sup> Percentile Confidence Bound (UCB) is the estimated maximum concentration of the expected lognormal distribution of effluent concentrations, as calculated using RPCalc at the 95 percent confidence level. The UCB cannot be calculated with confidence when the number of censored values account for more than 80 percent of the total number of effluent values, in which case the UCB is reported here as Not Applicable (N/A). |                           |                |                    |  |  |                      |
| 3. Because of continuous monitoring, only detectable total residual chlorine concentrations are evaluated for reasonable potential. For total residual chlorine, reasonable potential was triggered by effluent concentrations that are higher than the Ocean Plan Objective.   |                           |                |                    |  |  |                      |
| 4. Represents monitoring data for total chromium.   |                           |                |                    |  |  |                      |

#### 4. WQBEL Calculations

Based on results of the RPA, performed in accordance with methods of the Ocean Plan for discharges to the Pacific Ocean, the Regional Water Board is establishing WQBELs for bis (2-ethylhexyl) phthalate, chromium VI, copper, lead, nickel, silver, and zinc at Discharge Point No. 001. Effluent limitations for total residual chlorine are established as “not detected” based on continuous monitoring and monthly bench top analyses. These requirements are determined to be protective of the Ocean Plan objective for total residual chlorine.

As described by Section III. C of the Ocean Plan, effluent limits for Table B pollutants are calculated according to the following equation.

$$C_e = C_o + D_m (C_o - C_s)$$

Where ...

$C_e$  = the effluent limitation (µg/L)

$C_o$  = the concentration (the water quality objective) to be met at the completion of initial dilution (µg/L).

$C_s$  = background seawater concentration (µg/L)

$D_m$  = minimum probable initial dilution expressed as parts seawater per part wastewater (here,  $D_m = 0$ )

For the Facility, the  $D_m$  is set equal to zero as the Permittee has not initiated a dilution study. Initial dilution is the process that results in the rapid and irreversible turbulent mixing of wastewater with ocean water around the point of discharge. In accordance with Table B implementing procedures,  $C_s$  equals zero for all parameters, except the following:

**Table F-8. Background Concentrations – Ocean Plan**

| Pollutant | Background Seawater Concentration (µg/L) |
|-----------|--|
| Arsenic   | 3  |
| Copper    | 2  |
| Mercury   | 0.0005                                   |
| Silver    | 0.16                                     |
| Zinc      | 8  |

Applicable water quality objectives from Table B of the Ocean Plan are as follows.

**Table F-9. Water Quality Objectives – Ocean Plan**

| Pollutant                    | Units | 6-Month Median | Daily Maximum | Instantaneous Maximum | 30-Day Average |
|------------------------------|-------|----------------|---------------|-----------------------|----------------|
| Bis (2-Ethylhexyl) Phthalate | µg/L  | --             | --            | --                    | 3.5            |
| Chromium VI                  | µg/L  | 2              | 8             | 20                    | --             |
| Copper                       | µg/L  | 3              | 12            | 30                    | --             |
| Lead                         | µg/L  | 2              | 8             | 20                    | ---            |
| Nickel                       | µg/L  | 5              | 20            | 50                    | --             |
| Silver                       | µg/L  | 0.7            | 2.8           | 7                     | --             |
| Zinc                         | µg/L  | 20             | 80            | 200                   | --             |
| Acute Toxicity               | TUa   | --             | 0.3           | --                    | --             |
| Chronic Toxicity             | TUc   | --             | 1             | --                    | --             |

Using the equation,  $C_e = C_o + D_m (C_o - C_s)$ , effluent limitations are calculated as follows. Here,  $D_m$  is equal to 0 for each effluent limitation calculation.

Chromium VI

$$C_e = 2 + 0 (2 - 0) = 2 \text{ µg/L (6-Month Median)}$$

$$C_e = 8 + 0 (8 - 0) = 8 \text{ µg/L (Daily Maximum)}$$

$$C_e = 20 + 0 (20 - 0) = 20 \text{ µg/L (Instantaneous Maximum)}$$

Copper

$$C_e = 3 + 0 (3 - 2) = 3 \text{ µg/L (6-Month Median)}$$

$$C_e = 12 + 0 (12 - 2) = 12 \mu\text{g/L (Daily Maximum)}$$

$$C_e = 30 + 0 (30 - 2) = 30 \mu\text{g/L (Instantaneous Maximum)}$$

#### Lead

$$C_e = 2 + 0 (2 - 0) = 2 \mu\text{g/L (6-Month Median)}$$

$$C_e = 8 + 0 (8 - 0) = 8 \mu\text{g/L (Daily Maximum)}$$

$$C_e = 20 + 0 (20 - 0) = 20 \mu\text{g/L (Instantaneous Maximum)}$$

#### Nickel

$$C_e = 5 + 0 (5 - 0) = 5 \mu\text{g/L (6-Month Median)}$$

$$C_e = 20 + 0 (20 - 0) = 20 \mu\text{g/L (Daily Maximum)}$$

$$C_e = 50 + 0 (50 - 0) = 50 \mu\text{g/L (Instantaneous Maximum)}$$

#### Silver

$$C_e = 0.7 + 0 (0.7 - 0) = 0.7 \mu\text{g/L (6-Month Median)}$$

$$C_e = 2.8 + 0 (2.8 - 0) = 2.8 \mu\text{g/L (Daily Maximum)}$$

$$C_e = 7 + 0 (7 - 0) = 7 \mu\text{g/L (Instantaneous Maximum)}$$

#### Zinc

$$C_e = 20 + 0 (20 - 0) = 20 \mu\text{g/L (6-Month Median)}$$

$$C_e = 80 + 0 (80 - 0) = 80 \mu\text{g/L (Daily Maximum)}$$

$$C_e = 200 + 0 (200 - 0) = 200 \mu\text{g/L (Instantaneous Maximum)}$$

#### Bis (2-Ethylhexyl) Phthalate

$$C_e = 3.5 + 0 (3.5 - 0) = 3.5 \mu\text{g/L (30-Day Average)}$$

### **5. Whole Effluent Toxicity (WET)]**

Monitoring triggers for chronic toxicity protect the receiving water from the aggregate effect of a mixture of pollutants that may be present in effluent. There are two types of WET tests – acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic test is conducted over a longer period of time and may measure mortality, reproduction, and/or growth. The Ocean Plan contains numeric water quality objectives for acute and chronic toxicity established in Table B. All WET tests were conducted on 100% effluent samples. A review of WET data collected in the term of the existing Order follows:

- a. Seawater Effluent at EFF-001.** Based on review of the Permittee's seawater effluent testing results collected during the term of the previous Order it was undetermined whether the discharge had reasonable potential to exceed the Ocean Plan objectives for acute toxicity. Based on five acute toxicity tests conducted at Monitoring Location EFF-001 between 2008 and 2012, the minimum observed percent survival was 68%. This result was somewhat inconsistent with the corresponding chronic toxicity survival test result, which was an NOEC of >100% (1 TUc). Acute toxicity for the remaining sample dates varied from 80% survival (0.80 TUa) to 100% survival (<0.3 TUa); with corresponding chronic toxicity survival test NOECs of >100% (1 TUc). In addition, it is unclear if the results of the acute toxicity tests are statistically significant from the controls. Since the acute toxicity test results are inconsistent with the chronic toxicity results, reasonable potential cannot be determined for acute toxicity.

The Permittee conducted chronic toxicity tests using three species in September 2008 and March 2009. Subsequent chronic toxicity testing using a single species was performed in March 2010, March 2011, and March 2012. The seawater effluent did not exhibit chronic toxicity for any sample dates and did not demonstrate reasonable potential to exceed the Ocean Plan objective of 1.0 TUc.

- b. Storm Water Effluent at EFF-016.** The Permittee collected and analyzed four annual storm water samples for acute and chronic toxicity in 2009, 2010, 2011, and 2012. For acute toxicity results, the lowest percent survival observed was 68% (0.89 TUc) in March 2012. Laboratory analysts added salts to this storm water sample in order to obtain acceptable salinity. The salts were not added to the control, which consisted of filtered seawater from Anacapa Island. As a result, it is unclear whether the observed acute toxicity is attributable to the storm water or the added salts. The next lowest survival result was 92% survival (0.53 TUa) which occurred in March 2010 and March 2011.

Chronic toxicity tests conducted on storm water effluent consisted of three species in 2009 and topsmelt survival and growth tests in March of 2010, 2011, and 2012. The 2012 chronic survival test exhibited chronic toxicity with an NOEC of <100% (>1.0 TUc). Laboratory analysts added salts to this storm water sample in order to obtain acceptable salinity. The salts were not added to the control, which consisted of filtered seawater from Anacapa Island. As a result, it is unclear whether chronic toxicity observed in the March 2012 sample is attributable to the storm water or the added salts. No other sample results exhibited chronic toxicity.

- c. Reference Site Monitoring at REF-001.** Three-species chronic toxicity tests using giant kelp, sea urchin, and topsmelt were conducted on two reference site samples collected in October 2008 and March 2009. The 2009 results indicated chronic toxicity to sea urchin development. Chronic toxicity was also observed in

the March 2012 topsmelt survival test. Chronic toxicity was not observed in two tests conducted in March 2010 and March 2011 using topsmelt.

- d. Horseshoe Cover Receiving Water Monitoring at RSW-001.** The receiving water acute toxicity test percent survival endpoints, when translated to TUa, exceeded the Ocean Plan objective of 0.3 TUa; however, it is unclear if the results were significantly different from the controls. Four acute toxicity tests were conducted at Monitoring Location RSW-001 between 2009 and 2012. The results varied from 84% (0.71 TUa) to 96% (0.35 TUa).

The Permittee conducted chronic toxicity tests on receiving water samples using three species in March 2009 and a single species (topsmelt) in March 2010, 2011, and 2012. Chronic toxicity was not observed in any of these samples.

Based on WET monitoring results from effluent seawater and storm water, receiving water, and reference station locations, the seawater and storm water results do not appear to correlate to toxicity observed in the receiving water at Horseshoe Cove. No conclusions can be made as to whether seawater and storm water effluent results exhibit acute or chronic toxicity above what is observed in reference station samples. In addition, due to inconsistency of acute and corresponding chronic test results, reasonable potential cannot be determined for acute toxicity in the seawater effluent at Discharge Point 001. Test results indicate no reasonable potential for chronic toxicity at Discharge Point 001. As the permit addresses the control of pollutants in the storm water through BMPs, no limits for acute or chronic toxicity are included for Discharge Point 016 at this time.

This Order does not contain WET limitations; however, in accordance with the terms provided in State Water Board Resolution No. 2007-0058 and the Ocean Plan (section III.C, Implementation Provisions for Table B), this Order establishes chronic monitoring requirements for the discharge of seawater effluent at Discharge Point 001, storm water effluent at Discharge Point 016, the receiving water at RSW-001 and the reference station at REF-001. If chronic toxicity results for effluent samples exceed the water quality objective or "trigger," the Permittee must initiate accelerated monitoring as specified in the Monitoring and Reporting Program (Attachment E, section V). After accelerated monitoring, if conditions of chronic toxicity are found to persist, the Permittee will be required to conduct a Toxicity Reduction Evaluation, as described by the MRP.

Notification requirements for chronic WET testing include a 72 hour verbal notification requirement and a 14 day written report requirement, if test results indicate toxicity. The 14 day written notification is established in the USEPA WET Guidance documents cited in the MRP. The 72 hour verbal notification requirement is being added to provide the Regional Water Board with knowledge of the toxicity in advance of the written report. The 72 hour requirement is intended to give the

Permittee sufficient time to make a telephone call to Regional Water Board staff and accounts for non-working days (e.g., weekends). Verbal notification of WET test exceedances may be left by voice mail if the Regional Water Board staff person is not immediately available by telephone.

## D. Final Effluent Limitations

### 1. Satisfaction of Anti-Backsliding Requirements

Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at title 40, Code of Federal Regulations section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. With the exception of cadmium limits at Discharge Point 001, all effluent limitations in this Order, are at least as stringent as the effluent limitations in the existing Order, R1-2008-0002.

- a. **CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R1-2008-0002 was issued indicates that cadmium does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water.

The existing Order contains effluent limitations for cadmium. The Permittee collected twelve samples for cadmium analysis between June 2008 and November 2012. The maximum effluent concentration was 0.13 µg/L, which is lower than the criterion of 1.0 µg/L. When RPA procedures from the Ocean Plan are applied to this data set, the result is Endpoint 2, which concludes that no effluent limitation is necessary. Therefore, cadmium in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the most stringent Ocean Plan objective for cadmium. In the same period, one sample collected at RSW-001 resulted in a cadmium concentration of 0.044 µg/L. On this sample date the cadmium concentrations in seawater effluent was 0.041 µg/L, indicating the receiving water was not impacted by effluent cadmium concentrations. The average concentrations of cadmium in reference station and effluent samples were 0.071 µg/L and 0.070 µg/L, respectively, indicating that the discharge is not altering natural water quality with respect to cadmium. Since

cadmium does not exhibit reasonable potential and evidence indicates there is no impact to the receiving water, effluent limitations for cadmium are not contained in this Order. This is consistent with the federal anti-backsliding regulations, because the new data represents new information that was not available at the time the previous Order was adopted.

## 2. Satisfaction of Antidegradation Policy

Provisions of the Order are consistent with applicable antidegradation policy expressed by State Water Board Resolution No. 68-16 and NPDES regulations at 40 CFR 131.12, which require that water quality be maintained and protected where high quality waters constitute an outstanding National resource, such as waters of National and State parks and wildlife refuges and waters of exceptional recreational or ecological significance. The Bodega State Marine Reserve, into which the Facility discharges waste seawater, filter backwash, and storm water, is identified in the Ocean Plan as an ASBS. In issuing Resolution No. 2007-0058 approving an exception to the Ocean Plan's prohibition against discharges to ASBSs, the State Water Board stated:

*"The North Coast Water Board is in support of the exception. If UCD/BML complies with the conditions in the exception, to be set forth in the NPDES permit, the discharges will not adversely impact biological communities in the ASBS nor will the discharges compromise protection of the ocean waters for beneficial uses..."*

*"The UCD/BML occupies a prominent role in marine science research and education, providing programs and facilities to UCD and non-UCD scientists and students and visitors from many other institutions. The UCD/BML research activities and teaching laboratory aquaria both depend on the use of the flow-through (open) seawater system. There are no reasonable alternatives to ocean disposal of waste seawater due to the remote location of the facility. If the exception is not granted, UCD/BML will be forced to shut down its open seawater system. The State Water Board therefore finds that the public interest will be served by granting this exception..."*

*"The waste seawater discharge from the BML has been permitted since 1975. The North Coast Water Board has stated that UCD/BML has maintained a record of good compliance. Since the Final Report on Discharges into State Water Quality Protection Areas was published in 2003, BML has implemented best management practices and engineering modifications to control storm water runoff. Furthermore, the MND and exception contain sufficient measures to maintain and protect water quality. The conditions require that natural water quality in the receiving water be maintained and require both receiving water and reference water monitoring to ensure that this condition is met. In addition, the seawater effluent discharge must meet the Ocean Plan Table B objectives at the end-of-pipe. The conditions prohibit non-storm water facility runoff except for flows associated with emergency fire*

*fighting. Further, the MND must develop a storm water management plan that is designed to ensure that natural water quality conditions are maintained in the receiving water; the plan must be approved by the North Coast Water Board; and the plan must be implemented within one year of the date of approval by the North Coast Water Board.*

*Recent actions by UCD/BML and the conditions specified in the MND and exception will improve water quality over previously permitted levels. Federal and state antidegradation policies have been considered. Granting the exception will not violate federal antidegradation requirements because water quality will not be lowered, but rather will be improved. Allowance of the exception will not violate the State Water Board's antidegradation policy (Resolution no. 68-16. Since water quality conditions will improve; the discharge will not unreasonably affect present and anticipated beneficial uses; the discharge will not result in water quality lower than that prescribed in the Ocean Plan; and the people of California will benefit from the research and education provided by UCD/BML while beneficial uses will still be protected."*

### **3. Stringency of Requirements for Individual Pollutants**

This Order contains technology-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on TSS, settleable solids, and pH. Restrictions on these pollutants are discussed in section IV.B in this Fact Sheet. This Order's technology-based pollutant restrictions implement section III.B, Table A, of the Ocean Plan.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. The scientific procedures for calculating the individual WQBELs are based on the Ocean Plan, which was approved by USEPA on October 8, 2010. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to May 30, 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality standards for purposes of the CWA" pursuant to 40 CFR 131.21(c)(1). The remaining water quality objectives and beneficial uses implemented by this Order (specifically the addition of the beneficial uses Water Quality Enhancement (WQE), Flood Peak Attenuation/Flood Water Storage (FLD), Wetland Habitat (WET), Native American Culture (CUL), and Subsistence Fishing (FISH)) and the General Objective regarding antidegradation) were approved by USEPA on, March 4, 2005, and are applicable water quality standards pursuant to

40 CFR 131.21(c)(2). Collectively, this Order’s restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

The Regional Water Board has considered the factors in Water Code section 13263, including the provisions of Water Code section 13241, in establishing these requirements.

Table F-10 summarizes all final effluent limitations included in the Order and the basis for their inclusion.

**Table F-10. Summary of Final Effluent Limitations – Discharge Point 001 (Monitoring Location EFF-001)**

| Parameter                                   | Units   | Effluent Limitations |                  |               |                         |                | Basis <sup>1</sup> |
|---|---------|----------------------|------------------|---------------|-------------------------|----------------|--------------------|
|   |         | Average Monthly      | Average Weekly   | Maximum Daily | Instantaneous Maximum   | 6-Month Median |                    |
| Total Suspended Solids                      | mg/L    | 2                    | 2                | 2             | 60                      | --             | BPJ, OP            |
| Settleable Solids                           | mL/L-hr | 1.0 <sup>2</sup>     | 1.5 <sup>2</sup> | 2             | 3.0                     | --             | BPJ, OP            |
| pH  | s.u.    | --                   | --               | --            | 6.0 – 9.0 <sup>3</sup>  | --             | OP                 |
| Bis (2-Ethylhexyl) Phthalate                | µg/L    | 3.5                  | --               | --            | --                      | --             | OP                 |
| Chromium VI, Total Recoverable <sup>4</sup> | µg/L    | --                   | --               | 8.0           | 20                      | 2.0            | OP                 |
| Copper, Total Recoverable                   | µg/L    | --                   | --               | 12            | 30                      | 3.0            | OP                 |
| Lead, Total Recoverable                     | µg/L    | --                   | --               | 8.0           | 20                      | 2.0            | OP                 |
| Nickel, Total Recoverable                   | µg/L    | --                   | --               | 20            | 50                      | 5.0            | OP                 |
| Silver, Total Recoverable                   | µg/L    | --                   | --               | 2.8           | 7.0                     | 0.70           | OP                 |
| Zinc, Total Recoverable                     | µg/L    | --                   | --               | 80            | 200                     | 20             | OP                 |
| Total Residual Chlorine                     | mg/L    | --                   | --               | --            | Non Detect <sup>5</sup> | --             | RES                |

| Parameter   | Units | Effluent Limitations |                |               |                       | Basis <sup>1</sup> |
|---|-------|----------------------|----------------|---------------|-----------------------|--------------------|
|   |       | Average Monthly      | Average Weekly | Maximum Daily | Instantaneous Maximum |                    |
| <b>Table Notes:</b>   |       |                      |                |               |                       |                    |
| 1. Definitions of acronyms in Table F-10:<br>OP Ocean Plan<br>BPJ Best Professional Judgment<br>RES State Water Board Resolution No. 2007-0058  |       |                      |                |               |                       |                    |
| 2. The discharge shall not contain concentrations of suspended or settleable solids higher than those found in the influent at Monitoring Location INF-001 and shall not cause nuisance or adversely affect beneficial uses. In no case shall effluent concentrations exceed the Table A Ocean Plan objectives. |       |                      |                |               |                       |                    |
| 3. Not less than 6.0 nor greater than 9.0 at any time.  |       |                      |                |               |                       |                    |
| 4. The Permittee may at their option meet this limitation as a total chromium limitation.   |       |                      |                |               |                       |                    |
| 5. As defined in the Monitoring and Reporting Program.  |       |                      |                |               |                       |                    |

**E. Interim Effluent Limitations**

This section is not applicable as interim effluent limitations have not been established for the Permittee.

**F. Land Discharge Specifications**

This Order contains WDRs for the discharge at Discharge Point 002 to the groundwater recharge area. Effluent limitations for TSS, settleable solids, and pH are retained from Order R1-2008-0002. The intent of the salinity limitation is to prevent degradation of groundwater quality with respect to background salinity concentrations in local groundwater and to serve as a check to ensure that brackish water present in the freshwater system during the smoltification period is not discharged. Accordingly, the salinity limitation at Discharge Point 002 is in effect only during months that smoltification is occurring in the Salmon Research Facility or during months when the Permittee is adjusting salinity in its freshwater system.

**Table F-11. Effluent Limitations – Discharge Point 002**

| Parameter                    | Units          | Effluent Limitations         |                            |
|------------------------------|----------------|------------------------------|----------------------------|
|                              |                | Average Monthly <sup>1</sup> | Maximum Daily <sup>1</sup> |
| Total Suspended Solids (TSS) | mg/L           | 8 <sup>2</sup>               | 15 <sup>2</sup>            |
| Settleable Solids            | ml/L           | 0.1 <sup>2</sup>             | 0.2 <sup>2</sup>           |
| pH                           | standard units | --                           | 6.5 – 8.5 <sup>3</sup>     |
| Salinity                     | mg/L           | --                           | <sup>2</sup>               |

| Parameter   | Units | Effluent Limitations         |                            |
|---|-------|------------------------------|----------------------------|
|   |       | Average Monthly <sup>1</sup> | Maximum Daily <sup>1</sup> |
| <p><b>Table Notes:</b></p> <ol style="list-style-type: none"> <li>See Attachment A for definitions.</li> <li>The discharge shall not contain concentrations higher than those found in the influent at Monitoring Location INF-002.</li> <li>Not less than 6.5 nor greater than 8.5.</li> </ol> |       |                              |                            |

Note that, throughout the Order, including the MRP and this Fact Sheet, requirements for discharges at Discharge Point 002 are described as “land discharge specifications” and not as “effluent limitations.” This distinction is drawn because requirements of the federal NPDES program apply only to discharges to surface waters, and therefore, do not apply to discharges at Discharge Point 002. Although the Regional Water Board views the requirements for Discharge Point 002 as WDRs which control a discharge to groundwater, within the State standardized permit template, these requirements are most appropriately expressed as land discharge specifications.

**G. Reclamation Specifications**

This section of the NPDES permit is not applicable to the Permittee.

**H. Other Requirements**

The Permittee is required to implement and maintain a Storm Water Management Plan (SWMP), which must include BMPs that eliminate or reduce the presence of pollutants in storm water runoff to the technology-based standard of Maximum Extent Practicable (MEP) to protect water quality. Requirements for the development of a SWMP are described in section VI.C.7.a of the Order.

**V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

**A. Surface Water**

CWA section 303(a-c) requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Water Board adopted water quality criteria as water quality objectives in the Ocean Plan. Relevant to Discharge Point 001 and 016, this Order includes receiving water limitations that reflect all applicable, general water quality objectives of the Ocean Plan and the terms and conditions required by State Water Board Resolution No. 2007-0058.

The Ocean Plan includes numeric and narrative water quality objectives for various beneficial uses. This Order contains receiving water limitations for discharges to the Pacific Ocean based on the Ocean Plan numerical and narrative water quality objectives for bacteria, dissolved oxygen, floating particulates, oil and grease, pH, discoloration,

natural lighting, deposition of solids, dissolved sulfides, organic materials in sediments, Table B parameters, nutrient materials, radioactive wastes, and biological characteristics.

The Regional Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional [Water] Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. Because Discharge Point 003 and 004 are to inland surface waters, this Order contains Receiving Surface Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, bacteria, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, and turbidity.

## **B. Groundwater**

Basin Plan water quality objectives for groundwater include narrative objectives for chemical constituents, tastes and odors, bacteria, and radioactivity. The groundwater limitations in this Order reflect the objectives established by the Basin Plan for the protection of the beneficial uses of the underlying groundwater.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Board to require technical and monitoring reports. The MRP establishes monitoring and reporting requirements to implement federal and state requirements. This MRP is provided in Attachment E of this permit. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

### **A. Influent Monitoring**

Intake water monitoring requirements for both the seawater and freshwater systems are retained from Order R1-2008-0002. Intake water monitoring provides characterization of natural/background water quality and is necessary to determine compliance with certain effluent limitations, which are expressed as allowable increases from those concentrations measured in intake water.

### **B. Effluent Monitoring**

Effluent monitoring requirements are necessary to determine compliance with prohibitions and/or effluent limitations established by the Order. Monitoring at Monitoring Location EFF-001 is necessary to demonstrate compliance with effluent

limitations and demonstrate whether or not the discharge poses reasonable potential for a pollutant to exceed any numeric or narrative water quality objectives. Effluent monitoring requirements pursuant to State Water Board Resolution No. 2007-0058 have also been included in the MRP.

1. Pursuant to the terms of State Water Board Resolution No. 2007-0058, this Order establishes monitoring requirements for seawater discharges at Monitoring Location EFF-001. The monitoring requirements in Table E-5 include TSS, settleable solids, pH, salinity, temperature, Table B pollutants, halomethanes, total residual chlorine, ammonia, and Ocean Plan metals.
2. As a result of the reasonable potential analysis, effluent limitations are established for bis (2-ethylhexyl) phthalate, chromium VI, copper, lead, nickel, silver, and zinc. Therefore, this Order requires semi-annual monitoring for these parameters.
3. Pursuant to Resolution No. 2007-0058 and Order R1-2008-0002, the Permittee submitted a request for decreased monitoring frequencies on August 12, 2009. The Regional Water Board issued a letter to the Permittee dated November 29, 2009 allowing for a decrease in monitoring frequencies for Ocean Plan Table B parameters, with several exceptions due to detections in the effluent, receiving water, or sediment. Consistent with the November 29, 2009 letter, this Order requires annual monitoring for PAHs.
4. Resolution No. 2007-0058 prohibits alteration of "*natural water quality*". In order to determine if the waste seawater discharge is contributing pollutants that would alter "*natural water quality*" this Order requires concurrent influent monitoring at Monitoring Location INF-001 and effluent monitoring at Monitoring Location EFF-001 for TSS, settleable solids, and pH. Requirements for influent and effluent monitoring are included based on requirements contained in Resolution 2007-0058.
5. The Permittee chlorinates a portion of the seawater effluent in order to prevent escape of any disease causing organisms. Within the term of this Order, the Permittee is planning to replace the chlorination / dechlorination system with a disinfection system that uses ultraviolet light sterilization. Upon cessation of chlorine use, this Order allows the Permittee to discontinue monitoring of chlorine and halomethanes. The UV system will eliminate potential discharges of chlorine and the need to continuously monitor for chlorine. In addition, monthly monitoring of halomethanes, can also be eliminated, because the halomethane bromoform, a byproduct of chlorinated seawater, will no longer be present.
6. Consistent with Order R1-2008-0002, this Order requires semi-annual monitoring for TSS, pH, specific conductance, and total organic carbon for storm water discharges to the freshwater marsh at Monitoring Locations EFF-003 and EFF-004.

7. Consistent with Resolution No. 2007-0058, this Order requires the Permittee to monitor the discharge of storm water runoff to Horseshoe Cove at Monitoring Location EFF-016 for indicator bacteria and Table B pollutants. Table E-7 of the MRP contains the storm water monitoring requirements in accordance with Resolution 2007-0058.

### **C. Whole Effluent Toxicity Testing Requirements**

Whole effluent toxicity (WET) monitoring requirements are established for discharges to the Bodega ASBS from Discharge Points 001 and 016 at Monitoring Locations EFF-001 and EFF-016 and for the receiving water at Monitoring Locations RSW-001 and REF-001 and are included in the Order to protect the receiving water quality from the aggregate effect of a mixture of pollutants in the effluent. The Ocean Plan section III.C.4.c specifies chronic toxicity testing where the minimum initial dilution of the effluent falls below 100:1 at the edge of the mixing zone. Because there is no dilution allowance for the Facility, WET monitoring shall consist of chronic toxicity testing. This Order includes monitoring requirements for chronic toxicity to assess compliance with the Ocean Plan's narrative water quality objectives for toxicity. The Regional Water Board may adjust the frequency of certain toxicity testing requirements after the first year of monitoring.

### **D. Land Discharge Monitoring Requirements**

Land discharge monitoring requirements are retained from Order R1-2008-0002. The requirement for monthly effluent monitoring for nitrate has been retained because the concentration of nitrate in monthly effluent samples from the freshwater system is routinely greater than the contemporaneous influent nitrate concentrations (but at concentrations well below the water quality objective of 10 mg/L for nitrate as nitrogen). Effluent monitoring for salinity is retained to prevent degradation of groundwater quality with respect to background salinity concentrations in local groundwater and to serve as a check to ensure that brackish water present in the freshwater system during the smoltification period is not discharged at Discharge Point 002.

### **E. Reclamation Monitoring Requirements - Not Applicable**

This section is not applicable to the Permittee as effluent is not reclaimed at this time.

### **F. Receiving Water Monitoring**

#### **1. Surface Water**

Receiving water monitoring requirements at Monitoring Locations REF-001 and RSW-001 have been established pursuant to State Water Board Resolution No. 2007-0058 and are necessary to assure protection of the Bodega ASBS.

## **2. Groundwater**

This section is not applicable to the Permittee.

## **G. Other Monitoring Requirements**

### **1. Intertidal Benthic Marine Life Survey**

A requirement to conduct a survey of intertidal benthic marine life one time during the term of the Order is included in section VI.C.2.b of this Order pursuant to State Water Board Resolution No. 2007-0058.

### **2. Bioaccumulation Study**

A requirement to conduct a bioaccumulation study one time during the term of the Order is included in the MRP pursuant to State Water Board Resolution No. 2007-0058.

### **3. Sediment Monitoring/Study**

A requirement to conduct a sediment monitoring study once annually, during the term of the Order, is included in the MRP pursuant to State Water Board Resolution No. 2007-0058. The Permittee may participate in a State Water Board approved regional monitoring program to meet the sediment monitoring study requirements of State Water Board Resolution No. 2007-0058.

## **VII. RATIONALE FOR PROVISIONS**

### **A. Standard Provisions**

#### **1. Federal Standard Provisions**

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The Permittee must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The rationale for the special provisions contained in the Order is provided in section VII.B, below.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement

authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

## **2. Regional Water Board Standard Provisions**

In addition to the Federal Standard Provisions (Attachment D), the Permittee shall comply with the Regional Water Board Standard Provisions provided in Standard Provisions VI.A.2 of the Order.

- a.** Order Provision VI.A.2.a identifies the State's enforcement authority under the Water Code, which is more stringent than the enforcement authority specified in the federal regulations (e.g., 40 CFR sections 122.41(j)(5) and (k)(2)).
- b.** Order Provision VI.A.2.b requires the Permittee to notify Regional Water Board staff, orally and in writing, in the event that the Permittee does not comply or will be unable to comply with any Order requirement. This provision requires the Permittee to make direct contact with a Regional Water Board staff person.

## **B. Special Provisions**

### **1. Reopener Provisions**

- a. Standard Revisions (Special Provision VI.C.1.a).** Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, which include the following:
  - i.** When standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision. Therefore, if revisions of applicable water quality standards are promulgated or approved pursuant to Section 303 of the CWA or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such revised standards.
  - ii.** When new information that was not available at the time of permit issuance would have justified different permit conditions at the time of issuance.
- b. Reasonable Potential (Special Provision VI.C.1.b).** This provision allows the Regional Water Board to modify, or revoke and reissue, this Order if present or future investigations demonstrate that the Permittee governed by this Permit is causing or contributing to excursions above any applicable priority pollutant criterion or objective, or adversely impacting water quality and/or the beneficial uses of receiving waters.

- c. **Whole Effluent Toxicity (Special Provision VI.C.1.c).** This Order requires the Permittee to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.
- d. **303(d)-Listed Pollutants (Special Provision VI.C.1.d).** This provision allows the Regional Water Board to reopen this Order to modify existing effluent limitations or add effluent limitations for pollutants that are the subject of any future TMDL action.
- e. **Salt and Nutrient Management Plans (Special Provision VI.C.1.e).** This provision allows the Regional Water Board to reopen this Order if it adopts a regional or subregional salt and nutrient management plan that is applicable to the Permittee.
- f. **Regional Monitoring Program (Special Provision VI.C.1.f).** This provision allows the Regional Water Board to reopen this Order to amend Special Provisions VI.C.2.b, VI.C.2.c, VI.C.2.d, and/or VI.C.7.c to allow participation in a regional monitoring program to satisfy the applicable study requirements.

## 2. Special Studies and Additional Monitoring Requirements

- a. **Toxicity Reduction Evaluations (Special Provision VI.C.2.a).** In addition to routine toxicity monitoring, this Order requires the Permittee to submit to the Regional Water Board an Initial Investigative TRE Workplan, in accordance with appropriate USEPA guidance, within 90 days of the effective date of this Order for approval by the Executive Officer, to ensure the Permittee has a plan to immediately move forward with the initial tiers of a TRE, in the event effluent toxicity is encountered. The TRE is initiated by evidence of a pattern of toxicity demonstrated through the additional effluent monitoring provided as a result of an accelerated monitoring program.
- b. **Intertidal Benthic Marine Life Survey (Special Provision VI.C.2.b).** The Permittee is required to perform a quantitative survey of intertidal benthic marine life near the discharge and at a reference site at least once during the term of this permit to comply with the conditions of State Water Board Resolution No. 2007-0058.
- c. **Bioaccumulation Study (Special Provision VI.C.2.c).** The Permittee is required to perform a bioaccumulation study using California mussels (*Mytilus californianus*) to determine the concentrations of metals near field (outfall station) and far field (Mussel Point) at least once during the term of this permit to comply with the conditions of State Water Board Resolution No. 2007-0058.

- d. Sediment Monitoring/Study (Special Provision VI.C.2.d).** The Permittee is required to sample and analyze the subtidal sediment for Ocean Plan Table B constituents annually during the term of this permit to comply with the conditions of State Water Board Resolution No. 2007-0058.

### **3. Best Management Practices and Pollution Prevention**

- a.** Provision VI.C.3.a is included in this Order pursuant to section III.C.9 of the Ocean Plan. The Regional Water Board includes standard provisions in all NPDES permits requiring development of a Pollutant Minimization Program when there is evidence that a toxic pollutant is present in the effluent at a concentration greater than an applicable effluent limitation.

### **4. Construction, Operation, and Maintenance Specifications**

- a.** Provision VI.C.5.a requires the notify the Regional Water Board 180 days prior to construction/facility modification is based on conditions required by State Water Board Resolution No. 2007-0058 and section III.E.2 of the Ocean Plan. This provision is necessary to prevent permanent or long-term water quality degradation within the ASBS.
- b.** 40 CFR 122.41 (e) requires proper operation and maintenance of permitted facilities to achieve compliance with permit conditions. Provision VI.C.5.b requires the Permittee to construct, operate, and maintain the UV/filtration disinfection system in accordance with approved design specifications and other conditions as determined by California Department of Fish and Wildlife (CDFW). In a letter dated December 29, 2011, the CDFW provided preliminary approval of the Permittee's design specifications. This provision is necessary to ensure that the UV/filtration system prevents the spread of disease that could result from research activities.

### **5. Special Provisions for Municipal Facilities (POTWs Only) – Not Applicable**

This section is not applicable to the Permittee.

### **6. Other Special Provisions**

- a. Storm Water Management Plan/Program (Special Provision VI.C.7.a).** The Permittee is required to implement and maintain a SWMP to comply with the conditions of State Water Board Resolution No. 2007-0058.
- b. Waterfront and Marine Operations Non-Point Source Management Plan (Special Provision VI.C.7.b).** The Permittee is required to prepare and implement

a Waterfront and Marine Operations Non-Point Source Management Plan to comply with the conditions of State Water Board Resolution No. 2007-0058.

- c. Program for Prevention of Biological Pollutants (Special Provision VI.C.7.c).** The Permittee is required to implement a program for prevention of biological pollutants (non-native invasive species) in consultation with the CDFW Marine Resources Division to comply with the conditions of State Water Board Resolution No. 2007-0058.
- d. Solids Disposal (Special Provision VI.C.7.d).** This provision regarding proper disposal of solids is retained from Order R1-2008-0002.

#### **7. Compliance Schedules – Not Applicable**

This section is not applicable to the Permittee.

### **VIII. PUBLIC PARTICIPATION**

The California Regional Water Quality Control Board, North Coast Region (Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as a National Pollutant Discharge Elimination System (NPDES) permit for the University of California – Davis, Bodega Marine Laboratory. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

#### **A. Notification of Interested Parties**

The Regional Water Board has notified the Permittee and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following posting on the Regional Water Board's Internet site at:

[http://www.waterboards.ca.gov/northcoast/public\\_notices/public\\_hearings/npdes\\_permits\\_and\\_wdrs.shtml](http://www.waterboards.ca.gov/northcoast/public_notices/public_hearings/npdes_permits_and_wdrs.shtml) and through publication in the Press Democrat March 14, 2013.

#### **B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on April 29, 2013.

### **C. Public Hearing**

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: June 13, 2013  
Time: **8:30 a.m.** or as announced in the Regional Water Board's agenda  
Location: **Regional Water Board Hearing Room  
5550 Skylane Boulevard, Suite A  
Santa Rosa, CA 95403**

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is <http://www.waterboards.ca.gov/northcoast> where you can access the current agenda for changes in dates and locations.

### **D. Waste Discharge Requirements Petitions**

Any person affected by this action of the Regional Water Board may petition the State Water Resources Control Board (State Water Board) to review the action in accordance with Water Code section 13320 and title 23, section 2050 of the CCR. The petition must be received by the State Water Board within 30 days of the date of this Order. Copies of the law and regulations applicable to filing petitions will be provided upon request. In addition to filing a petition with the State Water Board, any person affected by this Order may request the Regional Water Board to reconsider the Order. To be timely, such request must be made within 30 days of the date of this Order. Note that even if reconsideration by the Regional water Board is sought, filing a petition with the State Water Board within the 30-day period is necessary to preserve the petitioner's legal rights. If the Permittee chooses to request reconsideration of this Order or file a petition with the State Water Board, the Permittee must comply with the Order while the request for reconsideration and/or petition is being considered. The petition must be submitted within 30 days of the Regional Water Board's action to the following address:

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

**E. Information and Copying**

The Report of Waste Discharge (ROWD), related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Regional Water Board by calling (707) 576-2220.

**F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Regional Water Board, reference this facility, and provide a name, address, and phone number.

**G. Additional Information**

Requests for additional information or questions regarding this order should be directed to Charles Reed at [Charles.Reed@waterboards.ca.gov](mailto:Charles.Reed@waterboards.ca.gov) or (707) 576-2752.

**Attachment F-1 – University of California – Davis, Bodega Marine Laboratory RPA Summary: Waste Seawater**

| <b>Pollutant</b> | <b>Qualifier</b> | <b>Value</b> | <b>Unit</b> | <b>No. ND</b> | <b>MEC</b> | <b>Co</b> | <b>B</b> | <b>Endpoint</b> |
|------------------|------------------|--------------|-------------|---------------|------------|-----------|----------|-----------------|
| Arsenic          |                  | 1.64         | µg/L        | 0             | 1.64       | 8         | 3        | 2               |
| Arsenic          |                  | 1.54         | µg/L        |               |            |           |          |                 |
| Arsenic          |                  | 1.59         | µg/L        |               |            |           |          |                 |
| Arsenic          |                  | 1.1          | µg/L        |               |            |           |          |                 |
| Arsenic          |                  | 1.3          | µg/L        |               |            |           |          |                 |
|                  |                  |              |             |               |            |           |          |                 |
| Cadmium          |                  | 0.074        | µg/L        | 0             | 0.13       | 1         | 0        | 2               |
| Cadmium          |                  | 0.053        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.046        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.041        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.063        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.057        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.044        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.121        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.13         | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.088        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.056        | µg/L        |               |            |           |          |                 |
| Cadmium          |                  | 0.081        | µg/L        |               |            |           |          |                 |
|                  |                  |              |             |               |            |           |          |                 |
| Chromium (Total) |                  | 0.254        | µg/L        | 0             | 4.98       | 2         | 0        | 1               |
| Chromium (Total) |                  | 0.293        | µg/L        |               |            |           |          |                 |
| Chromium (Total) |                  | 4.98         | µg/L        |               |            |           |          |                 |
| Chromium (Total) |                  | 0.41         | µg/L        |               |            |           |          |                 |
| Chromium (Total) |                  | 1.6          | µg/L        |               |            |           |          |                 |
|                  |                  |              |             |               |            |           |          |                 |
| Copper           |                  | 1.24         | µg/L        | 0             | 2.72       | 3         | 2        | 1               |
| Copper           |                  | 1.22         | µg/L        |               |            |           |          |                 |
| Copper           |                  | 2.72         | µg/L        |               |            |           |          |                 |
| Copper           |                  | 0.750        | µg/L        |               |            |           |          |                 |
| Copper           |                  | 2.130        | µg/L        |               |            |           |          |                 |

| Pollutant | Qualifier | Value  | Unit | No. ND | MEC    | Co   | B      | Endpoint |
|-----------|-----------|--------|------|--------|--------|------|--------|----------|
| Copper    |           | 0.93   | µg/L |        |        |      |        |          |
| Copper    |           | 1.02   | µg/L |        |        |      |        |          |
| Copper    |           | 1.1    | µg/L |        |        |      |        |          |
| Copper    |           | 2.0    | µg/L |        |        |      |        |          |
| Copper    |           | 2.4    | µg/L |        |        |      |        |          |
| Copper    |           | 0.53   | µg/L |        |        |      |        |          |
| Copper    |           | 0.74   | µg/L |        |        |      |        |          |
|           |           |        |      |        |        |      |        |          |
| Lead      |           | 0.032  | µg/L | 1      | 1.5    | 2    | 0      | 1        |
| Lead      | ND        | 0.005  | µg/L |        |        |      |        |          |
| Lead      |           | 0.026  | µg/L |        |        |      |        |          |
| Lead      |           | 1.500  | µg/L |        |        |      |        |          |
| Lead      |           | 0.05   | µg/L |        |        |      |        |          |
|           |           |        |      |        |        |      |        |          |
| Mercury   | ND        | 0.01   | µg/L | 5      | <0.01  | 0.04 | 0.0005 | 3        |
| Mercury   | ND        | 0.01   | µg/L |        |        |      |        |          |
| Mercury   | ND        | 0.01   | µg/L |        |        |      |        |          |
| Mercury   | ND        | 0.001  | µg/L |        |        |      |        |          |
| Mercury   | DNQ       | 0.0017 | µg/L |        |        |      |        |          |
|           |           |        |      |        |        |      |        |          |
| Nickel    |           | 0.442  | µg/L | 0      | 2.897  | 5    | 0      | 1        |
| Nickel    |           | 0.509  | µg/L |        |        |      |        |          |
| Nickel    |           | 2.897  | µg/L |        |        |      |        |          |
| Nickel    |           | 1      | µg/L |        |        |      |        |          |
| Nickel    |           | 1.8    | µg/L |        |        |      |        |          |
|           |           |        |      |        |        |      |        |          |
| Selenium  | ND        | 0.01   | µg/L | 6      | <0.096 | 15   | 0      | 3        |
| Selenium  | ND        | 0.01   | µg/L |        |        |      |        |          |
| Selenium  | ND        | 0.01   | µg/L |        |        |      |        |          |
| Selenium  | ND        | 0.034  | µg/L |        |        |      |        |          |
| Selenium  | DNQ       | 0.096  | µg/L |        |        |      |        |          |
|           |           |        |      |        |        |      |        |          |

| Pollutant                       | Qualifier | Value   | Unit | No. ND | MEC     | Co  | B    | Endpoint |
|---------------------------------|-----------|---------|------|--------|---------|-----|------|----------|
| Silver                          | ND        | 0.02    | µg/L | 10     | 0.69    | 0.7 | 0.16 | 3        |
| Silver                          | ND        | 0.02    | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.02    | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.02    | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.02    | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.02    | µg/L |        |         |     |      |          |
| Silver                          |           | 0.69    | µg/L |        |         |     |      |          |
| Silver                          |           | 0.222   | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.018   | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.018   | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.018   | µg/L |        |         |     |      |          |
| Silver                          | ND        | 0.018   | µg/L |        |         |     |      |          |
|                                 |           |         |      |        |         |     |      |          |
| Zinc                            |           | 1.962   | µg/L | 1      | 4.4     | 20  | 8    | 1        |
| Zinc                            | ND        | 0.005   | µg/L |        |         |     |      |          |
| Zinc                            |           | 2.614   | µg/L |        |         |     |      |          |
| Zinc                            |           | 4.4     | µg/L |        |         |     |      |          |
| Zinc                            |           | 0.29    | µg/L |        |         |     |      |          |
|                                 |           |         |      |        |         |     |      |          |
| Cyanide                         | ND        | 5       | µg/L | 2      | <5      | 1   | 0    | 3        |
| Cyanide                         | ND        | 5       | µg/L |        |         |     |      |          |
|                                 |           |         |      |        |         |     |      |          |
| Total Chlorine Residual         |           | 740     | µg/L | 0      | 199,000 | 2   | 0    | 1        |
| Total Chlorine Residual         |           | 130     | µg/L |        |         |     |      |          |
| Total Chlorine Residual         |           | 950     | µg/L |        |         |     |      |          |
| Total Chlorine Residual         |           | 200     | µg/L |        |         |     |      |          |
| Total Chlorine Residual         |           | 199,000 | µg/L |        |         |     |      |          |
| Total Chlorine Residual         |           | 79,800  | µg/L |        |         |     |      |          |
| Total Chlorine Residual         |           | 118,000 | µg/L |        |         |     |      |          |
|                                 |           |         |      |        |         |     |      |          |
| Ammonia (expressed as Nitrogen) | ND        | 0.2     | µg/L | 51     | <0.2    | 600 | 0    | 2        |
|                                 |           |         |      |        |         |     |      |          |

| Pollutant                            | Qualifier | Value | Unit | No. ND | MEC    | Co    | B | Endpoint |
|--------------------------------------|-----------|-------|------|--------|--------|-------|---|----------|
| Acute Toxicity                       |           | 0     | TUa  | 0      | 0.77   | 0.3   | 0 | 1        |
| Acute Toxicity                       |           | 0.35  | TUa  |        |        |       |   |          |
| Acute Toxicity                       |           | 0.35  | TUa  |        |        |       |   |          |
| Acute Toxicity                       |           | 0.77  | TUa  |        |        |       |   |          |
| Acute Toxicity                       |           | 0     | TUa  |        |        |       |   |          |
|                                      |           |       |      |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  | 0      | > 1    | 1     | 0 | 1        |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | 1     | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | > 1   | TUc  |        |        |       |   |          |
| Chronic Toxicity                     |           | > 1   | TUc  |        |        |       |   |          |
|                                      |           |       |      |        |        |       |   |          |
| Phenolic Compounds (non-chlorinated) | ND        | 0.1   | µg/L | 2      | <0.1   | 30    | 0 | 3        |
| Phenolic Compounds (non-chlorinated) | ND        | 0.1   | µg/L |        |        |       |   |          |
|                                      |           |       |      |        |        |       |   |          |
| Chlorinated phenolics                | ND        | 0.05  | µg/L | 2      | <0.05  | 1     | 0 | 3        |
| Chlorinated phenolics                | ND        | 0.05  | µg/L |        | <0.05  |       |   |          |
|                                      |           |       |      |        |        |       |   |          |
| Endosulfan                           | ND        | 0.001 | µg/L | 2      | <0.001 | 0.009 | 0 | 3        |
| Endosulfan                           | ND        | 0.001 | µg/L |        |        |       |   |          |

| Pollutant                   | Qualifier | Value              | Unit | No. ND | MEC    | Co     | B | Endpoint |
|-----------------------------|-----------|--------------------|------|--------|--------|--------|---|----------|
| Endrin                      | ND        | 0.001              | µg/L | 2      | <0.001 | 0.002  | 0 | 3        |
| Endrin                      | ND        | 0.001              |      |        |        |        |   |          |
| HCH                         | ND        | 0.001              | µg/L | 2      | <0.001 | 0.004  | 0 | 3        |
| HCH                         | ND        | 0.001              | µg/L |        |        |        |   |          |
| Acrolein                    | ND        | 1                  | µg/L | 2      | <1     | 220    | 0 | 3        |
| Acrolein                    | ND        | 1                  |      |        |        |        |   |          |
| Antimony                    |           | 0.09               | µg/L | 0      | 0.2    | 1200   | 0 | 2        |
| Antimony                    |           | 0.20               | µg/L |        |        |        |   |          |
| Antimony                    |           | 0.12               | µg/L |        |        |        |   |          |
| Bis(2-chloroethoxy)methane  | ND        | 0.05               | µg/L | 2      | <0.05  | 4.4    | 0 | 3        |
| Bis(2-chloroethoxy)methane  | ND        | 0.05               | µg/L |        |        |        |   |          |
| Bis(2-chloroisopropyl)ether | ND        | 0.05               | µg/L | 2      | <0.05  | 1200   | 0 | 3        |
| Bis(2-chloroisopropyl)ether | ND        | 0.05               | µg/L |        |        |        |   |          |
| Chlorobenzene               | ND        | 1                  | µg/L | 2      | <1     | 570    | 0 | 3        |
| Chlorobenzene               | ND        | 1                  | µg/L |        |        |        |   |          |
| Chromium (III)              |           | See Total Chromium | µg/L | --     | --     | 190000 | 0 | --       |
| Di-n-butyl phthalate        | ND        | 0.075              | µg/L | 2      | <0.075 | 3500   | 0 | 3        |
| Di-n-butyl phthalate        | ND        | 0.075              | µg/L |        |        |        |   |          |
| Dichlorobenzenes            | ND        | 0.01               | µg/L | 2      | <0.01  | 5100   | 0 | 3        |
| Dichlorobenzenes            | ND        | 0.01               | µg/L |        |        |        |   |          |
| Diethyl Phthalate           | ND        | 0.01               | µg/L | 2      | <0.01  | 33000  | 0 | 3        |

| Pollutant                  | Qualifier | Value | Unit | No. ND | MEC    | Co     | B | Endpoint |
|----------------------------|-----------|-------|------|--------|--------|--------|---|----------|
| Diethyl Phthalate          | ND        | 0.01  | µg/L |        |        |        |   |          |
| Dimethyl Phthalate         | ND        | 0.05  | µg/L | 2      | <0.05  | 820000 | 0 | 3        |
| Dimethyl Phthalate         | ND        | 0.05  | µg/L |        |        |        |   |          |
| 4,6-Dinitro-2-methylphenol | ND        | 0.1   | µg/L | 2      | <0.1   | 220    | 0 | 3        |
| 4,6-Dinitro-2-methylphenol | ND        | 0.1   | µg/L |        |        |        |   |          |
| 2,4-dinitrophenol          | ND        | 0.1   | µg/L | 2      | <0.1   | 4      | 0 | 3        |
| 2,4-dinitrophenol          | ND        | 0.1   | µg/L |        |        |        |   |          |
| Ethylbenzene               | ND        | 0.5   | µg/L | 2      | <0.5   | 4100   | 0 | 3        |
| Ethylbenzene               | ND        | 0.5   | µg/L |        |        |        |   |          |
| Fluoranthene               | ND        | 0.001 | µg/L | 2      | <0.001 | 15     | 0 | 3        |
| Fluoranthene               | ND        | 0.001 | µg/L |        |        |        |   |          |
| Hexachlorocyclopentadiene  | ND        | 0.05  | µg/L | 2      | <0.05  | 58     | 0 | 3        |
| Hexachlorocyclopentadiene  | ND        | 0.05  | µg/L |        |        |        |   |          |
| Nitrobenzene               | ND        | 0.05  | µg/L | 2      | <0.05  | 4.9    | 0 | 3        |
| Nitrobenzene               | ND        | 0.05  | µg/L |        |        |        |   |          |
| Thallium                   | ND        | 0.005 | µg/L | 2      | <0.005 | 2      | 0 | 3        |
| Thallium                   | ND        | 0.005 | µg/L |        |        |        |   |          |
| Toluene                    | ND        | 1     | µg/L | 2      | <1     | 85000  | 0 | 3        |
| Toluene                    | ND        | 1     | µg/L |        |        |        |   |          |
| Tributyltin                | ND        | 0.001 | µg/L | 2      | <0.001 | 0.0014 | 0 | 3        |
| Tributyltin                | ND        | 0.001 | µg/L |        |        |        |   |          |

| Pollutant                  | Qualifier | Value | Unit | No. ND | MEC    | Co       | B | Endpoint |
|----------------------------|-----------|-------|------|--------|--------|----------|---|----------|
| 1,1,1-Trichloroethane      | ND        | 1     | µg/L | 2      | <1     | 540000   | 0 | 3        |
| 1,1,1-Trichloroethane      | ND        | 1     | µg/L |        |        |          |   |          |
| Acrylonitrile              | ND        | 20    | µg/L | 2      | <20    | 0.1      | 0 | 3        |
| Acrylonitrile              | ND        | 20    | µg/L |        |        |          |   |          |
| Aldrin                     | ND        | 0.001 | µg/L | 2      | <0.001 | 0.000022 | 0 | 3        |
| Aldrin                     | ND        | 0.001 | µg/L |        |        |          |   |          |
| Benzene                    | ND        | 0.5   | µg/L | 2      | <0.5   | 5.9      | 0 | 3        |
| Benzene                    | ND        | 0.5   | µg/L |        |        |          |   |          |
| Benzidine                  | ND        | 0.05  | µg/L | 2      | <0.05  | 0.000069 | 0 | 3        |
| Benzidine                  | ND        | 0.05  | µg/L |        |        |          |   |          |
| Beryllium                  | ND        | 0.005 | µg/L | 2      | <0.005 | 0.033    | 0 | 3        |
| Beryllium                  | ND        | 0.005 | µg/L |        |        |          |   |          |
| Bis(2-chloroethyl)ether    | ND        | 0.05  | µg/L | 2      | <0.05  | 0.045    | 0 | 3        |
| Bis(2-chloroethyl)ether    | ND        | 0.05  | µg/L |        |        |          |   |          |
| Bis(2-ethylhexyl)Phthalate |           | 1.451 | µg/L | 2      | 1.451  | 3.5      | 0 | 1        |
| Bis(2-ethylhexyl)Phthalate |           | 0.106 | µg/L |        |        |          |   |          |
| Bis(2-ethylhexyl)Phthalate |           | 0.155 | µg/L |        |        |          |   |          |
| Bis(2-ethylhexyl)Phthalate | ND        | 0.095 | µg/L |        |        |          |   |          |
| Bis(2-ethylhexyl)Phthalate | DNQ       | 0.44  | µg/L |        |        |          |   |          |
| Carbon Tetrachloride       | ND        | 0.5   | µg/L | 2      | <0.5   | 0.9      | 0 | 3        |
| Carbon Tetrachloride       | ND        | 0.5   | µg/L |        |        |          |   |          |
| Chlordane                  | ND        | 0.001 | µg/L | 2      | <0.001 | 0.000023 | 0 | 3        |
| Chlordane                  | ND        | 0.001 | µg/L |        |        |          |   |          |

| Pollutant              | Qualifier | Value   | Unit | No. ND | MEC      | Co      | B | Endpoint |
|------------------------|-----------|---------|------|--------|----------|---------|---|----------|
| Chlorodibromomethane   | ND        | 1       | µg/L | <1     | <1       | 8.6     | 0 | 3        |
| Chlorodibromomethane   | ND        | 1       | µg/L |        |          |         |   |          |
| Chloroform             | ND        | 1       | µg/L | 2      | <1       | 130     | 0 | 3        |
| Chloroform             | ND        | 1       | µg/L |        |          |         |   |          |
| DDT                    | ND        | 0.00017 | µg/L | 2      | <0.00017 | 0.00017 | 0 | 3        |
| DDT                    | ND        | 0.001   | µg/L |        |          |         |   |          |
| 1,4-Dichlorobenzene    | ND        | 0.01    | µg/L | 2      | <0.01    | 18      | 0 | 3        |
| 1,4-Dichlorobenzene    | ND        | 0.01    | µg/L |        |          |         |   |          |
| 3,3'-Dichlorobenzidine | ND        | 0.5     | µg/L | 2      | <0.5     | 0.0081  | 0 | 3        |
| 3,3'-Dichlorobenzidine | ND        | 0.5     | µg/L |        |          |         |   |          |
| 1,2-Dichloroethane     | ND        | 0.5     | µg/L | 2      | <0.5     | 28      | 0 | 3        |
| 1,2-Dichloroethane     | ND        | 0.5     | µg/L |        |          |         |   |          |
| 1,1-Dichloroethylene   | ND        | 1       | µg/L | 2      | <1       | 0.9     | 0 | 3        |
| 1,1-Dichloroethylene   | ND        | 1       | µg/L |        |          |         |   |          |
| Dichlorobromomethane   | ND        | 1       | µg/L | 2      | <1       | 6.2     | 0 | 3        |
| Dichlorobromomethane   | ND        | 1       | µg/L |        |          |         |   |          |
| Dichloromethane        | ND        | 10      | µg/L | 2      | <10      | 450     | 0 | 3        |
| Dichloromethane        | ND        | 10      | µg/L |        |          |         |   |          |
| 1,3-Dichloropropene    | ND        | 0.5     | µg/L | 2      | <0.5     | 8.9     | 0 | 3        |
| 1,3-Dichloropropene    | ND        | 0.5     | µg/L |        |          |         |   |          |
| Dieldrin               | ND        | 0.001   | µg/L | 2      | <0.001   | 0.00004 | 0 | 3        |
| Dieldrin               | ND        | 0.001   | µg/L |        |          |         |   |          |

| Pollutant             | Qualifier | Value | Unit | No. ND | MEC   | Co   | B | Endpoint |
|-----------------------|-----------|-------|------|--------|-------|------|---|----------|
| 2,4-Dinitrotoluene    | ND        | 0.05  | µg/L | 2      | <0.05 | 2.6  | 0 | 3        |
| 2,4-Dinitrotoluene    | ND        | 0.05  | µg/L |        |       |      |   |          |
| 1,2-Diphenylhydrazine | ND        | 0.05  | µg/L | 2      | <0.05 | 0.16 | 0 | 3        |
| 1,2-Diphenylhydrazine | ND        | 0.05  | µg/L |        |       |      |   |          |
| <b>Halomethanes</b>   |           |       |      | 2      | 3.1   | 130  | 0 | 2        |
| Bromoform             |           | 0.73  | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.4   | µg/L |        |       |      |   |          |
| Bromoform             |           | 2.2   | µg/L |        |       |      |   |          |
| Bromoform             |           | 2.2   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.7   | µg/L |        |       |      |   |          |
| Bromoform             |           | 2.8   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.5   | µg/L |        |       |      |   |          |
| Bromoform             |           | 2.0   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.6   | µg/L |        |       |      |   |          |
| Bromoform             | ND        | 0.5   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.3   | µg/L |        |       |      |   |          |
| Bromoform             |           | 0.95  | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.2   | µg/L |        |       |      |   |          |
| Bromoform             |           | 0.75  | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.6   | µg/L |        |       |      |   |          |
| Bromoform             |           | 0.92  | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.5   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.0   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.2   | µg/L |        |       |      |   |          |
| Bromoform             |           | 0.93  | µg/L |        |       |      |   |          |
| Bromoform             |           | 3.1   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.6   | µg/L |        |       |      |   |          |
| Bromoform             |           | 1     | µg/L |        |       |      |   |          |
| Bromoform             |           | 1.1   | µg/L |        |       |      |   |          |

| Pollutant          | Qualifier | Value | Unit | No. ND | MEC    | Co      | B | Endpoint |
|--------------------|-----------|-------|------|--------|--------|---------|---|----------|
| Bromoform          |           | 1.2   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.8   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 2.9   | µg/L |        |        |         |   |          |
| Bromoform          |           | 2.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.4   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.9   | µg/L |        |        |         |   |          |
| Bromoform          |           | 2     | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.6   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.55  | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.0   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.0   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.0   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.2   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.7   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.8   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.73  | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.7   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.57  | µg/L |        |        |         |   |          |
| Bromoform          | ND        | 0.5   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.6   | µg/L |        |        |         |   |          |
| Bromoform          |           | 1.0   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.9   | µg/L |        |        |         |   |          |
| Bromoform          |           | 0.9   | µg/L |        |        |         |   |          |
|                    |           |       |      |        |        |         |   |          |
| Heptachlor         | ND        | 0.001 | µg/L | 2      | <0.001 | 0.00005 | 0 | 3        |
| Heptachlor         | ND        | 0.001 | µg/L |        |        |         |   |          |
|                    |           |       |      |        |        |         |   |          |
| Heptachlor epoxide | ND        | 0.001 | µg/L | 2      | <0.001 | 0.00002 | 0 | 3        |

| Pollutant                 | Qualifier | Value  | Unit | No. ND | MEC    | Co       | B | Endpoint |
|---------------------------|-----------|--------|------|--------|--------|----------|---|----------|
| Heptachlor epoxide        | ND        | 0.001  | µg/L |        |        |          |   |          |
| Hexachlorobenzene         | ND        | 0.001  | µg/L | 2      | <0.001 | 0.00021  | 0 | 3        |
| Hexachlorobenzene         | ND        | 0.001  | µg/L |        |        |          |   |          |
| Hexachlorobutadiene       | ND        | 0.05   | µg/L | 2      | <0.001 | 14       | 0 | 3        |
| Hexachlorobutadiene       | ND        | 0.05   | µg/L |        |        |          |   |          |
| Hexachloroethane          | ND        | 0.05   | µg/L | 2      | <0.05  | 2.5      | 0 | 3        |
| Hexachloroethane          | ND        | 0.05   | µg/L |        |        |          |   |          |
| Isophorone                | ND        | 0.05   | µg/L | 2      | <0.05  | 730      | 0 | 3        |
| Isophorone                | ND        | 0.05   | µg/L |        |        |          |   |          |
| N-Nitrosodimethylamine    | ND        | 0.05   | µg/L | 2      | <0.05  | 7.3      | 0 | 3        |
| N-Nitrosodimethylamine    | ND        | 0.05   | µg/L |        |        |          |   |          |
| N-Nitrosodi-N-Propylamine | ND        | 0.05   | µg/L | 2      | <0.05  | 0.38     | 0 | 3        |
| N-Nitrosodi-N-Propylamine | ND        | 0.05   | µg/L |        |        |          |   |          |
| N-Nitrosodiphenylamine    | ND        | 0.05   | µg/L | 2      | <0.05  | 2.5      | 0 | 3        |
| N-Nitrosodiphenylamine    | ND        | 0.05   | µg/L |        |        |          |   |          |
| PAHs                      | ND        | <0.001 | µg/L | 5      | <0.02  | 0.0088   | 0 | 3        |
| PAHs                      | ND        | <0.001 | µg/L |        |        |          |   |          |
| PAHs                      | ND        | <0.001 | µg/L |        |        |          |   |          |
| PAHs                      | ND        | <0.02  | µg/L |        |        |          |   |          |
| PAHs                      | ND        | <0.02  | µg/L |        |        |          |   |          |
| PCBs                      | ND        | 0.01   | µg/L | 2      | <0.01  | 0.000019 | 0 | 3        |
| PCBs                      | ND        | 0.01   | µg/L |        |        |          |   |          |

| Pollutant                 | Qualifier | Value       | Unit | No. ND | MEC         | Co       | B | Endpoint |
|---------------------------|-----------|-------------|------|--------|-------------|----------|---|----------|
| <b>TCDD Equivalents</b>   |           |             |      | 0      | <0.00000218 | 3.9E-09  | 0 | 3        |
| TCDD-TEQ                  | DNQ       | 0.000000446 | µg/L |        |             |          |   |          |
| TCDD-TEQ                  | DNQ       | 0.00000218  | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| 1,1,2,2-Tetrachloroethane | ND        | 1           | µg/L | 2      | <1          | 2.3      | 0 | 3        |
| 1,1,2,2-Tetrachloroethane | ND        | 1           | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| Tetrachloroethylene       | ND        | 1           | µg/L | 2      | <1          | 2        | 0 | 3        |
| Tetrachloroethylene       | ND        | 1           | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| Toxaphene                 | ND        | 0.01        | µg/L | 2      | <0.01       | 0.00021  | 0 | 3        |
| Toxaphene                 | ND        | 0.01        | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| Trichloroethylene         | ND        | 1           | µg/L | 2      | <1          | 2.70E+01 | 0 | 3        |
| Trichloroethylene         | ND        | 1           | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| 1,1,2-Trichloroethane     | ND        | 1           | µg/L | 2      | <1          | 9.40E+00 | 0 | 3        |
| 1,1,2-Trichloroethane     | ND        | 1           | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| 2,4,6-Trichlorophenol     | ND        | 0.05        | µg/L | 2      | <0.05       | 0.29     | 0 | 3        |
| 2,4,6-Trichlorophenol     | ND        | 0.05        | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |
| Vinyl Chloride            | ND        | 0.5         | µg/L | 2      | <0.5        | 36       | 0 | 3        |
| Vinyl Chloride            | ND        | 0.5         | µg/L |        |             |          |   |          |
|                           |           |             |      |        |             |          |   |          |