ORDER NO. R1-2012-0031
NPDES NO. CA0022713
WDID NO. 1B82114OHUM
(Modified in Accordance with Order No. R1-2014-0050 November 20, 2014)

WASTE DISCHARGE REQUIREMENTS
FOR THE
CITY OF ARCATA
MUNICIPAL WASTEWATER TREATMENT FACILITY

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

Table 1. Permittee Information

Permittee	City of Arcata
Name of Facility	Arcata Wastewater Treatment Facility (WWTF)
Facility Address	600 South G Street
	Arcata, CA 95521
	Humboldt County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

Discharges by the City of Arcata from the Outfalls identified below are subject to waste discharge requirements as set forth in this Order.

Table 2. Discharge Location

Discharge Point/Outfall	Effluent Description	Discharge Point Latitude	Discharge Point Longitude	Receiving Water
001	secondary/equivalent to secondary treated wastewater	40° 51' 18" N	124° 5' 26.124" W	Humboldt Bay
002	equivalent to secondary treated wastewater	40° 51' 29" N	124° 5' 31.2504" W	Arcata Marsh Wildlife Sanctuary
003	secondary treated wastewater	40° 51' 40" N	124° 5' 37" W	Brackish Marsh, Humboldt Bay

Table 3. Administrative Information

This Order was adopted by the Regional Water Quality Control Board on:	June 7, 2012
This Order shall become effective on:	August 1, 2012
This Order shall expire on:	July 31, 2017
The Permittee shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	180 days prior to the Order expiration date (January 27, 2017)

IT IS HEREBY ORDERED, that Order No. R1-2004-0036 is rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal Clean Water Act (CWA) 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 an Order adopted by the California Regional Water Quality Control Board, North Coast Region, on June 7, 2012, and modified on November 20, 2014.

David Leland

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Signed on behalf of
Matthias St. John, Executive Officer

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I. Facility Information

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

Table 4. Facility Information

Permittee	City of Arcata
Name of Facility	Arcata Wastewater Treatment Facility
Facility Address	600 South G Street
	Arcata, CA 95521
	Humboldt County
Facility Contact, Title, Phone Number	Karen Diemer, Deputy Director, Environmental Services, (707) 825-8184
Mailing Address	736 F Street, Arcata, CA 95521
Type of Facility	Publicly Owned Treatment Works
Facility Design Flow	2.3 million gallons per day (mgd) (average dry weather design flow) 5.0 mgd (average wet weather design flow) 5.9 mgd (peak wet weather design flow) 16.5 mgd (wet weather Q_{max})

II. Findings

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

A. Basis and Rationale for Requirements. The Regional Water Board developed the requirements in this Order based on information submitted as part of the application for permit renewal submitted by the City of Arcata (hereinafter the City or Permittee), monitoring data submitted during the term of the Permittee's previous Order, and other available information. The Fact Sheet (Attachment F) contains facility information, legal authorities, and rationale for Order requirements. The Fact Sheet as well as Attachments A through E are hereby incorporated into this Order and constitute part of the Findings for this Order.

B. Background. The City is currently discharging pursuant to Order No. R1-2004-0036 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0022713. The Permittee submitted a Report of Waste Discharge, dated February 21, 2007, and applied for an NPDES permit renewal to discharge secondary treated wastewater from the Arcata waste water treatment facility (WWTF). The Permittee submitted an amended Report of Waste Discharge on December 15, 2011, incorporating a new primary point of discharge. The application was deemed complete on February 7, 2012.

C. Facility Description. The Permittee owns wastewater collection, treatment, and disposal facilities that serve a population of approximately 16,800 in the City of Arcata and the unincorporated community of Glendale. Additional background and

facility information is provided in the Fact Sheet. Attachment B provides a map of the area around the facility. Attachment C provides a flow schematic of the facility.

D. Monitoring and Reporting. Section 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 Monitoring and Reporting Program establishing monitoring and reporting requirements to implement federal and State requirements for the Arcata WWTF is provided in Attachment E.

III. Discharge Prohibitions

A. The discharge of waste to Humboldt Bay is prohibited unless the discharge is consistent with State Board Order No. 79-20 and Regional Water Board Resolution 83-9.

B. The discharge of any waste not disclosed by the Permittee or not within the reasonable contemplation of the Regional Water Board is prohibited.

C. Creation of pollution, contamination, or nuisance, as defined by Section 13050 of the California Water Code is prohibited.

D. The discharge of sludge or digester supernatant is prohibited, except as authorized under section VI.C.5.c of this Order (Sludge Disposal and Handling Requirements).

E. The discharge of untreated or partially treated waste (receiving a lower level of treatment than described in section II. B of the Fact Sheet) from anywhere within the collection, treatment, or disposal systems is prohibited, except as provided for in Prohibition III. I and in Attachment D, Standard Provision G (Bypass).

F. Any sanitary sewer overflow (SSO) that results in a discharge of untreated or partially treated wastewater to (a) waters of the State, (b) groundwater, or (c) land that creates pollution, contamination, or nuisance, as defined in Water Code section 13050 (m) is prohibited.

G. The discharge of waste at any point not described in Finding II. B of the Fact Sheet, Prohibition III.I., or otherwise not authorized by this or another permit issued by the State Water Board or another Regional Water Board is prohibited.

H. The mean daily dry weather flow of waste through the treatment plant in excess of 2.3 mgd measured daily and averaged over a calendar month is prohibited.

I. The Discharge of treated effluent at Outfall 001 is prohibited, other than that portion of the flow exceeding peak flows of 5.9 mgd. [1]

IV. Effluent Limitations and Discharge Specifications

A. Effluent Limitations

1. Final Effluent Limitations – Outfall 001 (Humboldt Bay)

a. The Permittee shall maintain compliance with the following final effluent limitations at Outfall 001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP. These limitations apply only to flows allowed in accordance with Prohibition III.I.

Table 5. Effluent Limitations for Outfall 001 (Humboldt Bay)

Parameter	Units	Effluent Limitations		
		Average Monthly[2]	Average Weekly[3]	Maximum Daily
BOD_5	mg/L	45	65	---
	lbs/day [4]	863	1304	---
TSS	mg/L	66	95	---
	lbs/day 4	1266	1822	---
Settleable Solids	mL/L	0.1	---	0.2
Fecal Coliform	MPN/100ml	14[5]		43[6]
Chlorine, Total Residual	mg/L	0.01		0.02
pH	s.u.	6.0 – 9.0 at all times		
Cyanide	µg/L	0.5	---	1.0
2,3,7,8-TCDD Equivalents	µg/L	1.3×10^{-8}	---	2.6×10^{-8}

1 This Prohibition will take effect upon activation of the new disinfection system and implementation of discharges at Discharge Point 003, but no later than December 1, 2016.

2 Compliance with average monthly effluent limitations shall be based on averages derived from measurements in the calendar month.

3 Compliance with average weekly effluent limitations shall be based on averages derived from measurements in the calendar week (i.e., Sunday through Saturday).

4 Mass-based limitations are based on the dry weather design flow of the WWTF of 2.3 mgd. During wet weather periods, when influent flow exceeds the dry weather design flow rate, mass emission limitations shall be calculated using the concentration-based effluent limitations and the actual daily average effluent flow rate (not to exceed the average wet weather design flow rate of 5.0 mgd).

5 Median.

6 Not more than 10% of samples collected in a 30-day period shall exceed the daily maximum.

Table 5. Effluent Limitations for Outfall 001 (Humboldt Bay)

Parameter	Units	Effluent Limitations		
		Average Monthly[2]	Average Weekly[3]	Maximum Daily
Carbon Tetrachloride	µg/L	0.25	---	0.50
Dichlorobromomethane	µg/L	0.56	---	1.12
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	---	3.6

b. Percent Removal: The average monthly percent removal of BOD_5 and TSS shall not be less than 65 percent. Percent removal shall be based on the difference between weekly influent and effluent concentrations, as measured at Monitoring Locations INF-001 and EFF-001, averaged over each calendar month.

c. Acute Toxicity: There shall be no acute toxicity in treated wastewater discharged to Humboldt Bay. The Permittee will be considered compliant with this limitation when the survival of aquatic organisms in a 96-hour bioassay of undiluted effluent complies with the following.

i. Minimum for any one bioassay: 70 percent survival

ii. Median for any three or more consecutive bioassays: at least 90 percent survival

Compliance with this effluent limitation shall be determined in accordance with section V.A of the Monitoring and Reporting Program (Attachment E).

2. Final Effluent Limitations – Outfall 003 (Brackish Marsh/Humboldt Bay)

a. Thirty (30) days prior to initiation of the upgraded WWTF configuration, including use of the ultraviolet disinfection system, described under Finding II.B of the Fact Sheet, the Permittee shall submit written notification to the Executive Officer declaring the intent to operate and discharge using the upgraded configuration of the WWTF. Upon activation of the new configuration, the Permittee shall maintain compliance with the following effluent limitations at Outfall 003, with compliance measured at Monitoring Location EFF-003, as described in the attached MRP.

Table 6. Effluent Limitations for Outfall 003 (Brackish Marsh/Humboldt Bay)

Parameter	Units	Effluent Limitations		
		Average Monthly[2]	Average Weekly[3]	Maximum Daily
BOD_5	mg/L	30	45	---
	lbs/day [4]	575	863	---
TSS	mg/L	30	45	---
	lbs/day [4]	575	863	---
Settleable Solids	mL/L	0.1	---	0.2
Fecal Coliform	MPN/100ml	14[5]		43[6]
pH	s.u.	6.0 – 9.0 at all times		
Copper	µg/L	2.9	---	5.8
Cyanide	µg/L	0.5	---	1.0
2,3,7,8-TCDD Equivalents	µg/L	1.3 x 10-8	---	2.6 x 10-8
Carbon Tetrachloride	µg/L	0.25	---	0.50
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	---	3.6

b. Percent Removal: The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent. Percent removal shall be based on the difference between weekly influent and effluent concentrations, as measured at Monitoring Locations INF-001 and EFF-003, averaged over each calendar month.

c. Acute Toxicity: There shall be no acute toxicity in treated wastewater discharged to Humboldt Bay. The Permittee will be considered compliant with this limitation when the survival of aquatic organisms in a 96-hour bioassay of undiluted effluent complies with the following.

i. Minimum for any one bioassay: 70 percent survival

ii. Median for any three or more consecutive bioassays: at least 90 percent survival

Compliance with this effluent limitation shall be determined in accordance with section V.A of the Monitoring and Reporting Program (Attachment E).

3. Interim Effluent Limitations – Outfall 001 (Humboldt Bay)

a. Until the activation of the upgraded WWTF configuration or December 1, 2016, whichever is sooner, the Permittee shall maintain compliance with the following interim effluent limitations at Outfall 001, with compliance measured at Monitoring Location EFF-001, as described in the attached MRP.

Table 7. Interim Effluent Limitations for Outfall 001 (Humboldt Bay)

Parameter	Units	Effluent Limitations		
		Average Monthly[2]	Average Weekly[3]	Maximum Daily
BOD_5	mg/L	30	45	---
	lbs/day [4]	575	863	---
TSS	mg/L	30	45	---
	lbs/day [4]	575	863	---
Settleable Solids	mL/L	0.1	---	0.2
Fecal Coliform	MPN/100ml	14[5]		43[6]
Chlorine, Total Residual	mg/L	0.01		0.02
pH	s.u.	6.0 – 9.0 at all times		
Cyanide	µg/L	0.5	---	1.0
2,3,7,8-TCDD Equivalents	µg/L	1.3×10^{-8}	---	2.6×10^{-8}
Carbon Tetrachloride	µg/L	0.25	---	0.50
Dichlorobromomethane	µg/L	0.56	---	1.12
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	---	3.6

b. Percent Removal: The average monthly percent removal of BOD_5 and TSS shall not be less than 85 percent. Percent removal shall be based on the difference between weekly influent and effluent concentrations, as measured at Monitoring Locations INF-001 and EFF-001, averaged over each calendar month.

c. Acute Toxicity: There shall be no acute toxicity in treated wastewater discharged to Humboldt Bay. The Permittee will be considered compliant with this limitation when the survival of aquatic organisms in a 96-hour bioassay of undiluted effluent complies with the following.

i. Minimum for any one bioassay: 70 percent survival

ii. Median for any three or more consecutive bioassays: at least 90 percent survival

Compliance with this effluent limitation shall be determined in accordance with section V.A of the Monitoring and Reporting Program (Attachment E).

B. Discharge Specifications

1. Discharge Specifications – Outfall 002 (AMWS)

a. The Permittee shall maintain compliance with the following final discharge specifications at Outfall 002, with compliance measured at Monitoring Location EFF-002, as described in the attached MRP.

Table 8. Discharge Specifications for Outfall 002 (AMWS)

Parameter	Units	Discharge Specifications		
		Average Monthly[3]	Average Weekly[4]	Maximum Daily
BOD_5	mg/L	45	65	---
TSS	mg/L	66	95	---
pH	s.u.	6.0 – 9.0 at all times		
Settleable Solids	mL/L	0.1	---	0.2
Chlorine, Total Residual[a]	mg/L	0.01		0.02

[a] Limitations for chlorine residual apply at all times. However, upon activation of the upgraded configuration, in the absence of chlorine usage prior Outfall 002, it is assumed that there will be no chlorine residual at this discharge location.

2. Disinfection Process Requirements for Ultraviolet (UV) Disinfection System

Upon completion and testing of the UV disinfection system, the Permittee shall operate the UV disinfection to maintain compliance with bacteria Effluent Limitations at Outfall 003.

a. Prior to initial discharge at Outfall 003 the Permittee shall submit to the Executive Officer a copy of a letter from the UV supplier showing written acceptance of the UV system capacity for the Arcata WWTF, based upon the National Water Research Institute validation testing from the CDPH for the UV disinfection system supplied for the Arcata WWTF.

b. Prior to initial discharge at Outfall 003 the Permittee shall submit to the Executive Officer and CDPH, an operations and maintenance plan detailing how compliance with the National Water Research Institute's guidelines will be assured at all times.

c. The UV disinfection system shall be operated in accordance with an appropriate operations and maintenance plan.

C. Land Discharge Specifications and Reclamation Specifications

This section of the Order is not applicable to discharges from the City of Arcata Wastewater Treatment Plant, as treated wastewater is not reclaimed nor applied to land for the purpose of disposal.

V. Receiving Water Limitations

A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required to be addressed as part of this Order. However, a receiving water condition not in conformance with the limitation is not necessarily a violation of this order. Compliance with receiving water limitations shall be measured at monitoring locations described in the MRP (Attachment E). The Regional Water Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred.

Discharges from the Arcata WWTF to Humboldt Bay shall not cause the following in the receiving waters:

1. The discharge shall not cause the dissolved oxygen concentration of the receiving water (Humboldt Bay) to violate the following objectives established by Table 3-1 of the Basin Plan.

- 6.0 mg/L, minimum in any sample
- 6.2 mg/L, 90 percent lower limit (90 percent or more of the monthly mean dissolved oxygen concentrations in a calendar year shall be greater than or equal to 6.2 mg/L)
- 7.0 mg/L, 50 percent lower limit (50 percent or more of the monthly mean dissolved oxygen concentrations in a calendar year shall be greater than or equal to 7.0 mg/L)

2. As established by Table 3-1 of the Basin Plan, the discharge shall not cause the pH of receiving waters to be depressed below natural background levels 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 0.2 units from that which occurs naturally.

3. The discharge shall not cause turbidity of receiving waters to be increased more than 20 percent above naturally occurring background levels.

4. The discharge shall not cause receiving waters to contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.

5. The discharge shall not cause receiving waters to contain floating materials, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.

6. The discharge shall not cause 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.

7. The discharge shall not cause coloration of receiving waters that causes nuisance or adversely affects beneficial uses.

8. The discharge shall not contain suspended material in concentrations that result in deposition of material in receiving waters that cause nuisance or adversely affect beneficial uses.

9. The discharge shall not cause or contribute concentrations of biostimulants to the receiving water that promote objectionable aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

10. The discharge shall not cause receiving waters to contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in humans, plants, animals, 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.

11. The natural receiving water temperature shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. The discharge shall not cause an increase of the receiving water by more than 5º F above natural receiving water temperature.

12. The discharge shall not cause an individual pesticide or combination of pesticides to be present in concentrations that adversely affect beneficial uses. The discharge must not cause bioaccumulation of pesticide, fungicide, wood treatment chemical, or other toxic pollutant concentrations in bottom sediments or aquatic life to levels which are harmful to human health. The discharge shall not cause the receiving waters to contain concentrations of pesticides in excess of the limiting concentrations in excess of the limiting concentrations established as Maximum Contaminant Levels by the Department of Health Services in title 22, Division 4, Chapter 15, section 64444 of the California Code of Regulations.

13. The discharge shall not cause 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 affect beneficial uses.

14. The discharge shall not cause concentrations of chemical constituents to occur in excess of the limiting concentrations established as Maximum Contaminant Levels by the Department of Health Services in title 22, Division 4, Chapter 15, Articles 4 and 5.5 of the California Code of Regulations.

B. Groundwater Limitations

The storage, use or disposal of wastewater or recycled water shall not cause or contribute to a statistically significant degradation of groundwater quality, cause exceedance of applicable water quality objectives or create adverse impacts to beneficial uses of groundwater.

VI. Provisions

A. Standard Provisions

1. **Federal Standard Provisions.** The Permittee shall comply with all applicable 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.

   a. Failure to comply with provisions or requirements of this Order, or non-compliance with 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 instances of non-compliance 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, reclamation specification, or receiving water limitation of this Order, the Permittee shall notify the Regional Water Board orally[7] within 24 hours of having knowledge of such noncompliance and shall confirm this notification in writing within 5 days, unless the Regional Water Board waives

[7] Oral reporting means direct contact with a Regional Water Board staff person. The oral report may be given in person or by telephone. After business hours, oral contact must be made by calling the State Office of Emergency Services at (800) 852-7550 or the Regional Water Board spill officer at (707) 576-2220.

confirmation. The written notification shall state the nature, time, duration, and cause of noncompliance, and shall describe the measures being taken to remedy the current noncompliance and to prevent recurrence, including, where applicable, a schedule of implementation. Other noncompliance requires written notification, as described above, at the time of the normal monitoring report.

B. Monitoring and Reporting Program (MRP) Requirements

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

C. Special Provisions

1. Reopener Provisions

a. Standard Revisions. Conditions that necessitate a major modification of a permit are described in title 40, Code of Federal Regulations[8] section 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. 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. 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

[8] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective or a new statewide implementation procedure is adopted by the State Water Board, this Order may be reopened.

d. 303(d)-Listed Pollutants. This provision allows the Regional Water Board to reopen this Order to modify existing effluent limitations or add effluent limitations or other requirements for pollutants that are the subject of any future TMDL action.

e. Water Effects Ratios (WERs) and Metal Translators. This provision allows the Regional Water Board to reopen this Order if future studies undertaken by the Permittee provide new information and justification for applying a water effects ratio or metals translator to a water quality objective for one or more priority pollutants.

f. Nutrients. This Order establishes monitoring requirements for total nitrate and monitoring requirements for the effluent and receiving water for nutrients (i.e., ammonia, nitrate, and phosphorus). This provision allows the Regional Water Board to reopen this Order if future monitoring data indicates the need for effluent limitations for any of these parameters.

g. Receiving Water Standards. This provision allows the Regional Water Board to reopen this Order if future monitoring data indicates that the discharge has caused 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 federal Clean Water Act and regulations adopted thereunder.

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Whole Effluent Toxicity.

In addition to a limitation for whole effluent acute toxicity, the MRP of this Order requires routine monitoring for whole effluent chronic toxicity to determine compliance with the Basin Plan's narrative water quality objective for toxicity. As established by the MRP, if either of the effluent limitations for acute toxicity is exceeded (a single sample with less than 70% survival or a three sample median of less than 90% survival) or a chronic toxicity monitoring trigger of either a single sample maximum of 2.0 TUc or a three sample median of 1.0 TUc (where TUc = 100/NOEC)[9] is exceeded, the Permittee shall conduct accelerated monitoring as specified in section V. of the MRP.

[9] This Order does not allow any credit for dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits a pattern of toxicity at 100% effluent.

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.b of this Order, below.

b. Toxicity Reduction Evaluations (TRE) Workplan.

If not already submitted, the Permittee shall prepare and submit to the Regional Water Board Executive Officer a TRE Workplan **within 180 days** of the effective date of this Order. Upon approval, this plan shall be reviewed and updated as necessary in order to remain current and applicable to the discharge and discharge facilities. The workplan shall describe the steps the Permittee intends to follow if toxicity is detected, and should include at least the following items:

i. A description of the investigation and evaluation techniques that would be used to identify potential causes and sources of toxicity, effluent variability, and treatment system efficiency.

ii. A description of the facility's methods of maximizing in-house treatment efficiency and good housekeeping practices to ensure control of potential sources.

iii. If a toxicity identification evaluation (TIE) is necessary, an indication of the person who would conduct the TIEs (i.e., an in-house expert or an outside contractor).

c. Toxicity Reduction Evaluations (TRE).

The TRE shall be conducted in accordance with the following:

i. The TRE shall be initiated within 30 days of the date of completion of the accelerated monitoring test, required by Section V of the MRP, observed to exceed either the acute or chronic toxicity parameter.

ii. The TRE shall be conducted in accordance with the Permittee's workplan.

iii. The TRE shall be in accordance with current technical guidance and reference material including, at a minimum, the USEPA manual EPA/833B 99/002.

iv. The TRE may end at any stage if, through monitoring results, it is determined that there is no longer toxicity observed.

v. The Permittee may initiate a TIE as part of the TRE process to identify the cause(s) of toxicity. As guidance, 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).

vi. 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.

vii. 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.

viii. 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.

d. Arcata Marsh Wildlife Sanctuary (AMWS) Evaluation.

By November 1, 2012, the Permittee shall prepare and submit for Executive Officer approval, a workplan for ongoing evaluation of the beneficial uses identified by the Regional Water Board under section III of the Fact Sheet for the AMWS. The workplan shall be developed in accordance with guidance from, but not limited to 1) *Methods for Evaluating Wetland Condition; 2) Study Design for Monitoring Wetlands*, EPA-822-R-02-015, *Methods for Evaluating Wetland Condition: Developing an Invertebrate Index of Biological d. of the proposed Order has been modified to Integrity for Wetlands.* Office of Water, U.S. Environmental Protection Agency, Washington, DC. EPA-822-R-02-019, and 3) *Methods for Evaluating Wetland Condition: Using Amphibians in Bioassessments of Wetlands.* Office of Water, U.S. Environmental Protection Agency, Washington, DC. EPA-822-R-02-022, standard acceptable assessment tools and be of sufficient scope to demonstrate that the discharge of treated wastewater at Outfall 002 is protective of the beneficial uses of the AMWS. The workplan shall include, but not be limited to, an ongoing study to determine the following:

i. Overall ecological condition of AMWS using biological assessments;

ii. Nutrient levels/enrichment of the AMWS;

iii. Whether AMWS condition is improving, degrading, or staying the same over time;

iv. Seasonal patterns in AMWS conditions;

v. System stressors and associated thresholds (ie. how much the AMWS system can be disturbed without causing unacceptable changes in wetland system quality or degradation of beneficial uses).

The findings from these studies will be used for adaptive management to ensure the AMWS retains maximum treatment function while protecting beneficial uses.

3. Best Management Practices and Pollution Prevention

a. Pollutant Minimization Program (PMP)

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:

i. A sample result is reported as DNQ and the effluent limitation is less than the RL; or

ii. 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.

The PMP shall include, but not be limited to, the following actions and submittals acceptable to the Regional Water Board:

iii. 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;

iv. Quarterly monitoring for the reportable priority pollutant(s) in the influent to the wastewater treatment system;

v. 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;

vi. Implementation of appropriate cost-effective control measures for the reportable priority pollutant(s), consistent with the control strategy; and

vii. An annual status report that shall be submitted as part of the Annual WWTF Report due March 1st to the Regional Water Board and shall include:

(a) All PMP monitoring results for the previous year;

(b) A list of potential sources of the reportable priority pollutant(s);

(c) A summary of all actions undertaken pursuant to the control strategy; and

(d) A description of actions to be taken in the following year.

4. Construction, Operation and Maintenance Specifications

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

b. The Permittee shall maintain an updated Operation and Maintenance (O&M) Manual for the Facility. The Permittee shall update the O&M Manual, as necessary, to conform to changes in operation and maintenance of the Facility. The O&M Manual shall be readily available to operating personnel onsite and for review by state or federal inspectors. The O&M Manual shall include the following.

i. Description of the Facility's table of organization showing the number of employees, duties and qualifications and plant attendance schedules (daily, weekends and holidays, part-time, etc.). The description should include documentation that the personnel are knowledgeable and qualified to operate the treatment facility so as to achieve the required level of treatment at all times.

ii. Detailed description of safe and effective operation and maintenance of treatment processes, process control instrumentation and equipment.

iii. Description of laboratory and quality assurance procedures.

iv. Process and equipment inspection and maintenance schedules.

v. Description of safeguards to assure that, should there be reduction, loss, or failure of electric power, the Permittee will be able to comply with requirements of this Order.

vi. Description of preventive (fail-safe) and contingency (response and cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. These plans shall identify the possible sources (such as loading and storage areas, power outage, waste treatment unit failure, process equipment failure, tank and piping failure) of accidental discharges, untreated or partially treated waste bypass, and polluted drainage.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Wastewater Collection Systems

i. Statewide General WDRs for Sanitary Sewer Systems

On May 2, 2006, the State Water Board adopted State Water Board Order No. 2006-003-DWQ, Statewide General WDRs for Sanitary Sewer Systems. Order No. 2006-0003-DWQ requires all public agencies that currently own or operate sanitary sewer systems to apply for coverage under the General WDRs. The deadline for existing dischargers to apply for coverage under State Water Board Order No. 2006-003-DWQ was November 6, 2006. On February 20, 2008, the State Water Board adopted Order No. WQ 2008-0002-EXEC Adopting Amended Monitoring and Reporting Requirements for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. The Permittee shall maintain coverage under, and is separately subject to the requirements and enforcement of Order Nos. 2006-0003-DWQ and WQ-2008-0002-EXEC, and any future revisions thereto for operation of its wastewater collection system, which are not incorporated by reference herein.

ii. Standard Provisions Applicable

In addition to the coverage obtained under Order No. 2006-0003, the Permittee's collection system is part of the treatment system that is subject to this Order. As such, pursuant to federal regulations, the Permittee must properly operate and maintain its collection system [section 122.41(e)], report any non-compliance [section 122.41(l)(6) and (7)], and mitigate any discharge from the collection system that might violate this Order [section 122.41(d)].

iii. Spills and Sanitary Sewer Overflows

(a) The Permittee shall take all feasible steps to stop spills and sanitary sewer overflows (SSOs) as soon as possible. All

reasonable steps should be taken to collect spilled material and protect the public from contact with wastes or waste-contaminated soil or surfaces.

(b) The Permittee shall report orally and in writing to the Regional Water Board staff all SSOs and unauthorized spills of waste. Spill notification and reporting shall be conducted in accordance with section X.E of the Monitoring and Reporting Program.

b. Pretreatment of Industrial Waste

i. The City shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR Part 403, including any subsequent regulatory revisions to Part 403. Where Part 403 or subsequent revision places mandatory actions upon the City as the Control Authority, but does not specify a timetable for completion of the actions, the City shall complete the required actions within six months from the issuance date of this permit or the effective date of the Part 403 revisions, whichever comes later. For violations of pretreatment requirements, the City shall be subject to enforcement actions, penalties, fines and other remedies by the U.S. Environmental Protection Agency (EPA) or other appropriate parties, as provided in the Act. EPA may initiate enforcement action against a nondomestic user for noncompliance with applicable standards and requirements as provided in the Act.

ii. The City shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d) and 402(b) of the Act with timely, appropriate and effective enforcement actions. The City shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.

iii. The City shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:

(a) Implement the necessary legal authorities as provided in 40 CFR Part 403.8(f)(1);

(b) b. Enforce the pretreatment requirements under 40 CFR Part 403.5 and 403.6;

(c) c. Implement the programmatic functions as provided in 40 CFR Part 403.8(f)(2); and

(d) d. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR Part 403.8(f)(3).

(e) The City shall submit annually a report to EPA Pacific Southwest Region, and the State describing its pretreatment activities over the previous year. In the event the City is not in compliance with any conditions or requirements of this permit, then the City shall also include the reasons for noncompliance and state how and when the City shall comply with such conditions and requirements. This annual report shall cover operations from January 1 through December 31 and is due on February 28 of each year. The report shall contain, but not be limited to, the following information:

(f) A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent performed with the techniques prescribed in 40 CFR Part 136 for those pollutants EPA has identified under section 307(a) of the Act, which are known or suspected to be discharged by nondomestic users. This will consist of an annual full priority pollutant scan, with quarterly samples analyzed only for those pollutants detected in the full scan Sampling and analysis for specific industrial users may be modified pursuant to federal pretreatment regulations at 40 CFR 12(e)(2), which allows a an industrial user to forego sampling of a pollutant regulated by the categorical pretreatment standard if the industrial user demonstrates that the pollutant is neither present in the discharge nor expected to be present in the discharge. The City is not required to sample and analyze for asbestos. Sludge sampling and analysis are covered in the sludge section of this permit. The City shall also provide any influent or effluent monitoring data performed with the techniques prescribed in 40 CFR Part 136 for non-priority pollutants which the City believes may be causing or contributing to interference or pass through.

(g) A discussion of Upset, Interference, or Pass Through incidents, if any, at the treatment plant which the City knows or suspects were caused by nondomestic users of the POTW system. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of the nondomestic user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations, if any, to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent pass through or interference;

(h) An updated list of the City's significant industrial users (SIUs) including their names and addresses, and a list of deletions, additions, and SIU name changes keyed to the previously

submitted list. The City shall provide a brief explanation for each change. The list shall identify the SIUs subject to federal categorical standards by specifying which set(s) of standards are applicable to each SIU. The list shall also indicate which SIUs are subject to local limitations;

(i) The City shall characterize the compliance status of each SIU by providing a list or table which includes the following information:

i. Name of the SIU;

ii. Category, if subject to federal categorical standards;

iii. The type of wastewater treatment or control processes in place;

iv. The number of samples taken by the POTW during the year;

v. The number of samples taken by the SIU during the year;

vi. For an SIU subject to discharge requirements for total toxic organics, whether all required certifications were provided;

vii. A list of the standards violated during the year. Identify whether the violations were for categorical standards or local limits;

viii. Whether the facility is in significant noncompliance (SNC) as defined at 40 CFR 403.12(f)(2)(vii) at any time during the year; and

ix. A summary of enforcement or other actions taken by the City during the year to return the SIU to compliance. Describe the type of action, final compliance date, and the amount of fines and penalties collected, if any. Describe any proposed actions for bringing the SIU into compliance;

(j) A brief description of any programs the City implements to reduce pollutants from nondomestic users that are not classified as SIUs;

(k) A brief description of any significant changes in operating the pretreatment program which differ from the previous year including, but not limited to, changes concerning the program's administrative structure, local limits, monitoring program or monitoring frequencies, legal authority, enforcement policy, funding levels, or staffing levels;

(l) A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases; and

(m) A summary of activities to involve and inform the public of the program including a copy of the newspaper notice, if any, required under 40 CFR 403.8(f)(2)(vii).

(n) The City shall submit a semiannual SIU noncompliance status report to EPA Pacific Southwest Region, and the State. The report shall cover the period of January 1 through June 30, and shall be submitted by July 31. The report shall contain:

(o) The name and address of all SIUs which violated any discharge or reporting requirements during the report period;

(p) A description of the violations including whether any discharge violations were for categorical standards or local limits;

(q) A description of the enforcement or other actions that were taken by the City to remedy the noncompliance; and

(r) The status of active enforcement and other actions taken by the City in response to SIU noncompliance identified in previous reports.

iv. Sludge Disposal and Handling Requirements

(a) Sludge, as used in this document, means the solid, semisolid, and liquid residues removed during primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screenings generated during preliminary treatment. Biosolids refers to sludge that has been treated, tested, and shown to be capable of being beneficially and legally used pursuant to federal and State regulations as a soil amendment for agriculture, silviculture, horticulture, and land reclamation activities.

(b) All collected sludges and other solid waste removed from liquid wastes shall be removed from screens, sumps, ponds, and tanks as needed to ensure optimal plant operation and disposed of in accordance with applicable federal and State regulations.

(c) The use and disposal of biosolids are separately required to comply with all the requirements in Part 503, which are enforceable by the USEPA, not the Regional Water Board. If during the life of this Order, the State accepts primacy for implementation of Part 503, the Regional Water Board may also initiate enforcement where appropriate.

(d) Sludge or biosolids that are disposed of in a municipal solid waste landfill or used as landfill daily cover shall separately meet the applicable requirements of Part 258, which are not incorporated by reference into this Order. In the annual self-monitoring report, the Permittee shall include the amount of sludge or biosolids disposed of, and the landfill(s) which received the sludge or biosolids.

(e) The Permittee shall take all reasonable steps to prevent and minimize any sludge use or disposal contrary to the requirements

of this Order that has a likelihood of adversely affecting human health or the environment.

(f) Solids and sludge treatment, storage, and disposal or reuse shall not create a nuisance, such as objectionable odors or flies, and shall not result in groundwater contamination.

(g) Solids and sludge treatment and storage sites shall have facilities adequate to divert surface water runoff from adjacent areas, to protect the boundaries of the site from erosion, and to prevent drainage from the treatment and storage site. Adequate protection is defined as protection from at least a 100-year storm.

(h) The discharge of sewage sludge, biosolids, and other waste solids shall not cause waste material to be in a position where it is, or can be, conveyed from the treatment and storage sites and deposited in the waters of the state.

(i) The beneficial use of biosolids by application to land as soil amendment is not covered or authorized by this Order. If applicable, for the discharge of biosolids from the wastewater treatment plant, the Permittee shall seek separate authorization to discharge under the requirements of the State Water Resources Control Board Water Quality Order No. 2004-0012–DWQ General Waste Discharge Requirements for the Discharge of Biosolids to Land or Use as a Soil Amendment In Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order), or other WDRs issued by the Regional Water Board, which are not incorporated by reference into this Order.

v. Operator Certification

Supervisors and operators of municipal WWTFs shall possess a certificate of appropriate grade in accordance with title 23, Cal. Code of Regs, section 3680. The State Water Board may accept experience in lieu of qualification training. In lieu of a properly certified WWTF operator, the State Water Board may approve use of a water treatment facility operator of appropriate grade certified by CDPH where water reclamation is involved.

vi. Adequate Capacity

If the WWTF or effluent disposal areas will reach capacity within 4 years, the Permittee shall notify the Regional Water Board. A copy of such notification shall be sent to appropriate local elected officials, local permitting agencies, and the press. Factors to be evaluated in assessing reserve capacity shall include, at a minimum, (1) comparison of the wet

weather design flow with the highest daily flow[10], and (2) comparison of the average dry weather design flow with the lowest monthly flow. The Permittee shall demonstrate that adequate steps are being taken to address the capacity problem. The Permittee shall submit a technical report to the Regional Water Board showing how flow volumes will be prevented from exceeding capacity, or how capacity will be increased, within 120 days after providing notification to the Regional Water Board, or within 120 days after receipt of Regional Water Board notification, that the WWTP will reach capacity within 4 years. The time for filing the required technical report may be extended by the Regional Water Board. An extension of 30 days may be granted by the Executive Officer, and longer extensions may be granted by the Regional Water Board itself. [CCR Title 23, section 2232]

6. Other Special Provisions

a. Storm Water. For the control of storm water discharged from the site of the WWTF, if applicable, the Permittee shall seek separate authorization to discharge under the requirements of the State Water Board's Water Quality Order 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities (or subsequent renewed versions of the General Permit), which is not incorporated by reference into this Order.

b. Engineering and Antidegradation Analysis for Proposed Increased Wet Weather Treatment Capacity. The treatment facility's current, documented, average wet weather treatment capacity is 5.0 mgd. Before the Regional Water Board can consider an increase in this figure, the Permittee shall submit an Engineering and Antidegradation Analysis, which (1) describes the hydraulic and treatment capacities of significant components of the WWTF and its associated collection system, (2) identifies the flow or treatment limiting component(s) of the WWTF and the collection system, (3) characterizes historical wet weather flows to the WWTF (frequency, duration, flow), (4) provides an analysis of impacts to the receiving water(s) resulting from the incremental increase in flow volume and mass of pollutants discharged, and (5) provides an antidegradation analysis to document consistency, or not, with applicable State and federal antidegradation regulations, guidance, and policy.

[10] Wet weather design flow will be included in a WWTF capacity assessment once the upgraded configuration is complete and Discharge Point 003 is in use.

7. Compliance Schedules

Not Applicable.

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 shall be determined using sample reporting protocols defined in the MRP 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 2,3,7,8-TCDD Equivalents in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported minimum level (ML).

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).

A.

ATTACHMENT A – DEFINITIONS

Arithmetic Mean (μ), 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: Σx 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 are those 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 are substances that are known to cause cancer in living organisms.

Coefficient of Variation (CV) is 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.

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

Dilution Credit is 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.

Effluent Concentration Allowance (ECA) is 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 means 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.

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

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. 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.

Inland Surface Waters are 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).

Maximum Daily Effluent Limitation (MDEL) means 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.

Mean Daily Dry Weather Influent Flow is the average daily flow measured during the calendar month, which, based on flow measurement, is shown to be the lowest flow of the calendar year.

Median is 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) is 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) is 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.

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

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

Ocean Waters are 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.

Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

Pollutant Minimization Program (PMP) means 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 means 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.

Reporting Level (RL) is the ML (and its associated analytical method) chosen by the Permittee for reporting and compliance determination from the MLs included in this Order. 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.

Satellite Collection System is the portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

Source of Drinking Water is any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

Standard Deviation (σ) is a measure of variability that is calculated as follows:

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

where:

x is the observed value;

μ is the arithmetic mean of the observed values; and

n is the number of samples.

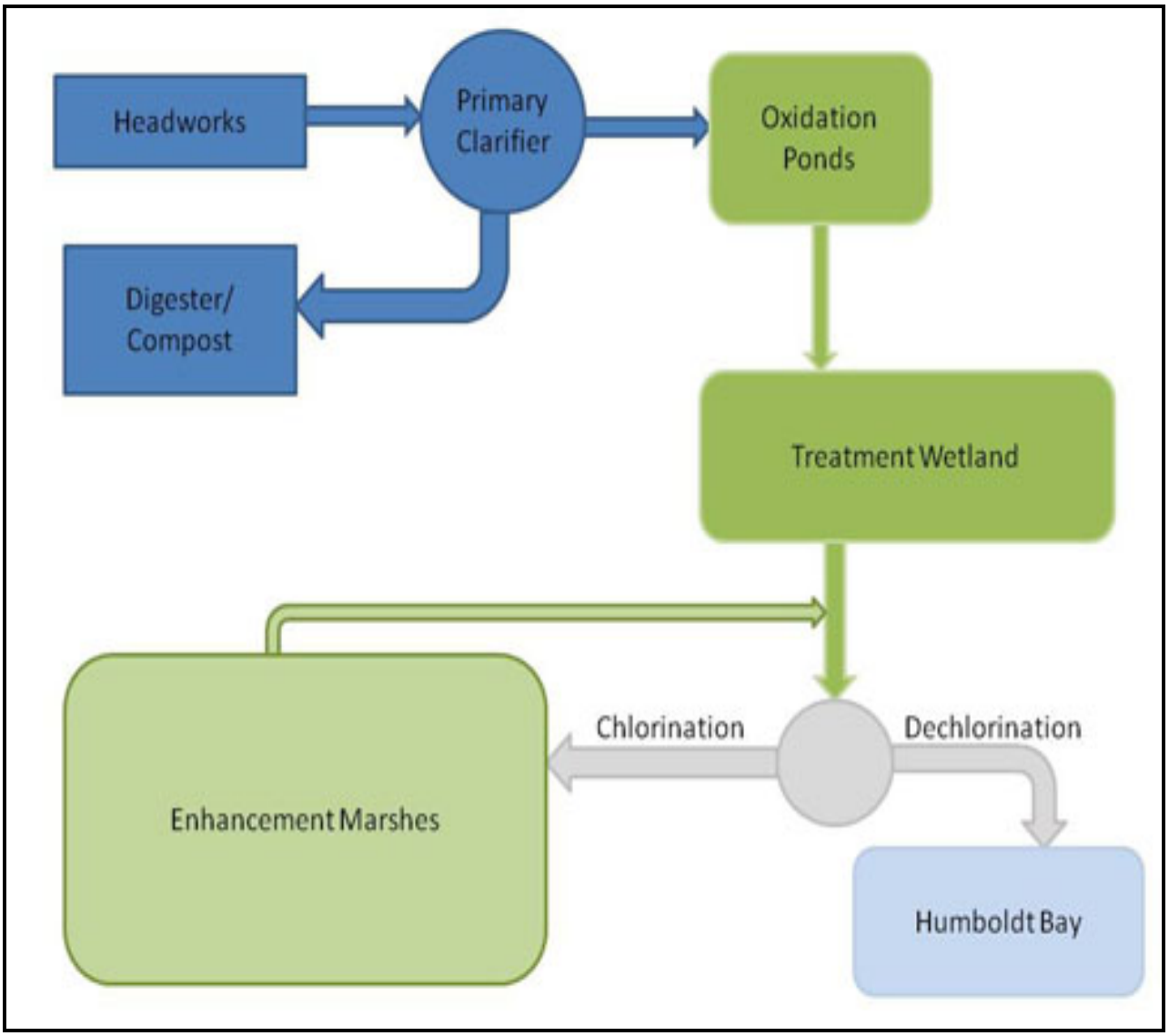
Toxicity Reduction Evaluation (TRE) is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps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

B.

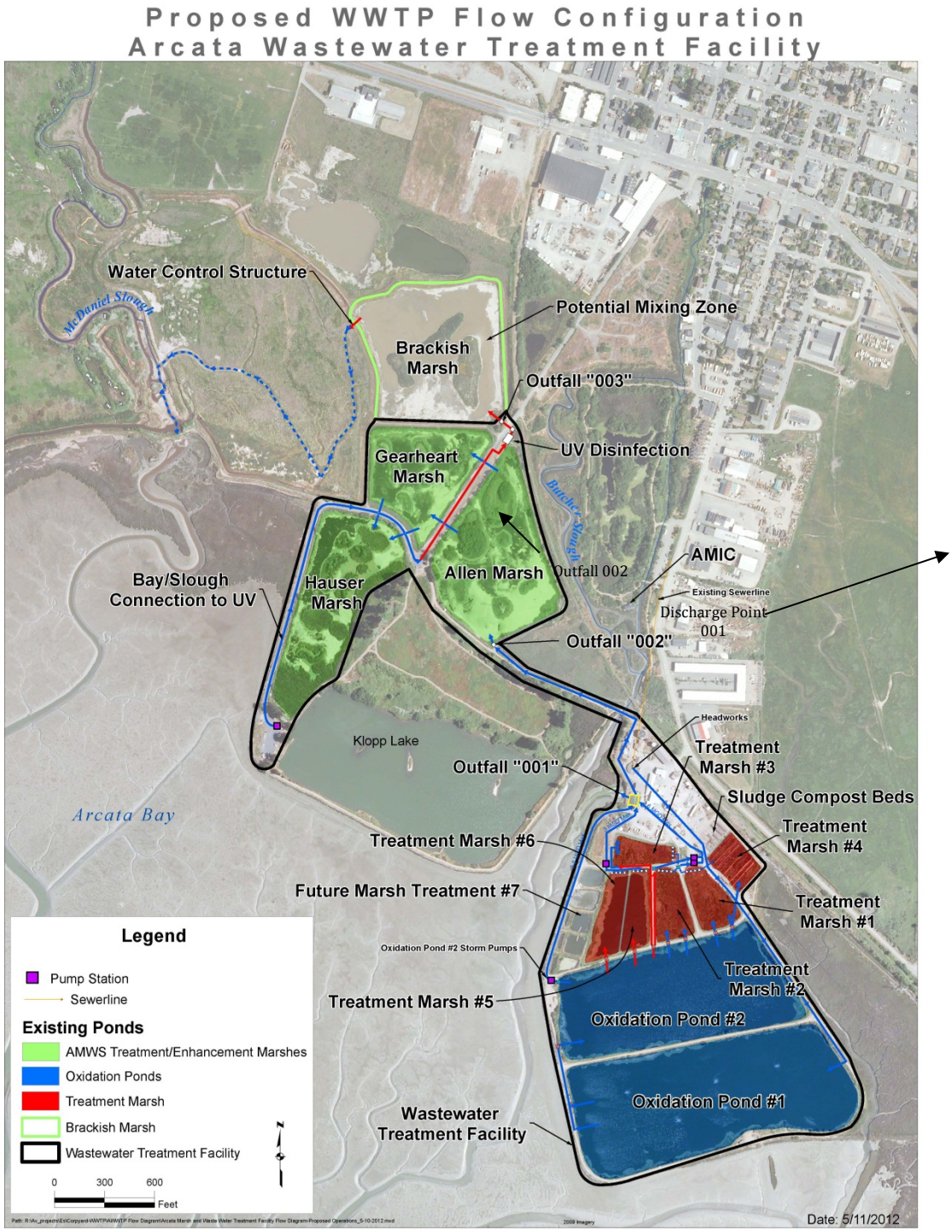
ATTACHMENT B – FACILITY MAP

C.

ATTACHMENT C – EXISTING CONFIGURATION FLOW SCHEMATIC



ATTACHMENT C – UPGRADED CONFIGURATION FLOW SCHEMATIC



D.

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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(e).)

E. Property Rights

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(i); Wat. 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(m)(4)(i)):

   a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 C.F.R. § 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 C.F.R. § 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.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

4. 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 C.F.R. § 122.41(m)(4)(ii).)

5. 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(n)(3)):

   a. An upset occurred and that the Permittee can identify the cause(s) of the upset (40 C.F.R. § 122.41(n)(3)(i));

   b. The permitted facility was, at the time, being properly operated (40 C.F.R. § 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 C.F.R. § 122.41(n)(3)(iii)); and

   d. The Permittee complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(j)(2).)

B. Records of monitoring information shall include:

1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));
2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));
3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));
5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and
6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

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

1. The name and address of any permit applicant or Permittee (40 C.F.R. § 122.7(b)(1)); and
2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 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 C.F.R. § 122.41(h); Wat. 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.22(b)(2)); and

c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 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 C.F.R. § 122.41(l)(6)(i).)

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 C.F.R. § 122.41(l)(6)(ii)):

   a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(A).)

   b. Any upset that exceeds any effluent limitation in this Order. (40 C.F.R. § 122.41(l)(6)(ii)(B).)

3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 C.F.R. § 122.41(l)(6)(iii).)

F. Planned Changes

The Permittee shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 C.F.R. § 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in section 122.29(b) (40 C.F.R. § 122.41(l)(1)(i)); or

2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 C.F.R. § 122.41(l)(1)(ii).)

3. The alteration or addition results in a significant change in the Permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 C.F.R.§ 122.41(l)(1)(iii).)

G. Anticipated Noncompliance

The Permittee shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 C.F.R. § 122.41(l)(2).)

H. Other Noncompliance

The Permittee shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 C.F.R. § 122.41(l)(7).)

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 C.F.R. § 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.

VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

A. Publicly-Owned Treatment Works (POTWs)

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 C.F.R. § 122.42(b)):

1. Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 C.F.R. § 122.42(b)(1)); and

2. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 C.F.R. § 122.42(b)(2).)

3. Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 C.F.R. § 122.42(b)(3).)

E.

ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

Title 40 of the Code of Federal Regulations section 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 MRP establishes monitoring and reporting requirements, which implement the federal and California regulations.

I. GENERAL MONITORING PROVISIONS

A. 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 1 hour.

B. If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved by title 40, Part 136, 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 monthly and annual discharger monitoring reports.

C. Laboratories analyzing monitoring samples shall be certified by the Department of Public Health (DPH; formerly the Department of Health Services), in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their 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 ML value is below the effluent limitation, the lowest ML shall be selected as the 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 Minimum Levels for Priority Pollutants

CTR#	Constituent	Types of Analytical Methods Minimum Levels (µg/L)				
		GC[a]	GCMS[b]	ICPMS[c]	SPGFAA[d]	Colorimetric
6	Copper	---	---	0.5	2	---
14	Cyanide	---	---	---	---	5
16	2,3,7,8 TCDD (dioxin TEQ)	The Permittee shall use USEPA Method 1613				
21	Carbon Tetrachloride	0.5	---	---	---	---
27	Dichlorobromomethane	0.5	---	---	---	---
68	Bis(2-Ethylhexyl)Phthalate	---	5	---	---	---

[a] Gas Chromatography, [b] Gas Chromatography/Mass Spectroscopy, [c] Inductively Coupled Plasma/ Mass Spectroscopy, [d] Stabilized Platform Graphite Furnace Atomic Absorption

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/Outfall Location	Monitoring Location	Monitoring Location Description
---	INF-001	Location where representative samples of wastewater can be collected prior to treatment and following all significant input of wastewater to the treatment system.
001	EFF-001	Location where representative samples of treated wastewater, to be discharged to Humboldt Bay at Outfall 001, can be collected at a point after treatment, including chlorination/dechlorination, and before contact with the receiving water.
002	EFF-002	Location where representative samples of treated wastewater, to be discharged to the Arcata Marsh Wildlife Sanctuary (AMWS) at Outfall 002, can be collected before contact with the receiving water.
---	AMWS	Areas throughout the Arcata Marsh Wildlife Sanctuary representative of various wetland conditions in accordance with the Special Study Required under Order Section VI.C.2.d
003	EFF-003	Location where representative samples of treated wastewater, to be discharged to Humboldt Bay at Outfall 003, can be collected at a point after treatment, including UV disinfection, and before contact with the receiving water.
---	RSW-001, etc.	Receiving Water Location(s) within the brackish marsh representative of various zones of mixing within the marsh.

III. INFLUENT MONITORING REQUIREMENTS

A. Monitoring Location INF-001

1. The Permittee shall monitor influent to the wastewater treatment plant at Monitoring Location Name INF-001 as follows.

Table E-3. Influent Monitoring

Constituent	Reporting Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
BOD_5	mg/L	24-hr composite	Weekly [1]	Standard Methods
TSS	mg/L	24-hr composite	Weekly [1]	Standard Methods
Flow [2]	MGD	Continuous	Continuous	Meter

IV. EFFLUENT MONITORING REQUIREMENTS

A. Monitoring Locations EFF-001 and EFF-003

1. The Permittee shall monitor treated wastewater to be discharged to Humboldt Bay prior to contact with receiving water at Monitoring Locations EFF-001 and/or EFF-003 as appropriate, based upon active discharge from either or both locations as follows:

Table E-4. Effluent Monitoring, Monitoring Location EFF-001 and/or EFF-003

Parameter	Reporting Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Flow [2]	mgd	Continuous	Continuous	Meter
BOD_5	mg/L	24-hr composite	Weekly	SM 5210 B
TSS	mg/L	24-hr composite	Weekly	SM 2540 D
Settleable Solids	mL/L/hr	Grab	Daily	SM 2540 F
Fecal Coliform Bacteria	MPN	Grab	Weekly	Standard Methods
pH	s.u.	Grab	Daily	40 CFR 136
Chlorine Residual	mg/L	Grab	Continuous	Standard Methods
Copper[3]	µg/L	Grab	Monthly[4]	40 CFR 136
Hardness, Total (as $CaCO_3$) [3][5]	mg/L	Grab	Monthly[4]	Standard Methods
Cyanide[6]	µg/L	Grab	Monthly[4]	40 CFR 136

[1] Monitoring of BOD_5 and TSS in influent shall coincide with monitoring of these parameters in effluent. For compliance determination, weekly and monthly averages will be based on the calendar weeks (Sunday through Saturday) and months.

[2] For each month, the Permittee shall report the maximum daily and mean daily flow rates.

[3] Copper and total hardness monitoring requirements are applicable only at EFF-003.

[4] When Discharge Point 001 is used for high flows exceeding 5.9 mgd, effluent monitoring at EFF-001 shall be conducted annually.

[5] Monitoring for hardness shall be conducted concurrently with effluent sampling for copper.

Table E-4. Effluent Monitoring, Monitoring Location EFF-001 and/or EFF-003

Parameter	Reporting Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
TCDD Equivalents	pg/L	Grab	Quarterly[3]	Method 1613
Carbon Tetrachloride	µg/L	Grab	Quarterly[3]	40 CFR 136
Dichlorobromomethane	µg/L	Grab	Quarterly[3]	40 CFR 136
Bis(2-Ethylhexyl)Phthalate	µg/L	Grab	Quarterly[3]	40 CFR 136
Acute Toxicity [7]	% Survival	24-hr composite	Quarterly[3]	40 CFR 136
Chronic Toxicity [5]	TUc	Grab	Quarterly[3]	40 CFR 136
Chronic Toxicity (narrative)	Passed/ Triggered[8]			---
CTR Pollutants [9]	µg/L	Grab	Annually	40 CFR 136
Title 22 Pollutants [10]	µg/L	Grab	2x / permit cycle	40 CFR 136
Nitrate Nitrogen	mg/L N	Grab	Quarterly[3]	40 CFR 136
Ammonia Nitrogen	mg/L N	Grab	Quarterly[3]	40 CFR 136
Phosphorus, Total	mg/L P	Grab	concurrent with special study	40 CFR 136

B. Monitoring Location EFF-002

1. The Permittee shall monitor treated wastewater to be discharged to the AMWS at Monitoring Location EFF-002 as follows.

---

7 Whole effluent acute and chronic toxicity shall be monitored in accordance with the requirements of section V of this Monitoring and Reporting Program.

8 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 failed in relation to the chronic toxicity trigger of 2 TUc or a three sample median of 1 TUc (where TUc =100/NOEC). For narrative chronic toxicity reporting, "Passed" shall be reported when chronic toxicity effluent results do not trigger accelerated testing (e.g., a result of ≤ 1TUc = 100/NOEC). "Triggered" shall be reported when chronic toxicity effluent results trigger accelerated testing by exceeding the chronic toxicity trigger of 2 TUc = 100/NOEC or a three sample median of >1TUc.

9 CTR pollutants are those pollutants identified in the California Toxics Rule at title 40 section 131.38.

10 The title 22 pollutants are those pollutants for which the Department of Health Services has established Maximum Contaminant Levels (MCLs) at title 22, Division 4, Chapter 15, sections 64431 (Inorganic Chemicals) and 64444 (Organic Chemicals) of the California Code of Regulations.

Table E-5. Effluent Monitoring, Monitoring Location EFF-002

Parameter	Reporting Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Flow [2]	mgd	Continuous	Continuous	Meter
BOD_5	mg/L	24-hr composite	Weekly	SM 5210 B
TSS	mg/L	24-hr composite	Weekly	SM 2540 D
Settleable Solids	mL/L/hr	Grab	Daily	SM 2540 F
pH	s.u.	Grab	Daily	40 CFR 136
Acute Toxicity	% Survival	24-hr composite	concurrent with special study	concurrent with special study

V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

The three species selection process will be implemented upon the City's activation of the new disinfection system and implementation of discharges at Discharge Point 003. During the interim period, whole effluent toxicity testing will be performed with the most sensitive species identified during the most recent three species selection testing.

A. Acute Toxicity Testing

The Permittee shall conduct whole effluent acute toxicity testing to determine compliance with the effluent limitation for acute toxicity established by section IV. A. 1 of the Order.

1. **Test Frequency**. The Permittee shall conduct acute WET testing in accordance with the schedule established by this MRP, as summarized in section IV.A.1. and Table E-4, above.

2. **Sample Type**. For 96-hour static renewal or 96-hour static non-renewal testing, the effluent samples shall be 24-hr composite, representative of the volume and quality of the discharge from the facility, and collected at monitoring Location EFF-001 and EFF-003.

3. **Test Species**. Test species for acute WET testing at EFF-001 and EFF-003, where the discharge is to an estuarine environment, shall be an invertebrate, (percent survival and growth), and a vertebrate, (percent survival and growth), for at least the first two suites of tests conducted within 12 months after the effective date of the Order. After this screening period, monitoring shall be conducted using the most sensitive species. At least one time every five years, the Permittee shall re-screen with the two species identified above and continue routine monitoring with the most sensitive species. Species selected for testing shall be from the following table:

Species	Common Name
A. bahia	Mysids
T. pseudonana	Brown algae
C. variegatus	Sheepshead minnows
E. estuarius	Pill bugs
M. beryllina	Inland silverside
C. dubia	Water fleas
C. dilutus	Fly larvae
C. fluminea	Freshwater clam
D. magna	Daphnia
D. pulex	Daphnia
H. azteca	Side swimmers
L. variegatus	Freshwater polycheate
P. promelas	Fatheads
S. capricornutum	Green algae
A. abdida	Amphipod
A. affinis	Topsmelt
C. gigas	Oysters
H. costata	Mysids
H. rufiscens	Red abalone
M. edulis	Mussels
M. pyrifera	Kelp
N. arenaceodentata	Polycheate

4. **Test Methods**. The presence of acute toxicity shall be estimated as specified in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* (USEPA Report No. EPA-821-R-02-012, 5th edition or subsequent editions), or other methods approved by the Executive Officer.

5. **Test Dilutions.** Acute WET tests on effluent samples collected at Monitoring Locations EFF-001 and EFF-003, shall be conducted using a series of five dilutions of 12.5, 25, 50, 75, and 100 percent effluent. Dilution and control waters shall be receiving water samples collected beyond the influence of the discharges. Standard dilution water may be used if the above source exhibits toxicity.

6. **Test Failure.** If an acute 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.

7. **Accelerated Monitoring.** If the result of any acute toxicity test fails to meet the single test minimum limitation (70 percent survival), and the testing meets all test acceptability criteria, the Permittee shall take two more samples, one within 14 days and one within 21 days following receipt of the initial sample result. If any one of the additional samples do not comply with the three sample median minimum limitation (90 percent survival), the Permittee shall initiate a Toxicity Reduction Evaluation (TRE) in accordance with section VI. C. 2. a of the Order. If the two additional samples are in compliance with the acute toxicity requirement and testing meets all test acceptability criteria, then a TRE will not be required. If the discharge stops before additional samples can be collected, the Permittee shall contact the Executive Officer within 21 days with a plan to demonstrate compliance with the effluent limitation.

8. **Notification.** The Permittee shall notify the Regional Water Board in writing 14 days after the receipt of test results exceeding the acute toxicity effluent limitation. The notification will describe actions the Permittee has taken or will take to investigate and correct the cause(s) of toxicity. It may also include a status report on any actions required by this Order, with a schedule for actions not yet completed. If no actions have been taken, the reasons shall be given.

9. **Reporting**. Test results for acute toxicity tests shall be reported according to section 12 (Report Preparation) of *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms* or in an equivalent format that clearly demonstrates that the Permittee is in compliance with effluent limitations, and other permit requirements.

B. Chronic Toxicity Testing

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

1. **Test Frequency**. The Permittee shall conduct chronic WET testing at EFF-001 and/or EFF-003 in accordance with the schedule established by this MRP, as summarized in section IV.A.1. and Table E-4, above.

2. **Sample Type.** For 96-hour static renewal or 96-hour static non-renewal testing, effluent samples from Monitoring Locations EFF-001 and/or Eff-003 shall be grab samples that are representative of the volume and quality of the discharge from the facility. For toxicity tests requiring renewals, grab samples collected on consecutive days are required.

3. **Test Species.** Test species for chronic WET testing at EFF-001 and/or EFF-003, where the discharge is to an estuarine environment, shall be a vertebrate, (percent survival and growth), an invertebrate (percent survival and growth), and a plant, (germination and germ-tube length test) in accordance with the species identified in the table contained in section V.A.3. above. Initial testing for the first two suites 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 five years, the Permittee shall rescreen once with the three species listed above, and continue to monitor with the most sensitive species.

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 Freshwater Organisms (USEPA Report No. EPA-821-R-02-013 or Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA-821-R-02-014 or subsequent editions).

5. **Test Dilutions.** The chronic toxicity test shall be conducted using a series of at least five dilutions and a control. The series shall consist of the following dilution series: 12.5, 25, 50, 75, and 100 percent, and a control. Control and dilution water shall be receiving water collected at an appropriate location upstream of the discharge point. Laboratory water may be substituted for receiving water, as described in the USEPA test methods manual, upon approval by the Executive Officer. If the dilution water used is different from the culture water, a second control using culture water shall be used.

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 either the reference toxicant test or the 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 in writing 14 days after the receipt of test results, which indicate the exceedance of the monitoring "trigger" for chronic toxicity.

9. **Accelerated Monitoring Requirements.** If the result of any chronic toxicity test exceeds either monitoring "trigger" of 1.0 TUc as a three-sample median, or 2.0 TUc

as a single sample maximum, 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 results of four consecutive accelerated monitoring tests do not exceed the single sample maximum chronic toxicity "trigger" of 2.0 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.

b. If the source(s) of the toxicity is easily identified (i.e. temporary plant 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.

c. If the result of any accelerated toxicity test exceeds the monitoring "trigger", the Permittee shall cease accelerated monitoring and initiate a TRE to investigate the cause(s) and identify corrective actions to reduce or eliminate the chronic toxicity. Within thirty (30) days of notification by the laboratory of the test results exceeding the monitoring "trigger" during accelerated monitoring, the Permittee shall submit a TRE Action Plan to the Regional Water Board including, at minimum:

i. Specific actions the Permittee will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;

ii. Specific actions the Permittee will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and

iii. A schedule for these actions.

C. Chronic Toxicity Reporting

1. **Routine Reporting**. Test results for chronic WET tests shall be reported according to the appropriate acute and chronic guidance manuals and this Monitoring and Reporting Program and shall be attached to the self-monitoring report. Test results shall include, at a minimum, for each test:

   a. sample date(s)

   b. test initiation date

   c. test species

   d. end point values for each dilution (e.g., number of young, growth rate, percent survival)

   e. NOEC value(s) in percent effluent

   f. IC15, IC25, IC40, and IC50 values (or EC15, EC25…etc.) in percent effluent

   g. TUc values (100/NOEC)

   h. Mean percent mortality (±s.d.) after 96 hours in 100 percent effluent (if applicable)

   i. NOEC and LOEC values for reference toxicant test(s)

   j. IC50 or EC50 value(s) for reference toxicant test(s)

   k. Available water quality measurements for each test (e.g., pH, DO, temperature, conductivity, hardness, salinity, ammonia)

   l. Statistical methods used to calculate endpoints.

2. **Quality Assurance Reporting.** Because the permit requires sub-lethal hypothesis testing endpoints from methods 1000.0, 1002.0, and 1003.0 in the test methods manual titled *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms* (EPA-821-R-02-013, 2002 or most recent edition), 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 10.2.8.2.1 through 10.2.8.2.5 of the test methods manual. Based on this review, only accepted effluent toxicity test results shall be reported.

3. **Compliance Summary**: The results of the chronic toxicity testing shall be provided in the most recent self-monitoring report and shall include a summary table

organized by test species, type of test (survival, growth or reproduction) and monitoring frequency (routine, accelerated or TRE) of toxicity data from at least three of the most recent samples. The final report shall clearly demonstrate that the Permittee is in compliance with effluent limitations and other permit requirements.

VI. LAND DISCHARGE MONITORING REQUIREMENTS

This section is not applicable to the Arcata WWTF.

VII. RECLAMATION MONITORING REQUIREMENTS

This section is not applicable to the Arcata WWTF.

VIII. RECEIVING WATER MONITORING REQUIREMENTS

A. Monitoring Location AMWS

Monitoring of the AMWS shall be implemented in accordance with the workplan approved by the Executive Officer developed in accordance with section VI.C.2.d of the Order. Monitoring results required in accordance with the approved plan shall be submitted annually, by March 1 each year.

B. Monitoring Locations RSW-001, RSW-002, etc.

1. The Permittee shall monitor the receiving water at the following locations: RSW-001, RSW-002, etc. as follows.

Table E-6. Receiving Water Monitoring Requirements Brackish Marsh

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Method
Dissolved Oxygen	mg/L	Grab	Monthly	40 CFR 136
pH	s.u.	Grab	Monthly	40 CFR 136
Turbidity	NTU	Grab	Monthly	SM 2130 B
Temperature	ºC	Grab	Monthly	40 CFR 136
Hardness	mg/L $CaCO_3$	Grab	Monthly	40 CFR 136
Specific Conductance	µmhos/cm	Grab	Monthly	40 CFR 136
Total Dissolved Solids	mg/L	Grab	Monthly	SM 2540 C
Salinity	ppt	Grab	Monthly	Standard Methods
Nitrate	mg/L	Grab	Monthly	40 CFR 136
Floatables/discoloration	---	Visual	Monthly	--
CTR Priority Pollutants	µg/L	Grab	Annually	40 CFR 136
Title 22 Pollutants	µg/L	Grab	2x / permit cycle	40 CFR 136

IX. OTHER MONITORING REQUIREMENTS

A. Disinfection Process Monitoring for UV Disinfection System

Upon completion and approval of the UV disinfection system, the following monitoring requirements must be implemented.

1. **Monitoring.** The UV transmittance of the effluent from the UV disinfection system shall be monitored continuously and recorded. The operation UV dose shall be calculated from UV transmittance, UV intensity, turbidity, and exposure time, using lamp age and sleeve fouling factors.

2. **Reporting.** The Permittee shall report daily average and lowest daily transmittance and operational UV dose on its monthly monitoring reports. If the UV transmittance falls below 65 percent or UV dose falls below 50 mJ/cm^2, the event shall be reported to the Regional Water Board by telephone within 24 hours and documented in a narrative description to accompany the applicable routine monthly self monitoring report.

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.

2. **Schedules of Compliance.** If applicable, the Permittee shall submit all reports and documentation required by compliance schedules that are established by this Order. Such reports and documentation shall be submitted to the Regional Water Board on or before each compliance date established by this Order. If noncompliance is reported, the Permittee shall describe the reasons for noncompliance and a specific date when compliance will be achieved. The Permittee shall notify the Regional Water Board when it returns to compliance with applicable compliance dates established by schedules of compliance.

3. **Special Study.** The Permittee shall submit all reports and documentation required by the special study established by this Order. Such reports and documentation shall be submitted to the Regional Water Board on or before each compliance date established by the Order. If noncompliance is reported, the Permittee shall describe the reasons for noncompliance and a specific date when compliance will be achieved. The Permittee shall notify the Regional Water Board when it returns to compliance with applicable compliance dates.

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 shall be submitted in conjunction with monthly SMRs due the first day of the second month following sample collection**. Monitoring periods for all required monitoring shall be completed according to the following schedule:

Table E-7. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On	Monitoring Period
Continuous	Permit effective date	All
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	1st day of calendar month through last day of calendar month
Quarterly	First day of calendar quarter following permit effective date or on permit effective date if that date is first day of the month	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31
Annually	January 1 following permit effective date	January 1 through December 31
2x / Permit Cycle	December 1, 2016	Once on incoming tide, once on outgoing tide.

4. **Reporting Protocols.** The Permittee shall report with each sample result the applicable reported Minimum Level (ML) and the current Method Detection Limit (MDL), as determined by the procedure in 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.

5. 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 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 any non-compliance with the

requirements of the Order; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified non-compliance must include a description of the requirement that was not complied with and a description of the noncompliance.

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 Discharge 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)

1. As described in Section X.B.1 above, at any time during the term of this permit, the State or Regional Water Board may notify the Permittee to electronically submit SMRs that will satisfy federal requirements for submittal of Discharge Monitoring Reports (DMRs). Until such notification is given, the Permittee shall submit DMRs in accordance with the requirements described below.

2. DMRs must be signed and certified as required by the standard provisions (Attachment D). The Permittee shall submit the original DMR and one copy of the DMR to the address listed below:

STANDARD MAIL	FEDEX/UPS/ OTHER PRIVATE CARRIERS
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15th Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.

D. Other Reports

1. The Permittee shall report the results of any special studies, acute and chronic toxicity testing, TRE/TIE, and Pollution Minimization Plan required by Special Provisions – VI.C.2 and 3 of this Order. The Permittee shall report the progress in satisfaction of compliance schedule dates specified in Special Provisions – VI.C.7 of this Order. The Permittee shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date in compliance with SMR reporting requirements described in subsection X.B. above.

2. Annual Report. The Permittee shall submit an Annual Report to the Regional Water Board for each calendar year. The report shall be submitted by March 1st 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 title 40, 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 requirements of this Order, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Order.

F.

ATTACHMENT F – FACT SHEET

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ATTACHMENT F – FACT SHEET

As described in section II of this Order, 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 facility.

Table F-1. Facility Information

WDID	1B82114OHUM
Permittee	City of Arcata
Name of Facility	City of Arcata Wastewater Treatment Facility (WWTF)
Facility Address	600 S. G Street
	Arcata, CA 95521
	Humboldt County
Facility Contact, Title and Phone	Karen Diemer, Deputy Director, (707)822-2200
Authorized Person to Sign and Submit Reports	Karen Diemer, Deputy Director, (707)822-2200
Mailing Address	736 F Street, Arcata, CA 95521
Billing Address	736 F Street, Arcata, CA 95521
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Y
Reclamation Requirements	N/A
Facility Permitted Flow	2.3 million gallons per day (mgd) (average dry weather flow)
Facility Design Flow	2.3 million gallons per day (mgd) (average dry weather design flow) 5.0 mgd (average wet weather design flow) 5.9 mgd (peak wet weather design flow) 16.5 mgd (wet weather Q_{max})
Watershed	Eureka Plain Hydrologic Unit
Receiving Water	Humboldt Bay and Arcata Marsh Wildlife Sanctuary
Receiving Water Type	Estuarine and Freshwater Wetlands

A. The City of Arcata (hereinafter City or Permittee) owns and operates the Arcata Wastewater Treatment Facility, a publicly-owned treatment works (POTW).

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 wastewater treatment facility (WWTF) discharges treated wastewater to Humboldt Bay in conjunction with enhanced treatment occurring in the Arcata Marsh Wildlife Sanctuary (AMWS), constructed freshwater wetlands adjacent to the treatment facility. Discharges from the WWTF are currently regulated by Regional Water Board Order No. R1-2004-0036, which was adopted on June 22, 2004, and expired on June 22, 2009, but has been administratively extended until this order takes effect.

C. The Permittee filed a Report of Waste Discharge and submitted an application for renewal of its Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit on February 19, 2007. The Permittee submitted an amended Report of Waste Discharge on December 15, 2011, incorporating a new primary point of discharge. The application was deemed complete on February 7, 2012.

II. FACILITY DESCRIPTION

The City owns the wastewater collection, treatment, and disposal facilities that serve approximately 16,800 people in the City of Arcata and the unincorporated community of Glendale. The WWTF is located at 600 South G Street in Arcata, Humboldt County, California. The City of Arcata WWTF in its varying forms has been discharging to Humboldt Bay since about 1949.[1]

A. Background

Adopted on May 16, 1974, Resolution No. 74-43, known as the Bays and Estuaries Policy, prohibits the discharge of municipal wastewater and industrial process water to enclosed bays and estuaries "unless the discharge enhances the quality of the receiving water above that which would occur in the absence of the discharge."[2] The Bays and Estuaries Policy enhancement criteria is defined as, "…(1) Full uninterrupted protection of all beneficial uses which could be made of the receiving water body in the absence of all point source discharge(s) along with (2) a demonstration by the applicant that the

[1] City of Arcata, Pilot Study, draft Environmental Impact Report, July, 1979.

[2] State Water Resources Control Board, Water Quality Control Policy For The Enclosed Bays and Estuaries of California, May 1974

discharge, through the creation of new beneficial uses or fuller realization, enhances water quality for those beneficial uses which could be made of the receiving water in the absence of all point source discharges..."[3]

In the fall of 1974, the City of Arcata first began to pursue an exemption from the Bays and Estuaries Policy, and in the spring of 1977, the City brought forward a project consisting of a marsh treatment process with a discharge to Humboldt Bay.[4]

In 1979, after holding a fact-finding hearing, State Water Board issued Order 79-20, interpreting the provision of the Bays and Estuaries Policy that provided for an exemption from the discharge of municipal wastewater into an enclosed bay, such as Humboldt Bay. In that decision, the State Board concluded that there was a reasonable probability that the discharge of secondary, disinfected and dechlorinated effluent into Humboldt Bay, together with a treatment process which either created new beneficial uses or resulted in a fuller realization of existing beneficial uses, such as the marsh treatment process proposed by Arcata, could enhance the receiving water quality. The State Board further concluded that enhancement required: (1) full secondary treatment, with disinfection and dechlorination, of sewage discharges; (2) compliance with any additional NPDES permit requirements issued by the Regional Board to protect beneficial uses; and (3) the fuller realization of existing beneficial uses or the creation of new beneficial uses either by or in conjunction with a wastewater treatment project.[5] A pilot project funded by the State Water Resources Control Board in 1981 was designed and implemented by the City to demonstrate the effectiveness of wetland treatment in meeting water quality treatment standards. The final report from this pilot was accepted by the Regional Board[6][7].

In 1983, the Regional Water Board adopted Resolution No. 83-9, granting the City of Arcata a waiver, as defined in Chapter I, Paragraph A of the Bays and Estuaries Policy, permitting continued [Humboldt] Bay discharge. Resolution No. 83-9 found that the marsh disposal alternative meets the definition of enhancement set forth in State Board

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3 State Water Resources Control Board, Bill Dendy Memorandum to Regional Water Board Executive Officer David Joseph, October 21, 1974

4 City of Arcata, draft Wastewater Treatment, Water Reclamation, and Ocean Ranching, April 18, 1977

5 State Board Order No. 79-20, May 17, 1979

6 Gearheart, R.A.,B. Finney, S. Wilbur, J. Williams, D. Hill, and S. Sundberg, City of Arcata Marsh Pilot Project, Effluent Quality Results System Design Management, Project No: C-06-2270, State of California Water Resources Control Board, Sacramento, CA, 1983.

7 Gearheart, R.A., S. Wilbur, H. Holbrook, and M. Ives, City of Arcata Marsh Pilot Project, Wetland Bacteria Speciation and Harvesting Effect on Water Quality, Project No: 3-154-500-0, State of California Water Resources Control Board, Sacramento, CA, 1983.

Order No. 79-20 because the waste would achieve secondary treatment standards, create no adverse impacts to present beneficial uses and the discharge would create new beneficial uses and wildlife habitat.[8]

As constructed, the AMWS consists of three freshwater wetlands: Allen, Gearheart, and Hauser Marshes. These created marshes receive equivalent to secondary treated wastewater, provide enhanced treatment for discharges to Humboldt Bay, and create new beneficial uses, which would not exist in the absence of the discharge. The AMWS marshes (wetlands) provide enhanced water quality treatment while hosting a variety of cold water aquatic organisms and vegetation creating an extraordinary habitat for shorebirds, waterfowl, raptors and migratory birds. As a result, the AMWS is an integral part of the WWTF and a valued part of the Arcata community providing numerous non-contact recreation and educational opportunities.

B. Description of Wastewater and Biosolids Treatment or Controls

1. **Existing Treatment Configuration.** Primary wastewater treatment is accomplished with mechanical bar screens, a grit removal chamber, and two primary clarifiers. Primary solids are sent to two anaerobic digesters, sludge drying beds, and a sludge composting operation. Influent flows above 5.0 mgd are diverted around primary treatment directly to the oxidation ponds.

   Secondary treatment is accomplished using two oxidation ponds 22.4 and 17.3 acres in size respectively. A third oxidation pond (3.6 acres) has recently been converted into two treatment marshes to complement the existing four 2-acre treatment marshes, totaling six treatment marshes. Detention time in the WWTF, prior to enhanced treatment in the AMWS, is approximately 39 days during average dry weather design flow periods. Currently, effluent is disinfected with chlorine and dechlorinated with sulfur dioxide prior to discharge. Under the existing WWTF configuration, treated effluent from the WWTF is continuously commingled with effluent from the AMWS, disinfected and split, flowing by gravity either to Humboldt Bay or again through the AMWS. The result is disinfected secondary effluent, but not all effluent receives the benefit of enhanced treatment through the AMWS before discharge to Humboldt Bay and some effluent may actually be chlorinated multiple times increasing the opportunity to form disinfection byproducts above water quality objectives.

2. **Upgraded Treatment Configuration.** Under the upgraded WWTF configuration, waste will continue to enter the system through the headworks receiving primary and

[8] Regional Water Board, Resolution 83-9, July 28, 1983

biosolids treatment comprised of mechanical bar screens, grit removal, two clarifiers, two anaerobic digesters, drying beds, and composting. Initial biological treatment also still be accomplished in the two oxidation ponds and 6 treatment marshes (4 treatment marshes are currently online; marshes 5 and 6 were constructed in 2011 and will be fully operational in 2013). The oxidation pond effluent flows to the six treatment marshes, which operate in parallel.

Equivalent to secondary treated effluent will discharge at Outfall No. 002 to the AMWS for enhanced water quality treatment consistent with Resolution Nos. 79-20 and 83-9. Water flows through Allen, Gearheart and Hauser marshes in succession. At the design average dry weather flow, detention time in the AMWS will be approximately 60 days and results in full standard secondary treated effluent. The Permittee plans to construct a new ultraviolet (UV) disinfection system at the end of Hauser marsh. Key components of enhanced treatment provided by the AMWS are settling and clarification. Placement of the new UV disinfection system after AMWS treatment is fundamental to the efficiency and dependability of the new system, because UV disinfection relies upon transmission of the ultraviolet light throughout the water column. Although not contemplated at the time of adoption, the Regional Water Board finds the application of UV disinfection consistent with Resolution Nos. 79-20 and 83-9. Final engineering designs for the City's proposed UV disinfection system will be forwarded to the Regional Water Board upon completion. Within the effective period of this Order, treated effluent will be discharged immediately after UV disinfection through Outfall No. 003 into Humboldt Bay via the brackish marsh, which was constructed in 2008. Final designs for an attenuated/diffused discharge will also be completed and submitted to the Regional Water Board prior to flow being diverted to Outfall No. 003.

The upgraded WWTF configuration will result in overall improvements to effluent quality discharged to Humboldt Bay because effluent will no longer be commingled; therefore all effluent of at least up to 5.9 MGD will receive enhanced treatment through the AMWS. In addition, chlorination will no longer be the primary form of disinfection so formation of disinfection byproducts will be greatly diminished. Treated effluent from Outfall No. 003 will enter Humboldt Bay in a diffuse manor due to the tidal mixing within the brackish marsh and subsequent flow though tidal marshes. The overall end result of the upgraded WWTF will be higher quality water entering Humboldt Bay.

C. Discharge Points and Receiving Waters

In conformance with State Board Order No. 79-20, and Regional Water Board, Resolution 83-9, the facility discharges to Humboldt Bay, a water of the United States, in conjunction with enhanced treatment and the creation of beneficial uses associated with the AMWS, a fresh water marsh system. Humboldt Bay receiving water is estuarine.

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

Effluent limitations contained in the existing Order for discharges from Outfall 001 and Outfall 002 (Monitoring Locations EFF-001 and EFF-002) and representative monitoring data retrieved from monthly Self-Monitoring Reports from the term of the previous Order are summarized as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From 6/2004– To 11/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Outfall 001							
BOD_5	mg/L	30	45	60	20	20	24
Percent Removal, BOD	%	≥ 85	---	---	Minimum – 77% Removal		
TSS	mg/L	30	45	60	34	30	42
Percent Removal, TSS	%	≥ 85	---	---	Minimum – 59% Removal[9]		
Oil and Grease	mg/L	---	---	---	<5	---	<5
Fecal Coliform Bacteria	MPN/100 mLs	14[10]	---	43[11]	<2	---	4
pH	s.u.	6.0 - 9.0 at all times			Minimum – 6.0 Maximum – 7.1		
Settleable Solids	mL/L/hr	0.1	---	0.2	0.0	---	0.2
Acute Toxicity	% Survival	One sample minimum – 70% Three sample median – 90%			Minimum – 95% Survival		
Copper	µg/L	2.9	---	5.7	7.3	---	7.3
Zinc	µg/L	47	---	95	33	---	33
Cyanide	µg/L	0.5	---	1.0	4.3	---	4.3
Outfall 002							
BOD_5	mg/L	30	45	60	20	20	24
TSS	mg/L	30	45	60	34	30	42
Total Coliform Bacteria	MPN/100 mLs	23[2]		230	30	---	1,600

[9] This value represents the lowest reported value of the minimum percent removal of the pollutant. The Permittee violated the minimum percent removal requirement once during the permit term (May 2005).

[10] Expressed as a 30-day median.

[11] Not more than 10 percent of samples collected in a 30-day period shall exceed 43 MPN/100 ml.

Table F-2. Historic Effluent Limitations and Monitoring Data

Parameter	Units	Effluent Limitation			Monitoring Data (From 6/2004– To 11/2011)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
pH	s.u.	6.0 - 9.0 at all times			Minimum – 6.0 Maximum – 7.1		
Settleable Solids	mL/L/hr	0.1	---	0.2	0.0	---	0.2

Based on an analysis of data for the period from June 2004 through June 2008, oil and grease results were all reported as non-detect. The Regional Water Board has determined that because the pollutant has not been detected in the effluent discharged from the facility during the permit term, monitoring for the pollutant is no longer necessary and monitoring requirements have been eliminated from this Order.

E. Compliance Summary

On June 12, 2008, the Regional Water Board issued Administrative Civil Liability Order No. R1-2008-0048 to the Permittee assessing a civil liability of $104,000 for violations of Order No. R1-2004-0036 for the period from June 22, 2004, to March 31, 2007. Most violations of WDRs in this time period were related to discharges of BOD, TSS, percent removal, coliform bacteria, copper, and cyanide and for sewer system overflows (SSOs). A portion of the liability is being held in abeyance pending resolution of legal matters, a portion has been paid to the State Water Pollution Cleanup and Abatement Account, and a portion was suspended pending satisfactory completion of a Supplemental Environmental Project and two collection system projects proposed by the Permittee. On May 19, 2010, an Administrative Civil Liability Compliant was issued to the Permittee for five sanitary sewer overflows that resulted in mandatory penalties for copper effluent violations. Administrative civil liability sought for the alleged violations totaled $83,300.

F. Planned Changes

Planed changes at the WWTF include once through flow configuration and installation of a UV system prior to discharge at Outfall 003 as described under section II.B.2. of this Fact Sheet.

III. APPLICABLE PLANS, POLICIES, AND REGULATIONS

The requirements contained in this Order are based on the requirements and authorities described in this section. This section provides supplemental information, where appropriate, for the plans, policies, and regulations relevant to the discharge.

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 (Water Code), commencing with section 13370. It shall serve as a NPDES permit for point source discharges from this facility to Humboldt Bay surface waters. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260) for discharges from this facility to AMWS and proviso V.B Groundwater.

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. CEQA Guidelines Exemption 1 for Existing Facilities (Cal. Code of Regs., tit. 14, §15301) applies to "… the operation, repair, maintenance, permitting, leasing, licensing, or minor alteration of existing public or private structures, facilities, mechanical equipment, or topographical features, involving negligible or no expansion of use beyond that existing at the time of the lead agency's determination…" The environmental baseline for this action is considered the WWTF that existed upon adoption of this Order. Board action with regard to existing facilities is categorically exempt from the requirements of CEQA. The physical upgrades to the existing WWTF (i.e., construction of the UV system and diffused outfall in the brackish marsh) fall within the scope of minor alterations to existing public structures and facilities.

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 Resources Control Board (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. Beneficial uses established by the Basin Plan for receiving waters for discharges from the Arcata Wastewater Treatment Facility - Humboldt Bay (an estuarine environment) and the Arcata Marsh Wildlife Sanctuary (a fresh water marsh system), are presented in Table F-3.

Table F-3. Basin Plan Beneficial Uses

Outfall	Receiving Water	Beneficial Uses
001 and 003	Humboldt Bay	**Existing:** MUN - Municipal and Domestic Supply AGR - Agricultural Supply IND - Industrial Service Supply FRSH - Freshwater Replenishment NAV - Navigation REC-1 - Water Contact Recreation REC -2 - Non-Contact Water Recreation COMM - Commercial and Sport Fishing AQUA - Aquaculture COLD - Cold Freshwater Habitat MAR - Marine Habitat WILD - Wildlife Habitat RARE - Preservation of Rare, Threatened, or Endangered Species MIGR - Migration of Aquatic Organisms SPWN - Spawning, Reproduction, and/or Early Development SHELL - Shellfish Harvesting EST - Estuarine Habitat CUL - Native American Culture **Potential:** POW - Hydropower Generation PRO – Industrial Process Supply
002	AWMS	**Existing:** REC -2 - Non-Contact Water Recreation COLD - Cold Freshwater Habitat WILD - Wildlife Habitat WET – Wetland Habitat WQE – Water Quality Enhancement

The MUN beneficial use has not been designated for the AMWS, which exempts "water in systems designed or modified to collect or treat municipal or industrial wastewaters… provided that the discharge from such systems is monitored to assure compliance with all relevant water quality objectives as required by the Regional Boards." Requirements of this Order implement the Basin Plan and Resolution No. 88-63 (as revised by Resolution No. 2006-0008).

2. **Thermal Plan.** The State Water Board adopted the *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. This plan contains temperature objectives for surface waters. Requirements of this Order implement the Thermal Plan.

3. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on December 22, 1992, and later amended it on May 4, 1995 and November 9, 1999. About forty criteria in the NTR applied in California. On May 18, 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on February 13, 2001. These rules contain water quality criteria for priority pollutants.

4. **State Implementation Policy.** On March 2, 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on April 28, 2000 with respect to the priority pollutant criteria promulgated for California by the USEPA through the NTR and to the priority pollutant objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005 that became effective on July 13, 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Section 1.2 of the SIP allows the Regional Water Board to adjust the criteria/objective for metals with discharger-specific Water Effect Ratios (WER) established in accordance with U.S. EPA guidance – Interim Guidance on Determination and Use of Water Effect Ratios for Metals (EPA-823-B-94-001) or Streamlined Water-Effect Ratio Procedure for Discharges of Copper (EPA-822-R-01-005) (Streamlined Procedure). The Streamlined Procedure determines site-specific values for a WER, a criteria adjustment factor accounting for the effect of site-specific water characteristics on pollutant bioavailability and toxicity to aquatic life. Requirements of this Order implement the SIP.

5. **Compliance Schedules and Interim Requirements.** In general, an NPDES permit must include final effluent limitations that are consistent with CWA section 301 and with title 40, Code of Federal Regulations[12] section 122.44(d). There are exceptions to this general rule. The State Water Board's *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits* (Compliance Schedule Policy), which was adopted on April 15, 2008 (State Water Board Resolution No. 2008-0025) and became effective on August 27, 2008, allows compliance schedules for new, revised, or newly interpreted water quality objectives or criteria, or in

[12] All further statutory references are to title 40 of the Code of Federal Regulations unless otherwise indicated.

accordance with a TMDL. All compliance schedules must be as short as possible, and may not exceed 10 years from the effective date of the adoption revision or new interpretation of the applicable water quality objective or criterion, unless a TMDL allows a longer schedule. The Regional Water Board, however, is not required to include a compliance schedule, but may adopt a Cease and Desist Order pursuant to Water Code section 13301 or a Time Schedule Order pursuant to Water Code section 13300 where it finds that the discharger is violating or threatening to violate the permit. The Regional Water Board will consider the merits of each case in determining whether it is appropriate to include a compliance schedule in a permit, and, consistent with the Compliance Schedule Policy, should consider the feasibility of achieving compliance, and must impose a schedule that is as short as possible to achieve compliance with the effluent limit based on the objective or criteria.

The Compliance Schedule Policy and the SIP do not allow compliance schedules for priority pollutants beyond May 18, 2010, except for new or more stringent priority pollutant criteria adopted by USEPA after December 17, 2008.

Where a compliance schedule for a final effluent limitation exceeds 1 year, the Order must include interim numeric limitations for that constituent or parameter, interim milestones and compliance reporting within 14 days after each interim milestone. The permit may also include interim requirements to control the pollutant, such as pollutant minimization and source control measures. This Order does not include compliance schedules, but does apply interim effluent limitations for Outfall 001 through November 30, 2016, or until activation of the upgraded WWTF configuration, whichever is sooner.

6. **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 [section 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.

7. **Antidegradation Policy.** Section 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 has been deemed to be consistent with 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 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 section 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 section 131.12 and State Water Board Resolution No. 68-16.

8. **Anti-Backsliding Requirements.** Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at section 122.44(l) prohibit 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. Some effluent limitations in this Order have been removed or are less stringent than those in the previous Order. As discussed in detail in section IV.D.1. of this Fact Sheet, removal or relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

9. **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 separately 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 USEPA requires the Regional Water Board to develop total maximum daily loads (TMDLs) 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) for point sources and load allocations (the portion of a TMDL attributed to existing and future nonpoint sources) for nonpoint sources.

In October 2011, the USEPA provided final approval of the 303(d) list of impaired water bodies prepared by the State. The list identifies Humboldt Bay (Eureka Plan Hydrologic Unit) as impaired by dioxin toxic equivalents and polychlorinated biphenyls (PCBs). Pursuant to CWA section 303(d), when the Regional Water Board adopts TMDLs to address impairing pollutants in 303(d) listed waters, NPDES permits will implement those TMDLs. 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) for point sources and load allocations (the portion of a TMDL attributed to existing and future nonpoint sources) for nonpoint sources. The Regional Water Board expects to adopt TMDLs for dioxin toxic equivalents and PCBs for Humboldt Bay by 2019.

E. Other Plans, Polices and Regulations

1. **Storm Water.** All areas within the treatment facility drain to two storm drain inlets on the property where storm water is routed to the headworks. The State Water Board Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001, Waste Discharge Requirements for Discharges of Storm Water Associated with Industrial Activities Excluding Construction Activities, does not require facilities to obtain coverage if storm water is captured and treated and/or disposed of within the facility's NPDES permitted process wastewater or if storm water is disposed of to evaporation ponds, percolation ponds, or combined sewer systems.

2. **Sanitary Sewer Systems.** On May 2, 2006, the State Water Board adopted State Water Board Order No. 2006-0003-DWQ, *Statewide General WDRs for Sanitary Sewer Systems.* The general permit is applicable to all "federal and state agencies, municipalities, counties, districts, and other public entities that own or operate sanitary sewer systems greater than one mile in length that collect and/or convey untreated or partially treated wastewater to a publicly owned treatment facility in the State of California." The purpose of the general permit is to promote the proper and efficient management, operation, and maintenance of sanitary sewer systems and to minimize the occurrences and impacts of sanitary sewer overflows. Section VI.C.5.a of the Order requires the Permittee must be separately covered under Order No. 2006-0003-DWQ.

3. **Discharge of Biosolids to Land.** On July 22, 2004, the State Water Board adopted State Water Board Order No. 2004-0012-DWQ, *General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities*. The general waste discharge requirements establish standards for agronomic applications and the use of biosolids as a soil amendment or fertilizer in agriculture, forestry, and surface mining reclamation, and include provisions to mitigate significant

environmental impacts. The Order requires the Permittee must be separately covered under Order No. 2004-0012-DWQ or other appropriate WDRs for the discharge of biosolids from the wastewater treatment plant. Section VI.C.5.c. of the Order requires the Permittee to seek coverage for biosolids management and disposal or reuse.

F. Provisions and Requirements Implementing State Law.

The requirements under Discharge Specifications and other sections of this Order (e.g., groundwater requirements) are included to implement State law only; consequently, violations of these requirements are not subject to the enforcement remedies that are available for NPDES violations.

VI. 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: section 122.44(a) requires that permits include applicable technology-based limitations and standards; and section 122.44(d) requires that permits include water quality-based effluent limitations to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water.

A. Discharge Prohibitions

1. **Discharge Prohibition III.A.** The discharge of waste to Humboldt Bay is prohibited unless the discharge conforms to State Board Order No. 79-20 and Regional Water Board, Resolution 83-9.

   This prohibition is modified from the the prohibition contained in the previous Order (Order No. R1-2004-0036). The previous order contained a prohibition which stated, "[t]he discharge of waste to Humboldt Bay (Arcata Bay) is prohibited unless it is done in conjunction with the Arcata Marsh and Wildlife Sanctuary." Both the former and revised version of this prohibition, in part, justify an exception to State Water Board Resolution No. 74-43 (*Water Quality Control Policy for Enclosed Bays and Estuaries of California*) allowing the continued discharge from the Arcata WWTF to Humboldt Bay "only when a discharge enhances the quality of the receiving water above that which would occur in the absence of the discharge." Resolution No. 83-9 acknowledged that the discharge of treated wastewater in through the AMWS met the definition of "enhancement" as established by State Water Board Order WQ 79-20. Discharge Prohibition III. A ensures that this enhancement project will be

continued and allows the Regional Water Board to continue to recognize an exception to State Water Board Resolution No. 74-43 for the Arcata WWTF.

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

   This prohibition is based on the Basin Plan, the previous Order, and State Water Board Order WQO No. 2002-0012 regarding the petition of WDRs Order No. 01-072 for the East Bay Municipal Utility District and Bay Area Clean Water Agencies. In State Water Board Order No. WQO 2002-0012, the State Water Board found that this prohibition is acceptable in orders, but should be interpreted to apply only to constituents that are either not disclosed by the Permittee, or are not reasonably anticipated to be present in the discharge, but have not been disclosed by the Permittee. It specifically does not apply to constituents in the discharge that do not have "reasonable potential" to exceed water quality objectives.

   The State Water Board has stated that the only pollutants not covered by this prohibition are those which were "disclosed to the permitting authority and … can be reasonably contemplated." [In re the Petition of East Bay Municipal Utilities District et al., (State Water Board, 2002) Order No. WQO 2002-0012, p. 24] In that Order, the State Water Board cited a case which held the Permittee is liable for the discharge of pollutants "not within the reasonable contemplation of the permitting authority ….whether spills or otherwise…" [Piney Run Preservation Assn. v. County Commissioners of Carroll County, Maryland (4th Cir. 2001) 268 F. 3d 255, 268.] Thus the State Water Board authority provides that, to be permissible, the constituent discharged (1) must have been disclosed by the Permittee and (2) can be reasonably contemplated by the Regional Water Board.

   Whether or not the Permittee reasonably contemplates the discharge of a constituent is not relevant. What matters is whether the Permittee disclosed the constituent to the Regional Water Board or whether the presence of the pollutant in the discharge can otherwise be reasonably contemplated by the Regional Water Board at the time of Order adoption.

3. **Discharge Prohibition III.C.** Creation of pollution, contamination, or nuisance, as defined by Section 13050 of the Water Code is prohibited.

   This prohibition is retained from the previous Order and is based on section 13050 of the Water Code.

4. **Discharge Prohibition III.D.** The discharge of sludge or digester supernatant is prohibited, except as authorized under section VI.C.5.c. (Solids Disposal and Handling Requirements, section VI.C.5.c of the Order.)

This prohibition is is retained from the previous Order (Order No. R1-2004-0036) and is based in restrictions on the disposal of sewage sludge found in federal regulations [Part 503 (Biosolids), Part 527 and Part 258] and title 27 of the California Code of Regulations (CCR).

5. **Discharge Prohibition III.E.** The discharge of untreated or partially treated waste from anywhere within the collection, treatment, or disposal systems is prohibited, except as provided for in Prohibition III. I. and in Attachment D, Standard Provisions (Bypass).

   This prohibition has been retained from the previous Order and is based on the Basin Plan to protect beneficial uses of the receiving water from unpermitted discharges, and the intent of the Water Code sections 13260 through 13264 relating to the discharge of waste to waters of the State without filing for and being issued an Order. This prohibition applies to spills not related to sanitary sewer overflows (SSOs) and other unauthorized discharges of wastewater within the collection, treatment, and disposal facilities. The discharge of untreated or partially treated wastewater from the collection, treatment, or disposal facility represents an unauthorized bypass pursuant to section 122.41(m) or an unauthorized discharge which poses a threat to human health and/or aquatic life, and therefore is explicitly prohibited by this Order.

6. **Discharge Prohibition III.F.** Any SSO that results in a discharge of untreated or partially treated wastewater to (a) waters of the State, (b) groundwater, or (c) land that creates pollution, contamination, or nuisance, as defined in Water Code section 13050(m) is prohibited.

   This prohibition applies to spills related to SSOs and is based on State standards, including section 13050 of the Water Code and the Basin Plan. This prohibition is consistent with the States' antidegradation policy as specified in State Water Board Resolution No. 68-16 (*Statement of Policy with Respect to Maintaining High Quality of Water in California*) in that the prohibition imposes conditions to prevent impacts to water quality, the degradation of water quality, negative effects on receiving water beneficial uses, and lessening of water quality beyond that prescribed in State Water Board or Regional Water Board plans and policies.

   Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. Order No. 2006-0003-DWQ prohibits SSOs that result in the discharge of untreated or partially treated wastewater to waters of the United States and SSOs that cause a nuisance, compared to Prohibition III.E. of this Order, which prohibits SSO discharges that create nuisance or pollution to waters of the state, groundwater, and land for a more complete protection of human health. This prohibition (Prohibition III.F) is stricter than the prohibitions stated in State Water Board Order 2006-003-DWQ because high groundwater is prevalant in the North Coast Region, and many areas of

this region rely on groundwater as a drinking water source. This prohibition protects the region's groundwater resources and is consistent with antidegradation policies.

7. **Discharge Prohibition III.G.** The discharge of waste at any point not described in Finding II.B of the Fact Sheet, Prohibition III.I., or otherwise not authorized by this or another permit issued by the State Water Board or another Regional Water Board is prohibited.

   This prohibition 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.

8. **Discharge Prohibition III.H.** The mean daily dry weather flow of waste through the treatment plant in excess of 2.3 mgd measured over a calander month is prohibited.

   This prohibition is based on the permitted flow and dry weather design flow of the WWTF.

9. **Discharge Prohibition III.I**. The Discharge of treated effluent at Outfall 001, is prohibited other than that portion of the flow exceeding peak flows of 5.9 mgd.[13]

   This prohibition is new and is based on Resolution No. 83-9, in which the Regional Water Board acknowleged that the discharge of treated wastewater through the AMWS met the definition of "enhancement" as established by State Water Board Order WQ 79-20. Discharge Prohibition III. I. ensures that water quality is enhanced by treatment through AMWS to the fullest extent possible prior to discharge to Humboldt Bay.

B. Technology-Based Effluent Limitations and Discharge Specifications

1. Scope and Authority

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

[13] This Prohibition will take effect upon activation of the new disinfection system and implementation of discharges at Discharge Point 003, but no later than December 1, 2016.

a. Best practicable treatment control technology (BPT) represents the average of the best performance by plants 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 BOD, TSS, fecal coliform, pH, and oil and grease. The BCT standard is established after considering the "cost reasonableness" of the relationship between the cost of attaining a reduction in effluent discharge and the benefits that would result, and also the cost effectiveness of additional industrial treatment beyond BPT.

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

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

Following publication of the secondary treatment regulations, legislative history indicates that Congress was concerned that USEPA had not "sanctioned" the use of certain biological treatment techniques that were effective in achieving significant reductions in BOD_5 and TSS for secondary treatment. Therefore to prevent unnecessary construction of costly new facilities, Congress included language in the 1981 amendment to the Construction Grants statues [Section 23 of Pub. L. 97-147] that required USEPA to provide allowance for alternative biological treatment technologies such as trickling filters or waste stabilization ponds. In response to this requirement, definition of secondary treatment was

modified on September 20, 1984 and June 3, 1985, and published in the revised secondary treatment regulations contained in section 133.105. These regulations allow alternative limitations for facilities using trickling filters and waste stabilization ponds that meet the requirements for "equivalent to secondary treatment." Equivalent to secondary treatment limitations allow *up to* 45 mg/L (monthly average) and *up to* 65 mg/L (weekly average) for BOD_5 and TSS.

Therefore, POTWs that use waste stabilization ponds, identified in section 133.103, as the principal process for secondary treatment and whose operation and maintenance data indicate that the TSS values specified in the equivalent to secondary regulations cannot be achieved, can qualify to have their minimum levels of effluent quality for TSS adjusted upwards.

Furthermore, in order to address the variations in facility performance due to geographic, climatic, or seasonal conditions in different States, the Alternative State Requirements (ASR) provision contained in section 133.105(d) was written. ASR allows States the flexibility to set permit limitations above the maximum levels of 45 mg/L (monthly average) and 65 mg/L (weekly average) for TSS from lagoons. However, before ASR limitations for suspended solids can be set, the effluent must meet the BOD limitations as prescribed by section 133.102(a). Presently, the maximum TSS value set by the State of California for lagoon effluent is 95 mg/L. This value corresponds to a 30-day consecutive average or an average over duration of less than 30 days.

Regulations promulgated in section 125.3(a)(1) require technology-based effluent limitations for municipal Permittees to be placed in NPDES permits based on secondary treatment standards or equivalent to secondary treatment standards. In order to be eligible for equivalent to secondary limitations, a POTW must meet all of the following criteria:

a. The principal treatment process must be either a trickling filter or waste stabilization pond.

b. The effluent quality consistently achieved, despite proper operations and maintenance, is in excess of 30 mg/L BOD_5 and TSS.

c. Water quality is not adversely affected by the discharge. (section 133.101(g).)

The treatment works as a whole provides significant biological treatment such that a minimum 65 percent reduction of BOD_5 is consistently attained (30-day average).

2. Applicable Technology-Based Limitations and Specifications

Technology-based limitations established by the Order are summarized in Table F-4 below; and derivation of these limits is discussed in the following text.

Table F-4. Technology-Based Effluent Limitations

Parameter	Units	Effluent Limitations		
		Average Monthly	Average Weekly	Maximum Daily
Outfall 001 Interim Limitations				
BOD_5	mg/L	30	45	---
	lbs/day	575	863	---
TSS	mg/L	30	45	---
	lbs/day	575	863	---
BOD_5 and TSS Removal	85 percent (minimum)			
pH	s.u.	6.0 – 9.0 at all times		
Settleable Solids	mL/L	0.1	---	0.2
Outfall 001 Final Limitations				
BOD_5	mg/L	45	65	---
	lbs/day	863	1304	---
TSS	mg/L	66	95	---
	lbs/day	1266	1822	---
BOD_5 and TSS Removal	65 percent (minimum)			
pH	s.u.	6.0 – 9.0 at all times		
Settleable Solids	mL/L	0.1	---	0.2
Outfall 002 Final Specifications				
BOD_5	mg/L	45	65	
TSS	mg/L	66	95	
pH	s.u.	6.0 – 9.0 at all times		
Settleable Solids	mL/L	0.1	---	0.2
Outfall 003 Final Limitations				
BOD_5	mg/L	30	45	---
	lbs/day	575	863	---
TSS	mg/L	30	45	---
	lbs/day	575	863	---
BOD_5 and TSS Removal	85 percent (minimum)			
pH	s.u.	6.0 – 9.0 at all times		
Settleable Solids	mL/L	0.1	---	0.2

a. <u>BOD_5 and TSS Effluent Limitations and Specifications:</u> In its application for permit renewal (February 19, 2007), the Permittee requested the establishment of effluent limitations for BOD_5 and TSS based on equivalent to secondary standards.

The Regional Water Board has determined, however, that effluent limitations based on standard secondary treatment standards from the previous permit will be retained until the upgraded configuration is in place, because the WWTF has demonstrated sufficient compliance with these limitations under the existing configuration.

The City of Arcata uses waste stabilization ponds as the principal process providing significant biological treatment of municipal wastewater. In accordance with section 133.101, a facility that consists of a pond or a trickling filter system and cannot meet the secondary standards after proper operation and maintenance may be allowed to meet treatment equivalent to secondary limits. Under the upgraded WWTF configuration, all wastewater will flow through Outfall 002 to the AMWS and ultimately Outfall 003 to Humboldt Bay, except on rare occasions when the portion of flow exceeding 5.9 mgd is allowed to discharge at Outfall 001. Sampling at the location known as Pt. 9 represents the quality of effluent prior to enhanced treatment through the AMWS. Analysis was done with the Pt. 9 data from 2009 through 2011 to determine the 95th percentile value for the 30-day averages of BOD and TSS. The 95th percentile of 30-day averages for the 3-year period are BOD 78 mg/L and TSS 66 mg/L.

The City of Arcata effluent concentrations for BOD and TSS that are consistently achievable, based on the 95th percentile value, exceed the minimum level for standard secondary treated effluent. Therefore, the Permittee is eligible for alternative limits for treatment equivalent to secondary for Outfall 001 (under the upgraded configuration criteria) and Outfall 002. The maximum equivalent to secondary requirement for BOD concentration by wastewater treatment ponds provides for a 30-day TSS effluent limitation up to 45 mg/L. Because the 95th percentile effluent value of 78 mg/L exceeds the maximum of 45 mg/L, 45 mg/L is established in this permit as the average monthly final BOD effluent limitation. The alternative state requirement for TSS concentration by wastewater treatment ponds in California provides for a 30-day TSS effluent limitation up to 95 mg/L. Therefore, the 95th percentile effluent value of 66 mg/L is established in this permit as the average monthly final TSS effluent limitation.

Average weekly effluent limitations for BOD and TSS have also been established in the Order as required by section 122.45(d)(2), which states that effluent limitations for POTWs must be expressed as average weekly and average monthly limitations unless impracticable. In accordance with section 133.101, the average weekly limitations were calculated by multiplying the average monthly limitations by 1.5 to obtain a result of 68 mg/L for BOD. Because the maximum equivalent to secondary requirement for BOD concentration by wastewater treatment ponds provides for a weekly BOD effluent limitation up to 65 mg/L exceeding the value of

68 mg/L, 65 mg/L is established in this permit as the average weekly final BOD effluent limitation. The average weekly TSS limitation would be calculated by multiplying the average monthly limitation of 66 mg/L by 1.5 to obtain a result of 99 mg/L, which is greater than is allowable by the ASR for California; therefore in application of equivalent to secondary standards, this permit includes the maximum allowable concentration of 95 mg/L for the TSS weekly limitation. Technology-based limitations equivalent to secondary for Outfall 002 will be implemented under section IV.B. Discharge Specifications of this Order.

Equivalent to secondary treatment is consistent with WQ Order No. 79-20 because the revised secondary treatment regulations contained in section 133.105, published September 20, 1984 and June 3, 1985, determined that the revised standards were equivalent to the secondary standards for those WWTF meeting the technological requirements, as described above.

Full secondary treatment standards have been retained for Outfall 001 under the existing configuration and applied to Outfall 003, because the available data indicates that these standards can be met after enhanced wastewater treatment associated with the AMWS. Under Resolution No. 83-9, adopted in July 1983, the Regional Water Board granted a continued exception to the Bays and Estuaries Policy for the discharge from City of Arcata, recognizing that operation and design of the City's WWTF met the State Water Board's definition of enhancement in WQ Order No. 79-20. Water Quality Order No. WQ 79-20, the State Water Board clarified that enhancement requires secondary treatment, compliance with all NPDES permit requirements established by the Regional Water Board and the creation of new beneficial uses or the fuller realization of existing beneficial uses. As discussed in section II.A of this Fact Sheet, beneficial uses of the AMWS include water quality enhancement. Under the new configuration of the WWTF, all wastewater up to 5.9 mgd will pass through the AMWS, receiving the benefit of enhanced treatment and therefore, this Order imposes full secondary treatment effluent limitations at Outfall 003 into Humboldt Bay at the brackish marsh.

b. <u>Percent Removal:</u> Standard secondary treatment standards and equivalent to secondary treatment standards at Part 133 set respective minimum standards of 85% and 65% removal for BOD_5 and TSS. The minimum standard of 85% removal has been retained from the previous permit and applied to Outfall 001 (under the existing configuration) and applied to Outfall 003 because standard secondary treatment can be achieved for discharges to Humboldt Bay in association with enhanced treatment in AMWS. The equivalent to secondary minimum standard has been applied to Outfall 001 only for those rare occasions when the portion of flow exceeding 5.9 mgd is allowed to discharge directly to Humboldt Bay receiving water.

c. pH: The secondary treatment regulations at Part 133 apply to the discharge and require that pH be maintained between 6.0 and 9.0 standard units. Limitations for pH have been retained from the previous permit.

d. Daily Maximum Effluent Limitations for BOD and TSS: Daily maximum effluent limitations for BOD_5 and TSS are not retained as these limitations may not provide the most representative measure of compliance given the long retention time of the WWTF.

e. Mass-based Effluent Limitations: Mass-based effluent limitations for BOD_5 and TSS are retained for discharges to Humboldt Bay and are based on the facility design flow. The Regional Water Board has determined that mass based limitations, in addition to concentration based limitations, for BOD_5 and TSS are appropriate and consistent with EPA recommendations ensuring that dilution will not be used as a substitute for treatment and that the overall quantity of waste discharged does not increase beyond that allowed in accordance with the permitted flow. Inclusion of mass limitations is consistent with NPDES regulations at section 122.45 (f)(2), which do not preclude the simultaneous use of mass and concentration based limitations, while expressing a preference for mass based limitations.

The Clean Water Act explicitly permits the inclusion of both mass and concentration limits for the same pollutants. Section 122.44(f)(2) states: "Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations." The use of both mass and concentration-based limitations is essential to protecting water quality. The US EPA has stressed the importance of using both mass-based and concentration-based limitations in tandem, stating its belief "that most permit limitations standards and prohibitions must be expressed quantitatively in terms of mass in order to preclude the use of dilution as a substitute for treatment." 44 Fed. Reg. 32864-32865. For example, unless a flow limit is included in an NPDES permit, the design capacity of a POTW could be increased by re-rating, which would allow an increase in overall discharge of pollutants without triggering a permit modification or antidegradation analysis.

f. Settleable Solids Effluent Limitations: Effluent limitations for settleable solids are retained from the previous permit. Settleable solids generally constitute 40 to 65 percent of the suspended solids in domestic wastewaters and are measured volumetrically by quiescent settling of a one liter sample for one hour in an Imhoff cone (and are therefore expressed as mLs/L/hr). Method SM 2540F for the analysis of settleable solids describes a lower limit of measurement of settleable solids at 0.1 mL/L/hr, and therefore, the monthly average limitation established by

this Order, reflects, in effect, a non-detectable (100 percent removal efficiency) level of settleable solids in the discharge. The Regional Water Board has determined based upon best professional judgment (BPJ) that secondary treatment and/ or equivalent to secondary treatment should remove settleable solids to non-detect levels, and therefore effluent limitations for this parameter are necessary to evaluate efficient operation of the treatment facility in addition to ensuring protection of aquatic life from adverse impacts of settleable material in the discharge. The Regional Water Board will continue to include limitations for settleable solids in all permits for municipal wastewater treatment plants in the North Coast Region.

C. Water Quality-Based Effluent Limitations (WQBELs)

1. Scope and Authority

Section 301(b) of the CWA and section 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements more stringent than secondary treatment requirements that are necessary to meet Basin Plan requirements and applicable water quality standards for protection of beneficial uses.

Section 122.44(d)(1)(i) mandates 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. A reasonable potential analysis (RPA) demonstrated reasonable potential for discharges from the Arcata WWTF to cause or contribute to exceedances of applicable water quality criteria for copper, cyanide, 2,3,7,8 TCDD equivalents, carbon tetrachloride, dichlorobromomethane, and bis(2-ethylhexyl)phthalate associated with discharges to Humboldt Bay.

Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (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 section 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the beneficial uses of the receiving water as specified in the Basin 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 Arcata WWTF are discussed in Finding III.C. of this Fact Sheet.

b. Basin Plan Water Quality Objectives. In addition to the specific water quality objectives indicated above, the Basin Plan contains narrative objectives for color, tastes and odors, floating material, suspended material, settleable material, oil and grease, biostimulatory substances, sediment, turbidity, pH, dissolved oxygen, bacteria, temperature, toxicity, pesticides, chemical constituents, and radioactivity that apply to inland surface waters, enclosed bays, and estuaries. For waters designated for use as domestic or municipal supply (MUN), the Basin Plan establishes as applicable water quality criteria the Maximum Contaminant Levels (MCLs) established by the Department of Public Health for the protection of public water supplies at title 22 of the California Code of Regulations section 64431 (Inorganic Chemicals) and section 64444 (Organic Chemicals).

Water quality criteria contained in the Basin Plan, including title 22 MCLs, are applicable to Humboldt Bay Outfall 001 and Outfall 003. Basin Plan criteria applicable to the beneficial uses created in the AMWS have been applied to Outfall 002.

c. State Implementation Plan (SIP), CTR and NTR. Water quality criteria and objectives applicable to receiving water are established by the California Toxics Rule (CTR), established by the UPEPA at section 131.38; and the National Toxics Rule (NTR), established by the USEPA at section 131.36. Criteria for most of the 126 priority pollutants are contained within the CTR and the NTR. Further, water quality criteria for the protection of freshwater aquatic life apply to Outfall 002 and, because Humboldt Bay is an estuarine environment, the more stringent of fresh and marine water quality criteria are applicable to Outfall 001 and Outfall 003.

3. Determining the Need for WQBELs

NPDES regulations at section 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. Further, the Basin Plan at section 3 p. 3-4, requires that "[a]ll waters shall be maintained free of toxic substances in concentrations that are toxic to …aquatic life".

a. Non-Priority Pollutants

i. Fecal Coliform Bacteria: Effluent limitations for fecal coliform bacteria for discharges to Humboldt Bay are retained from the previous permit. These limitations, which are described below, reflect water quality objectives for bacteria established by the Basin Plan for protection of shellfish harvesting areas. The Basin Plan criteria are based on recommendations of the National Shellfish Sanitation Program for shellfish growing areas that are affected by point source discharges.

Treated wastewater discharged to Humboldt Bay shall not contain concentrations of fecal coliform bacteria exceeding the following limitations.

(a) The median concentration shall not exceed a Most Probable Number (MPN) of 14 organisms per 100 mL in a calendar month, and

(b) Not more than 10 percent of samples collected in a calendar month shall exceed an MPN of 43 organisms per 100 mL.

ii. Chlorine: The Basin Plan establishes a narrative water quality objective for toxicity, stating that "[a]ll waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." The Regional Water Board considers any chlorinated discharge as having the reasonable potential to cause or contribute to exceedances of this water quality objective for toxicity, and therefore, the Order establishes effluent limitations for chlorine.

USEPA has established the following criteria for chlorine-produced oxidants for protection of fresh water aquatic life. [Quality Criteria for Water 1986 (The Gold Book, 1986, EPA 440/5/-86-001)]

Chronic Criterion	Acute Criterion
0.011 mg/L	0.019 mg/L

The water quality criteria recommended by USEPA are, in effect, non-detectable concentrations by the common amperometric analytical method used for the measurement of chlorine, and therefore, in order to meet the Basin Plan's narrative water quality objective for toxicity, the Regional Water Board is establishing effluent limitations for chlorine that require concentrations of chlorine in the effluent at the point of discharge protective of aquatic life, which will apply at all times when chlorine is used within the system..

b. Priority Pollutants

The SIP establishes procedures to implement water quality criteria from the NTR and CTR and for priority, toxic pollutant objectives established in the Basin Plan. The implementation procedures of the SIP include methods to determine reasonable potential (for pollutants to cause or contribute to excursions above State water quality standards) and to establish numeric effluent limitations, if necessary, for those pollutants showing reasonable potential.

The SIP Section 1.3 requires the Regional Board to use all available, valid, relevant, and representative receiving water and effluent data and information to conduct a reasonable potential analysis (RPA). For this Order, the Regional Water Board has performed RPAs for discharges to Humboldt Bay, the AMWS, and the brackish marsh. The RPA for Humboldt Bay and the brackish marsh applies to estuarine environments, and therefore applies the more stringent of applicable fresh or marine water quality criteria. Effluent data generated during monitoring events on December 30, 2005 and May 3, 2006 at Outfall 001 and on September 9, 2009 and January 27, 2010 at Pt. 9 were used for RPAs.

Some freshwater water quality criteria are hardness-dependent; i.e., as hardness decreases, the toxicity of certain metals increases and the applicable water quality criteria become correspondingly more stringent. Receiving water hardness data were not available for Humboldt Bay or the brackish marsh in the vicinity of the outfalls. These are estuarine environments which are tidally influenced. Depending on the tide and season, theses receiving waters may range from a predominantly fresh water/low hardness environment to a predominantly marine, high hardness environment. Because receiving water hardness data was not available for the RPA for Outfall 001 or Outfall 003, Regional Water Board used a hardness value of 400 mg/L, which is the default high value for use in the RPA, as established in the CTR at section 131.38 (c) (4) (i). This value may not be protective in all circumstances, and as receiving water hardness data is generated, the permit may be reopened to incorporate additional or more restrictive limitations, if necessary.

Because the AMWS is created through Outfall 002 effluent, effluent hardness data was analyzed to determine a hardness value for use in the RPA for that outfall. An effluent hardness value of 66 mg/L $CaCO_3$ was the minimum hardness value reported in 29 acute toxicity tests conducted on the effluent between September 2004 and October 2007.

To conduct the RPAs, Regional Water Board staff identified the maximum observed effluent (MEC) and background (B) concentrations for each priority, toxic pollutant from effluent and receiving water data provided by the Permittee,

and compared this information to the most stringent applicable water quality criterion (C) for each pollutant from the NTR, CTR, and the Basin Plan. Section 1.3 of the SIP establishes three triggers for a finding of reasonable potential.

Trigger 1. If the MEC is greater than C, there is reasonable potential, and an effluent limitation is required.

Trigger 2. If B is greater than C, and the pollutant is detected in effluent (MEC > ND), there is reasonable potential, and an effluent limitation is required.

Trigger 3. After a review of other available and relevant information, a permit writer may decide that a WQBEL is required. Such additional information may include, but is not limited to: the facility type, the discharge type, solids loading analyses, lack of dilution, history of compliance problems, potential toxic impact of the discharge, fish tissue residue data, water quality and beneficial uses of the receiving water, CWA 303 (d) listing for the pollutant, and the presence of endangered or threatened species or their critical habitat.

During the term of Order No. R1-2012-0031 the Permittee conducted an individual WER study to determine the site-specific toxicity of copper in the receiving water at the point of discharge. The study was conducted in accordance with applicable USEPA guidance for Streamlined Procedure EPA-822-R-01-005 and concluded that a site specific WER of 5.76 and 7.51 for total recoverable copper apply to the discharge at Outfall 001 and 002 respectively.

Using the worst-case measured hardness from the receiving water (400 mg/L as $CaCO_3$ at Outfall 001 and 66 mg/L as $CaCO_3$ at Outfall 002), the USEPA recommended dissolved-total translator of 0.96, and the site-specific WER, the applicable acute criterion (maximum 1-hour average concentration)is adjusted to 33.3 ug/L at Outfall 001 and 71.1 ug/L at Outfall 002. The applicable chronic criterion (maximum 4-day average concentration) is adjusted to 16.6 ug/L at Outfall 001 and 35.4 ug/L at Outfall 002. The maximum effluent concentration (MEC) measured for total copper was 7.6 ug/L, based on samples collected in March 2014. All effluent copper concentrations measured in accordance with Order No. R1-2012-0031 are below the applicable criteria. Based on new WER information, effluent copper concentrations do not demonstrate reasonable potential to exceed water quality criteria for copper at Outfalls 001 or 002.

The RPA for discharges to Humboldt Bay (which includes the brackish marsh) demonstrated reasonable potential to cause or contribute to exceedances of applicable water quality criteria for bis(2-ethylhexyl)phthalate, cyanide, TCDD equivalents, carbon tetrachloride, and dichlorobromomethane. Because the WER study did not present data collected in association with Outfall 003 to the

brackish marsh, the RPA associated with Outfall 003 indicates reasonable potential for copper to cause or contribute to exceedances of applicable water quality criteria. The following tables summarizes the RPA for each priority, toxic pollutant that has been measured in effluent in samples collected on December 30, 2005, May 3, 2006, September 9, 2009 and January 27, 2010. No other pollutants with applicable, numeric water quality criteria from the NTR, CTR, and the Basin Plan (which includes the title 22 MCLs for protection of drinking water supplies in Humboldt Bay) were measured above non-detect (ND) concentrations.

Table F-5. Summary of RPA Results – Humboldt Bay

CTR #	Priority Pollutants	C or Most Stringent WQO/WQC (µg/L)	MEC or Minimum DL (µg/L)[14]	RPA Result	Reason
2	Arsenic	36	0.96	No	MEC<C & B is ND
5a	Chromium (III)	50	1	No	MEC<C & B is ND
6	Copper[15]	16.6	7.3	No	MEC<C & B is ND
6	Copper[16]	2.9	7.3	**Yes**	MEC>C
7	Lead	8.5	0.59	No	MEC<C & B is ND
8	Mercury	0.050	0.0067	No	;MEC<C & B is ND
9	Nickel	8	3.7	No	MEC<C & B is ND
11	Silver	2.2	0.1	No	MEC<C & B is ND
12	Thallium	1.7	0.01	No	MEC<C & B is ND
13	Zinc	86	8	No	MEC<C & B is ND
14	Cyanide	1.0	4.3	**Yes**	MEC>C
16	2,3,7,8 TCDD	1.3E-08	5.77E-07	**Yes**	MEC>C
21	Carbon Tetrachloride	0.25	0.3	**Yes**	MEC>C
23	Chlorodibromomethane	0.40	0.2	No	MEC<C & B is ND
26	Chloroform	No Criteria	8	Uo	No Criteria
27	Dichlorobromomethane	0.56	1.2	**Yes**	MEC>C
34	Methyl Bromide	48	2.9	No	MEC<C & B is ND
36	Methylene Chloride	4.7	0.18	No	MEC<C & B is ND
39	Toluene	150	3.8	No	MEC<C & B is ND
68	Bis(2-Ethylhexyl)Phthalate	1.8	6.6	**Yes**	MEC>C
77	1,4-Dichlorobenzene	5.0	0.06	No	MEC<C & B is ND

[14] The Maximum Effluent Concentration (MEC) or maximum background concentration (B) is the actual detected concentration unless it is preceded by "<", in which case the value shown is the minimum detection level as the analytical result was reported as not detected (ND).

[15] Applies only to Humboldt Bay discharge at Outfall 001.

[16] Applies only to the brackish marsh discharge at Outfall 003.

Table F-6. Summary of RPA Results – AMWS

CTR #	Priority Pollutants	C or Most Stringent WQO/WQC (µg/L)	MEC or Minimum DL (µg/L)[7]	RPA Result	Reason
2	Arsenic	50	0.96	No	MEC<C & B is ND
5a	Chromium (III)	50	0.54	No	MEC<C & B is ND
6	Copper	36.17	7.6	No	MEC<C & B is ND
7	Lead	1.6	0.57	No	MEC<C & B is ND
8	Mercury	0.05	0.0067	No	MEC<C & B is ND
9	Nickel	37	4.4	No	MEC<C & B is ND
13	Zinc	84	4.4	No	MEC<C & B is ND
68	Bis(2-Ethylhexyl)Phthalate	1.8	1.1	No	MEC<C & B is ND

4. WQBEL Calculations

Final WQBELs have been determined using the methods described in Section 1.4 of the SIP.

Step 1: To calculate the effluent limits, an effluent concentration allowance (ECA) is calculated for each pollutant found to have reasonable potential using the following equation, which takes into account dilution and background concentrations:

ECA = C + D (C – B), where

C = the applicable water quality criterion (adjusted for receiving water hardness and expressed as the total recoverable metal, if necessary)
D = dilution credit (here D= 0, as the discharge does not qualify for a dilution credit)
B = background concentration

Here, no credit for dilution is allowed at either outfall, which results in the ECA being equal to the applicable criterion (ECA = C).

Step 2: For each ECA based on an aquatic life criterion/objective (copper and cyanide), the long term average discharge condition (LTA) is determined by multiplying the ECA by a factor (multiplier), which adjusts the ECA to account for effluent variability. The multiplier depends on the coefficient of variation (CV) of the data set and whether it is an acute or chronic criterion/objective. Table 1 of the SIP provides pre-calculated values for the multipliers based on the values of the CV. When the data set contains less than 10 sample results (as for the Arcata WWTF), or when 80 percent or more of the data set is reported as non-detect (ND), the CV is set equal to 0.6. Derivation of the multipliers is presented in Section 1.4 of the SIP.

From Table 1 of the SIP, the ECA multipliers for calculating LTAs at the 99th percentile occurrence probability are 0.321 (acute multiplier) and 0.527 (chronic multiplier). The LTAs are determined as follows in Table F-11.

Table F-7. Determination of Long Term Averages

Pollutant	ECA		ECA Multiplier		LTA (µg/L)	
	Acute	Chronic	Acute	Chronic	Acute	Chronic
Outfall 001						
Cyanide	1	0.5	0.32	0.53	0.32	0.53
Outfall 003						
Copper	5.8	2.9	0.32	0.53	1.86	1.97
Cyanide	1	0.5	0.32	0.53	0.32	0.53

Step 3: WQBELs, including an average monthly effluent limitation (AMEL) and a maximum daily effluent limitation (MDEL) are calculated using the most limiting (lowest) LTA. The LTA is multiplied by a factor that accounts for averaging periods and exceedance frequencies of the effluent limitations, and for the AMEL, the effluent monitoring frequency. Here, the CV is set equal to 0.6, and the sampling frequency is set equal to 4 (n = 4). The 99th percentile occurrence probability was used to determine the MDEL multiplier and a 95th percentile occurrence probability was used to determine the AMEL multiplier. From Table 2 of the SIP, the MDEL multiplier is 3.11, and the AMEL multiplier is 1.55. Final WQBELs for copper and cyanide are determined as follows.

Table F-8. Determination of Final WQBELs Based on Aquatic Life Criteria

Pollutant	LTA (µg/L)	MDEL Multiplier	AMEL Multiplier	MDEL (µg/L)	AMEL (µg/L)
Outfall 001					
Cyanide	0.327	3.11	1.55	1.0	0.5
Outfall 003					
Copper	1.86	3.11	1.55	5.8	2.9
Cyanide	0.327	3.11	1.55	1.0	0.5

Final effluent limits presented above for copper at Outfall 003 are based on a receiving water hardness of 400 mg/L.

Step 4: When the most stringent water quality criterion/objective is a human health criterion/objective (as for bis(2-ethylhexyl)phthalate, TCDD equivalents, carbon tetrachloride, and dichlorobromomethane), the AMEL is set equal to the ECA. From Table 2 of the SIP, when CV = 0.6 and n = 4, the MDEL multiplier at the 99th percentile occurrence probability equals 3.11, and the AMEL multiplier at the 95th percentile occurrence probability equals 1.55. The MDEL for protection of human health is

calculated by multiplying the ECA by the ratio of the MDEL multiplier to the AMEL multiplier. Final WQBELs for TCDD equivalents, carbon tetrachloride, and dichlorobromomethane at Outfalls 001 and 003 are determined as follows.

Table F-9. Determination Final WQBELs Based on Human Health Criteria

Pollutant	ECA (µg/L)	MDEL/AMEL	MDEL (µg/L)	AMEL (µg/L)
TCDD Equivalents	1.3E-08	2.01	1.3E-08	2.6E-08
Carbon Tetrachloride	0.25	2.01	0.25	0.50
Dichlorobromomethane	0.56	2.01	0.56	1.12
Bis(2-Ethylhexyl)Phthalate	1.8	2.01	3.6	1.8

A summary of WQBELs established by the Order is given in the table below.

Table F-10. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations	
		Average Monthly	Maximum Daily
Outfall 001 and Outfall 003			
Cyanide	µg/L	0.5	1.0
TCDD Equivalents	µg/L	1.3×10^{-8}	2.6×10^{-8}
Carbon Tetrachloride	µg/L	0.25	0.50
Dichlorobromomethane[17]	µg/L	0.56	1.12
Bis(2-Ethylhexyl)Phthalate	µg/L	1.8	3.6
Chlorine, Total Residual[18]	mg/L	0.01	0.02
Fecal Coliform	MPN/100ml	14[19]	43[20]
Outfall 003			
Copper	µg/L	2.9	5.8

5. Whole Effluent Toxicity (WET)

Effluent limitations for whole effluent, acute and 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

[17] Dichlorobromomethane is not applied to discharges at Outfall 003 because, dichlorobromomethane is a byproduct of chlorination and when Outfall 003 is in use, disinfection will be accomplished using ultraviolet technology.

[18] Chlorine Residual applies to discharges at Outfall 001 when chlorination is used to treat the effluent.

[19] Median.

[20] Not more than 10% of samples collected in a 30-day period shall exceed the daily maximum.

test is conducted over a longer period of time and may measure mortality, reproduction, and/or growth. The Basin Plan establishes a narrative water quality objective for toxicity, requiring that all waters be maintained free of toxic substances in concentrations that are lethal to, or produce other detrimental responses in aquatic organisms. Detrimental responses may include, but are not limited to, decreased growth rate, decreased reproductive success of resident or indicator species, and/or significant alterations in population, community ecology, or receiving water biota. The previous Order included an effluent limitation for acute toxicity at Outfall 001 in accordance with the Basin Plan, which requires that the average survival of test organisms in undiluted effluent for any three consecutive 96-hour bioassay tests be at least 90 percent, with no single test having less than 70 percent survival. A summary of acute toxicity test results for survival of rainbow trout (*O. mykiss*) in 100 percent effluent at Outfall 001 for the period from September 2004 to October 2007 is provided in the following table.

Table F.11. Summary of Acute Toxicity Test Results

Date	Percent Survival	Date	Percent Survival
9/21/2004	100	8/21/2006	100
11/30/2004	100	10/9/2006	100
3/15/2005	95	3/21/2007	100
6/21/2005	100	4/9/2007	100
9/26/2005	100	9/17/2007	100
6/26/2006	100	10/22/2007	100

In addition to the Basin Plan requirements, section 4 of the SIP states that chronic toxicity limitations are required in permits for all discharges that will cause, have the reasonable potential to cause, or contribute to chronic toxicity in receiving waters. The previous Order included monitoring requirements for chronic toxicity at Outfall 001; effluent limitations were not included.

The Permittee initiated chronic toxicity testing using three species in 2005: topsmelt (*Atherinops affinis*), bay mussel (*Mytilus edulis*), and giant kelp (*Macrocystis pyrifera*). In the third quarter 2005, the effluent sample exhibited some toxicity affecting the giant kelp. The effects on the giant kelp also appeared in the fourth quarter of 2005, and first and second quarters of 2006. In the third quarter 2006, brown algae (*Thalassiosira pseudonana*) was used and showed no toxicity. Bay mussels showed no toxicity in second quarter 2005 and second and third quarters 2006.

The Permittee's chronic toxicity testing results collected during the term of the previous permit are summarized in the table below. A result of 1 or >1 indicates no increased toxicity beyond the control sample.

Table F-12. Chronic Toxicity Testing Summary Results.

Date	Chronic Toxicity Results[21] – Growth and Development (TUc)					
	P. promelas	*S. capricornutum*	*A. affinis*	*M. edulis*	*M. pyrifera*	*T. pseudonana*
9/26/2005	---	---	1	1	> 1	---
11/14/2005	---	---	1	1	> 1	---
3/17/2006	---	---	---	> 1	> 1	---
6/26/2006	---	---	---	1	1	---
7/27/2006	---	---	---	1	---	1
10/9/2006	---	---	---	---	---	1
3/21/2007	1	1	---	---	---	---
4/9/2007	---	> 1	---	---	---	---
6/25/2007	1	1	---	---	---	---

The receiving waters at Outfall 001 and Outfall 003 are estuarine and depending on tide and time of year, may range from a predominantly freshwater environment to a predominantly marine environment. Therefore, the Permittee when collecting samples for toxicity, shall also determine the characteristics of the receiving water at the time of sampling to ensure the proper test species and method are implemented to determine if the toxicity of the effluent from Outfalls 001 and 003 are described in detail in section V of the Monitoring and Reporting Program (Attachment E).

A chronic toxicity effluent limitation has not been included in the Order because the collected data does not indicate that the effluent has reasonable potential to cause, or contribute to chronic toxicity in receiving waters. This Order specifies the use of a numeric trigger for accelerated monitoring and implementation of a Toxicity Reduction Evaluation (TRE) in the event that persistent toxicity is detected. Attachment E of this Order requires annual chronic WET monitoring for demonstration that the discharge does not have the potential to cause, or contribute to chronic toxicity in the receiving water.

Section V.C.1.g of the MRP requires TUc to be calculated as 100/NOEC, where NOEC is the no observed effect concentration, for purposes of compliance with the effluent limitation. Although the federal requirements may provide for flexibility in determining how to calculate TUc for compliance purposes (e.g., 100/NOEC, 100/IC25, 100/EC25), USEPA Region IX recommends that effluent limitations and triggers be based on the NOEC when the permit language and chronic toxicity testing methods incorporate important safeguards that improve the reliability of the NOEC.

[21] In the Toxicity Report for Third and Fourth Quarters 2005, the Permittee indicated the bay mussel (*M.edulis*) was the most sensitive species. In the Toxicity Report for the Fourth Quarter 2006, the Permittee indicated their intent to begin three species screening with freshwater organisms.

These safeguards include the use of a dilution series (testing of a series of effluent concentrations) to verify and quantify a dose-response relationship and a requirement to evaluate specific performance criteria in order to determine the sensitivity of each chronic toxicity test. The goal is to demonstrate that each test is sensitive enough to determine whether or not the effluent is toxic or not.

The use of 100/IC25 or 100/EC25 as methods for calculating chronic toxicity are point estimates that automatically allow for a 25 percent effect before calling an effluent "toxic." The Basin Plan has a narrative objective for toxicity that requires that "all waters be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, animal, or aquatic life." Allowance of a possible 25 percent effect would not meet the Basin Plan's narrative toxicity requirement. In addition, California has historically used the NOEC to regulate chronic toxicity for ocean discharges, thus it is fitting that the same method be used to regulate chronic toxicity in inland surface water discharges.

If sampling of the discharge demonstrates a pattern of toxicity exceeding the trigger, the Permittee is required to initiate a TRE, in accordance with an approved TRE work plan to determine whether the discharge is contributing chronic toxicity to the receiving water. Special Provision VI.C.2.a. requires the Permittee to submit to the Regional Water Board and maintain a TRE Work Plan 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 in the future. The provision includes requirements for TRE initiation if a pattern of toxicity is demonstrated.

D. Final Effluent Limitations

1. Satisfaction of Anti-Backsliding Requirements

This Order does not retain from the previous permit, the 85 percent removal, concentration or mass-based requirements for BOD_5 and TSS applied to final effluent limitations at Outfall 001. Neither does this Order retain the BOD_5 or TSS concentration based effluent specifications at Outfall 002. In their place, this Order establishes 65 percent removal and performance based limitations for BOD_5 and TSS requirements for discharges conforming to Prohibition III.I. The previous requirements were consistent with the minimum level of effluent quality attainable by standard secondary treatment, established at section 133.102; whereas the 65 percent removal and alternative BOD_5 and TSS requirements are consistent with the minimum level of effluent quality attainable by facilities meeting criteria for "treatment equivalent to secondary" established at section 133.105.

Facility specific criteria satisfies the anti-backsliding exceptions at both section 122.44 (l)(i)(A) and section 122.44 (l)(i)(B)(1). Section 122.44 (l)(i)(A) allows a permit to contain less stringent effluent limitations when material and substantial

alterations or additions to the permitted facility occurred after permit issuance that justify the application of a less stringent effluent limitation. Section 122.44 (l)(i)(B)(1) allows a permit to contain less stringent effluent limitations when information is available that was not available at the time of permit issuance and that information would have justified the application of a less stringent effluent limitation at the time of permit issuance. In establishing equivalent to secondary requirements, the Regional Water Board has reviewed water quality monitoring data collected during the term of the previous permit from Pt. 9. The data shows that under the upgraded configuration required to take effect during the term of this Order, the minimum level of effluent quality attainable prior to polishing within the AMWS is consistent with treatment equivalent to secondary. Standard secondary treatment limitations have been retained as interim limitations at Outfall 001 until the upgrade and applied to Outfall 003 (the primary discharge point) under the upgraded configuration.

The daily maximum effluent limitations for BOD5 and TSS have been omitted from this Order. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations. This permit change is governed by section 122.44(l)(i)(B)(1). Daily maximum limits are not necessary at this facility because BOD5 and TSS samples collected since 2006 demonstrate that the treated effluent routinely complied with the daily maximum effluent limitations. Daily maximum effluent limitations for BOD5 and TSS are not retained as these limitations are not specifically required under section 122.45(d)(2) and may not provide the most representative measure of compliance given the long retention time of the WWTF. Further, daily maximum limits are not specifically required to meet the minimum level of effluent quality that must be attained by the application of secondary treatment or equivalent to secondary treatment.

Although the Daily maximum limitations for BOD5 and TSS have been removed from this Order, the more stringent weekly and monthly requirements for those parameters have been retained. If future monitoring shows exceedances of these limitations, staff will evaluate the need to reinstate the daily maximum effluent limitation for BOD5 and TSS.

Effluent limitations for zinc and oil and grease have been removed from this Order because data did not demonstrate reasonable potential to cause or contribute to an excursion above the respective water quality criteria for zinc or oil and grease. In addition, based upon a site specific water effects ratio (WER) study conducted in 2012, copper limitations applicable to Outfalls 001 and 002 have been removed. The WER study provided information to justify application of a site specific objective for copper at the Outfalls 001 and 002 discharge locations. As such effluent data does not demonstrate reasonable potential to cause or contribute to an excursion above the WER-adjusted water quality criteria for copper. The relaxation of effluent

limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations, based on the consideration of new information (i.e., discharge monitoring reports and RPA).

This Order does not retain total coliform limitations at Outfall 002 from the previous permit. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations, based on the consideration of new information provided by the Humboldt County Director of Environmental Health, contained in Attachment G, which indicates that application of disinfection at the exit from the AMWS rather than the entrance will not threaten public health or wellbeing. Fecal coliform limitations applicable to Humboldt Bay for the protection of shellfish and human health have been retained.

2. Satisfaction of Antidegradation Policy

Pursuant to the Antidegradation Policy, the lowering of water quality can be allowed only if beneficial uses are protected, and if there is a maximum benefit to the people of the state. Discharges regulated in accordance with this Order are for a publically owned treatment works (POTW). The increased costs of additional treatment that would otherwise be required to remove additional BOD5 and TSS beyond equivalent to secondary criteria prior to treatment within AMWS are not in the best interest of the public given that beneficial uses will still be protected; therefore the allowance of an incremental increase in degradation is found to be in the best interest to the people of the state.

The activities allowed in accordance with these modifications to the waste discharge requirements apply to existing facilities. Further, this Order permits only those discharges of waste that have received a minimum of equivalent to secondary treatment. Discharges from the WWTF will be required to maintain protection of the beneficial uses of the receiving waters and comply with applicable provisions of the Basin Plan. As described under section II.B.2. of this Fact Sheet, discharges regulated in accordance with this Order for the upgraded WWTF configuration will result in higher quality effluent discharges to Humboldt Bay than under the existing conditions.

While the removal of the effluent limits for copper at Outfalls 001 and 002 may result in a slight increase in the amount of copper discharged to the water bodies when compared with the amount that would be discharged in compliance with the previous effluent limitations, the removal of effluent limitations is predicated on a finding that there is no reasonable potential for toxicity to organisms from copper in the effluent. Accordingly, this action will result in no less protection of beneficial uses and will maintain water quality.

The significant increase in costs for additional treatment that would be required to remove low levels of copper at this POTW are not in the best interest of the public given that beneficial uses are already shown to be protected based upon the site specific water quality objective for copper applicable to the Outfalls 001 and 002 and developed in accordance with SIP requirements. The activities allowed in accordance with these modifications to the waste discharge requirements apply to existing facilities. Discharges from the WWTF are required to maintain protection of the beneficial uses of the receiving water and comply with applicable provisions of the Basin Plan.

3. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based and water quality-based effluent limitations for individual pollutants. The technology-based effluent limitations consist of restrictions on BOD5, TSS, and pH. Restrictions on these pollutants are discussed in section IV.B of this Fact Sheet. This Order's technology-based pollutant restrictions are not more stringent than the minimum, applicable federal technology-based requirements.

Water quality-based effluent limitations (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. To the extent that toxic pollutant water quality-based effluent limitations were derived from the CTR, the CTR is the applicable standard pursuant to section 131.38. The scientific procedures for calculating the individual water quality-based effluent limitations for priority pollutants are based on the CTR-SIP, which was approved by USEPA on May 18, 2000. 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 section 131.21(c)(1). Specifically, this Order includes effluent limitations for fecal coliform, chlorine residual, copper, cyanide, 2,3,7,8-TCDD equivalents, carbon tetrachloride, dichlorobromomethane, and bis(2-ethylhexyl)phalate that are necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in Section IV.C.3.

Collectively, this Order's restrictions on mass and individual pollutants are no more stringent than required to implement the requirements of the CWA. However, to the extent any are more stringent than 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.

As indicated throughout this Fact Sheet, the effluent limitations established by this Order have been developed to protect beneficial uses of water identified in the Basin Plan for Humboldt Bay, tributaries thereto, and the wetland specific beneficial uses of the AMWS, all of which are contained within the Humboldt Bay hydrographic unit. Of the various potential pollutant sources contributing to water quality conditions within Humboldt Bay, the effluent limitations required by this Order provide reasonably achievable control factors for the WWTF contribution(s). Further, the Regional Water Board is not aware of any costs, required of the City to meet effluent limitations in this Order, which are beyond the scope of those 1) necessary to achieve upgrades proposed by the City, and/or 2) similar to costs undertaken by POTWs of similar or lessor size within the region. This Order does not authorize the use of recycled water; nor do these requirements accommodate any expansion for additional housing development, beyond which, the City may have been granted in previous Orders.

E. Interim Effluent Limitations

Interim effluent limitations for Outfall 001 established in Section IV.A.3 of the Order are effective until activation of the upgraded WWTF configuration through November 30, 2016, whichever is sooner.

F. Land Discharge Specifications

This section of the standardized permit is not applicable to the Arcata WWTF.

G. Reclamation Specifications

This section of the standardized permit is not applicable to the Arcata WWTF.

VII. 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 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. 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

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, and freshwater replenishment to surface waters.

2. State Water Board Resolution No. 68-16, requires, in part, that whenever the existing quality of water is better than the quality established in policies as of the date on which such policies become effective, such existing high quality water will be maintained until it is demonstrated to the state that any changes will be consistent with maximum benefit to the people of the state, will not unreasonably affect beneficial uses of such water, and will not result in water quality less than prescribed in the policies.

VIII. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 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 Monitoring and Reporting Program (MRP), Attachment E of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this facility.

A. Influent Monitoring

Influent monitoring requirements for BOD_5 and TSS are retained from the previous permit and are necessary to determine compliance with the technology based limitations for percent removal. Influent monitoring for flow is required to assess WWTF loading.

B. Effluent Monitoring

1. Effluent monitoring requirements for flow, BOD_5, TSS, settleable solids, fecal coliform bacteria, pH, chlorine residual, copper, total hardness, cyanide, 2,3,7,8-TCDD equivalents, carbon tetrachloride, dichlorobromomethane, bis(2-ethylhexyl)phthalate, and acute and chronic toxicity are necessary to detemine compliance with triggers, prohibitions, effluent limitations, and/or discharge specifications established by the Order.

2. Quarterly monitoring requirements for nutrients (ammonia nitrogen, nitrate nitrogen,) in the effluent have been established because nitrogen and phosporous

containing compounds are a common component of domestic wastewaters and can have a directly toxic and/or detrimental biostimulatory effect on receiving waters. The Regional Water Board is including such monitoring requirements in the discharge permits of most POTWs in the North Coast Region to evaluate the need for effluent limitations for these pollutants.

3. Annual monitoring requirements for the 126 priority pollutants identified in the California Toxics Rule at section 131.38. CTR pollutants (CTR Pollutants) and the title 22 pollutants for which the Department of Health Services has established Maximum Contaminant Levels (MCLs) at title 22, Division 4, Chapter 15, sections 64431 (Inorganic Chemicals) and 64444 (Organic Chemicals) of the California Code of Regulations is required to evaluate reasonable potential for those pollutants to be present in the discharge at concentrations that may adversely impact beneficial uses of the receiving water.

4. Oil and grease monitoring has been discontinued because all discharge monitoring data reported during the permit term has been non-detect; there is no demonstration of reasonable potential for this parameter.

C. Whole Effluent Toxicity Testing Requirements

Whole effluent toxicity (WET) limitations and monitoring protect the receiving water quality from the aggregate effect of a mixture of pollutants in the effluent. Acute toxicity testing measures mortality in 100 percent effluent over a short test period, and chronic toxicity testing is conducted over a longer time period and may measure mortality, reproduction, and/or growth. This Order includes effluent limitations and monitoring requirements for acute toxicity; as well as monitoring requirements for chronic toxicity to determine compliance with the Basin Plan's narrative water quality objective for toxicity.

D. Receiving Water Monitoring

1. Arcata Marsh Wildlife Sanctuary (AMWS)

The AMWS is a created wetland, with unique beneficial uses including non-contact water recreation, cold freshwater habitat, wildlife habitat, wetland habitat, and enhanced treatment of wastewater. Monitoring of the AMWS is required to evaluate the health and performance of the AMWS and demonstrate that the discharge of non-disinfected equivalent to secondary treated wastewater at Outfall 002 is protective of the beneficial uses of the AMWS.

2. Brackish Marsh

Receiving water monitoring requirements for dissolved oxygen pH, turbidity, temperature, conductivity, total dissolved solids, salinity, nitrate,

floatables/discoloration, and CTR priority pollutants are retained from the previous permit, as established in the Revised Monitoring and Reporting Program (revised July 17, 2007), but applied to the primary final discharge point in the brackish marsh rather than the larger area of Humboldt Bay. Further, this Order establishes monthly monitoring for hardness in the receiving water.

Temperature: Monitoring of receiving water temperature is retained to assess the impact, if any, on the temperature of the receiving waters.

Hardness: Because the toxicity of certain metals is hardness dependent (i.e., as hardness decreases, metals toxicity increases), monitoring of hardness in the receiving water is required on a monthly basis to allow calculation of water quality objectives and effluent limitations that are hardness dependent. Monitoring of hardness in the receiving water should coincide with compliance monitoring for the hardness dependent metal with effluent limitations (copper) established by this Order.

Nutrients. Monitoring requirements for total ammonia, nitrate is required to characterize the assimilative capacity of the receiving water for these nutrients, to determine the impact of the discharge on the receiving water with respect to these parameters, and to generate background data for these constituents for future reasonable potential analyses.

CTR Pollutants. Water quality criteria for the CTR pollutants are applicable to Humboldt Bay, and therefore characterization of background conditions is necessary to assess impacts of the discharge. In addition, reasonable potential analyses, conducted in accordance with procedures established by the SIP, require characterization of background levels of the toxic pollutants.

Title 22 Pollutants. Water quality criteria for the title 22 pollutants are applicable to Humboldt Bay, and therefore characterization of background conditions is necessary to assess impacts of the discharge.

3. Groundwater.

The Order does not establish groundwater monitoring requirements.

E. Other Monitoring Requirements

Disinfection Process Monitoring for UV Disinfection System**.** This Order establishes operations monitoring for the UV disinfection system. These monitoring requirements are established to document proper operations and maintenance of the disinfection system for the upgraded WWTF configuration. This monitoring is intended to ensure adherence to

proper standards for UV light dosage are implemented, adequate disinfection occurs, and maintain required bacterial monitoring at a weekly frequency..

IX. RATIONALE FOR PROVISIONS

A. Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with section 122.41, and additional conditions applicable to specified categories of permits in accordance with section 122.42, are provided in Attachment D. The Permittee must comply with all applicable standard provisions and with those additional conditions that are applicable under section 122.42.

Section 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. Section 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with section 123.25, this Order omits federal conditions that address enforcement authority specified in sections 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).

B. 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.

1. 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. sections 122.41(j)(5) and (k)(2)].
2. 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.

C. Special Provisions

1. Reopener Provisions

a. **Standard Revisions (Special Provisions VI.C.1.a).** Conditions that necessitate a major modification of a permit are described in section 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 Provisions 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 Provisions 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. Additionally, if a numeric chronic toxicity water quality objective or implementation policy is adopted by the State Water Board, this Order may be reopened to include those procedures and/ or a numeric chronic toxicity limitation based on the new objective(s).

d. 303(d)-Listed Pollutants (Special Provisions 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. Water Effects Ratios (WERs) and Metal Translators (Special Provisions VI.C.1.e). This provision allows the Regional Water Board to reopen this Order if future studies undertaken by the Permittee provide new information and justification for applying a water effects ratio or metal translator to a water quality objective for one or more priority pollutants.

2. Special Studies and Additional Monitoring Requirements

a. Toxicity Reduction Evaluations (Special Provisions VI.C.2.a-c).

The SIP requires the use of short-term chronic toxicity tests to determine compliance with the narrative toxicity objectives for aquatic life in the Basin Plan. Attachment E of this Order requires chronic toxicity monitoring for demonstration of compliance with the narrative toxicity objective.

In addition to WET monitoring, this provision requires the Permittee to submit to the Regional Water Board, if one has not already been submitted, a TRE Work Plan 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 in the future. 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. Arcata Marsh Wetland Sanctuary (AMWS) Evaluation (Special Provision VI.C.2.d).

A special study is necessary to develop an appropriate monitoring and reporting plan for the AMWS. No approved plan is currently in place to provide adequate evaluation of the health and performance of the AMWS. Once in place, the approved plan will provided the basis for protection of beneficial uses in the AMWS.

3. Best Management Practices and Pollution Prevention

Provision VI.C.3.a is included in this Order as required by section 2.4.5 of the SIP. 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

Section 122.41(e) requires proper operation and maintenance of permitted wastewater systems and related facilities to achieve compliance with permit conditions. An up-to-date operation and maintenance (O&M) manual, as required by Provision VI.C.4.b of the Order, is an integral part of a well-operated and maintained facility.

5. Special Provisions for Municipal Facilities (POTWs Only)

a. Wastewater Collection Systems

i. Statewide General WDRs for Sanitary Sewer Systems. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on May 2, 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than 1 mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires

agencies to develop sanitary sewer management plans (SSMPs) and report all SSOs, among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Permittee's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions VI.A.2.b and VI.C.5 of the Order. The Permittee must separately comply with both this Order, and with the General Order, which is not incorporated by reference into this Order. The Permittee and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by December 1, 2006. The Permittee has enrolled under the General Order as required.

All NPDES permits for POTWs currently include federally required standard conditions to mitigate discharges (section 122.41(d)), to report non-compliance (section 122.41(1)(6) and (7)), and to properly operate and maintain facilities (section 122.41(e)). This provision is consistent with these federal requirements.

ii. **Sanitary Sewer Overflows.** This Order includes provisions (Provision VI.C.5.(a)(2), and Attachment D subsection I.C., I.D, V.E, and V.H.) to ensure adequate and timely notifications are made to the Regional Water Board and appropriate local, state, and federal authorities in case of sewage spills. In addition, as an Enrollee under General Order No. 2006-0003-DWQ, the Permittee is separately required to report SSOs to an online SSO database administered through the California Integrated Water Quality System (CIWQS) and via telefax when the online SSO database is not available. Detailed notification and reporting requirements for SSOs and sewage spills are specified in Attachment E subsection E (Monitoring and Reporting Program). The goal of these provisions is to ensure appropriate and timely response by the Permittee to SSOs to protect public health and water quality.

b. Pretreatment of Industrial Waste (Provision VI.C.5.b).

This provision is based on 40 CFR Part 403, (General Pretreatment Regulations for Existing and New Sources of Pollution.)

c. Sludge Disposal and Handling Requirements (Provision VI.C.5.c).

The disposal or reuse of wastewater treatment screenings, sludges, or other solids removed from the liquid waste stream is regulated by 40 CFR Parts 257,

258, 501, and 503, and the State Water Board promulgated provisions of title 27, California Code of Regulations. The Permittee has indicated that that all screenings, sludges, and solids removed from the liquid waste stream are currently disposed of off-site at a municipal solid waste landfill in accordance with all applicable regulations. See Fact Sheet section II.A for more detail.

d. Operator Certification (Provision VI.C.5.d).

This provision requires the WWTF to be operated by supervisors and operators who are certified as required by title 23, California Code of Regulations, section 3680 and is retained from the previous permit.

e. Adequate Capacity (Provision VI.C.5.e).

The goal of this provision is to ensure appropriate and timely planning by the Permittee to ensure adequate capacity for the protection of public health and water quality. This provision is retained from the previous permit.

f. Statewide General WDRs for Discharge of Biosolids to Land (Provision VI.C.5.f).

This provision requires the Permittee to separately comply with the State's regulations relating to the discharge of biosolids to the land. The discharge of biosolids through land application is not regulated under this Order. Instead, the Permittee is required to obtain separate coverage under the State Water Board Order No. 2004-0012-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (General Order). Coverage under the General Order, as opposed to coverage under this NPDES permit or individual WDRs, implements a consistent statewide approach to regulating this waste discharge.

6. Other Special Provisions

a. Storm Water. For the control of storm water discharged from the site of the wastewater treatment plant, the Discharge must separately seek coverage under the State Water Board's Water Quality Order 97-03-DWQ, if applicable.

b. Engineering and Antidegration Analysis for Proposed Increased Wet Weather Treatment Capacity. If the Permittee seeks to increase the permitted flow, the Permittee shall submit an analysis to document that that figure is an accurate representation of the capacity of wastewater collection and treatment components and to ensure that such an increase is consistent, or not, with applicable State and federal antidegradation regulations, guidance, and policy.

7. Compliance Schedules

This section is not applicable to the Arcata WWTF.

X. 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 City of Arcata Wastewater Treatment Facility. 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 on March 12, 2012.

The Permittee and interested agencies and persons have been notified of the Regional Water Board's intent to modify waste discharge requirements for the existing discharge and have been provided opportunities for public meetings and to submit their written views and recommendations. Notification was provided through 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 and through publication in the Eureka Times-Standard on August 19, 2014. On November 20, 2014, after due notice to the Permittee and all other affected persons, the Regional Water Board conducted a public hearing and evidence was received regarding adoption of Order No. R1-2014-0050 modifying Order No. R1-2012-0031.

B. Written Comments

The staff determinations are tentative until the final Order is adopted by the Regional Water Board. 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 have been received at the Regional Water Board offices by 5:00 p.m. on April 12, 2012.

To be fully responded to by staff and considered by the Regional Water Board, written comments on modifications to Order No. R1-2012-0031 contained in Order No. R1-2014-0050 should be received at the Regional Water Board offices by 5:00 p.m. on **September 18, 2014**.

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 7, 2012
Time:	9:00 AM
Location:	Willow Creek Community Services District Kimtu Cookhouse/Lodge 135 Willow Road Willow Creek, California

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. When adopting this Order, the Regional Water Board, in the above referenced public meeting, heard and considered all comments pertaining to the discharge.

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 aggrieved person may petition the State Water Resources Control Board to review the decision of the Regional Water Board regarding the final WDRs. 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 Lisa Bernard at 707-576-2677 or lisa.bernard@waterboards.ca.gov.