CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
NORTH COAST REGION

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WATER QUALITY ORDER R1-2023-0016
NPDES NO. CA0024449
WDID NO. 1B82151OHUM

Waste Discharge Requirements for the City of Eureka, Elk River Wastewater Treatment Plant, Humboldt County

The following Permittee is subject to waste discharge requirements (WDRs) set forth in this Order:

Permittee	**City of Eureka**
Name of Facility	**Elk River Wastewater Treatment Plant, Eureka**
Facility Address	**4301 Hilfiker Lane** **Eureka, CA 95503** **Humboldt County**

Table 1. Discharge Location

Discharge Point	Effluent Description	Discharge Point Latitude (North-South)	Discharge Point Longitude (East-West)	Receiving Water
001	Secondary treated municipal wastewater	40º 46’ 24”	124º 12’ 45”	Humboldt Bay

This Order was adopted on:	**October 5, 2023**
This Order shall become effective on:	**December 1, 2023**
This Order shall expire on:	**November 30, 2028**

The Permittee shall file a Report of Waste Discharge as an application for reissuance of WDRs in accordance with title 23, California Code of Regulations, and an application for reissuance of a National Pollutant Discharge Elimination System (NPDES) permit no later than: **November 30, 2027.** The U.S. Environmental Protection Agency (U.S. EPA) and the California Regional Water Quality Control Board, North Coast Region have classified this discharge as follows: Major discharge.

I, Valerie M. Quinto, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, North Coast Region, on the date indicated above.

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Valerie M. Quinto, Executive Officer

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1. FACILITY INFORMATION

Information describing the Elk River Wastewater Treatment Plant (Facility) is summarized on the cover page and in sections 1 and 2 of the Fact Sheet (Attachment F). Section 1 of the Fact Sheet also includes information regarding the Facility's permit application.

2. FINDINGS

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

2.1. Legal Authorities

This Order serves as waste discharge requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260). This Order is also issued pursuant to section 402 of the federal Clean Water Act (CWA) and implementing regulations adopted by the U.S. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as a National Pollutant Discharge Elimination System (NPDES) permit authorizing the Permittee to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order.

2.2. Background and Rationale for Requirements

The Regional Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for the requirements in this Order, is hereby incorporated into and constitutes Findings for this Order. Attachments A through E and G through H are also incorporated into this Order.

2.3. Provisions and Requirements Implementing State Law

The provisions/requirements in subsections 4.2, 4.3, and 5.2 are included to implement state law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.

2.4. Notification of Interested Parties

The Regional Water Board has notified the Permittee and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of the notification are provided in the Fact Sheet.

2.5. **Consideration of Public Comment**

The Regional Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

2.6. **Anticipated Water Quality Impacts in Disadvantaged or Tribal Communities**

The Permittee, the City of Eureka Elk River Wastewater Treatment Plant, operates a wastewater treatment facility within a disadvantaged community located along Humboldt Bay in Humboldt County. The discharge is classified as "major". In addition, among other updates, this renewed permit contains new requirements to implement bacteria and dissolved oxygen limitations and implement provisions for chronic toxicity. The Order contains a compliance schedule for coming into compliance with Discharge Prohibition 3.1 for the *Enclosed Bays and Estuaries Policy (EBEP)* and Discharge Prohibition 3.5 (Bypass). The EBEP prohibits discharges to enclosed bays and estuaries. This Order includes a compliance schedule to come into compliance with Discharge Prohibitions 3.1 and 3.5. Pursuant to Water Code section 13149.2, the Regional Water Board has reviewed readily available information and information raised to the Board by interested persons concerning anticipated water quality impacts in disadvantaged or tribal communities resulting from adoption of this Order. The Board also considered environmental justice concerns within the Board's authority and raised by interested persons with regard to those impacts. Expanded monitoring and reporting requirements are included in the renewed Order to ensure discharges do not exceed water quality objectives. The Regional Water Board publicly noticed the permit and provided opportunities for public comment. Public notice was provided to interested persons and public agencies in the region with jurisdiction over natural resources in the affected area, including the Humboldt County Health Department. The discharge regulated by this Order is not expected to result in a disproportionate impact to tribal or disadvantaged communities. The Regional Water Board has satisfied the outreach requirements set forth in Water Code section 189.7.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R1-2016-0001 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 CWA and regulations and guidelines adopted thereunder, the Permittee shall comply with the requirements in this Order. This action in no way prevents the Regional Water Board from taking enforcement action for violations of the previous Order.

3. DISCHARGE PROHIBITIONS

3.1. The discharge of waste to Humboldt Bay is prohibited unless it complies with the State Water Board, Water Quality Control Policy for the Enclosed Bays and Estuaries of California (1974, 1995).[1]

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

3.3. Creation of pollution, contamination, or nuisance, as defined by section 13050 of the Water Code is prohibited.

3.4. The discharge of sludge or digester supernatant is prohibited, except as authorized under section 6.3.4.3 of this Order (Sludge Disposal and Handling Requirements).

3.5. The discharge of untreated or partially treated waste (receiving a lower level of treatment than described in section 2.1 of the Fact Sheet) from anywhere within the collection, treatment, or disposal systems is prohibited, except as provided for in Attachment D, Standard Provisions 1.7 (Bypass) and 1.8 (Upset).[2]

3.6. The discharge of waste at any point not described in Finding 2.2 of the Fact Sheet or authorized by a permit issued by the State Water Resources Control Board (State Water Board) or another Regional Water Board is prohibited.

3.7. The discharge of waste from the Facility to the Elk River and its tributaries, and to seasonal and tidal marshes adjacent to the Facility is prohibited. This prohibition does not apply to transfers to and from the Overflow Marsh at the Facility, as described in section 2.1.2 of the Fact Sheet.

3.8. The peak dry weather flow of waste through the Facility in excess of 8.6 mgd is prohibited. Additionally, the peak daily wet weather flow of waste through the Facility in excess of 12 mgd is prohibited. Compliance with this prohibition shall be determined as defined in sections 7.10 and 7.11 of this Order.

3.9. The discharge of any radiological, chemical, or biological warfare agent into waters of the state is prohibited under Water Code section 13375.

3.10. The acceptance of septage to a location other than an approved septage receiving station is prohibited.

4. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

4.1. Effluent Limitations – Discharge Point 001

4.1.1. Final Effluent Limitations – Discharge Point 001

4.1.1.1. The Permittee shall maintain compliance with the following effluent limitations at Discharge Point 001 with compliance measured at Monitoring Location EFF-001 as described in Attachment E, the Monitoring and Reporting Program:

[1] See section 6.3.6.3, Compliance with Discharge Prohibition 3.1.

[2] See section 6.3.6.2, Compliance with Discharge Prohibition 3.5.

Table 2. Effluent Limitations[1]

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Biochemical Oxygen Demand 5-day @ 20°C	mg/L[0]	30	45	60	--	--
Total Suspended Solids	mg/L	30	45	60	--	--
pH	standard units	--	--	--	6.0	8.5
alpha-Endosulfan	µg/L	0.2280	--	0.4573	--	--
Ammonia Impact Ratio	mg/L	1.0	--	1.0	--	--
Cyanide, Total (as CN)	µg/L	12.76	--	32.0	--	--
Settleable Solids	mL/L	0.1	--	0.2	--	--
Total Residual Chlorine	µg/L	6.1	--	12	--	--
Turbidity	NTU	75	100	--	--	--

Table Notes

1. See Definitions in Attachment A and Compliance Determination discussion in section 7 of this Order.
2. The Ammonia Impact Ratio (AIR) is calculated as the ratio of the ammonia concentration in the effluent and the applicable ammonia standard (AMEL and MDEL). Attachment H contains a PDF example of the calculator that will be sent to the Permittee to determine compliance with the AMEL/MDEL AIR. For each of the applicable ammonia standards, Attachment G includes two tables that provide the variable AMEL and MDEL ammonia standards used in calculating the AIR. The AIR is the ammonia effluent limit and must be reported in the self-monitoring reports in addition to ammonia, pH, salinity, and temperature values. Monitoring for ammonia, pH, salinity, and temperature must be conducted concurrently in order for the AIR to be calculated properly. Compliance determination will be based on the receiving water data and ammonia effluent data taken on the same day.
3. See sections 7.12 and 7.13 of this Order regarding compliance with each AIR effluent limit.

4.1.1.2. **Percent Removal.** The average monthly percent removal of BOD_5 and TSS solids shall not be less than 85 percent. Percent removal shall be determined from the monthly average value of influent wastewater concentration in comparison to the monthly average value of effluent concentration for the same constituent over the same time period as measured at Monitoring Locations INF-001 and EFF-001, respectively.

4.1.1.3. **Disinfection.** Disinfected effluent discharged from the Facility through Discharge Point 001 to Humboldt Bay shall not contain bacteria exceeding the following concentrations, as measured at Monitoring Location EFF-001. Compliance with bacteriological limitations shall be determined in accordance with section 7.8 of this Order.

4.1.1.3.1. **Fecal Coliform Bacteria**

4.1.1.3.1.1. The Median concentration shall not exceed a Most Probably Number (MPN) of 14 per 100 milliliters (mL) in a calendar month; and

4.1.1.3.1.2. No sample shall exceed an MPN of 43 per 100 mL.

4.1.1.3.2. **Enterococci Bacteria**

4.1.1.3.2.1. The concentration of enterococci shall not exceed 30 colony forming units (cfu) per 100 milliliters (mL) as a six-week rolling geometric mean, calculated weekly.

4.1.1.3.2.2. A statistical threshold value (STV) of 110 cfu/100 mL shall not be exceeded by more than 10 percent of the samples collected in a calendar month and calculated in a static manner.

4.1.1.4. **Acute Aquatic Toxicity.** To determine compliance with the water quality objective for toxicity in the Basin Plan, the discharge, as measured at Monitoring Location EFF-001, shall meet the following effluent limitations.

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

No acute aquatic toxicity test shall result in a “fail” at the IWC for the survival endpoint and a percent effect for the survival endpoint greater than or equal to 50 percent.

4.1.1.4.2. **Median Monthly Effluent Limitation (MMEL)**

No more than one acute aquatic toxicity test initiated in a calendar month shall result in a “fail” at the IWC for the survival endpoint.

4.1.1.5. **Chronic Aquatic Toxicity.** To determine compliance with the water quality objective for toxicity in the Basin Plan, the discharge, as measured at Monitoring Location EFF-001, shall meet the following effluent limitations:

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

No chronic aquatic toxicity test shall result in a "fail" at the IWC for any sub-lethal endpoint measured in the test and a percent effect for that sub-lethal endpoint greater than or equal to 50 percent.

4.1.1.5.2. **Median Monthly Effluent Limitation (MMEL)**

No more than one chronic aquatic toxicity test initiated in a calendar month shall result in a "fail" at the IWC for any endpoint.

4.1.2. **Interim Effluent Limitations – Not Applicable**

This Order does not establish interim effluent limitations or schedules for compliance with final limitations.

4.2. **Land Discharge Specifications – Not Applicable**

This Order does not authorize discharges to land.

4.3. **Recycling Specifications – Not Applicable**

This Order does not authorize discharges of recycled water.

4.4. **Other Requirements**

4.4.1. The Permittee shall begin discharge prior to the outgoing tide, 45 minutes before slack tide and, when discharge volumes require use of the effluent pumps, the pumping rate shall be set to convey the stored volume within the limits of the discharge window[3].

4.4.2. There shall be no detectable levels of chlorine discharged to the Overflow Marsh, as measured at Monitoring Location INT-001, and as described in the MRP (Attachment E), using any analytical method with a minimum detection of 0.01 mg/L.

5. **RECEIVING WATER LIMITATIONS**

5.1. **Surface Water Limitations**

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. Receiving water conditions not in

[3] The discharge window shall begin 45 minutes before slack tide conditions on the outgoing tide and end prior to the slack tide associated with the subsequent incoming tide.

conformance with the limitations are not necessarily a violation of this Order. Monitoring results from locations described in the MRP, Attachment E, may be used by the Regional Water Board to assess compliance with receiving water limitations. The Regional Water Board may require an investigation to determine cause and culpability prior to asserting that a violation has occurred.

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

5.1.1. The discharge shall not cause the dissolved oxygen concentration of the receiving water to be depressed below 6.0 mg/L.

In those waterbodies for which the aquatic life-based DO requirements are unachievable due to natural conditions[4], site-specific background DO requirements can be applied[5] as water quality objectives by calculating the daily minimum DO necessary to maintain 85% DO saturation during the dry season and 90% DO saturation during the wet season under site salinity, site atmospheric pressure, and natural receiving water temperature[6]. In no event may controllable factors reduce the daily minimum DO below 6.0 mg/L.

For the protection of estuarine habitat (EST), the dissolved oxygen concentration of enclosed bays and estuaries shall not be depressed to levels adversely affecting beneficial uses as a result of controllable water quality factors.

5.1.2. 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.

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

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

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[4] Natural conditions are conditions or circumstances affecting the physical, chemical, or biological integrity of water that are not influenced by past or present anthropogenic activities.

[5] Upon approval from the Regional Water Board Executive Officer.

[6] The method(s) used to estimate natural temperatures for a given waterbody or stream length must be approved by the Executive Officer and may include, as appropriate, comparison with reference streams, simple calculation, or computer models.

5.1.5. 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.

5.1.6. 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.

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

5.1.8. The discharge shall not contain substances in concentrations that result in deposition of material in receiving waters to the extent that such deposits cause nuisance or adversely affect beneficial uses.

5.1.9. The discharge shall not cause receiving waters to contain concentrations of biostimulatory substances that promote objectionable aquatic growth to the extent that such growth causes nuisance or adversely affects beneficial uses.

5.1.10. 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.

5.1.11. 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 5°F above natural receiving water temperature.

5.1.12. The discharge shall not cause an individual pesticide or combination of pesticides to be present in concentrations that adversely affect beneficial uses. The discharge shall not cause bioaccumulation of pesticide concentrations in bottom sediments or aquatic life.

5.1.13. The discharge shall not cause receiving waters to contain concentrations of pesticides in excess of Maximum Contaminant Levels (MCLs) established for these pollutants in title 22, division 4, chapter 15, articles 4 and 5.5 of the CCR.

5.1.14. 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.

5.1.15. The discharge shall not cause a violation of any applicable water quality standard for receiving waters adopted by the Regional Water Board or the State Water Board, as required by the federal Clean Water Act and regulations adopted thereunder. If more stringent applicable water quality standards are promulgated or approved pursuant to section 303 of the Clean Water Act, or amendments thereto, the Regional Water Board will revise and modify this Order in accordance with such more stringent standards.

5.1.16. The discharge shall not cause concentrations of chemical constituents to occur in excess of MCLs and secondary MCLs (SMCLs) established for these pollutants in title 22, division 4, chapter 15, articles 4, section 64431, article 5.5, section 64444, and article 16, section 64449 of the CCR.

5.1.17. The discharge shall not cause receiving waters to contain radionuclides in concentrations which are deleterious to human, plant, animal or aquatic life, nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal or indigenous aquatic life, nor in excess of the MCLs and SMCLs established for these pollutants in title 22, division 4, chapter 15, article 5, sections 64442 and 64443 of the CCR.

5.1.18. The bacteria water quality objective for all waters where the salinity is greater than 1 part per thousand (ppth) more than 5 percent of the time during the calendar year is: a six-week rolling geometric mean of enterococci not to exceed 30 colony forming units (cfu) per 100 milliliter (mL), calculated weekly, with a statistical threshold value (STV) of 110 cfu/100 mL not to be exceeded by more than 10 percent of the samples collected in a calendar month, calculated in a static manner.

5.2. **Groundwater Limitations**

5.2.1. The collection, treatment, storage, and disposal of wastewater shall not cause degradation of groundwater quality unless a technical evaluation is performed that demonstrates that any degradation that could reasonably be expected to occur, after implementation of all regulatory requirements (e.g., Basin Plan) and reasonable best management practices (BMPs), will not violate groundwater quality objectives or cause impacts to beneficial uses of groundwater.

5.2.2. The collection, treatment, storage, and disposal of wastewater shall not cause alterations of groundwater that contain chemical concentrations in excess of the MCLs and SMCLs established for these pollutants in title 22, division 4, chapter 15, article 4, sections 64435 (Tables 2 and 3) 64431, and article 5.5, section 64444, and article 16 section 64449 and the Basin Plan.

5.2.3. The collection, treatment, storage, and disposal of wastewater shall not cause groundwater to contain levels of radionuclides in concentrations that cause nuisance or adversely affect beneficial uses, nor in excess of the MCLs and

SMCLs established in title 22, division 4, chapter 15, article 5, sections 64442 and 64443 of the CCR.

5.2.4. The collection, treatment, storage, and disposal of wastewater shall not cause groundwater to contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.

5.2.5. In groundwaters used for domestic or municipal supply (MUN), the collection, treatment, storage, and disposal of wastewater shall not cause the median of the most probable number of coliform organisms over any 7-day period to exceed 1.1 MPN/100 mL or 1 colony/100 mL.

5.2.6. Groundwaters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in humans, or that adversely affects beneficial uses. This limitation applies regardless of whether the toxicity is caused by a single substance or the synergistic effect of multiple substances.

6. PROVISIONS

6.1. Standard Provisions

6.1.1. **Federal Standard Provisions.** The Permittee shall comply with all Standard Provisions included in Attachment D of this Order.

6.1.2. **Regional Water Board Standard Provisions.** The Permittee shall comply with the following Regional Board standard provisions. In the event that there is any conflict, duplication, or overlap between provisions specified by this Order, the more stringent provision shall apply:

6.1.2.1. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this Facility, may subject the Permittee to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Permittee to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.

6.1.2.2. In the event the Permittee does not comply or will be unable to comply for any reason, with any prohibition, final effluent limitation, other specification, receiving water limitation, or provision of this Order, that may result in significant threat to human health or the environment, such as inundation of treatment infrastructure, breach of pond containment, sanitary sewer overflow, recycled water main break or equivalent release, irrigation runoff, etc., that results in a discharge to a drainage channel or a surface water, the Permittee shall:

6.1.2.2.1. Notify the Regional Water Board within 24 hours of having knowledge of such noncompliance. Spill notification and reporting shall be conducted in

accordance with section 5.5 of Attachment D and section 10.6 of the MRP (Attachment E).

6.1.2.2.2. Investigate the cause(s) of final effluent limitation and discharge specification exceedances and failures to comply with any prohibition, specification, or provision of this Order that may result in significant threat to human health or the environment.

6.1.2.2.3. Identify and implement corrective actions to prevent future exceedances or failures to comply with Order requirements.

6.1.2.2.4. Report the results of such investigations and corrective actions implemented in the monthly SMR as required by MRP section 10.3.6.2.5 and 10.3.6.2.6.

6.2. Monitoring and Reporting Program (MRP) Requirements

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

6.3. Special Provisions

6.3.1. Reopener Provisions

6.3.1.1. **Standard Revisions.** If applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, the Regional Water Board may reopen this Order and make modifications in accordance with such revised standards.

6.3.1.2. **Reasonable Potential.** This Order may be reopened for modification to include an effluent limitation if monitoring establishes that the discharge causes, or has the reasonable potential to cause or contribute to, an excursion above a water quality criterion or objective applicable to the receiving water.

6.3.1.3. **Species Sensitivity Screening.** Upon completion of a species sensitivity screening, this Order may be reopened to specify the most sensitive species for chronic aquatic toxicity testing. Furthermore, the MDEL and MMEL for chronic aquatic toxicity, as identified in sections 4.1.1.5.1 and 4.1.1.5.2, respectively, may be modified to reflect the identified most sensitive species. Reopening of the permit is not required if the species sensitivity screening indicates that the most sensitive species for chronic aquatic toxicity *Macrocystis pyrifera*.

6.3.1.4. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a narrative or numeric chronic

toxicity limitation, a narrative or numeric acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

6.3.1.5. **303(d)-Listed Pollutants.** If an applicable total maximum daily load (TMDL) (see Fact Sheet, section 3.4) program is adopted, this Order may be reopened and effluent limitations for the pollutant(s) that are the subject of the TMDL may be modified or imposed to conform this Order to the TMDL requirements.

6.3.1.6. **Water Effects Ratios (WERs) and Metal Translators.** Except for copper, which has a site-specific applied WER of 12.6, a default WER of 1.0 has been used in this Order for calculating CTR criteria for applicable priority pollutant inorganic constituents. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Permittee performs studies to determine other site-specific WERs and/or site-specific dissolved-to-total metal translators and submits a report that demonstrates that WER or translator studies were performed in accordance with U.S. EPA or other approved guidance, this Order may be reopened to modify the effluent limitations for the applicable constituents.

6.3.1.7. **Mixing Zone Study.** Order No. R1-2009-0033 applied a 30:1 zone of initial dilution for the discharge based on Resolution 80-10 which relied upon a modeling study performed in 1979. The 1979 study demonstrated that discharge at ebb tide conveyed all effluent out of Humboldt Bay and into the Pacific Ocean. A zone of initial dilution was granted based upon design of the outfall diffuser and application of Ocean Plan criteria. Order No. R1-2009-0033 included a requirement for the Permittee to perform an updated effluent discharge study. The new study, *Effluent Discharge Study for the Elk River Wastewater Treatment Plant, January 7, 2014*, demonstrated that not all of the effluent is conveyed to the Pacific Ocean upon discharge, as previously concluded in the 1979 study (see section 2.3 of the Fact Sheet for details). Since a significant portion of the effluent remains in Humboldt Bay, the discharge of effluent from the Facility must comply with the SIP as opposed to the Ocean Plan. Based upon this new information, a zone of initial dilution consistent with the Ocean Plan was not retained in Order No. R1-2016-0001. Should the Permittee wish to obtain future authorization for a mixing zone and associated dilution credit for the discharge into Humboldt Bay, a mixing zone study as specified in Section 1.4.2 of the SIP must be conducted. Upon concurrence that a future mixing zone is warranted, the Permittee would be required to submit a workplan for review and approval by the Regional Water Board Executive Officer prior to initiating a mixing zone study. Mixing zone study results would subsequently need to be submitted to the Regional Water Board for Executive Officer consideration. If approved, this Order may be accordingly revised.

On December 4, 2021, the Permittee submitted the “Humboldt Bay Effluent Modeling” study to determine if the Permittee’s discharge arrangement results

in a long-term accumulation of effluent within Humboldt Bay, to estimate the increase in ammonia concentrations (relative to background concentrations) in Humboldt Bay as a result of discharge, and to demonstrate that ammonia toxicity is limited to the immediate vicinity of the diffuser to support chemical and near-field modeling.

The scope of the study was to determine a validated 3D hydrodynamic model that simulates the dominant processes important for the transport and mixing of discharged effluent within the receiving waters of Humboldt Bay and to simulate the Elk River WWTP discharge over representative wet and dry season conditions. Furthermore, the study incorporated a conservative numerical tracer within the effluent to assess effluent dispersion and mixing within the bay and the resulting estimated ammonia concentrations.

The results of the study did not predict any instances of unionized ammonia concentrations reaching potentially toxic levels, indicating sufficient mixing of the effluent occurs and that ammonia toxicity is limited to within 2.5 feet of the diffuser.

6.3.1.8. **Nutrients.** This Order contains effluent limitations and monitoring requirements for ammonia. If new water quality objectives for nutrients are established, if monitoring data indicate the need for new or revised effluent limitations for ammonia, or if new or revised methods for compliance with effluent limitations for ammonia are developed, this Order may be reopened and modified to include new or modified effluent limitations or other requirements, as necessary.

6.3.2. Best Management Practices and Pollution Prevention

6.3.2.1. Pollutant Minimization Program

The Permittee shall develop and conduct a Pollutant Minimization Program (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:

6.3.2.1.1. A sample result is reported as DNQ and the effluent limitation is less than the reporting limit (RL); or

6.3.2.1.2. A sample result is reported as non-detect (ND) and the effluent limitation is less than the MDL, using definitions described in Attachment A and reporting protocols described in MRP section 10.3.5.

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

6.3.2.2.1. 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;

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

6.3.2.2.3. 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;

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

6.3.2.2.5. An annual status report that shall be submitted as part of the Annual Facility Report, due **March 1st**, to the Regional Water Board including:

6.3.2.2.5.1. All PMP monitoring results for the previous year;

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

6.3.2.2.5.3. A summary of all actions undertaken pursuant to the control strategy; and

6.3.2.2.5.4. A description of actions to be taken in the following year.

6.3.3. **Construction, Operation and Maintenance Specifications**

6.3.3.1. **Proper Operation and Maintenance.** This Order (Attachment D, Standard Provision 1.4) requires that the Permittee 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.

6.3.3.2. **Operation and Maintenance Manual.** The Permittee shall maintain an updated Operation and Maintenance (O&M) Manual for the operational components of the Facility. The Permittee shall update the O&M Manual, as necessary, to conform to changes in operation and maintenance of the Facility. The Permittee shall operate and maintain the Facility in accordance with the most recently updated O&M Manual. 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.

6.3.3.2.1. Description of the Facility's organizational structure 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 Facility so as to achieve the required level of treatment at all times.

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

6.3.3.2.3. Description of laboratory and quality assurance procedures.

6.3.3.2.4. Process and equipment inspection and maintenance schedules.

6.3.3.2.5. 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.

6.3.3.2.6. 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.

6.3.3.3. **Septage Handling Requirements**

6.3.3.3.1. The Permittee shall implement any necessary legal authorities to monitor and enforce septage handling requirements, including restriction of discharges of toxic materials to the collection system and wastewater treatment facility and inspection of facilities connected to the system.

6.3.3.3.2. The Permittee shall maintain a waste hauler manifest that identifies the names of the hauler, county identification number, the date and time the waste load was transferred, and the volume and source of the waste.

6.3.3.3.3. The Permittee shall accept the discharge of septage only during business hours and when the Permittee's operations staff is on site.

6.3.3.3.4. The Permittee shall accept septage only at an approved septage receiving station/location.

6.3.3.3.5. The Permittee shall collect representative grab samples of septage loads in accordance with the MRP (Attachment E).

6.3.4. **Special Provisions for Publicly-Owned Treatment Works (POTWs)**

6.3.4.1. **Wastewater Collection Systems**

6.3.4.1.1. **Statewide General WDRs for Sanitary Sewer Systems.**

The Permittee has coverage under, and is separately subject to the requirements of, State Water Board Order No. 2022-0103-DWQ, Statewide General WDRs for Sanitary Sewer Systems, and any subsequent revisions. As such, the Permittee provides notification and reporting of SSOs in accordance with the requirements of Order No. 2022-0103-DWQ and any revisions thereto for operation of its wastewater collection system.

6.3.4.2. **Pretreatment of Industrial Waste**

6.3.4.2.1. The Permittee shall be responsible for the performance of all pretreatment requirements contained in 40 C.F.R. part 403 and shall be subject to enforcement actions, penalties, fines, and other remedies by the U.S. EPA or other appropriate parties as provided in the CWA, as amended (33 U.S.C. 1351 et seq.). The Permittee shall implement and enforce its approved Facility Pretreatment Program. The Permittee's approved Facility Pretreatment Program is hereby made an enforceable condition of this Order. U.S. EPA may initiate enforcement action against an industrial user for noncompliance with applicable standards and requirements as provided in the CWA.

6.3.4.2.2. The Permittee shall enforce the requirements promulgated under section 307(b), 307(c), 307(d), and 402(d) of the CWA. The Permittee shall cause industrial 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 industrial user, upon commencement of the discharge.

6.3.4.2.3. The Permittee shall perform the pretreatment functions as required in 40 C.F.R. part 403, including, but not limited to:

6.3.4.2.3.1. Implement the necessary legal authorities as provided in 40 C.F.R. section 403.8(f)(1);

6.3.4.2.3.2. Enforce the pretreatment requirements under 40 C.F.R. sections 403.5 and 403.6;

6.3.4.2.3.3. Implement the programmatic functions as provided in 40 C.F.R. section 403.8(f)(2); and

6.3.4.2.3.4. Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 C.F.R. section 403.8(f)(3).

6.3.4.2.4. The Permittee shall implement, as more completely set forth in 40 C.F.R. section 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system:

6.3.4.2.4.1. Wastes that create a fire or explosion hazard in the treatment works;

6.3.4.2.4.2. Wastes that will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;

6.3.4.2.4.3. Solid or viscous wastes in amounts that cause obstruction to flow in sewers, or that cause other interference with proper operation of treatment works;

6.3.4.2.4.4. Any waste, including oxygen demanding pollutants (BOD_5, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;

6.3.4.2.4.5. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F);

6.3.4.2.4.6. Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

6.3.4.2.4.7. Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and

6.3.4.2.4.8. Any trucked or hauled pollutants, except at points predesignated by the Permittee, and consisting of waste that can be adequately treated at the Facility.

6.3.4.2.5. The Permittee shall implement, as more completely set forth in 40 C.F.R. section 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:

6.3.4.2.5.1. Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or

6.3.4.2.5.2. Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

6.3.4.3. **Sludge Disposal and Handling Requirements**

6.3.4.3.1. Sludge, as used in this Order, 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 demonstrated 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.

6.3.4.3.2. 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.

6.3.4.3.3. The use and disposal of biosolids shall comply with all of the land application and disposal requirements in 40 C.F.R. part 503, which are enforceable by the U.S. EPA, not the Regional Water Board. If during the life of this Order, the state accepts primacy for implementation of 40 C.F.R. part 503, the Regional Water Board may also initiate enforcement where appropriate.

6.3.4.3.4. Sludge or biosolids that are disposed of in a municipal solid waste landfill or used as daily landfill cover shall meet the applicable requirements of 40 C.F.R. part 258. In the annual self-monitoring report, the Permittee shall report the amount of sludge placed in a landfill and the landfill(s) which received the sludge or biosolids.

6.3.4.3.5. The Permittee shall take all reasonable steps to prevent and minimize any sludge use or disposal in violation of this Order that may adversely affect human health or the environment.

6.3.4.3.6. 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.

6.3.4.3.7. Solids and sludge treatment and storage sites shall have facilities adequate to divert surface water runoff from adjacent areas, protect the boundaries of the site from erosion, and prevent drainage from the treatment and storage site. Adequate protection is defined as protection from a design storm with a 100-year recurrence interval and 24-hour duration.

6.3.4.3.8. The discharge of sewage sludge and 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.

6.3.4.3.9. For the land application of biosolids as soil amendment, the Permittee shall submit a report of waste discharge or the Permittee may dispose of biosolids at another appropriately permitted facility.

6.3.4.3.10. New sludge treatment and storage facilities must comply with the requirements of the Water Code and title 27 of the CCR for the protection of water quality.

6.3.4.4. **Operator Certification**

Supervisors and operators of municipal wastewater treatment facilities shall possess a certificate of appropriate grade in accordance with title 23, CCR, section 3680. The State Water Board may accept experience in lieu of qualification training. In lieu of a properly certified wastewater treatment facility operator, the State Water Board may approve use of a water treatment facility operator of appropriate grade certified by the Division of Drinking Water (DDW) where water recycling is involved.

6.3.4.5. **Adequate Capacity**

If the Facility 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, and (2) comparison of the average dry weather design flow with the lowest 30-day 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 Facility 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].

6.3.5. **Other Special Provisions**

6.3.5.1. **Storm Water**

For the control of storm water discharges from the Facility, if required, the Permittee shall seek separate authorization to discharge under the requirements of the State Water Board's Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (or subsequent renewed versions of the NPDES General Permit CAS000001), which is not incorporated by reference in this Order.

BMPs to control the run-on of storm water to the Facility site shall be maintained and upgraded as necessary. The Permittee shall describe the effectiveness of these storm water BMPs, as well as activities to maintain and

upgrade these BMPs during the previous year, in its annual report to the Regional Water Board.

6.3.5.2. **Humboldt Bay Management Plan**

The Permittee shall notify California Department of Public Health Preharvest Shellfish Unit (CDPH/PSU)[7] of any pollution events that are a result of the Permittee's discharge, as soon as they become aware of discharges of hazardous chemicals, pesticides, or petroleum products, which may pose a threat or adversely affect water and shellfish quality in Humboldt Bay.

In addition, the Permittee shall:

6.3.5.2.1. Notify both the Regional Water Board, Pacific Shellfish – Humboldt LLC, North Bay Shellfish LLC, Aqua Rodeo Farms, Hog Island Oyster Company, Humboldt Bay Oyster Company, any other entity with a shellfish growing area certificate issued by CDPH/PSU, and CDPH/PSU immediately, and notify the Humboldt County Environmental Health Department (EHD) as soon as possible, of any sewage spill, collection system bypass, or malfunction of a WWTP which results in a potential or actual discharge of raw or incompletely treated sewage to Humboldt Bay or its tributaries.

6.3.5.2.2. Develop and maintain written notification procedures incorporating the notification requirement in 6.3.5.2 above, to post the procedures at the facility, and to provide a copy of the current notification procedures to Regional Water Board, CDPH/PSU, and the Humboldt County EHD.

6.3.5.2.3. Provide a copy to CDPH/PSU of all Waste Discharge Requirements and updates or amendments, proposed or adopted, for the Permittee.

6.3.5.2.4. Provide a copy to CDPH/PSU of all inspection reports and annual reports completed by the Permittee.

6.3.6. **Compliance Schedules**

6.3.6.1. Elk River Estuary Tidal Enhancement Project

The Permittee initially proposed the Elk River Estuary Tidal Enhancement Project (Project) as a means to comply with the Enclosed Bays and Estuaries Policy. The completion of the project does not allow the Permittee to indefinitely continue their discharge to Humboldt Bay. The Project provides an interim environmental benefit to Humboldt Bay while the Permittee moves towards compliance with the Enclosed Bays and Estuaries Policy.

[7] Preharvest Shellfish Unit, Environmental Management Branch, 510-412-4635, shellfishpreharvest@cdph.ca.gov.

Accordingly, the following compliance schedule is established as an interim measure to enhance beneficial uses in Humboldt Bay until the Permittee fully complies with the Enclosed Bays and Estuaries Policy. A complete description of the Project in included in Attachment I. The Permittee began its portion of the Project on June 28, 2022 (Task 1).

Task	Task Description	Due Date
1	The Permittee shall begin its portion of the Elk River Estuary Tidal Enhancement Project	January 1, 2023 (completed)
2	The Permittee shall complete revegetation portion of the restoration project	December 31, 2024
3	The Permittee shall report on the post-Construction monitoring of the restoration portion of the project	December 31, 2027

6.3.6.2. **Compliance with Discharge Prohibition 3.5**

Compliance with Discharge Prohibition 3.5, related to the bypass of secondary treatment due to high influent flows that exceed the trickling filter capacity, will be determined through the following compliance schedule.

Excessive infiltration and inflow (I&I) to the collection system has historically contributed to exceedances of the Facility's hydraulic capacity, resulting in the Facility bypassing secondary treatment when influent flows exceed the trickling filter capacity, and blending primary treated effluent with secondary treated effluent in the storage pond. This practice is prohibited in the current permit and was previously addresses using Cease and Desist Order (CDO) No. R1-2016-0012 (revised on June 18, 2020 by Modification Order No. R1-2020-0020) and included requirements to evaluate the collection system and identify and address deficiencies to reduce I&I. Accordingly, the Permittee has developed a Wet Weather Improvement Plan to reduce unnecessary flows to the Facility, and has begun implementing the plan by repairing older, leaking manholes, mains, and laterals and has been removing abandoned laterals and manholes to prevent future I&I entering the system from these areas. CDO No. R1-2016-0012 as revised, is proposed for recission concurrent with the adoption of this Order. To maintain and document compliance with the remaining tasks set forth in the CDO, these tasks form the CDO have been incorporated into the NPDES Permit. Consequently, the Permittee shall comply with the following schedule of compliance:

Task	Task Description	Due Date
1	Implementation of the *Wet Weather Improvement Plan, City of Eureka Wastewater Collection and Treatment Systems*, CDO Task 1B: Order R1-2016-0012 submitted by the City on March 31, 2017, and as approved by the Regional Water Board in their letter dated June 29,2017.	Ongoing
2	The Permittee shall evaluate and report on the implementation and effectiveness of its Wet Weather Improvement Plan. Elements to be included in the report include, but are not limited to, progress on private sewer lateral programs and status of capital improvement projects. If delays in the implementation of programs and infrastructure projects occurs, the Permittee shall describe obstacles encountered and recommended corrective action/ solution(s) implemented or being considered to resolve and ensure program/project implementation. The Permittee shall include information from the satellite agencies to the extent that information is available.	July 1, 2024, and annually thereafter until Task 2 is completed
3	Discharges of untreated or partially treated waste shall be eliminated	July 1, 2028

6.3.6.3. **Compliance with Discharge Prohibition 3.1**

Compliance with Discharge Prohibition 3.1, related to the discharge of secondary treated municipal wastewater to Humboldt Bay, will be determined through the following compliance schedule.

Discharge Prohibition 3.1 is based on the following language contained in the State Water Board's Water Quality Control Policy for Enclosed Bays and Estuaries: "New discharges of municipal wastewaters and industrial process waters (exclusive of cooling water discharges) to enclosed bays and estuaries, other than the San Francisco Bay-Delta system, which are not consistently treated and discharged in a manner that would enhance the quality of receiving waters above that which would occur in the absence of the discharge, shall be prohibited." To comply with this Discharge Prohibition, the Permittee shall comply with the following schedule of compliance:

Task	Task Description	Due Date
1	Develop a scope of work and budget (Planning funds, Alternatives Analysis and Preferred Project) to fund a Feasibility Study to comply with Discharge Prohibition 3.1 of this Order.	April 1, 2024
2	Submit a Feasibility Study, including funding sources. The Feasibility Study shall provide a detailed description of the alternatives analyzed and the preferred alternative for complying with Discharge Prohibition 3.1. of this Order. Furthermore, the Feasibility Study shall be made available for public comment to all interested parties.	October 1, 2026
3	Submit, for Executive Officer review and approval, a Feasibility Study Final Report with a Preferred Alternative for compliance with Discharge Prohibition 3.1. of this Order.	October 1, 2029
4	Submit a 10% design of the preferred alternative.	December 1, 2031
5	Submit an Environmental Impact Report (EIR) or other documentation as necessary to complete the California Environmental Quality Act (CEQA) process for the Preferred Alternative	December 1, 2032
6	Procure and submit copies of all permits necessary to implement the Preferred Alternative (i.e. Coastal Commission, Army Corps of Engineers, Calif. Dept. of Fish and Wildlife, Regional Water Board, etc.)	December 1, 2033
7	Secure funding for implementation of the preferred alternative (construction, etc.) to comply with Discharge Prohibition 3.1. of this Order.	December 1, 2034
8	Submit an electronic copy of 90% design plans and specifications for the Preferred Alternative.	December 1, 2036
9	Submit written verification and an electronic copy of complete design plans and specifications for construction of the Preferred Alternative	December 1, 2037

10	Complete construction of the Preferred Alternative which complies with the Enclosed Bays and Estuaries Policy (Discharge Prohibition 3.1.), submit as-builts of the completed project, and achieve compliance with all Regional Water Board waste discharge requirements	December 31, 2042

7. COMPLIANCE DETERMINATION

Compliance with the discharge prohibitions (with the exception of Discharge Prohibition 3.1) and effluent limitations contained in sections 3 and 4 of this Order, respectively, will be determined as specified below.

7.1. Compliance with Effluent Limitations

7.1.1. **Single Constituent Effluent Limitations.** The Permittee is out of compliance with the effluent limitation if the concentration of the pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reported Minimum Level (ML).

7.1.2. **Effluent Limitations Expressed as a Sum of Several Constituents.** The Permittee is out of compliance with an effluent limitation which applies to the sum of a group of chemicals (e.g., PCBs) if the sum of the individual pollutant concentrations is greater than the effluent limitation. Individual pollutants of the group will be considered to have a concentration of zero if the constituent is reported as non-detect (ND) or detected but not quantified (DNQ).

7.2. 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.

7.2.1. 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.

7.2.2. 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 middle values, 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 and a value of zero shall be used for the ND or DNQ value in the median calculation for compliance purposes only. Using

a value of zero for DNQ or ND samples does not apply when performing reasonable potential or antidegradation analyses.

7.3. Average Monthly Effluent Limitation (AMEL)

If the average (or when applicable, the median determined by subsection 7.2, 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. If there are ND or DNQ results for a specific constituent in a calendar month, the Permittee shall calculate the median of all sample results within that month for compliance determination with the AMEL as described in section 7.2, above.

7.4. Average Weekly Effluent Limitation (AWEL)

If the average (or when applicable, the median determined by subsection 7.2, 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. If there are ND or DNQ results for a specific constituent in a calendar week, the Permittee shall calculate the median of all sample results within that week for compliance determination with the AWEL as described in section 7.2, above.

7.5. Maximum Daily Effluent Limitation (MDEL)

If a daily discharge (or when applicable, the median determined by subsection 7.2, 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.

7.6. 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).

If the Permittee monitors pH continuously, pursuant to 40 C.F.R. section 401.17, the Permittee shall be in compliance with the pH limitation specified herein provided that both of the following conditions are satisfied: (1) the total sum of time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (2) no individual excursion from the range of pH values shall exceed 60 minutes.

7.7. 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).

If the Permittee monitors pH continuously, pursuant to 40 C.F.R. section 401.17, the Permittee shall be in compliance with the pH limitation specified herein provided that both of the following conditions are satisfied: (1) the total sum of time during which the pH values are outside the required range of pH values shall not exceed 7 hours and 26 minutes in any calendar month; and (2) no individual excursion from the range of pH values shall exceed 60 minutes.

7.8. Bacteriological Limitations

7.8.1. **Single Sample Maximum (fecal coliform).** All single sample results are compared to single sample maximum limitations. Compliance with a single sample result is determined in comparison to single sample maximum limitations only. If single sample maximums are routinely exceeded, the Regional Water Board may require additional sampling to assess whether the Permittee's discharge is the source of the exceedance in the receiving water.

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

7.8.3. **Six-week Rolling Geometric Mean (enterococci bacteria).** The rolling geometric mean shall be calculated using at least 5 sample results over a 6-week period from a site using the following formula:

GM = $n\sqrt{}$(x1)(x2)(x3)…(xn), where x is the sample value and n is the number of samples taken.

A minimum of three samples over a six-week period is necessary to calculate the geometric mean. When less than three samples are taken in a six-week period, compliance with the enterococci receiving water objective shall be determined using the Statistical Threshold Value (STV). If the Permittee samples less than three times during a six-week period, compliance shall be assessed by comparing the single sample results to the STV.

7.8.4. **Statistical Threshold Value (enterococci bacteria).** (1) The data set shall be ranked from low to high, ranking any ND concentrations lowest, followed by quantified values. (2) The number of sample results should then be multiplied by 90 percent then rounded up to the nearest whole number. (3) Count the values in the data set starting from lowest to highest until the number indicated in step (2) is reached. (4) To be compliant with the statistical threshold value in Receiving Water Limitation 5.1.18, all sample results less than the point described in step 3 must be less than 110 cfu/100 mL.

7.9. **Chronic and Acute Toxicity Effluent Limitations.**

Compliance with the chronic and acute aquatic toxicity limitations shall be determined as follows:

7.9.1. If a chronic or acute aquatic toxicity test exceeds the applicable MDEL, as identified in sections 4.1.1.4.1 and 4.1.1.5.1 of this Order, the Permittee will be considered out of compliance for that single sample.

7.9.2. If chronic or acute aquatic toxicity testing exceeds the applicable MMEL, as identified in sections 4.1.1.4.2 and 4.1.1.5.2 of this Order, the Permittee will be considered out of compliance for that month. No more than one chronic toxicity test initiated in a calendar month shall result in a “fail” at the IWC for any endpoint.

7.9.3. Compliance with toxicity routine monitoring, compliance monitoring, and TRE provisions shall constitute compliance with the toxicity requirements, as specified in the MRP (Attachment E, sections 5.1 and 5.2).

7.10. **Peak Dry Weather Flow**

Compliance with the peak dry weather flow prohibition in section 3.8 of this Order will be determined once each calendar year by evaluating all flow data collected a Monitoring Location INF-001 in the calendar year. The flow through the Facility, measured continuously and averaged monthly, must be 8.6 mgd or less for the

months without precipitation. If the calculated peak dry weather flow exceeds 8.6 mgd the discharge does not comply with Prohibition 3.8 of this Order.

7.11. **Peak Daily Wet Weather Flow**

The peak daily wet weather flow is the maximum flow rate that occurs over a 24-hour period. Compliance with the peak daily wet weather flow prohibition in section 3.8 of this Order will be determined daily by measuring the daily average flow at Monitoring Location INF-001. If the measured daily average flow exceeds 12 mgd, the discharge does not comply with Prohibition 3.8 of this Order.

7.12. **Ammonia Impact Ratio AMEL**

Compliance with the ammonia impact ratio average monthly effluent limitation in section 4.1.1 of this Order will be determined based on the monthly average of the receiving water pH, temperature and salinity samples. If more than one monthly ammonia sample is taken in the month, the average of the ammonia samples will be used in conjunction with the average of the receiving water samples. If the AIR is greater than 1.0 then the Permittee is considered out of compliance with the AIR AMEL.

7.13. **Ammonia Impact Ratio MDEL**

Compliance with the ammonia impact ratio maximum daily effluent limitation in section 4.1.1 of this Order will be determined based on the receiving water pH, temperature and salinity samples taken on the same day as the ammonia sample in the effluent. If the AIR is greater than 1.0 then the Permittee is considered out of compliance with the AIR MDEL.

ATTACHMENT A - DEFINITIONS

Acute Aquatic Toxicity Test
A test to determine an adverse effect (usually lethality) on a group of aquatic test organisms during a short-term exposure (e.g.., 24, 48, or 96 hours).

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:

$$\text{Arithmetic mean } (\mu) = \frac{\Sigma x}{n}$$

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

Carcinogenic Pollutants
Substances that are known to cause cancer in living organisms.

Chronic Aquatic Toxicity Test:
A test to determine an adverse effect (sub-lethal or lethal) on a group of aquatic test organisms during an exposure of duration long enough to assess sub-lethal effects.

Coefficient of Variation (CV)
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.

Continuous Dischargers:
Facilities that discharge without interruption throughout its operating hours, except for infrequent shutdowns for maintenance, process changes, or other similar activities, and that discharge throughout the calendar year.

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)
DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL. Sample results reported as DNQ are estimated concentrations.

Dilution Credit
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.

Dilution Ratio:
The critical low flow of the upstream receiving water divided by the flow of the effluent discharged.

Effluent Concentration Allowance (ECA)
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 wasteload allocation (WLA) as used in U.S. EPA guidance (*Technical Support Document For Water Quality-based Toxics Control*, March 1991, second printing, EPA/505/2-90-001).

Enclosed Bays
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.

Endpoint:
A measured response of a receptor to a stressor. An endpoint can be measured in a toxicity test or field survey.

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

Estuaries
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.

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

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

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

Inland Surface Waters
All surface waters of the state that do not include the ocean, enclosed bays, or estuaries.

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

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

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

For the purposes of chronic and acute aquatic toxicity, an MDEL is an effluent limitation based on the outcome of the test of significant toxicity (TST) approach and the resulting percent effect at the IWC.

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

Median Monthly Effluent Limitation (MMEL):
For the purposes of chronic and acute aquatic toxicity, an MMEL is an effluent limitation based on a maximum of three independent toxicity tests, analyzed using the TST.

Method Detection Limit (MDL)
MDL is the minimum concentration of a substance that can be reported with 99 percent confidence that the measured concentration is distinguishable from method blank results, as defined in 40 C.F.R. part 136, Attachment B.

Minimum Level (ML)
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
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.

MMEL Compliance Tests:
For the purposes of chronic and acute aquatic toxicity, MMEL compliance tests are a maximum of two tests that are used in addition to the routine monitoring test to determine compliance with the chronic and acute aquatic toxicity MMEL and MDEL.

Most Sensitive Species:
The single species selected from an array of test species to be used in a single species laboratory test series to determine toxic effects of effluent or ambient water.

Not Detected (ND)
Sample results which are less than the laboratory's MDL.

Null Hypothisis:
A statement used in statistical testing that has been put forward either because it is believed to be true or because it is to be used as a basis for argument, but has not been proved.

Percent Effect:
The value that denotes the difference in response between the test concentration and the control, divided by the mean control response, and multiplied by 100.

Permitting Authority:
The State Water Board or a regional water board that issues a permit, waste discharge requirements, water quality certification, or other authorization for the discharge or proposed discharge of waste. To the extent that the action is delegable, the term "Permitting Authority" can include the Executive Officer or Executive Director.

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

Pollutant Minimization Program (PMP)
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
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 Water Resources Control Board (State Water Board) or Regional Water Board

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

Reasonable Potential:
A designation used for a waste discharge that is projected or calculated to cause or contribute to an excursion above a water quality standard.

Regulatory Management Decision (RMD):
The decision that represents the maximum allowable error rates and thresholds for toxicity and non-toxicity that would result in an acceptable risk to aquatic life.

Replicates:
Two or more independent organism exposures of the same treatment (i.e., effluent concentration) within a toxicity test. Replicates are typically conducted with separate test chambers and test organisms, each having the same effluent concentration.

Reporting Level (RL)
The RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order, including an additional factor if applicable as discussed herein. 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
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.

Septage
Defined as the liquid or solid material removed from a septic tank, cesspool, portable toilet, type III marine sanitation device, recreational vehicle's sanitation tank, or similar storage or treatment works that receives domestic waste.

Shellfish
All species of bivalve mollusks, including clams, oysters, mussels and scallops.

Significant Difference
Defined as a statistically significant difference in the means of two distributions of sampling results at the 95 percent confidence level.

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

Species Sensitivity Screening:
An analysis to determine the single most sensitive species from an array of test species to be used in a single species laboratory test series.

Standard Deviation (σ)
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.

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

Isomer Group	Toxicity Equivalence Factor
2,3,7,8-tetra CDD	1.0
2,3,7,8-penta CDD	0.5
2,3,7,8-hexa CDDs	0.1
2,3,7,8-hepta CDD	0.01
octa CDD	0.001

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

Test of Significant Toxicity
The statistical approach described in National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document (EPA 833-R10-003, 2010). TST was developed by the U.S. Environmental Protection Agency (EPA) for analyzing WET and ambient toxicity data. Using the TST approach, the sample is declared toxic if there is greater than or equal to a 25% effect in chronic tests, or if there is greater than or equal to a 20% effect in acute tests at the permitted instream waste concentration (IWC) (referred to as the toxic regulatory management decision (RMD)). The sample is declared non-toxic if there is less than or equal to a 10% effect at the IWC in acute or chronic tests (referred to as the non-toxic RMD).

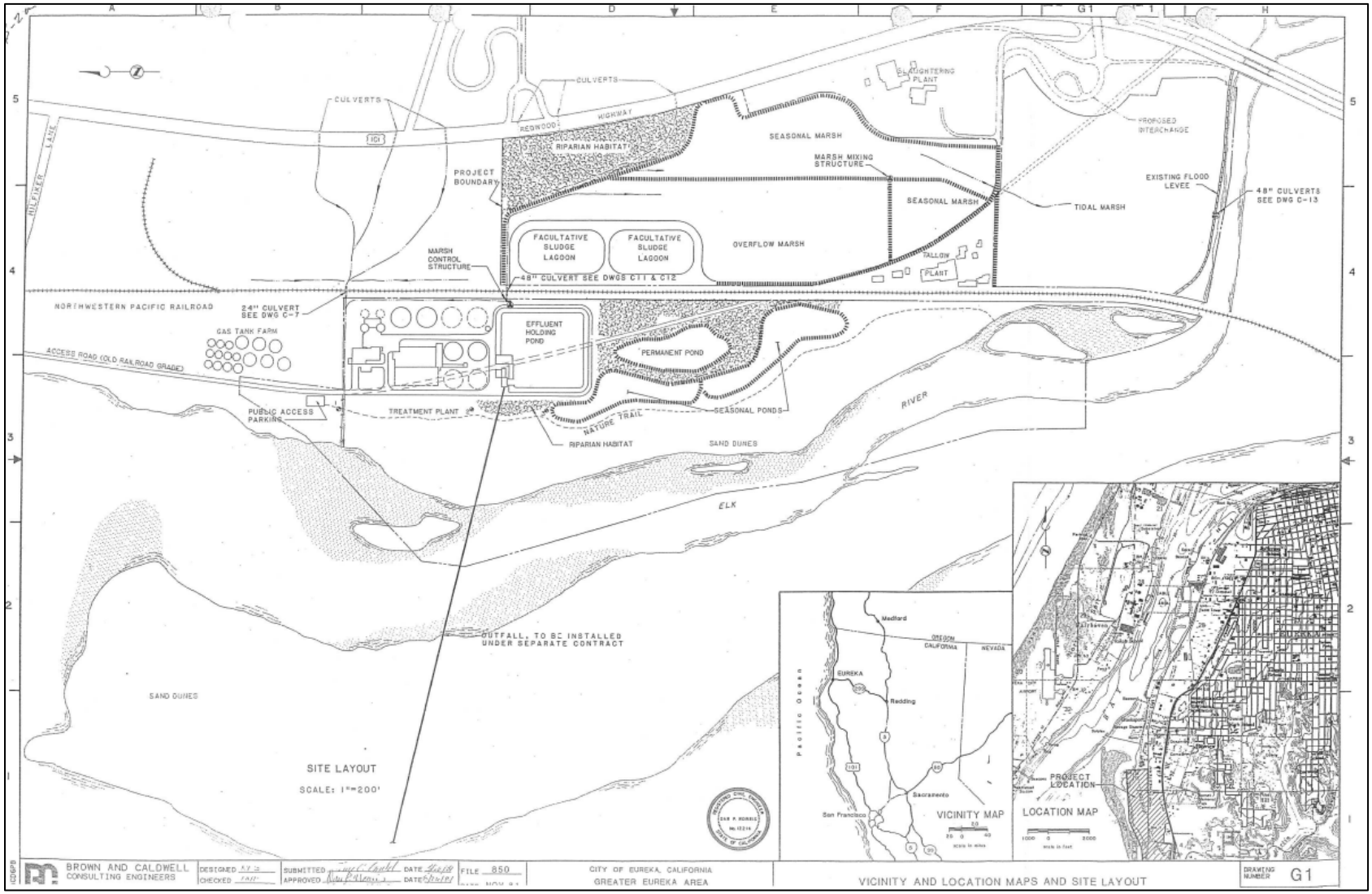
Toxicity Identification Evaluation:
Techniques used to identity the unexplained cause(s) of toxic event. A TIE involves selectively removing classes of chemicals through a series of sample manipulations, effectively reducing complex mixtures of chemicals in natural waters to simple components for analysis. Following each manipulation, the toxicity sample is assessed to see whether the toxicant class removed was responsible for the toxicity.

Toxicity Reduction Evaluation (TRE)
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.)

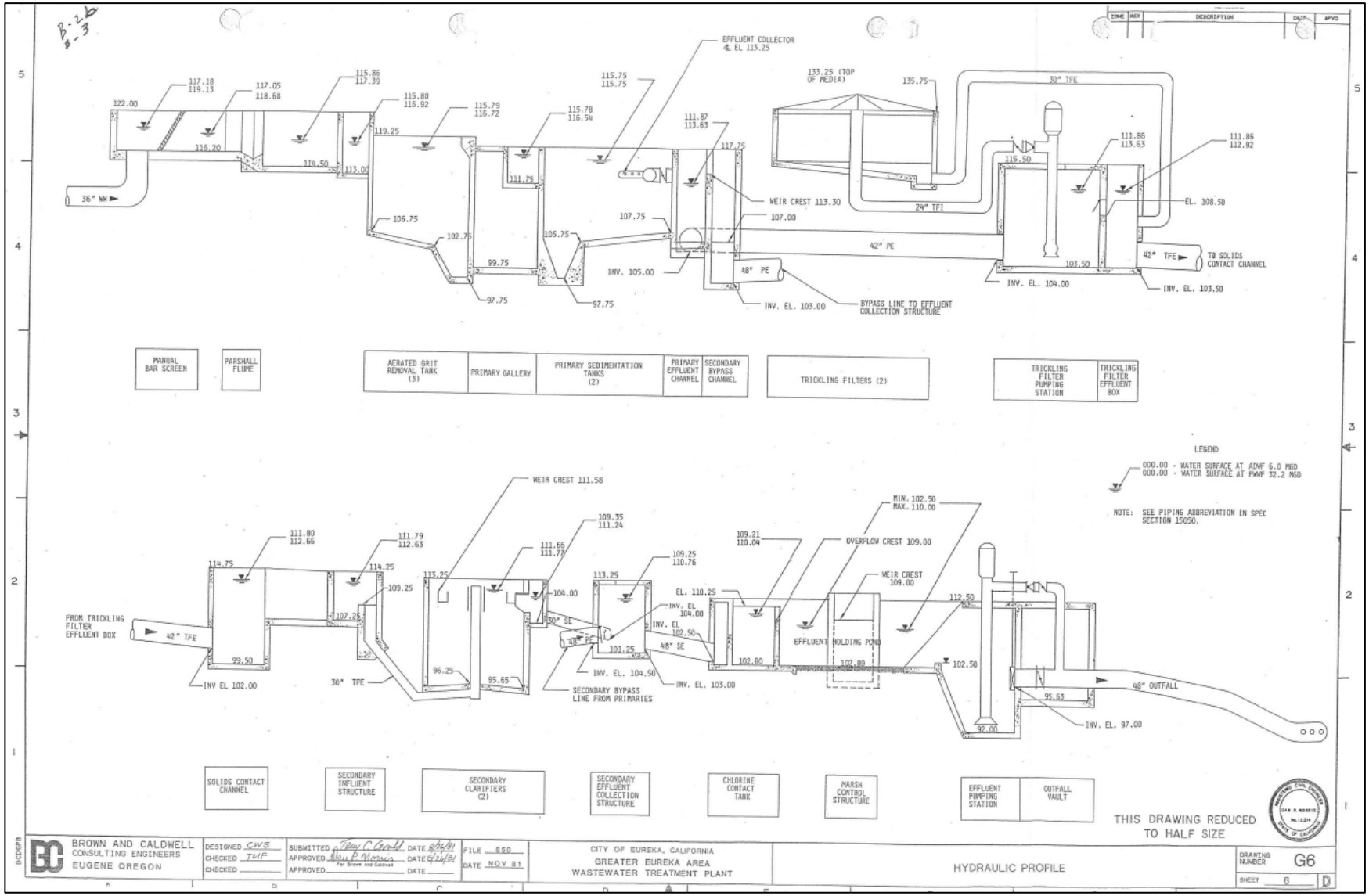
Toxicity Provisions:
Refers to Section III.B and Section IV.B of the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California.

Water Recycling
The treatment of wastewater to render it suitable for reuse, the transportation of treated wastewater to the place of use, and the actual use of treated wastewater for a direct beneficial use or controlled use that would not otherwise occur.

ATTACHMENT B - MAP



ATTACHMENT C - FLOW SCHEMATIC



ATTACHMENT D - STANDARD PROVISIONS

1. STANDARD PROVISIONS – PERMIT COMPLIANCE

1.1. Duty to Comply

1.1.1. The Permittee must comply with all of the terms, requirements, and 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; permit termination, revocation and reissuance, or modification; denial of a permit renewal application; or a combination thereof. (40 C.F.R. § 122.41(a); Wat. Code, §§ 13261, 13263, 13265, 13268, 13000, 13001, 13304, 13350, 13385.)

1.1.2. The Permittee shall comply with effluent standards or prohibitions established under Section 307(a) of the CWA for toxic pollutants 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).)

1.2. 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).)

1.3. Duty to Mitigate

The Permittee shall take all reasonable steps to minimize or prevent any discharge 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).)

1.4. 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).)

1.5. Property Rights

1.5.1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 C.F.R. § 122.41(g).)

1.5.2. 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).)

1.6. **Inspection and Entry**

The Permittee shall allow the Regional Water Board, State Water Board, U.S. EPA, 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 (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i); Wat. Code, §§ 13267, 13383):

1.6.1. 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 (33 U.S.C. § 1318(a)(4)(B)(i); 40 C.F.R. § 122.41(i)(1); Wat. Code, §§ 13267, 13383);

1.6.2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(2); Wat. Code, §§ 13267, 13383);

1.6.3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (33 U.S.C. § 1318(a)(4)(B)(ii); 40 C.F.R. § 122.41(i)(3); Wat. Code, §§ 13267, 13383); and

1.6.4. 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. (33 U.S.C. § 1318(a)(4)(B); 40 C.F.R. § 122.41(i)(4); Wat. Code, §§ 13267, 13383.)

1.7. **Bypass**

1.7.1. **Definitions**

1.7.1.1. “Bypass” means the intentional diversion of waste streams from any portion of a treatment facility. (40 C.F.R. § 122.41(m)(1)(i).)

1.7.1.2. “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).)

1.7.2. Bypass not exceeding limitations[8]. 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 1.7.3, 1.7.4, and 1.7.5 below. (40 C.F.R. § 122.41(m)(2).)

1.7.3. **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)):

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

1.7.3.2. 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

1.7.3.3. The Permittee submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance 1.7.5 below. (40 C.F.R. § 122.41(m)(4)(i)(C).)

1.7.4. **Burden of Proof.** In any enforcement proceeding, the permittee seeding to establish the bypass defense has the burden of proof.

1.7.5. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance 1.7.3 above. (40 C.F.R. § 122.41(m)(4)(ii).)

1.7.6. **Notice**

1.7.6.1. **Anticipated bypass.** If the Permittee knows in advance of the need for a bypass, it shall submit prior notice, if possible at least 10 days before the date

[8] The allowable bypass identified in Section 1.7.2 of the Order's Standard Provisions is less protective than the *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Enclosed Bays and Estuaries Policy). Prohibition 7 of the Enclosed Bays and Estuaries Policy prohibits the discharge or by-passing of untreated waste to bays and estuaries and is applicable to the Permittee.

of the bypass. Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(i).)

1.7.6.2. **Unanticipated bypass.** The Permittee shall submit a notice of an unanticipated bypass as required in Standard Provisions - Reporting 5.5 below (24-hour notice). Notices shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(m)(3)(ii).)

1.8. **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).)

1.8.1. **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 1.8.2 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).)

1.8.2. **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)):

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

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

1.8.2.3. The Permittee submitted notice of the upset as required in Standard Provisions – Reporting 5.5.2.2 below (24-hour notice) (40 C.F.R. § 122.41(n)(3)(iii)); and

1.8.2.4. The Permittee complied with any remedial measures required under Standard Provisions – Permit Compliance 1.3 above. (40 C.F.R. § 122.41(n)(3)(iv).)

1.8.3. 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).)

2. STANDARD PROVISIONS – PERMIT ACTION

2.1. 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).)

2.2. 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).)

2.3. 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.)

3. STANDARD PROVISIONS – MONITORING

3.1. Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 C.F.R. § 122.41(j)(1).)

3.2. Monitoring must be conducted according to test procedures approved under 40 C.F.R. part 136 for the analyses of pollutants unless another method is required under 40 C.F.R. chapter 1, subchapter N. Monitoring must be conducted according to sufficiently sensitive test methods approved under 40 C.F.R. part 136 for the analysis of pollutants or pollutant parameters or as required under 40 C.F.R. chapter 1, subchapter N. For the purposes of this paragraph, a method is sufficiently sensitive when:

3.2.1. The method minimum level (ML) is at or below the level of the most stringent effluent limitation established in the permit for the measured pollutant or pollutant parameter, and either the method ML is at or below the level of the most stringent applicable water quality criterion for the measured pollutant or pollutant parameter or the method ML is above the applicable water quality criterion but the amount of the pollutant or pollutant parameter in the facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

3.2.2. The method has the lowest ML of the analytical methods approved under 40 C.F.R. part 136 or required under 40 C.F.R. chapter 1, subchapter N for the measured pollutant or pollutant parameter.

In the case of pollutants or pollutant parameters for which there are no approved methods under 40 C.F.R. part 136 or otherwise required under 40 C.F.R. chapter 1, subchapter N, monitoring must be conducted according to a test procedure specified in this Order for such pollutants or pollutant parameters. (40 C.F.R. §§ 122.21(e)(3),122.41(j)(4), 122.44(i)(1)(iv).)

4. STANDARD PROVISIONS – RECORDS

4.1. 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 40 C.F.R. 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).)

4.2. Records of monitoring information shall include:

4.2.1. The date, exact place, and time of sampling or measurements (40 C.F.R. § 122.41(j)(3)(i));

4.2.2. The individual(s) who performed the sampling or measurements (40 C.F.R. § 122.41(j)(3)(ii));

4.2.3. The date(s) analyses were performed (40 C.F.R. § 122.41(j)(3)(iii));

4.2.4. The individual(s) who performed the analyses (40 C.F.R. § 122.41(j)(3)(iv));

4.2.5. The analytical techniques or methods used (40 C.F.R. § 122.41(j)(3)(v)); and

4.2.6. The results of such analyses. (40 C.F.R. § 122.41(j)(3)(vi).)

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

4.3.1. The name and address of any permit applicant or Permittee (40 C.F.R. § 122.7(b)(1)); and

4.3.2. Permit applications and attachments, permits and effluent data. (40 C.F.R. § 122.7(b)(2).)

5. STANDARD PROVISIONS – REPORTING

5.1. Duty to Provide Information

The Permittee shall furnish to the Regional Water Board, State Water Board, or U.S. EPA within a reasonable time, any information which the Regional Water Board, State Water Board, or U.S. EPA 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 U.S. EPA copies of records required to be kept by this Order. (40 C.F.R. § 122.41(h); Wat. Code, §§ 13267, 13383.)

5.2. Signatory and Certification Requirements

5.2.1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or U.S. EPA shall be signed and certified in accordance with Standard Provisions – Reporting 5.2.2, 5.2.3, 5.2.4, 5.2.5, and 5.2.6 below. (40 C.F.R. § 122.41(k).)

5.2.2. 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 U.S. EPA). (40 C.F.R. § 122.22(a)(3).).

5.2.3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or U.S. EPA shall be signed by a person described in Standard Provisions – Reporting 5.2.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:

5.2.3.1. The authorization is made in writing by a person described in Standard Provisions – Reporting 5.2.2 above (40 C.F.R. § 122.22(b)(1));

5.2.3.2. 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

5.2.3.3. The written authorization is submitted to the Regional Water Board and State Water Board. (40 C.F.R. § 122.22(b)(3).)

5.2.4. If an authorization under Standard Provisions – Reporting 5.2.3 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 5.2.3 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).)

5.2.5. Any person signing a document under Standard Provisions – Reporting 5.2.2 or 5.2.3 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).)

5.2.6. Any person providing the electronic signature for documents described in Standard Provisions – 5.2.1, 5.2.2, or 5.2.3 that are submitted electronically shall meet all relevant requirements of Standard Provisions – Reporting 5.2, and shall ensure that all relevant requirements of 40 C.F.R. part 3 (Cross-Media Electronic Reporting) and 40 C.F.R. part 127 (NPDES Electronic Reporting Requirements) are met for that submission. (40 C.F.R § 122.22(e).)

5.3. **Monitoring Reports**

5.3.1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 C.F.R. § 122.41(l)(4).)

5.3.2. 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. As of December 21, 2016, all reports and forms must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10 and comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. (40 C.F.R. § 122.41(l)(4)(i).)

5.3.3. If the Permittee monitors any pollutant more frequently than required by this Order using test procedures approved under 40 C.F.R. part 136, or another method required for an industry-specific waste stream under 40 C.F.R. chapter 1, subchapter N, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the DMR or reporting form specified by the Regional Water Board or State Water Board. (40 C.F.R. § 122.41(l)(4)(ii).)

5.3.4. 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).)

5.4. 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).)

5.5. Twenty Four Hour Reporting

5.5.1. The Permittee shall report any noncompliance which 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 report shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances. The report 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.

For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports must include the data described above (with the exception of time of discovery) as well as the type of event (i.e., combined sewer overflow, sanitary sewer overflow, or bypass event), type of overflow structure (e.g., manhole, combined sewer overflow outfall), discharge volume untreated by the treatment works treating domestic sewage, types of human health and environmental impacts of the event, and whether the noncompliance was related to wet weather.

As of December 21, 2023, all reports related to combined sewer overflows, sanitary sewer overflows, or bypass events must be submitted to the Regional Water Board Name and must be submitted electronically to the initial recipient defined in Standard Provisions – Reporting 5.10. The reports shall comply with 40 C.F.R. part 3, 40 C.F.R. section 122.22, and 40 C.F.R. part 127. The Regional Water Board may also require the Permittee to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(6)(i).)

5.5.2. The following shall be included as information that must be reported within 24 hours:

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

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

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

5.6. **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)):

5.6.1. 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

5.6.2. 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).)

5.7. **Anticipated Noncompliance**

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

5.8. **Other Noncompliance**

The Permittee shall report all instances of noncompliance not reported under Standard Provisions – Reporting 5.3, 5.4, and 5.5 above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting 5.5 above. For noncompliance events related to combined sewer overflows, sanitary sewer overflows, or bypass events, these reports shall contain the information described in Standard Provision – Reporting 5.5 and the applicable required data in appendix A to 40 C.F.R. part 127. The Regional Water Board may also require the Permittee to electronically submit reports not related to combined sewer overflows, sanitary sewer overflows, or bypass events under this section. (40 C.F.R. § 122.41(l)(7).)

5.9. **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 U.S. EPA, the Permittee shall promptly submit such facts or information. (40 C.F.R. § 122.41(l)(8).)

5.10. **Initial Recipient for Electronic Reporting Data**

The owner, operator, or the duly authorized representative is required to electronically submit NPDES information specified in appendix A to 40 C.F.R. part 127 to the initial recipient defined in 40 C.F.R. section 127.2(b). U.S. EPA will identify and publish the list of initial recipients on its website and in the Federal Register, by state and by NPDES data group [see 40 C.F.R. section 127.2(c)]. U.S. EPA will update and maintain this listing. (40 C.F.R. § 122.41(l)(9).)

6. STANDARD PROVISIONS – ENFORCEMENT

6.1. 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 13268, 13385, 13386, and 13387.

7. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS

7.1. 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)):

7.1.1. Any new introduction of pollutants into the POTW from an indirect Permittee 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

7.1.2. 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).)

7.1.3. 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)).

ATTACHMENT E - MONITORING AND REPORTING PROGRAM

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ATTACHMENT E – MONITORING AND REPORTING PROGRAM (MRP)

The Code of Federal Regulations (40 C.F.R. § 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code section 13383 also authorizes the Regional Water Board to require technical and monitoring reports. This MRP establishes monitoring and reporting requirements that implement federal and California regulations.

1. GENERAL MONITORING PROVISIONS

1.1 **Wastewater Monitoring Provision.** Composite samples may be taken by a proportional sampling device approved by the Executive Officer or by grab samples composited in proportion to flow. In compositing grab samples, the sampling interval shall not exceed 1 hour.

1.2 **Supplemental Monitoring Provision.** If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved by 40 C.F.R. part 136 or as specified in this Order, the results of such monitoring shall be included in the calculation and reporting of the data submitted in the monthly and annual discharge monitoring reports.

1.3. **Laboratory Certification.** Laboratories analyzing monitoring samples shall be certified by the State Water Resources Control Board (State Water Board) in accordance with the provisions of Water Code section 13176, and must include quality assurance / quality control data with their analytical reports.

1.4. **Instrumentation and Calibration Provision.** All monitoring instruments and devices used by the Permittee to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary to ensure their continued accuracy. All flow measurement devices shall be calibrated no less than the manufacturer's recommended intervals or one-year intervals, (whichever comes first) to ensure continued accuracy of the devices.

1.5. **Minimum Levels (ML) and Reporting Levels (RL).** Unless otherwise specified by this MRP, all monitoring shall be conducted according to test procedures established at 40 C.F.R. 136, *Guidelines Establishing Test Procedures for Analysis of Pollutants*. All analyses shall be conducted using the lowest practical quantitation limit achievable using U.S. EPA approved methods. For the purposes of the NPDES program, when more than one test procedure is approved under 40 C.F.R., part 136 for the analysis of a pollutant or pollutant parameter, the test procedure must be sufficiently sensitive as defined at 40 C.F.R. 122.21(e)(3) and 122.44(i)(1)(iv).

A U.S. EPA-approved analytical method is sufficiently sensitive where:

1.5.1. The ML is at or below both the level of the applicable water quality criterion/objective and the permit limitation for the measured pollutant or pollutant parameter; or

1.5.2. In permit applications, the ML is above the applicable water quality criterion/objective, but the amount of the pollutant or pollutant parameter in a facility's discharge is high enough that the method detects and quantifies the level of the pollutant or pollutant parameter in the discharge; or

1.5.3. The method has the lowest ML of the U.S. EPA-approved analytical methods where none of the U.S. EPA-approved analytical methods for a pollutant can achieve the MLs necessary to assess the need for effluent limitations or to monitor compliance with a permit limitation.

Where effluent limitations are set below the lowest achievable quantitation limits, pollutants not detected at the lowest practical quantitation limits will be considered in compliance with effluent limitations. Analysis for toxics listed by the California Toxics Rule (CTR) shall also adhere to guidance and requirements contained in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2005) (SIP). However, there may be situations when analytical methods are published with MLs that are more sensitive than the MLs for analytical methods listed in the SIP. For instance, U.S. EPA Method 1631E for mercury is not currently listed in SIP Appendix 4, but it is published with an ML of 0.5 ng/L that makes it a sufficiently sensitive analytical method. Similarly, U.S. EPA Method 245.7 for mercury is published with an ML of 5 ng/L.

1.6. **Discharge Monitoring Report Quality Assurance (DMR-QA) Study.** All Discharge Monitoring Report Quality Assurance (DMR-QA) Study. The Permittee shall participate in the DMR-QA program and ensure that the results of the DMR-QA Study or the most recent Water Pollution Performance Evaluation Study from each laboratory providing testing services for the permit are submitted annually to the State Water Board at qualityassurance@waterboards.ca.gov. For more information on the DMR-QA Program, contact the State DMR-QA Coordinator at the aforementioned email address.

2. 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-1. Monitoring Station Locations

Discharge Point Name	Monitoring Location Name	Monitoring Location Description[1]
--	INF-001	Influent wastewater prior to treatment and following all significant input of waste to the treatment system and consisting of wastewater from both the collection system and septage receiving station.

Discharge Point Name	Monitoring Location Name	Monitoring Location Description[1]
--	INT-001	Effluent prior to discharge to the Overflow Marsh.
--	INT-002	Wastewater bypassing secondary treatment.
001	EFF-001	Location where representative samples of treated wastewater, to be discharged to Humboldt Bay at Discharge Point 001, can be collected at a point after treatment and before contact with the receiving water. Latitude: 40.77333° Longitude: -124.21250°
--	RSW-001	CeNCOOS Humboldt Shore Station[2].
--	RSW-002	Location where representative samples of receiving water can be collected from the Samoa Boat Ramp. Latitude: 40.771757° Longitude: -124.212297°
--	RSW-003	Location where representative samples of receiving water can be collected from the Coast Guard Station Humboldt Bay dock. Latitude: 40.767065° Longitude: -124.217122°
--	SEP-001	Septage receiving station after complete mixing of septage wastes and prior to INF-001.
--	BIO-001	A representative sample of the sludge or biosolids generated when removed for disposal.

Table Notes

1. The North latitude and West longitude information in Table E-1 are approximate for administrative purposes.
2. The Humboldt Shore Station is located on the Chevron dock and is maintained by Humboldt State University. This station has been active since November 2012 and is the replacement system of the previous water quality station at Dock B. - Additional information related to the Humboldt Shore Station can be accessed at the following website. http://www.cencoos.org/data/shore/humboldt. Should the Permittee choose to do so, they may propose and participate in group monitoring for the receiving water after receiving written approval from the Executive Officer.

3. INFLUENT MONITORING REQUIREMENTS

3.1. Monitoring Location INF-001

3.1.1. The Permittee shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

Table E-2. Influent Monitoring – Monitoring Location INF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Influent Flow[1]	mgd	Meter	Continuous	
Biochemical Oxygen Demand 5-day @ 20°C (BOD_5)	mg/L	24-hr Composite	Weekly[2]	Part 136[3]
Total Suspended Solids (TSS)	mg/L	24-hr Composite	Weekly[2]	Part 136[3]

Table Notes

1. Each month, the Permittee shall report the daily average and monthly average flows.
2. Monitoring of BOD_5 and TSS in influent shall coincide with monitoring of these parameters in effluent.
3. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration).

4. EFFLUENT MONITORING REQUIREMENTS

4.1. Monitoring Location EFF-001

4.1.1. The Permittee shall monitor treated effluent at Monitoring Location EFF-001 during periods of discharge as follows.

Table E-3. Effluent Monitoring – Monitoring Location EFF-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Effluent Flow[1]	mgd	Meter	Continuous	
Biochemical Oxygen Demand 5-day	mg/L	24-hr Composite	Weekly[2,3]	Part 136[4]

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
@ 20°C (BOD_5)				
Total Suspended Solids (TSS)	mg/L	24-hr Composite	Weekly[2,3]	Part 136[4]
Settleable Solids	mL/L	Grab	Daily[5]	Part 136[4]
Turbidity	NTU	Grab	Daily[5]	Part 136[4]
Total Residual Chlorine[4]	ug/L	Meter4	Continuous[6]	Part 136[4]
pH	standard units	Grab	Daily[7]	Part 136[4]
Temperature	°C	Grab	Monthly[7]	Part 136[4]
Cyanide, Total (as CN)	µg/L	Grab	Monthly[8]	Part 136[4]
alpha-Endosulfan	µg/L	24-hr Composite	Quarterly[8]	Part 136[4]
Fecal Coliform Bacteria	MPN/100 mL	Grab	Twice Weekly	Part 136[4]
Enterococci Bacteria	cfu/100 mL	Grab	Weekly[14]	Part 136[4]
Ammonia Nitrogen, Total (as N)	mg/L	24-hr Composite	Monthly[7,8]	Part 136[4]
Ammonia Impact Ratio	Ratio	Calculate	Monthly[7,8]	Part 136[4]
CTR Priority Pollutants[9]	µg/L	24-hr Composite[10]	Annually[11]	Part 136[4,12]
Acute Toxicity[13]	Pass or Fail, % Effect	24-hr Composite	Quarterly	See Section 5.1 below
Chronic Toxicity[13]	Pass or Fail, % Effect	24-hr Composite	Monthly	See Section 5.2 below
Table Notes				

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method

1. Each month, the Permittee shall report the daily average and monthly average flows.
2. Monitoring of BOD_5 and TSS in influent shall coincide with monitoring of these parameters in effluent.
3. Accelerated Monitoring (weekly monitoring frequency). If two consecutive weekly test results exceed an effluent limitation, the Permittee shall take two samples each of the two weeks following receipt of the second sample result. During the intervening period, the Permittee shall take steps to identify the cause of the exceedance and take steps to return to compliance.
4. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration).
5. Accelerated Monitoring (daily monitoring frequency). If a test result exceeds an effluent limitation, the Permittee shall increase monitoring frequency to a minimum of twice a day for a week to evaluate whether an exceedance is persisting. If two of more samples in a week exceed an effluent limitation, the Permittee shall take steps to identify the cause of the exceedance and take steps needed to return to compliance.
6. Samples shall be collected at points immediately prior to dechlorination and immediately following dechlorination. All chlorine measurements shall be reported as total residual chlorine. The Permittee shall monitor total residual chlorine in the effluent continuously using a method with a reporting limit as low as technically feasible. Benchtop measurements of effluent chlorine residual shall also be performed at least weekly using equipment capable of achieving a detection limit of 1.2 µg/L as a routine check of daily monitoring results. Should the Permittee determine that existing continuous monitoring equipment is unreliable, the Permittee may request, in writing for a specified time, Executive officer approval to collect hourly grab samples during WWTP operational hours for laboratory analysis. Such an approval would serve as an interim measure until new continuous monitoring could be reasonably installed.
7. pH and temperature monitoring must coincide with monthly monitoring for ammonia.
8. Accelerated Monitoring (monthly frequency). If a test result exceeds an effluent limitation the Permittee shall take two more samples, one within 14 days and one within 21 days following receipt of the initial sample result. During the intervening period, the Permittee shall take steps to identify the cause of the exceedance and take steps needed to return to compliance.
9. Those pollutants identified by the California Toxics Rule at 40 C.F.R. section 131.38. The Permittee is not required to sample and analyze for asbestos.

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Hardness shall be monitored concurrently with the priority pollutant sample. Holding times for unpreserved cyanide shall not exceed one hour. 10. CTR priority pollutant samples shall be collected using 24-hour composite sampling, except for pollutants that are volatile. Samples for volatile pollutants may be collected as a grab sample. 11. Effluent, and receiving water monitoring for CTR priority pollutants shall be conducted concurrently. 12. Analytical methods shall achieve the minimum levels (ML) specified in Appendix 4 of the SIP and, in accordance with section 2.4 of the SIP, the Permittee shall report the ML and MDL for each sample result. 13. Whole effluent chronic and acute aquatic toxicity shall be monitored in accordance with the requirements in section 5 of this MRP. 14. The Permittee shall begin monitoring for enterococci, from an ELAP accredited lab, by December 1, 2025. If the Permittee is unable to obtain the services of an ELAP accredited lab within the deadline set forth in this Order, the Permittee may request, in writing, that the Regional Water Board Executive Officer grant an extension of the time. The extension request shall include justification for the delay and shall be submitted at least 30 days prior to the deadline to be considered timely.				

5. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

5.1. Acute Aquatic Toxicity Testing

The Permittee shall conduct acute aquatic toxicity testing in accordance with the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Toxicity Provisions), adopted on December 1, 2021. The following acute aquatic toxicity testing requirements have been identified as applicable to this Order:

5.1.1. **Toxicity Testing Sample and Location.** The effluent sample shall be collected from Monitoring Location EFF-001. Dilution water and control water shall be prepared and used as specified by the test methods.

5.1.2. **In-stream Waste Concentration (IWC) for Chronic Toxicity.** The IWC for this discharge is 100 percent effluent. The acute toxicity test shall be conducted using 100 percent effluent collected at Monitoring Location EFF-001.

5.1.3. **Toxicity Test Methods.** Chronic aquatic toxicity tests shall be conducted using one or more of the test species listed below and selected by the Regional Water Board in accordance with the Toxicity Provisions, and shall follow methods identified in the Code of Federal Regulations, title 40, part 136, or other U.S.

EPA-approved methods, or included in the Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms (U.S. EPA Report No. EPA-821-R-02-012, 5th edition or subsequent editions). Species and test methods shall be selected form the following:

5.1.3.1. A 96-hour static renewal or 96-hour static non-renewal toxicity test with an invertebrate, the mysid shrimp, *Americamysis bahia* (Survival).

5.1.3.2. A 96-hour static renewal or 96-hour static non-renewal toxicity test with a vertebrate, the topsmelt silverside, *Atherinops affinis* (Survival).

5.1.4. **Species Sensitivity Screening.** Species sensitivity screening shall be conducted during this Order's first required sample collection. The Permittee shall collect a single effluent sample and concurrently conduct two acute aquatic toxicity tests using an invertebrate and vertebrate species identified in section 5.1.3, above. This sample shall also be analyzed for the parameters required for the discharge. The species that exhibits the highest "Percent (%) Effect" at the discharge IWC during species sensitivity screening shall be used for routine monitoring during the permit term.

5.1.5. **Routine Monitoring Requirements.** The Permittee shall conduct at least one acute aquatic toxicity test each calendar quarter during which there is expected to be at least 15 days of discharge. Initiation of the routine monitoring test shall be at a time that would allow any required MMEL compliance tests to be initiated within the same calendar month as the routine monitoring test.

To the extent feasible, routine monitoring tests shall be evenly distributed across the calendar year or period of seasonal or intermittent discharge.

5.2. Chronic Toxicity Testing

The Permittee shall conduct chronic toxicity testing in accordance with the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Toxicity Provisions), adopted on December 1, 2021. The following chronic toxicity testing requirements have been identified as applicable to this Order:

5.2.1. **Toxicity Testing Sample and Location.** The effluent sample shall be collected from Monitoring Location EFF-001. Dilution water and control water shall be prepared and used as specified by the test methods.

5.2.2. **In-stream Waste Concentration (IWC) for Chronic Toxicity.** The chronic toxicity IWC for this discharge is 100 percent effluent.

5.2.3. **Toxicity Test Methods.** Chronic aquatic toxicity tests shall be conducted using one or more of the test species listed below and selected by the Regional Water Board in accordance with the Toxicity Provisions, and shall follow methods identified in the Code of Federal Regulations, title 40, part 136, or other U.S.

EPA-approved methods, or included in the following U.S. EPA method manuals: Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition (EPA-821-R-02-013); Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms, Third Edition (EPA-821-R-02-014); and Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to West Coast Marine and Estuarine Organisms, First Edition (EPA-600-R-95-136).

5.2.3.1. A static renewal toxicity test with the topsmelt, *Atherinops affinis* (Larval Survival and Growth).

5.2.3.2. A static non-renewal toxicity test with the purple sea urchin, *Strongylocentrotus purpuratus*, and the sand dollar, *Dendraster excentricus* (Fertilization Test Method 1008.0), or a static non-renewal toxicity test with the mussel, *Mytilus spp* (Embyro-Larval Shell Development).

5.2.3.3. A static non-renewal toxicity test with the giant kelp, *Macrocystis pyrifera* (Germination and Growth).

Test results shall be analyzed using the TST as described below. To the extent that U.S. EPA-approved methods require that observations be made of organisms' response in multiple concentrations of effluent or receiving water, the instream waste concentration (IWC) shall be included as one of the selected concentrations, and the TST shall be conducted using the IWC and control as described in Section 5.1.4. below.

5.2.4. **Percent Effect.** The percent effect at the IWC shall be calculated for each endpoint in an aquatic toxicity test, using untransformed data and the following equation:

Percent Effect at IWC = (Mean Control Response – Mean IWC Response) / Mean Control Response * 100

5.2.5. **Species Sensitivity Screening.** Species sensitivity screening shall be conducted within 18 months of this Order's adoption. The Permittee shall collect a single effluent sample and concurrently conduct three chronic toxicity tests using the fish, an invertebrate, and the alga species identified in section 5.1.3, above. This sample shall also be analyzed for the parameters required for the discharge. The species that exhibits the highest "Percent (%) Effect" at the

discharge IWC during species sensitivity screening shall be used for routine monitoring during the permit term[9].

Species sensitivity screening conducted prior to an Order's adoption may be considered by the Regional Water Board if that species sensitivity screening data was generated within the last 10 years, remains representative of the Permittee's discharge, and fulfils the species sensitivity screening requirement. The Regional Water Board has determined that species sensitivity screening conducted in November 2016 is representative of the Permittee's effluent. The species used for chronic toxicity monitoring shall remain *Macrocystis pyrifera* until the Order is modified to reflect a new most sensitive species, as identified by the required species sensitivity screening.

5.2.6. **Routine Monitoring Requirements.** The Permittee shall conduct at least one chronic aquatic toxicity test each calendar month during which there is expected to be at least 15 days of discharge. Initiation of the routine monitoring test shall be at a time that would allow any required MMEL compliance tests to be initiated within the same calendar month[10] as the routine monitoring test.

To the extent feasible, routine monitoring tests shall be evenly distributed across the calendar year or period of seasonal or intermittent discharge.

5.3. **Other Requirements**

5.3.1. **Test of Significant Toxicity.** Aquatic toxicity test data shall be analyzed using the test of significant toxicity (TST) as described in Steps 1 through 7, within section IV.B.1.c of the Toxicity Provisions (Steps). For any chronic aquatic toxicity test method with both lethal and sub-lethal endpoints, the sub-lethal endpoint data shall be in these Steps. For any chronic aquatic toxicity test

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[9] If the percent effect is less than or equal to zero percent effect for each species, or all percent effect are the same value, in the species sensitivity screening test, the Permittee shall either use the species that was most sensitive during the previous permit term for routine monitoring or repeat the species sensitivity screening for all species to confirm the results of the first screening before selecting the most sensitive species to use for routine monitoring. If two consecutive species sensitivity screening tests demonstrate that the percent effect for all species exhibit less than or equal to zero percent, the Permittee may select the species to be used for routine monitoring during the permit term.

[10] For purposes of aquatic toxicity monitoring, a calendar month shall be defined as the period of time from a day of one month to the day before the corresponding day of the next month if the corresponding day exists, or if not to the last day of the next month (e.g., from January 1 to January 31, from June 15 to July 14, or from January 31 to February 28).

method with more than one sub-lethal endpoint (giant kelp), the data for each sub-lethal endpoint shall be independently analyzed using these Steps. The TST is applicable for a data analysis of an IWC compared to a control. For assessing whether ambient water meets the water quality objectives, the undiluted ambient water shall be used as the IWC for purposes of the data analysis as described in the Toxicity Provisions.

5.3.2. **Additional Routine Monitoring Requirement.** An additional routine monitoring test shall be required when there is one violation of the MDEL or MMEL, but not two violations in a single calendar month. This additional routine monitoring test is not required if the Permittee is already conducting a TRE, or if the Permittee is required to conduct routine monitoring at or more frequently than a monthly frequency.

This additional routine monitoring test shall be initiated within two weeks after the calendar month in which the MMEL or MDEL violation occurred. The calendar month of the violation and the calendar month of the additional routine monitoring shall be considered "successive calendar months" for purposes of determining whether a TRE is required under section 5.4.2, below. This additional routine monitoring test is used to determine if a TRE is necessary. This additional routine monitoring test is also used for compliance purposes and could result in the need to conduct MMEL compliance tests.

5.3.3. **Compliance Monitoring Requirements**. If a chronic or acute aquatic toxicity routine monitoring test results in a "fail" at the IWC, then the Permittee shall complete a maximum of two MMEL compliance tests. The MMEL compliance tests shall be initiated within the same calendar month that the first routine monitoring test was initiated that resulted in the "fail" at the IWC. If the first MMEL compliance tests results in a "fail" at the IWC, then the second MMEL compliance test is waived because the first chronic MMEL compliance test that results in a "fail" constitutes a violation and so the second MMEL compliance test is not required.

5.3.4. **Replacement Toxicity Tests**. When a required toxicity test for routine monitoring or MMEL compliance tests is not completed, a new toxicity test to replace the toxicity test that was not completed shall be initiated as soon as possible. The new toxicity test shall replace the routine monitoring or MMEL compliance tests, as applicable, for the calendar month in which the toxicity test that was not completed was required to be initiated, even if the new toxicity test is initiated in a subsequent month. The new toxicity test for routine monitoring or MMEL compliance tests, as applicable, and any MMEL compliance tests required to be conducted due to the results of the new toxicity test shall be used to determine compliance with the effluent limitations for the calendar month in which the toxicity test that was not completed and was required to be initiated. The new toxicity test and any MMEL compliance tests required to be conducted due to the results of the new toxicity test shall not be used to substitute for any other required toxicity tests.

When any monitoring test is not initiated in the required time period due to circumstances outside of the Permittee's control that were not preventable with the reasonable exercise of care, and the Permittee promptly initiates, and ultimately completes a replacement test, the Regional Water Board may determine that the replacement monitoring test was not required to be initiated in the required time period.

5.3.5. When there is no effluent available to complete a routine monitoring test or MMEL compliance test, the test shall not be required, and routine monitoring continues at the frequency specified in the permit.

5.3.6. **WET Reporting.** Results obtained from toxicity tests shall be reported to the Regional Water Board in the Permittee's quarterly Self-Monitoring Report (SMR), as either a "pass" or a "fail," and the percent effect at the IWC for each endpoint. The SMR shall include a full laboratory report for each toxicity test that was performed (WET report).

5.3.6.1. WET reports shall include the contracting laboratory's complete report provided to the Permittee and shall be consistent with the appropriate "Report Preparation and Test Review" sections of the methods manual and this MRP. The WET test reports shall contain a narrative report that includes details about WET test procedures and results, including the following:

5.3.6.1.1. Receipt and handling of the effluent sample that includes a tabular summary of initial water quality characteristics (e.g., pH, dissolved oxygen, temperature, conductivity, hardness, salinity, chlorine, ammonia);

5.3.6.1.2. Any manipulations done to lab control/diluent and effluent such as filtration, nutrient addition, etc.;

5.3.6.1.3. Tabular summary of test results for control water and each effluent dilution;

5.3.6.1.4. The toxicity test results reported as either a "Pass" or "Fail", and the "Percent Effect" at the IWC for each endpoint;

5.3.6.1.5. Identification of any anomalies or nuances in the test procedures or results.

5.3.7. **Notification.** All toxicity tests at the IWC shall be used for determining compliance with any toxicity MDEL or MMEL contained in this Order. The Permittee shall notify the Regional Water Board of a violation of a toxicity MDEL or MMEL as soon as the discharger learns of the violation, but no later than 24 hours of the discharger receiving the monitoring results.

5.4. Toxicity Reduction Evaluation (TRE) Process

5.4.1. **Generic TRE Work Plan.** The Permittee submitted a generic TRE Work Plan to the Regional Water Board on September 26, 2016. The Permittee's generic TRE Work Plan shall be reviewed no later than **July 1, 2024** and updated as

necessary in order to remain current and applicable to the discharge and requirements of this Order.

The Permittee shall notify the Regional Water Board of this review and submit any revisions of the TRE Work Plan within 90 days of the notification, to be ready to respond to toxicity events. The TRE Work Plan shall describe the steps the Permittee intends to follow if toxicity is detected, and should include at least the following items:

5.4.1.1. 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.

5.4.1.2. A description of the facility's methods of maximizing in-house treatment efficiency, good housekeeping practices, and a list of all chemicals used in the operation of this Facility.

5.4.1.3. 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).

5.4.2. **TRE Work Plan.** A TRE Work Plan is required to be submitted and implemented when a Permittee has any combination of two or more MDEL or MMEL violations within a single calendar month or within two successive calendar months. In addition, if other information indicates toxicity (e.g., results of additional monitoring, results of monitoring at a higher concentration than the IWC, fish kills, intermittent recurring toxicity), then the Regional Water Board may also require a TRE. A TRE may also be required when there is no effluent available to complete a routine monitoring test or MMEL compliance test. Routine Monitoring shall continue during a TRE.

The TRE Work Plan shall be submitted for Regional Water Board approval within 30 days from receipt of the chronic toxicity monitoring result, or other toxicity event, that initiated the TRE requirement. The TRE Work Plan shall follow the generic TRE Work Plan and be revised as appropriate for the initiating toxicity events.

The TRE shall be conducted according to the EPA manual Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (EPA/600/2-88/070, 1989). The TRE Work Plan shall include the following information, and comply with additional conditions set by the Regional Water Board Executive Officer:

5.4.2.1. Further actions by the Permittee to investigate, identify, and correct causes of toxicity.

5.4.2.2. Actions the Permittee will take to mitigate effects of the discharge and prevent the recurrence of toxicity.

5.4.2.3. A schedule for these actions, progress reports, and the final report.

5.4.3. **TIE Implementation.** The Permittee may initiate a TIE as part of a TRE to identify the causes of toxicity using the same species and test methods and, as guidance, EPA manuals: *Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures* (EPA/600/6-91/003, 1991); *Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/080, 1993); *Methods for Aquatic Toxicity Identification Evaluations, Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity* (EPA/600/R-92/081, 1993); and *Marine Toxicity Identification Evaluation (TIE): Phase I Guidance Document* (EPA/600/R-96-054, 1996). The TIE should be conducted on the species demonstrating the most sensitive toxicity response.

5.4.4. Many recommended TRE elements parallel required or recommended efforts for source control, pollution prevention, and storm water control programs. TRE efforts should be coordinated with such efforts. As toxic substances are identified or characterized, the Permittee shall continue the TRE by determining the sources 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 toxicity evaluation parameters.

5.4.5. The Regional Water Board recognizes that toxicity may be episodic and identification of the causes and reduction of sources of toxicity may not be successful in all cases. The TRE may be ended at any stage if monitoring finds there is no longer toxicity.

5.4.6. The Executive Officer shall be notified no later than 30 days from completion of each aspect of TRE/TIE analyses. TRE/TIE results shall be submitted to the Regional Water Board within 60 days of completion.

6. LAND DISCHARGE MONITORING REQUIREMENTS – NOT APPLICABLE

This Order does not authorize discharges to land.

7. RECYCLING MONITORING REQUIREMENTS – NOT APPLICABLE

This Order does not authorize discharge of recycled water.

8. RECEIVING WATER MONITORING REQUIREMENTS

8.1. Monitoring Location RSW-001

8.1.1. The Permittee shall monitor Humboldt Bay at the California & Northern California Ocean Observing Systems (CeNCOOS) Shore Station Monitoring Location RSW-001 as follows:

Table E-4. Receiving Water Monitoring – Monitoring Location RSW-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Chlorophyll	µg/L	Sensor[1]	Monthly[2]	--
Dissolved Oxygen	mg/L	Sensor[1]	Monthly[2]	--
pH	standard units	Sensor[1]	Monthly[2]	--
Salinity	PSS[3]	Sensor[1]	Monthly[2]	--
Temperature	˚C	Sensor[1]	Monthly[2]	--
Turbidity	NTU	Sensor[1]	Monthly[2]	--

Table Notes

1. Receiving water monitoring data is collected by sensors, in real-time, through the CeNCOOS program at the Humboldt Bay Shore Station.
2. Each month the Permittee shall report the mean monthly value for each monitored parameter.
3. Practical Salinity Scale of 1978 (PSS-78)

8.2. **Monitoring Location RSW-002**

8.2.1. The Permittee shall monitor Humboldt Bay at the Samoa Boat Ramp, Monitoring Location RSW-002 as follows:

Table E-5. Receiving Water Monitoring – Monitoring Location RSW-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Enterococci Bacteria	cfu/100 mL	Grab	Weekly	Part 136[1]

Table Notes

1. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of Standard Methods for Examination of Water and Wastewater (American Public Health Administration).

8.3. **Monitoring Location RSW-003**

8.3.1. The Permittee shall monitor Humboldt Bay at the United States Coast Guard Station Humboldt Bay dock, Monitoring Location RSW-003 as follows:

Table E-5. Receiving Water Monitoring – Monitoring Location RSW-003

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
pH	Standard Units	Grab	Annually[5]	Part 136[1,4]
Hardness	mg/L	Grab	Annually[5]	Part 136[1,4]
CTR Priority Pollutants[2]	µg/L	24-hr Composite[3]	Annually[5]	Part 136[1,4]

Table Notes

1. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of Standard Methods for Examination of Water and Wastewater (American Public Health Administration).
2. Those pollutants identified by the California Toxics Rule at 40 C.F.R. section 131.38. The Permittee is not required to sample and analyze for asbestos. Hardness shall be monitored concurrently with the priority pollutant sample. Holding times for unpreserved cyanide shall not exceed one hour.
3. CTR priority pollutant samples shall be collected using 24-hour composite sampling, except for pollutants that are volatile. Samples for volatile pollutants may be collected as a grab sample.
4. Analytical methods shall achieve the minimum levels (ML) specified in Appendix 4 of the SIP and, in accordance with section 2.4 of the SIP, the Permittee shall report the ML and MDL for each sample result.
5. Hardness, pH, and receiving water CTR priority pollutant monitoring samples shall be collected concurrently with effluent CTR Priority Pollutants samples.

8.4. Groundwater Monitoring – Not Applicable

This Order does not require groundwater monitoring at this time.

9. OTHER MONITORING REQUIREMENTS

9.1. Disinfection Process Monitoring – Monitoring Location INT-001

During periods of high influent flow, the Permittee shall monitor effluent, from the effluent holding pond, to be discharged to the Overflow Marsh at Monitoring Location INT-001 as follows:

Table E-6. Disinfection Process Monitoring – Monitoring Location INT-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow[1]	mgd	Meter	Continuous	
Total Chlorine Residual	mg/L	Grab	Daily	Part 136[2]

Table Notes

1. The Permittee shall report maximum daily and average daily flows.
2. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration). Testing for total residual chlorine must be performed using equipment capable of achieving a detection limit of 1.2 µg/L or lower.

9.2. Bypass Monitoring – Monitoring Location INT-002

During periods of high influent flow, the Permittee shall monitor effluent bypassing secondary treatment and entering the effluent holding pond at Monitoring Location INT-002 as follows:

Table E-7. Bypass Monitoring – Monitoring Location INT-002

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method[3]
Flow[1]	mgd	Meter	Continuous	
Biochemical Oxygen Demand 5-day @ 20°C (BOD_5)	mg/L	24-hr Composite	Weekly[2]	Part 136

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method[3]
Total Suspended Solids (TSS)	mg/L	24-hr Composite	Weekly[2]	Part 136

Table Notes

1. The Permittee shall report maximum daily and average daily flows.
2. Monitoring of BOD_5 and TSS in influent shall coincide with monitoring of these parameters in effluent at Monitoring Location EFF-001.
3. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration).

9.3. Septage Station Monitoring – Monitoring Location SEP-001

9.3.1. For each septage load delivered to the Facility, the Permittee shall require the hauler to collect and report a pH value representative of the load.

9.3.2. The Permittee shall estimate, prior to the beginning of a quarterly and semiannual monitoring period, the number of anticipated septage deliveries for the given monitoring frequency and generate a random load number from this total. When the delivery corresponding to the pre-chosen random number is received, the Permittee will collect a representative septage sample and have the samples analyzed in accordance with Table E-7 and with standard sample collection and handling procedures. Each sample shall be analyzed in accordance with the following table.

Table E-8. Septage Station Monitoring – Monitoring Location SEP-001

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method[1]
pH	standard units	Grab	Weekly	Part 136
Chemical Oxygen Demand	mg/L	Grab	Quarterly	Part 136
Oil and Grease	mg/L	Grab	Quarterly	Part 136
Metals and Trace Elements	µg/L	Grab	Quarterly	Part 136

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method[1]
Purgeable Organic Compounds[2]	µg/L	Grab	Semiannually	Part 136
Semivolatile Organic Compounds[3]	µg/L	Grab	Semiannually	Part 136

Table Notes

1. Pollutants shall be analyzed using the analytical methods described in 40 C.F.R. part 136 or by methods approved by the Regional Water Board or State Water Board, such as with the current edition of *Standard Methods for Examination of Water and Wastewater* (American Public Health Administration).
2. Purgeable organic compounds shall include the parameters listed in U.S. EPA Method 624.
3. Semivolatile organic compounds shall include the parameters listed in U.S. EPA Method 625.

9.4. Septage Hauler Tracking

9.4.1. For any month when septage is received by the Facility, the source(s) of the waste shall be documented. A summary table of all septage discharged to the Facility shall be submitted with each quarterly monitoring report and shall include:

9.4.1.1. Date and time of discharge;

9.4.1.2. Name, County identification number, and District identification number of the hauler;

9.4.1.3. Volume discharged;

9.4.1.4. Source(s) of the waste; and

9.4.1.5. pH of the septage load.

9.5. Sludge Monitoring – Monitoring Location BIO-001

9.5.1. Sludge sampling shall be conducted according to the requirements specified by the location and type of disposal activities undertaken.

9.5.2. Sampling records shall be retained for a minimum of 5 years. A log shall be maintained for sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be

complete enough to serve as a basis for developing the Sludge Handling and Disposal report that is required as part of the Annual Report.

9.6. Visual Monitoring – Monitoring Locations EFF-001 and RSW-002

Visual observations of the discharge (Monitoring Location EFF-001) and the receiving water (Monitoring Location RSW-002) shall be recorded monthly and on the first day of each intermittent discharge. Visual monitoring shall include, but not be limited to, observations for floating materials, coloration, objectionable aquatic growths, oil and grease films, and odors. Visual observations shall be recorded and included in the Permittee's quarterly SMRs.

9.7. Outfall Inspection

9.7.1. The Permittee shall visually inspect the outfall structure, including all diffuser ports, at least once during the life of his permit, to verify the operational status of the outfall. The Permittee shall submit to the Regional Water Board Executive Officer for approval, an Outfall Inspection Work Plan no later than **April 1, 2024**. A report shall be submitted within 90 days of completing the inspection and no later than **April 1, 2025** that includes the following:

9.7.1.1. A description of the outfall as originally constructed;

9.7.1.2. Documentation of the current outfall condition, including any observed cracks, breaks, and malfunctions;

9.7.1.3. Verification that the current outfall condition is consistent with the underlying assumptions of the minimum initial dilution authorized in this Order; and

9.7.1.4. A corrective action plan and schedule for addressing any maintenance or repairs necessary to return the outfall to satisfactory condition.

10. REPORTING REQUIREMENTS

10.1. Special Studies, Technical Papers, and Additional Monitoring Requirements

10.1.1. Source Control and Pretreatment Studies

The Permittee shall review the existing sections in the pretreatment program and submit, for Executive Officer review and approval, a written description of the pretreatment program. The written description of the pretreatment program shall be submitted by **November 1, 2025** and consist of the following sections:

10.1.1.1. Organizational and Multi-jurisdiction Implementation

This section shall describe the overall program structure as well as contain descriptions of the Facility, collection system and the service area including political boundaries.

10.1.1.2. **Legal Authority**

This section shall contain a revised Sewer Use Ordinance (SUO) and all necessary multi-jurisdictional agreements to allow for the implementation of the pretreatment program. The SUO shall be submitted as a final draft ready for adoption and implementation pending approval of the local limits, described below, by the Regional Water Board Executive Officer.

10.1.1.3. **Local Limits**

This section shall describe the technical basis for the local limits and shall provide a work plan for conducting a Local Limits Study in accordance with U.S. EPA's July 2004 Local Limits Development Guidance (EPA 833-R-04-002A. and shall include a schedule for conducting the Local Limits Study and for public hearings and outreach.

The Permittee shall conduct a Local Limits Study to determine the pollutants of concern, collect and analyze data, calculate maximum allowable headworks loadings (MAHLs) for each pollutant of concern at the Facility and the maximum pollutant levels protective of the collection system, the method for allocating allowable loadings to users, and designate and implement technically-based local limits, where necessary, for industrial users discharging to the Permittee's collection system. The Local Limits can be numerical concentrations, loading limits, prohibitions or control strategies.

10.1.1.4. **Identification of Non-domestic Users**

This section shall contain the procedures to be used in the initial Industrial Waste Survey (IWS) as well as the procedures to be used for on-going updates. This section shall also include the current inventory of industrial users, by nondomestic sewer connection, and of the zero-discharging categorical industrial users who comply with their Federal standards by not discharging process wastewater.

The inventory must indicate the following for each industrial user and zero-discharging categorical industrial users:

10.1.1.4.1. Whether it qualifies as a significant industrial user;

10.1.1.4.2. The average and peak flow rates;

10.1.1.4.3. The SIC code;

10.1.1.4.4. The pretreatment-in-place, and

10.1.1.4.5. The local permit status

10.1.1.5. **Permits and Fact Sheets**

This section shall describe the permitting procedures and include a fact sheet and final draft permit for each significant industrial user to be issued upon approval of the local limits and revised SUO by the Regional Water Board Executive Officer. The fact sheets must indicate the following for each significant industrial user and zero-discharging categorical industrial user:

10.1.1.5.1. The industry name, owner or plant manager;

10.1.1.5.2. The permit expiration date (not to exceed five years in duration);

10.1.1.5.3. A description of the facility including the products made or services provided, building names, the process in each building and when current operations began;

10.1.1.5.4. The identification of each sewer connection;

10.1.1.5.5. A description of the contributing waste streams that comprise each identified non-domestic discharge to the sewers;

10.1.1.5.6. The pretreatment-in-place for each identified non-domestic discharge to the sewers;

10.1.1.5.7. The classification by Federal point source category and the reasons justifying classification;

10.1.1.5.8. The applicable Federal categorical pretreatment standards, supporting production data (if necessary), and the compliance sampling point(s) where the standards apply;

10.1.1.5.9. The pollutants of concern and the compliance sampling point(s) where the local limits apply;

10.1.1.5.10. A site map indicating the locations of all compliance sampling point(s), sewer connections, and sewer laterals;

10.1.1.5.11. The sampling frequency by regulated pollutant for each compliance sampling point, and the supporting statistical rationale, to ensure that the sampling is representative of the wastewater discharge variability over the reporting period; and

10.1.1.5.12. The sampling protocol by regulated pollutant for each compliance sampling point to ensure that the samples collected to determine compliance with Federal standards are representative of the sampling day’s discharge.

10.1.1.6. **Compliance Monitoring**

This section shall describe the industrial user self-monitoring program and the Permittees oversight monitoring program. The compliance monitoring

program shall ensure that all sampling is representative over the reporting period and that each sample collected to determine compliance with Federal standards is representative of the sampling day's discharge. The compliance monitoring program must also set analytical detection limits to allow the determination of non-compliance.

10.1.1.7. **Enforcement**

This section shall establish the enforcement response plan (ERP) to be used to address, at a minimum, each of the following types of violations:

10.1.1.7.1. Isolated and chronic violations of permit effluent limitations;

10.1.1.7.2. Violations of permit effluent limitations that result in any adverse impacts upon the Facility such as pass-through, interference, sludge contamination, sewer line degradation, explosive or inflammability risks, or worker health and safety risks;

10.1.1.7.3. Failure to self-monitor or report;

10.1.1.7.4. The bypassing of pretreatment necessary to comply with Federal categorical pretreatment standards;

10.1.1.7.5. The bypassing of compliance sampling or the tampering with sampling equipment, and

10.1.1.7.6. Willful or negligent violations.

10.1.1.8. **Resources**

This section shall demonstrate that adequate budget, staffing and equipment is allocated to provide for the needs of the pretreatment program to ensure effective implementation.

10.1.1.9. **Public Participation and Confidentiality**

This section shall describe the administrative procedures required under 40 CFR 403.8(f)(1(vii) and 403.8(f)(2)(viii).

10.2. **General Monitoring and Reporting Requirements**

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

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

10.3.1. The Permittee shall electronically submit electronic SMRs using the State Water Board's California Integrated Water Quality System (CIWQS) Program website (http://www.waterboards.ca.gov/water_issues/programs/ciwqs/). The CIWQS

website will provide additional information for SMR submittal in the event there will be a planned 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 provisions of training and supervision of individuals (e.g., Permittee personnel or consultant) on how to prepare and submit eSMRs.

10.3.2. The Permittee shall report in the SMR the results for all monitoring specified in this MRP under sections 3 through 9. The Permittee shall submit quarterly, semiannual, and annual SMRs including the results of all required monitoring using U.S. EPA-approved test methods or other test methods specified in this Order. SMRs are to include all new monitoring results obtained since the last SMR was submitted. 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.

10.3.3. All monitoring results reported shall be supported by the inclusion of the complete analytical report from the laboratory that conducted the analyses.

10.3.4. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

Table E-9. Monitoring Periods and Reporting Schedule

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Continuous	Permit effective date	All	Submit with quarterly SMR
Daily	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling	Submit with quarterly SMR
Twice Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with quarterly SMR
Weekly	Sunday following permit effective date or on permit effective date if on a Sunday	Sunday through Saturday	Submit with quarterly SMR

Sampling Frequency	Monitoring Period Begins On…	Monitoring Period	SMR Due Date
Monthly	First day of calendar month following permit effective date or on permit effective date if that date is first day of the month	First day of calendar month through last day of calendar month	Submit with quarterly SMR
Quarterly	Closest of January 1, April 1, July 1, or October 1 following (or on) permit effective date	January 1 through March 31 April 1 through June 30 July 1 through September 30 October 1 through December 31	First day of second calendar month following the end of each quarter (February 1, May 1, August 1, November 1)
Semiannually	Closest of January 1 or July 1 following (or on) permit effective date	January 1 through June 30 July 1 through December 31	September 1 each year, March 1 each year
Annually	January 1 following (or on) permit effective date	January 1 through December 31	March 1, each year (with annual report)

10.3.5. **Reporting Protocols**. The Permittee shall report with each sample result the applicable reported Minimum Level (reported ML, also known as the Reporting Level, or RL) and the current Method Detection Limit (MDL), as determined by the procedure in 40 C.F.R. 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:

10.3.5.1. 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).

10.3.5.2. Sample results less than the reported ML, 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.

10.3.5.3. Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.

10.3.5.4. The Permittee is 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.

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

10.3.6.1. The Permittee shall arrange all reported data in a tabular format. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations. The reported data shall include calculations of all effluent limitations that require averaging, taking of a median, or other computation. The Permittee is not required to duplicate the submittal of data that is entered in a tabular format within CIWQS. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Permittee shall electronically submit the data in a tabular format as an attachment.

10.3.6.2. The Permittee shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify:

10.3.6.2.1. Facility name and address;

10.3.6.2.2. WDID number;

10.3.6.2.3. Applicable period of monitoring and reporting;

10.3.6.2.4. Violations of the WDRs (identified violations must include a description of the requirement that was violated and a description of the violation);

10.3.6.2.5. Corrective actions taken or planned; and

10.3.6.2.6. The proposed time schedule for corrective actions.

10.3.6.3. 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 an alternate method for submittal of SMRs is required, the Permittee shall submit the SMR electronically via e-mail to NorthCoast@waterboards.ca.gov or on disk (CD or DVD) in Portable Document Format (PDF) file in lieu of paper-sourced documents. The guidelines for electronic submittal of documents can be found on the Regional Water Board website at http://waterboards.ca.gov/northcoast.

10.3.6.4. At any time during the term of this permit, the Regional Water Board may notify the Permittee to electronically submit both technical and Self-Monitoring Reports (SMRs) to the State Water Board's GeoTracker database in searchable Portable Document Format (pdf). In addition, analytical data will be required to be uploaded to the GeoTracker database under a site-specific global identification number that will be assigned to the Discharger. Information on the GeoTracker database is provided on the State Water Board website at: https://www.waterboards.ca.gov/resources/data_databases/groundwater.shtml

10.4. **Discharge Monitoring Reports (DMRs)**

10.4.1. DMRs are U.S. EPA reporting requirements. The Permittee shall electronically certify and submit DMRs together with SMRs using Electronic Self-Monitoring Reports module eSMR 2.5 or any upgraded version. DMRs shall be submitted quarterly on the first day of the second calendar month following the end of each quarter (February 1, May 1, August 1, November 1) and annually on March 1 each year. Electronic DMR submittal shall be in addition to electronic SMR submittal. Information about electronic DMR submittal is available at the DMR website: (http://www.waterboards.ca.gov/water_issues/programs/discharge_monitoring).

10.5. **Other Reports**

10.5.1. **Special Study Reports and Progress Reports.** As specified in the Special Provisions contained in section 6 of the Order and in the MRP, special study and progress reports shall be submitted in accordance with the following reporting requirements.

Table E-10. Reporting Requirements for Special Provisions Reports

Order Section	Special Provision Requirement	Reporting Requirement
Special Provision 6.3.2.2.5	Pollutant Minimization Program, Annual Facility Report	**March 1**, annually

Order Section	Special Provision Requirement	Reporting Requirement
Special Provision 6.3.4.5	Adequate Capacity, Technical Report	**Within 120 days** of notification that the Facility will reach capacity within 4 years
MRP General Monitoring Provision 1.6	DMR-QA Study Report	**Annually**, per State Water Board instructions
MRP Effluent Monitoring Requirement 5.3.7	Notification of chronic or acute aquatic toxicity fail result	**Within 24 hours** after receipt of a fail result.
MRP Effluent Monitoring Requirement 5.4.1	Generic TRE Work Plan review and update	**July 1, 2024**
MRP Effluent Monitoring Requirement 5.4.2	TRE Work Plan	**No later than 30 days receipt of the chronic toxicity monitoring result, or other toxicity event, that initiated the TRE requirement.**
MRP Effluent Monitoring Requirement 5.4.6	TRE/TIE Results	**Within 30 days** of completion of TRE/TIE analyses
MRP Other Monitoring Requirement 9.7.1	Outfall Inspection Work Plan	**April 1, 2024**
MRP Other Monitoring Requirement 9.7.1	Outfall Inspection Report	**April 1, 2025**
MRP Effluent Monitoring Requirement 10.1.1	Source Control and Pretreatment Studies	**November 1, 2025**
MRP Reporting Requirement 10.5.2	Annual Report	**March 1**, annually
MRP Reporting Requirement 10.5.3	Annual Pretreatment Report	**March 1**, annually
MRP Reporting Requirement 10.5.4	Annual Biosolids Report	**March 1**, annually
MRP Reporting Requirement 10.6.1	Notification of spills and unauthorized discharges.	**Oral reporting within 24 hours** and written report **within 5 days**

10.5.2. **Annual Report.** The Permittee shall submit an annual report to the Regional Water Board for each calendar year through the CIWQS Program Web site. In the event that a paper copy of the annual report is required, the Permittee shall submit the report to the email address in section 10.3.6.3, above. The report shall be submitted by **March 1st** of the following year. The report shall, at a minimum, include the following:

10.5.2.1. Where appropriate, tabular and/or graphical summaries of the monitoring data and disposal records from the previous year. If the Permittee monitors any pollutant more frequently than required by this Order, using test procedures approved under 40 C.F.R. part 136 or as specified in this Order, the results of this monitoring shall be included in the calculation and report of the data submitted in the SMR;

10.5.2.2. A comprehensive discussion of the Facility's compliance (or lack thereof) with all effluent limitations and other WDRs, and the corrective actions taken or planned, which may be needed to bring the discharge into full compliance with the Order;

10.5.2.3. The names and general responsibilities of all persons employed at the Facility;

10.5.2.4. The names and telephone numbers of persons to contact regarding the Facility for emergency and routine situations; and

10.5.2.5. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.

10.5.2.6. **Sludge Handling and Disposal Activity Reporting.** The Permittee shall submit, as part of its annual report to the Regional Water Board, a description of the Permittee's solids handling, disposal and reuse activities over the previous 12 months. At a minimum, the report shall contain:

10.5.2.6.1. Annual sludge production, in dry tons and percent solids;

10.5.2.6.2. Sludge monitoring results;

10.5.2.6.3. A schematic diagram showing sludge handling facilities (e.g., digesters, thickeners, drying beds, etc.), if any and a solids flow diagram;

10.5.2.6.4. Methods of final disposal of sludge:

10.5.2.6.4.1. For any portion of sludge discharged to a sanitary landfill, the Permittee shall provide the volume of sludge transported to the landfill, the names and locations of the facilities receiving sludge, the Regional Water Board's WDRs Order number for the regulated landfill, and the landfill classification.

10.5.2.6.4.2. For any portion of sludge discharged through land application, the Permittee shall provide the volume of biosolids applied, the date and locations where biosolids were applied, the Regional Water Board's WDRs Order number for the regulated discharge, a demonstration that the discharge was conducted in compliance with applicable permits and regulations, and, if applicable, corrective actions taken or planned to bring the discharge into compliance with WDRs.

10.5.2.6.4.3. For any portion of sludge further treated through composting, the Permittee shall provide a summary of the composting process, the volume of sludge composted, and a demonstration and signed certification statement that the composting process and final product met all requirements for Class A biosolids.

10.5.2.6.5. Results of internal or external third-party audits of the Biosolids Management System, including reported program deficiencies and recommendations, required corrective actions, and a schedule to complete corrective actions.

10.5.2.7. **Storm Water Reporting.** The Permittee shall submit, as part of its annual report to the Regional Water Board, an evaluation of the effectiveness of the Permittee's best management practices (BMPs) to control the run-on of storm water to the Facility site, as well as activities to maintain and upgrade these BMPs.

10.5.2.8. **Septage Monitoring and Reporting.** The results of septage monitoring shall be provided as follows:

10.5.2.8.1. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the septage monitoring program. The narrative shall be sufficiently detailed to verify compliance with waste discharge requirements and this MRP.

10.5.2.8.2. A summary table of all discharges of septage to the Facility. At a minimum, the table shall include: the name, County identification number, and District identification number of each hauler discharging to the Facility over the past calendar year.

10.5.2.8.3. A summary table of analytical results for all samples of septage collected in compliance with waste discharge requirements and this MRP. When directed by the Regional Water Board, the Permittee shall also append analytical reports, chains of custody, and other documentation necessary to confirm the validity of the monitoring samples

10.5.2.9. **Sanitary System Reporting.** The Permittee shall submit as part of the annual report to the Regional Water Board, a description of the Permittee's activities to correct deficiencies and reduce inflow and infiltration (I&I) into the collection system. The report shall include, but not be limited to the following:

10.5.2.9.1. A description of any assessment work to characterize the collection system and identify deficiencies;

10.5.2.9.2. A description of replacement and rehabilitation of the collection system, including details about replaced/rehabilitated infrastructure, including pipeline, manholes, lift stations, etc.

10.5.2.9.3. A description of any changes in the Permittee's ordinances and programs to address I&I.

10.5.2.9.4. The financial resources spent on collection system assessment, rehabilitation, and repair work during the calendar year, and the amount of financial resources budgeted for the upcoming calendar year.

10.5.3. **Annual Pretreatment Reporting Requirements.** The Permittee shall submit annually a report to the Regional Water Board, with copies to the U.S. EPA Region 9 and the State Water Board, describing the Permittee's pretreatment activities over the previous 12 months. In the event that the Permittee is not in compliance with any conditions or requirements of this Order, including noncompliance inspection requirements, then the Permittee shall also include the reasons for noncompliance and state how and when the Permittee shall comply with such conditions and requirements.

An annual report shall be submitted by **March 1st** of the following year and include at least the following items.

10.5.3.1. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants U.S. EPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by industrial users. Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The Permittee shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 C.F.R. part 136 and amendments thereto.

10.5.3.2. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Permittee knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether

any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.

10.5.3.3. The cumulative number of industrial users that the Permittee has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.

10.5.3.4. An updated list of the Permittee's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Permittee shall provide a brief explanation for each deletion. The list shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Permittee shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Permittee shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

10.5.3.4.1. complied with baseline monitoring report requirements (where applicable);

10.5.3.4.2. consistently achieved compliance;

10.5.3.4.3. inconsistently achieved compliance;

10.5.3.4.4. significantly violated applicable pretreatment requirements as defined by 40 C.F.R. section 403.8(f)(2)(vii);

10.5.3.4.5. complied with schedule to achieve compliance (include the date final compliance is required);

10.5.3.4.6. did not achieve compliance and not on a compliance schedule; and

10.5.3.4.7. compliance status unknown.

10.5.3.5. A summary of the inspection and sampling activities conducted by the Permittee during the past year to gather information and data regarding the industrial users. The summary shall include:

10.5.3.5.1. The names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and

10.5.3.5.2. The conclusions or results from the inspection or sampling of each industrial user.

10.5.3.6. A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:

10.5.3.6.1. Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.

10.5.3.6.2. Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

10.5.3.6.3. Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.

10.5.3.6.4. Assessment of monetary penalties. For each industrial user identify the amount of the penalties.

10.5.3.6.5. Restriction of flow to the POTW.

10.5.3.6.6. Disconnection from discharge to the POTW.

10.5.3.7. A description of any significant changes in operating the pretreatment program which differ from the information in the Permittee's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.

10.5.3.8. A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

10.5.4. **Annual Biosolids Reporting.** The Permittee shall electronically certify and submit an annual biosolids report to U.S. EPA by **March 1st** each year using U.S EPA's Central Data Exchange (CDX) Web Site (https://cdx.epa.gov/). Information regarding registration and use of U.S. EPA's CDX system is also available at the Web Site.

10.6. Spill Notification

10.6.1. **Spills and Unauthorized Discharges.** Information regarding all spills and unauthorized discharges (except SSOs) that may endanger health or the

environment shall be provided orally to the Regional Water Board[11] within 24 hours from the time the Permittee becomes aware of the circumstances and a written report shall also be provided within five (5) days of the time the Permittee becomes aware of the circumstances, in accordance with section 5.5 of Attachment D.

Information to be provided verbally to the Regional Water Board includes:

10.6.1.1. Name and contact information of caller;

10.6.1.2. Date, time, and location of spill occurrence;

10.6.1.3. Estimates of spill volume, rate of flow, and spill duration, if available and reasonably accurate;

10.6.1.4. Surface water bodies impacted, if any;

10.6.1.5. Cause of spill, if known at the time of the notification;

10.6.1.6. Cleanup actions taken or repairs made at the time of the notification; and

10.6.1.7. Responding agencies.

10.6.2. **Sanitary Sewer Overflows.** Notification and reporting of sanitary sewer overflows is conducted in accordance with the requirements of Order No. 2022-0103-DWQ (Statewide General WDRs for Sanitary Sewer Systems), which is not incorporated herein by reference, and any revisions thereto. Sanitary sewer overflows may also result in notification requirements per the Humboldt Bay Management Plan, as identified in section 6.3.5.2 of this Order.

[11] The contact number of the Regional Water Board during normal business hours is (707) 576-2220. After normal business hours, spill reporting to the California Governor's Office of Emergency Services Warning Center (CalOES) will satisfy the 24-hour spill reporting requirement for the Regional Water Board. The contact number for spill reporting for the CalOES is (800) 852-7550.

ATTACHMENT F - FACT SHEET

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ATTACHMENT F - FACT SHEET

As described in section 2.2 of this Order, the Regional Water Board incorporates this Fact Sheet as findings of the Regional Water Board supporting the issuance 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 Permittees 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.

1. PERMIT INFORMATION

The following table summarizes administrative information related to the facility.

Table F-1. Facility Information

WDID	1B82151OHUM
Permittee	City of Eureka
Name of Facility	Elk River Wastewater Treatment Plant
Facility Address	4301 Hilfiker Lane Eureka, CA 95503 Humboldt County
Facility Contact, Title and Phone	Michael Hansen, Deputy Public Works Director, 707-441-4360
Authorized Person to Sign and Submit Reports	Brian Gerving, Director of Public Works Director, 707-441-4152
Mailing Address	531 K Street Eureka CA 95501
Billing Address	Same as mailing address
Type of Facility	Publicly Owned Treatment Works (POTW)
Major or Minor Facility	Major
Threat to Water Quality	1
Complexity	A
Pretreatment Program	Yes
Recycling Requirements	Not Applicable

Facility Permitted Flow	8.6 million gallons per day (mgd) (peak dry weather treatment capacity) 12 mgd (peak wet weather treatment capacity)
Facility Design Flow	5.24 mgd (average dry weather treatment capacity)
Watershed	Eureka Plain Hydrologic Unit
Receiving Water	Humboldt Bay
Receiving Water Type	Enclosed Bay

1.1. The City of Eureka (hereinafter Permittee) is the owner and operator of the Elk River Wastewater Treatment Plant (hereinafter Facility), a Publicly-Owned Treatment Works (POTW).

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

1.2. The Facility discharges wastewater to Humboldt Bay, a water of the United States, within Eureka Plain Hydrologic Unit. The Permittee was previously regulated by Order No. R1-2016-0001 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0024449 adopted on June 16, 2016 and expired on July 31, 2021. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

1.3. The Permittee filed a report of waste discharge (ROWD) and submitted an application for reissuance of its waste discharge requirements (WDRs) and NPDES permit on **December 1, 2020**. The application was deemed complete on **December 5, 2021**. Submittal of a complete ROWD allowed for Order No. R1-2016-0001 to be automatically administratively extended and remain in effect until the revised NPDES permit can be adopted.

1.4. Regulations at 40 C.F.R. section 122.46 limit the duration of NPDES permits to a fixed term not to exceed five years. However, pursuant to California Code of Regulations, title 23, section 2235.4, the terms and conditions of an expired permit are automatically continued pending reissuance of the permit if the Permittee complies with all federal NPDES requirements for continuation of expired permits.

2. FACILITY DESCRIPTION

The Permittee owns and operates a wastewater collection, treatment, and disposal facility that serves a population of approximately 46,583 from the City of Eureka and unincorporated areas within the Humboldt Community Services District. The Facility treats domestic, commercial, and industrial wastewater as well as treated groundwater

from remediation projects and septage from local area haulers. The Facility is located at 4301 Hilfiker Lane in Eureka, Humboldt County, California.

2.1. Description of Wastewater and Biosolids Treatment and Controls

2.1.1. Collection System

Wastewater is conveyed to the Facility through an extensive sanitary sewer system consisting of 125 miles of sewer mains, 9,500 service laterals, 17 lift stations, 3 pump stations, interceptor lines, collection lines, and manholes. The system collects and conveys over 1.5 billion gallons of wastewater per year, including infiltration and inflow (I&I).

Excessive I&I to the collection system has historically contributed to exceedances of the Facility's hydraulic capacity, resulting in the Facility bypassing secondary treatment when influent flows exceed the trickling filter capacity, and blending primary treated effluent with secondary treated effluent in the storage pond. This practice is prohibited in the current permit but is addressed in the compliance schedule included as section 6.3.6.2 of this Order. Furthermore, the Permittee must continue to implement their Wet Weather Improvement Plan to reduce unnecessary flows to the Facility through identified methods, including repairing older, leaking manholes, mains, and laterals and removing abandoned laterals and manholes to prevent future I&I entering the system from these areas.

The Facility also accepts and treats septage from local area haulers.

2.1.2. Wastewater Treatment System

The Facility has an average dry weather treatment capacity of 5.24 mgd, a peak dry weather treatment capacity of 8.6 mgd, and a peak wet weather secondary treatment capacity of 12 mgd. Wastewater entering the facility undergoes primary treatment with mechanical bar screens, grit removal, and primary clarification. Biological secondary treatment is accomplished using two trickling filters, followed by secondary clarification, and chlorine disinfection. The chlorinated effluent is stored in a holding pond then dechlorinated and discharged at Discharge Point 001 to Humboldt Bay in conjunction with ebb tide cycles.

During periods of high flows, excess treated wastewater from the effluent holding pond can be directed to the 13-acre freshwater holding marsh (Overflow Marsh) and pumped back to the effluent holding pond once flows subside. The Overflow Marsh is a component of the Facility, as described in the "*Final Environmental Impact Report – Wastewater Management Plan for the Greater Eureka Area*" (July 10, 1980), and as established in Waste Discharge Requirements Order No. 81-1 adopted for the Facility by the Regional Water Board on January 22, 1981.

Solids are treated by anaerobic digestion and may be processed on site using a centrifuge or stored in one of two facultative sludge lagoons.

2.2. Discharge Points and Receiving Waters

Effluent is discharged at Discharge Point 001 via an outfall structure consisting of a 48-inch diameter pipe, 4,100 feet in length, and equipped with a multiple discharge port diffuser. Effluent is discharged in conjunction with ebb tides at Discharge Point 001 into Humboldt Bay at 40° 46’ 24” N latitude and 124° 12’ 45” W longitude. Humboldt Bay, an enclosed bay, is a water of the United States. The existing outfall was constructed in conjunction with the Facility in the early 1980s. Discharge at this outfall location was permitted with the stipulation that the discharge of effluent would be allowed only during ebb-tide, thereby using the outgoing tide to convey the effluent to the Pacific Ocean.

2.3. Facility Permitting and Discharge History

2.3.1. **Effluent Discharge Study.** The discharge of treated effluent via the outfall in Humboldt Bay was permitted in 1981 based upon mathematical modeling, tidal monitoring, and a dye study completed in 1979, which indicated that discharging at ebb tide was expected to convey all effluent to the Pacific Ocean. Based upon findings from these 1979 studies completed by the Permittee, the Regional Water Board concluded in Resolution No. 80-10 that the ebb discharge concept was a viable alternative to ocean outfall as a means of implementing the statewide Water Quality Control Policy for the Enclosed Bays and Estuaries of California (Enclosed Bays and Estuaries Policy) adopted in 1974. Resolution No. 80-10 was ratified by the State Water Board in Resolution No. 80-87, which found that the ebb tide currents in Humboldt Bay were sufficient in strength to carry the proposed Greater Eureka Area Wastewater discharges out of the Humboldt Bay to the Pacific Ocean. Thus, if effluent were released only on ebb tide, it was believed possible to have no Bay discharge. Based upon these findings, Resolution 80-87 found the ebb-tide discharge to be consistent with the intent of the Enclosed Bays and Estuaries Policy.

Order No. R1-2009-0033 required the Permittee to perform an effluent discharge study to assess the transport and fate of pollutants discharged from the Facility as well as the potential impacts to beneficial uses associated with the ebb-tide discharge. In compliance with Order No. R1-2009-0033, on January 8, 2014, the Permittee submitted the *Effluent Discharge Study for the Elk River Wastewater Treatment Plant* (2014 Effluent Discharge Study). The study utilized two models to simulate effluent transport: (1) advanced circulation (ADCIRC) as the primary model to predict currents within the Humboldt Bay that are the dominant mechanism of conveying effluent out to the ocean; and (2) particle tracking model (PTM) as a secondary model to track particles of effluent released by the Facility (utilizing currents predicted by ADCIRC). For baseline simulations, discharges began at slack tide and continued through the designated discharge window. Simulations were then conducted to determine

the fate of effluent discharged under various tidal and Facility flow conditions. The 2014 Effluent Discharge Study modeling analysis shows that under all simulations the effluent is never completely conveyed to the ocean, and under certain conditions, up to 90% of the effluent remains in the Humboldt Bay. Thus, the findings of the original 1979 studies are contradicted by the 2014 Effluent Discharge Study results. Based on the conclusions of the 2014 Effluent Discharge Study, the discharge is not consistent with the findings of Resolutions 80-10 and 80-87 since a significant portion of the Facility's effluent remains in the Humboldt Bay.

Regional Water Board staff finds that the 2014 Effluent Discharge Study is representative of current conditions and more accurately describes the discharge compared to the 1979 studies. Consequently, the Regional Water Board has determined that the discharge does not qualify as an ocean discharge subject to the Ocean Plan but rather a bay discharge subject to the Enclosed Bays and Estuaries Policy (EBEP).

The Permittee had previously pursued an exception to the EBEP discharge prohibition (Discharge Prohibition 3.1. in this Order) through construction of the Elk River Estuary Enhancement Project. Regional Board staff originally believed that the Project might qualify as an exception to the EBEP discharge prohibition and confirmed that view with the Permittee both orally and in writing. Based on this view, the Permittee invested funds in the design, project acquisition and permitting for the Project. Subsequently, it was determined that the Project would not meet the criteria for an exception to the EBEP. Nevertheless, the Permittee decided to continue to pursue the Project. Because the Project has benefits to the water quality in Humboldt Bay, completion of the Project is included as part of the compliance schedule and is a justification to provide the Permittee with additional time to comply with Discharge Prohibition 3.1 as provided in the Order.

The Permittee began construction it's portion of the Elk River Estuary Tidal Enhancement Project (also known as Elk River Estuary Restoration Project and hereafter referred to as the Project) on June 28, 2022. A description of the Project is included as Attachment I to this Order and includes:

- Restoration and enhancement of 114 acres of estuarine and intertidal habitats on City-owned property on both sides of the Elk River and adjacent to the Elk River Wastewater Treatment Facility. Restoration and enhancement will include regrading to create low flow habitat areas, removal of invasive plant species, planting of native plants and grasses, and the removal of structural constraints such as tide gates to allow hydraulic conductivity. The Project includes two areas, referred to as Area 1 and Area 2;

- Area 1 is located North of the Elk River and South of the Facility. Area 1 is approximately 25 acres of degraded inter-tidal wetland that will be

restored by removing the riverfront levee and tide gate infrastructure, and excavating slough channels, integrating salt marsh plains, and public access via extension of the City's Waterfront Trail. A map of Area 1 can be found in the Permittee's Project Proposal in Attachment A;

- Area 2 is approximately 89 acres located south of the Elk River. It is comprised of agricultural ditches, pasture, and degraded seasonal wetlands. The area is separated from the Elk River on the north side by a natural windblown sand formation, parallel to Elk River Slough. Construction of a rock seawall and the railroad infrastructure on the west side has isolated Area 2 from Humboldt Bay. Most of Area 2 is drained by a network of linear agricultural ditches and there is no freshwater inflow. Area 2 will be converted to an inter-tidal wetland with a network of tidal slough channels. The channel area will be contained by tidal ridges (living shorelines) that will host riparian habitat as well as public access trails;

- Creation of public access via land and water through the development of a 0.2-mile Coastal Access Trail on the western edge and a kayak launch on the northern side of Area 1;

- Creation of an interpretive center that could support increased public access and provide information on protection and restoration of Humboldt Bay, information about native and restored habitats, and information about local aquatic and wildlife species; and

- Removal of the existing tide gates, excavation of tidal channels to increase the tidal prism and eelgrass habitat, removal of invasive Spartina, and enhancement of native salt and freshwater marsh and riparian habitat through active and passive revegetation.

This Order requires the following:

2.3.1.1. Regulation of the Facility in accordance with the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP); and

2.3.1.2. Modification of the discharge timing to coincide with findings of the 2014 Effluent Discharge Study, which shows that the Permittee must begin discharging 45 minutes prior to slack high tides (45 minutes prior to ebb tide) in order for the maximum volume of effluent to be carried out into the ocean.

2.3.2. **Feasibility Analysis for Treating Peak Wet Weather Discharges.** Federal regulations at 40 C.F.R section 122.41(m) define bypass as an "intentional diversion of waste streams from any portion of a treatment facility." These regulations further state that bypasses are prohibited unless: (1) they are unavoidable to prevent severe property damage or personal injury; (2) there are

no feasible alternatives to bypass; and (3) the NPDES authority was notified. 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 above. U.S. EPA strongly discourages reliance on peak wet weather flow diversions around secondary treatment units as a long-term wet weather management approach[12]. As contemplated by U.S. EPA's 2005 proposed policy, a utility analysis must demonstrate that there are no feasible alternatives to bypass, which includes multiple approaches to resolve the bypass condition and an evaluation of a Permittee's ability to finance associated costs.

Order No. R1-2009-0033 required the Permittee to complete a comprehensive analysis to determine whether it is feasible to eliminate anticipated wet weather bypasses of its secondary treatment units. In response to this requirement, on January 8, 2014, the City submitted *Feasibility Analysis for Treating Peak Wet Weather Discharges* (Utility Analysis). The Utility Analysis provided an overview of existing hydraulic conditions at the Facility. Review of the Utility Analysis indicates that upgrades are necessary to better measure flows, improve secondary treatment capacity, manage or otherwise provide temporary storage for influent flows, and reduce I&I into the collection system to minimize or prevent bypass of secondary treatment during routine wet weather flow conditions. The Permittee has indicated that it is conducting I&I reduction work on the collection system. However, the work done to date has not eliminated bypass occurrences. Further, the Permittee has not documented that alternatives to a bypass, such as the use of auxiliary treatment facilities or retention of untreated wastes, are infeasible.

Although the Regional Water Board has authorized bypass at the Facility in past Orders dating back to 1984, this Order recognizes that ebb tide currents in North Bay and entrance channels of Humboldt Bay are not sufficient in strength to carry effluent discharges out of Humboldt Bay and prohibits discharges to Humboldt Bay that do not receive full biological secondary treatment.

Elimination of bypass conditions is necessary for the protection of Humboldt Bay because: (1) Humboldt Bay is an enclosed bay subject to the Enclosed Bays and Estuaries Policy; (2) the Enclosed Bays and Estuaries Policy allows wastewater discharges to enclosed bays "only when the Regional Board finds that the wastewater in question would consistently be treated and discharged in such a manner that it would enhance the quality of receiving waters above that which would occur in the absence of the discharge"; (3) the Enclosed Bays and Estuaries Policy prohibits the discharge or by-passing of untreated wastes; (4)

[12] Proposed EPA Policy on Permit Requirements for Peak Wet Weather Discharges from Wastewater Treatment Plants Serving Sanitary Sewer Collection Systems, December 2005.

Humboldt Bay hosts the largest oyster production area in the country; and (5) oysters are filter feeders and subject to bioaccumulation of toxics and pathogens that may be present at higher levels in effluent that does not receive full treatment.

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

Effluent limitations contained in the existing Order No. R1-2016-0001 for discharges from Discharge Point 001 (Monitoring Location EFF-001) and representative monitoring data from the term of the Order No. R1-2016-0001 are as follows:

Table F-2. Historic Effluent Limitations and Monitoring Data (From September 2016 to June 2021)

Parameter	Units	Average Monthly Effluent Limitation	Average Weekly Effluent Limitation	Maximum Daily Effluent Limitation	Highest Average Monthly Discharge (Observed)	Highest Average Weekly Discharge (Observed)	Highest Daily Discharge (Observed)
Biochemical Oxygen Demand 5- day @ 20°C (BOD_5)	mg/L	30	45	60	14	19	19
Biochemical Oxygen Demand 5- day @ 20°C (BOD_5)	lbs/day[1]	2,151	3,227	4,303	1,118	2,067	2,067
Biochemical Oxygen Demand 5- day @ 20°C (BOD_5)	lbs/day[2]	3,002	4,503	6,005	1,118	2,067	2,067
Biochemical Oxygen Demand 5- day @ 20°C (BOD_5)	% Removal	85	--	--	98.4[4]	--	--
Total Suspended Solids (TSS)	mg/L	30	45	60	17	20	20
Total Suspended Solids (TSS)	lbs/day[1]	2,151	3,227	4,303	1,211	2,398	2,398
Total Suspended Solids (TSS)	lbs/day[2]	3,002	4,503	6,005	1,211	2,398	2,398
Total Suspended Solids (TSS)	% Removal	85	--	--	98.4[3]	--	--
pH	standard units	--	--	6.0-8.5[4]	--	--	6.0-7.4

Parameter	Units	Average Monthly Effluent Limitation	Average Weekly Effluent Limitation	Maximum Daily Effluent Limitation	Highest Average Monthly Discharge (Observed)	Highest Average Weekly Discharge (Observed)	Highest Daily Discharge (Observed)
2,3,7,8 - TCDD Equivalents[5]	µg/L	1.4×10^{-8}	--	2.8×10^{-8}	--	--	$<2.09 \times 10^{-7}$
Ammonia, Total (as N)	mg/L	4.1	--	10	13	--	18
Copper, Total Recoverable	µg/L	43.2	--	61.3	--	--	42
Cyanide, Total (as CN)	µg/L	0.50	--	1.0	1.9	--	2.9
Fecal Coliform Bacteria	MPN/100 mL	14[6]	--	43[7]	17[8]	--	900
Settleable Solids	mg/L	0.1	--	0.2	0.10	--	0.2
Total Residual Chlorine	µg/L	6.1	--	12	--	--	<1.2
Turbidity	NTU	75	100	225[9]	20	13	36

Table Notes

1. Mass-based effluent limitations are based on the peak dry weather design flow of 8.6 mgd.
2. These alternate mass-based limitations apply during periods of high infiltration/inflow when influent flow to the Facility exceed 8.6 mgd for the limitation period (daily, weekly, or monthly), and are based on the secondary treatment capacity of the Facility (12.0 mgd).
3. Represents the minimum observed percent removal.
4. Applied as instantaneous minimum and instantaneous maximum effluent limits.

Parameter	Units	Average Monthly Effluent Limitation	Average Weekly Effluent Limitation	Maximum Daily Effluent Limitation	Highest Average Monthly Discharge (Observed)	Highest Average Weekly Discharge (Observed)	Highest Daily Discharge (Observed)
5. Equivalents, also known as the TEQ, is a calculated value which reflects the combined effect of dioxin and furan compounds (congeners). 6. The median value of fecal coliform bacteria shall not exceed a Most Probable Number (MPN) of 14 per 100 mL in a calendar month. 7. No samples shall exceed an MPN of 43 per 100 mL. 8. Represents the maximum calculated monthly median. 9. Applied as an instantaneous maximum effluent limitation.							

2.5. **Compliance Summary**

2.5.1. On July 07, 2015, the Executive Officer issued Administrative Civil Liability (ACL) Complaint No. R1-2015-0047 for violations of Order No. R1-2009-0033 for copper, total residual chlorine and fecal coliform effluent limitations violations, during the period from March 1, 2014, through December 31, 2014. The ACL Complaint assessed a penalty of $54,000 for these violations. On August 6, 2015, the Permittee waived the 90-day hearing requirement in order to engage in settlement discussions. The permittee requested the Regional Board to delay the hearing so that the permittee and the prosecution team can discuss settlement.

On April 12, 2016, the Executive Officer issued a Settlement Agreement and Stipulation for Entry of ACL Order No. R1-2015-0047 requiring the Permittee to pay $54,000 in administrative civil liability. The Permittee applied a portion of these penalties towards the cost of completing the Supplemental Environmental Project with the goal of supporting and enhancing watershed education programs at Sequoia Park Zoo.

2.5.2. On May 23, 2017, the Assistant Executive Officer issued ACL Complaint No. R1-2017-0029 for violations of Order No. R1-2009-0033 for copper, and pH effluent limitations violations, from October 1, 2015 (end of period included in Stipulation Order No. R1-2016-0005), to July 31, 2016 (expiration date of WDR Order No. R1-2009-0033). The Assistant Executive Officer also issued ACL Complaint No. R1-2017-0029 for violations of Order No. R1-2016-0001 for violations of fecal coliform and ammonia, total (as N) effluent limitations from October 1, 2015 (end of period included in Stipulation Order No. R1-2016-0005), to July 31, 2016.The ACL Complaint assessed a penalty of $27,000 for these violations. The Regional Water Board entered into a settlement agreement and stipulation (Order No. R1-2018-0016) for entry of administrative civil liability order.

2.5.3. From June 16, 2016, through July 31, 2021, the Permittee had 64 effluent limitation violations for the following parameters: ammonia, total (as N) (29), cyanide (9), fecal coliform (25), and settleable solids (1) (55 of which were subject to mandatory minimum penalties). On February 9, 2023, Stipulated Order No. R1-2022-0044 was adopted by the Regional Water Board. The Stipulated Order resolved the above violations by the imposition of administrative civil liability in the amount of $165,000. Of this amount, $75,000 of the penalty amount was directed towards a Supplemental Environmental Project (SEP). The SEP consists of retrofitting Low Impact Development features in target areas, which will reduce runoff and associated pollution from reaching Humboldt Bay through the Permittee’s Wharfinger parking lot area

2.5.4. In November 2022, the Permittee and Ecological Rights Foundation (EcoRights), a non-profit corporation, entered into a consent decree to resolve alleged Clean Water Act violations of Order No. R1-2016-0001, Order No. WQ-

2006-0003 (Sanitary Sewer Overflow Order) and Cease and Desist Order No. R1-2016-0012 as amended by Order No. R1-2020-0020. The Consent Decree was entered in the United States District Court for the Northern District of California on January 27, 2023 (Case No.4:22-cv-01459-JST). The Regional Water Board was not a party to the action, was not included in settlement discussions, and had no role in developing the terms agreed to by Permittee and EcoRights. In addition to the Permittee agreeing to pay attorneys' fees to EcoRights to settle the matter, the Permittee agreed to implement a SEP and take certain actions related to its collection system and wastewater treatment plant. Pursuant to the Consent Decree, implementation and satisfaction of those requirements is subject to EcoRights review and comment. The conditions that the City has agreed to in the Consent Decree do not replace or supersede any requirements of this Order, or any future Order or action that the Regional Water Board may take. If there is a conflict between meeting requirements of the Consent Decree and Regional Water Board requirements, Permittee remains responsible for meeting all conditions in this Order and any future Order adopted by the Regional Water Board.[13]

2.6. **Planned Changes**

Consistent with Order No. R1-2016-0001, this Order prohibits the discharge of wastewater that does not receive full biological secondary treatment. The 2014 Effluent Discharge Study committed to implementing a long-term, sustainable approach to limiting infiltration and inflow through projects like collection system improvements, trickling filter pump station rehabilitation, and primary diversion overflow weir improvements.

In addition to these collection and treatment system improvements, Order No. R1-2016-0001 required the Permittee to conduct an inspection of the outfall structure and diffuser ports. The Permittee developed Ocean Outfall Evaluation, Elk River Wastewater Treatment Plant (dated June 30, 2021) which includes an evaluation of the existing outfall and proposed port diffuser upgrades and effluent sandpipe protection improvements.

Further, the report explores the feasibility of utilizing alternative ocean discharge outfalls, which could result in significant changes to the Facility.

[13] The Consent Decree requires the Permittee to coordinate with EcoRights on modification of the Consent Decree, as necessary, to meet Regional Water Board requirements.

3. APPLICABLE PLANS, POLICIES, AND REGULATIONS

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

3.1. 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. EPA and chapter 5.5, division 7 of the Water Code (commencing with section 13370). It shall serve as an NPDES permit authorizing the Permittee to discharge into waters of the United States at the discharge location described in Table 1 subject to the WDRs in this Order. This Order also serves as WDRs pursuant to article 4, chapter 4, division 7 of the California Water Code (commencing with section 13260).

3.2. California Environmental Quality Act (CEQA)

Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of CEQA, (commencing with section 21100) of Division 13 of the Public Resources Code. This exemption does not apply to any activities related to the Elk River Tidal Estuary Enhancement Project, or implementation of the preferred alternative to comply with the Enclosed Bays and Estuaries Policy.

3.3. State and Federal Laws, Regulations, Policies, and Plans

3.3.1. Water Quality Control Plan

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.

The Basin Plan designates a beneficial use of municipal and domestic supply (MUN) to Humboldt Bay. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN. Salinity in Humboldt Bay in the vicinity of the discharge has been reported as high as 50,000 µS/cm, which well exceeds the salinity threshold 5,000 µS/cm included in Resolution No. 88-63. Therefore, this Order does not apply the MUN designation when considering Humboldt Bay in the vicinity of Discharge Point 001. Requirements in this Order implement the Basin Plan.

Beneficial uses applicable to Humboldt Bay (an estuarine environment), within the Eureka Plain Hydrologic Unit, are summarized in Table F-3, below:

Table F-3. Basin Plan Beneficial Uses

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Humboldt Bay	Existing: Municipal and Domestic Water Supply (MUN) – not applied Agricultural Supply (AGR), Industrial Service Supply (IND), Freshwater Replenishment (FRSH), Navigation (NAV), Water Contact Recreation (REC-1), Non-Contact Water Recreation (REC-2), Commercial and Sport Fishing (COMM), Aquaculture (AQUA), Cold Freshwater Habitat (COLD), Marine Habitat (MAR), Wildlife Habitat (WILD), Preservation of Rare, Threatened, or Endangered Species (RARE), Migration of Aquatic Organisms (MIGR), Spawning, Reproduction, and/or Early Development (SPWN), Shellfish Harvesting (SHELL), Estuarine Habitat (EST), and Native American Culture (CUL). Potential: Hydropower Generation (POW), Industrial Process Supply (PRO).
--	Groundwater	Existing: Municipal and domestic supply (MUN), Agricultural supply (AGR), Industrial service supply (IND), and Native American Culture (CUL). Potential Industrial Process Supply (PRO), and Aquaculture (AQUA).

3.3.2. **Enclosed Bays and Estuaries Policy**

The State Water Board adopted State Water Board Resolution No. 74-43, *Water Quality Control Policy for the Enclosed Bays and Estuaries of California* (Enclosed Bays and Estuaries Policy) on May 16, 1974. The Enclosed Bays and

Estuaries Policy prohibits new discharges[14] of municipal wastewaters to enclosed bays and estuaries, which are not consistently treated and discharged in a manner that would enhance the quality of receiving waters above that which would occur in the absence of the discharge. Regional Water Board Resolution No. 80-10 and State Water Board Resolution No. 80-87 concluded that the discharge to Humboldt Bay at ebb tide at a point near the mouth of Humboldt Bay is consistent with the intent of State Water Board Resolution 74-43. However, as described in section 2.3 of this Fact Sheet, based on the Permittee's Effluent Discharge Study, modeling indicates that the discharge is not completely conveyed to the ocean and thus the Permittee's discharges to Humboldt Bay are not consistent with the Enclosed Bays and Estuaries Policy. This Order requires discharges to Humboldt Bay be conducted in a manner consistent with the Enclosed Bays and Estuaries Policy.

3.3.3. Thermal Plan

The State Water Board adopted the *Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays and Estuaries of California* (Thermal Plan) on January 7, 1971, and amended this plan on September 18, 1975. This plan contains temperature objectives for coastal waters. The Permittee does not discharge thermal waste; therefore, the Order does not include effluent limitations for temperature in response to the requirements of the Thermal Plan.

3.3.4. National Toxics Rule (NTR) and California Toxics Rule (CTR)

U.S. EPA 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, U.S. EPA 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 federal water quality criteria for priority pollutants.

3.3.5. 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 CTR priority pollutant criteria promulgated for California by the U.S. EPA through the NTR and to the CTR priority pollutant

[14] The Enclosed Bays and Estuaries Policy defines a new discharge as one for which the Regional Board had not received a report of waste discharge by or which was not in existence prior to May 16, 1974.

objectives established by the Regional Water Board in the Basin Plan. The SIP became effective on May 18, 2000, with respect to the CTR priority pollutant criteria promulgated by the U.S. EPA through the CTR. The State Water Board adopted amendments to the SIP on February 24, 2005, which became effective on July 13, 2005. The SIP establishes implementation provisions for CTR 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 Permittee-specific Water Effect Ratios (WERs) 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.

3.3.6. **Compliance Schedules and Interim Requirements.**

The State Water Board adopted Resolution No. 2008-0025 on April 15, 2008, titled *Policy for Compliance Schedules in National Pollutant Discharge Elimination System Permits*, which includes compliance schedule policies for pollutants that are not addressed by the SIP. This Policy became effective on August 27, 2008.

The Order includes a compliance schedule for coming into compliance with Discharge Prohibitions 3.1. and 3.5 of this Order to comply with the Enclosed Bays and Estuaries Discharge Prohibition and the prohibition of discharge of untreated or partially treated waste. The compliance schedule is in accordance with the Compliance Schedule Policy as further discussed in section 6.2.10 of this Fact Sheet.

3.3.7. **Antidegradation Policy**

Federal regulation 40 C.F.R. 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 (*Statement of Policy with Respect to Maintaining High Quality Waters of California*). Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing water quality be maintained unless degradation is justified based on specific findings. The Regional Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. The permitted discharge must be consistent with the antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16. As discussed in detail in section 4.4.2 of this Fact Sheet, the permitted discharge is consistent with the

antidegradation provision of 40 C.F.R. section 131.12 and State Water Board Resolution No. 68-16.

3.3.8. Anti-Backsliding Requirements

Sections 402(o)(2) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) restrict backsliding in NPDES permits. These anti-backsliding provisions require that effluent limitations in a reissued permit must be as stringent as those in the previous permit, with some exceptions in which limitations may be relaxed. Some effluent limitations from the previous Order have been removed or are less stringent than those in the previous Order. As discussed in detail in section 4.4.1 of this Fact Sheet, removal or relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

3.3.9. Endangered Species Act Requirements

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 or 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, including protecting rare, threatened, and endangered species. The Permittee is responsible for meeting all requirements of the applicable Endangered Species Act.

3.4. Impaired Water Bodies on the CWA section 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, every two years. In addition to identifying the waterbodies that are not supporting beneficial uses, the 303(d) list also identifies the pollutant or stressor causing impairment and establishes a schedule for developing a control plan to address the impairment. The CWA requires development of a total maximum daily load (TMDL) or alternate program of implementation for each 303(d) listed pollutant and water body to remedy the impairment. TMDLs establish the maximum quantity of a given pollutant that can be added to a water body from all sources without exceeding the applicable water quality standard for that pollutant and determine wasteload allocations (the portion of a TMDL allocated to existing and future point sources) and load allocations (the portion of a TMDL attributed to existing and future nonpoint sources).

On April 6, 2018, the U.S. EPA provided final approval of the 2014 and 2016 303(d) List of Impaired Water Bodies prepared by the state. The list identifies

Humboldt Bay (Eureka Plain Hydrologic Unit) as impaired by dioxin toxic equivalents and polychlorinated biphenyls (PCBs). Pursuant to CWA section 303(d), the Regional Water Board will develop a TMDL or alternate program of implementation to address these impairments, which will be implemented through various programs, including through provisions of NPDES permits.

3.5. Sewage Sludge and Biosolids

This Order does not authorize any act that results in violation of requirements administered by U.S. EPA to implement 40 C.F.R. Part 503, Standards for the Use or Disposal of Sewage Sludge. These standards regulate the final use or disposal of sewage sludge that is generated during the treatment of domestic sewage in a municipal wastewater treatment facility. The Permittee is responsible for meeting all applicable requirements of 40 C.F.R. Part 503 that are under U.S. EPA's enforcement authority.

3.6. Other Plans, Polices and Regulations

On December 6, 2022, the State Water Board adopted State Water Board Order No. WQ 2022-0103-DWQ, Statewide Waste Discharge Requirements, General Order for Sanitary Sewer Systems (Sanitary Sewer General Order). This Order became effective on June 5, 2023, and replaced Order No. 2006-0003-DWQ and all associated amendments thereof. Order No. 2022-0103-DWQ requires that all public agencies that currently own or operate sanitary sewer systems electronically certify the Continuation of Existing Coverage form in the CIWQS Sanitary Sewer System Database within 60 days prior to the effective date of the Sanitary Sewer General Order. The Permittee certified their existing coverage and is subject to the requirements of Order No. 2022-0103-DWQ and any future revisions thereto for operation of its wastewater collection system.

3.6.1. State Water Board Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (Industrial Storm Water General Permit) 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 in evaporation ponds, percolation ponds, or combined sewer systems. Not all storm water falling within the Facility is routed to the Facility headworks for treatment and disposal under this Order. Therefore, coverage under the Industrial Storm Water General Permit is required for this Facility.

3.6.2. The discharge of waste other than hazardous waste to land for treatment, storage and disposal in waste management units is regulated pursuant to title 27 of the CCR, except when expressly exempted. With respect to domestic sewage, section 20090 of title 27 of the CCR specifies the available exemption as follows:

Exemptions. (C15: section 2511): The following activities shall be exempt from the SWRCB-promulgated provisions of this subdivision, so long as the activity meets, and continues to meet, all preconditions listed: (a) Sewage – Discharges of domestic sewage or treated effluent which are regulated by WDRs issued pursuant to Chapter 9, Division 3, Title 23 of this code, or for which WDRs have been waived, and which are consistent with applicable water quality objectives, and treatment or storage facilities associated with municipal wastewater treatment plants, provided that residual sludges or solid waste from wastewater treatment facilities shall be discharged only in accordance with the applicable SWRCB-promulgated provisions of this division.

The applicable provisions of division 2 (Solid Waste) include prescriptive waste containment unit siting criteria, waste unit construction standards, and liner requirements. The waste containment units for digested sludge at the Facility have been permitted for use since the commencement of the operation of the Facility in 1984.

3.6.3. 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 Recycled Water Activities. The Order requires the Permittee to obtain coverage under Order No. 2004-0012-DWQ and any future revisions thereto or subsequent Order, prior to any removal of biosolids from the Facility that will be land disposed on property owned or controlled by the Permittee.

4. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

The CWA requires point source permittees to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 C.F.R. section 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 C.F.R. 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.

4.1. Discharge Prohibitions

4.1.1. **Discharge Prohibition 3.1.** The discharge of waste to Humboldt Bay is prohibited unless it complies with the State Board, Water Quality Control Policy for the Enclosed Bays and Estuaries of California (1974, 1995).

This prohibition is retained from Order. No. R1-2016-0001. As described in section 2.3 of this Fact Sheet and based on the Permittee's 2014 Effluent

Discharge Study, the discharge is not completely conveyed to the Pacific Ocean and the discharge does not qualify as an ocean discharge subject to the Ocean Plan but rather a bay discharge subject to the Enclosed Bays and Estuaries Policy (EBEP).

Discharge Prohibition 3.2. The discharge of any waste not disclosed by the Permittee and not within the reasonable contemplation of the Regional Water Board is prohibited.

This prohibition is based on the Basin Plan and State Water Board Order No. WQO 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 Permittees or are not reasonably anticipated to be present in the discharge but have not been disclosed by the Permittees. 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 Permittees and (2) can be reasonably contemplated by the Regional Water Board.

4.1.2. **Discharge Prohibition 3.3.** Creation of pollution, contamination, or nuisance, as defined by section 13050 of the Water Code is prohibited.

This prohibition has been retained from Order No. R1-2016-0001 and is based on section 13050 of the Water Code and section 5411 of the California Health and Safety Code.

4.1.3. **Discharge Prohibition 3.4.** The discharge of sludge or digester supernatant is prohibited, except as authorized under section 6.3.4.3 of the Order. (Solids Disposal and Handling requirements).

This prohibition is retained from Order No. R1-2016-0001 and is based on restrictions on the disposal of sewage sludge found in federal regulations [40 C.F.R. Part 503 (Biosolids), Part 527, and Part 258] and title 27 of the CCR.

4.1.4. **Discharge Prohibition 3.5.** The discharge of untreated or partially treated waste (receiving a lower level of treatment than described in section 2.1 of the Fact Sheet) from anywhere within the collection, treatment, or disposal systems is prohibited, except as provided for in Attachment D, Standard Provisions 1.7 (Bypass) and 1.8 (Upset).

This prohibition is retained from Order No. R1-2016-0001 and is based on the Basin Plan and Bays and Estuaries Policy to protect the 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 40 C.F.R. 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.

The Regional Water Board adopted Resolution No. 80-10 which concluded that the Permittee's ebb-tide discharge to Humboldt Bay implements the Basin Plan and the Enclosed Bays and Estuaries Policy because all effluent was conveyed to the Pacific Ocean. This Resolution was based on modeling and tidal monitoring with a dye study completed in 1979. Thus, since 1981, the Regional Water Board has viewed the practice of blending at the Facility as a permissible exception to the bypass prohibition. The Permittee has bypassed secondary treatment when influent flows exceed the trickling filter capacity (approximately 12 mgd). When this occurs, the water surface elevation in the primary effluent channel rises allowing primary effluent to spill over a long weir into the bypass channel. This effluent is diverted around secondary treatment and then is recombined with secondary effluent, disinfected, and stored prior to discharge.

40 C.F.R. section 122.41(m) defines a bypass as "…*the intentional diversion of waste streams from any portion of a treatment facility*." Further, 40 C.F.R. section 122.41(m)(2) states that bypass may only be allowed under the condition that it "…*does not cause effluent limitations to be exceeded, but only if it is also for essential maintenance to assure efficient operation*." Chapter III, section 7 of the Bays and Estuaries Policy states, "*The discharge or by-passing of untreated waste to bays and estuaries shall be prohibited*." The current operations at the Facility include the intentional diversions around the secondary treatment portion of the treatment facility (including the trickling filters, solids contact, and secondary clarification units). Further, these intentional diversions are not for the essential maintenance of the treatment facility, but instead are used to manage peak hydraulic flows to the Facility. The Permittee's January 7, 2014 *Feasibility Analysis for Treating Peak Wet Weather Discharges* (Feasibility Analysis) acknowledges the significant increase in the Facility's peak wet weather flows as a result of rainfall-derived infiltration and inflow.

In accordance with the NPDES regulations at 40 C.F.R. section 122.41(m) and chapter III, section 7 of the Bays and Estuaries Policy, this Order, consistent with Order No. R1-2016-0001, does not allow the discharge of untreated or partially treated waste, including the bypass of secondary treatment when influent flows exceed the trickling filter capacity. It is recognized that high influent flows may still result in a bypass as described above, and that the Permittee will be in immediate noncompliance with this prohibition. As a result, a compliance schedule has been included in this Order to bring the Permittee back into compliance with discharge prohibition 3.5.

4.1.5. **Discharge Prohibition 3.6.** The discharge of waste at any point not described in Finding 2.2 of the Fact Sheet or authorized by a permit issued by the State Water Board or another Regional Water Board is prohibited.

This prohibition is retained from Order No. R1-2016-0001. This prohibition is a general prohibition that allows the Permittee to discharge waste only in accordance with WDRs. It is based on sections 301 and 402 of the federal CWA and section 13263 of the Water Code.

4.1.6. **Discharge Prohibition 3.7.** The discharge of waste from the Facility to the Elk River and its tributaries, and to seasonal and tidal marshes adjacent to the Facility is prohibited.

This prohibition is retained from Order No. R1-2016-0001 and is based on the Bays and Estuaries Policy, which prohibits discharges to enclosed bays, with certain exceptions. As the Elk River is directly tributary to Humboldt Bay, discharges to the Elk River are prohibited. This prohibition also expressly prohibits any discharge of waste to the seasonal or tidal marshes located adjacent to the Facility. This prohibition applies to the existing facility configuration and does not in itself preclude future enhancement options that may be considered for climate change resiliency and compliance with Enclosed Bays and Estuaries Policy, the Basin Plan, or the SIP. In order for the Regional Water Board to consider a discharge that incorporated additional areas beyond the existing Facility for enhancement or mitigation, several criteria would need to be met including, but not limited to, an antidegradation analysis and any actions to secure all necessary permits from the Regional Water Board and other regulatory agencies for altered use of the existing wetlands.

4.1.7. **Discharge Prohibition 3.8.** The peak dry weather flow of waste through the Facility in excess of 8.6 mgd is prohibited. Additionally, the peak daily wet weather flow of waste through the Facility in excess of 12 mgd is prohibited. Compliance with this prohibition shall be determined as defined in sections 7.10 and 7.11 of this Order.

This prohibition is retained from Order No. R1-2016-0001, with minor clarification of language, and is based on the engineering design and historic reliable treatment capacity of the Facility. This prohibition limits the peak dry

weather flow to the peak dry weather design flow of the Facility and peak wet weather flow to the secondary treatment capacity of the Facility. Flows exceeding the design capacities may result in a lower achievement of compliance with water quality objectives established in this Order.

4.1.8. **Discharge Prohibition 3.9.** The discharge of any radiological, chemical, or biological warfare agent or high-level radioactive waste into waters of the state is prohibited.

This prohibition is retained from Order No. R1-2016-0001 and is based on the discharge prohibitions contained in section 13375 of the Water Code.

4.1.9. **Discharge Prohibition 3.10.** The discharge of septage to a location other than an approved septage receiving station is prohibited.

This prohibition is retained from Order No. R1-2016-0001 and is necessary to ensure that the Permittee is aware of all discharges of septage into the treatment system so that pollutants associated with domestic septage do not pass through or interfere with the operation or performance of the Facility.

4.2. Technology-Based Effluent Limitations

4.2.1. Scope and Authority

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

In addition, 40 C.F.R section 122.45(d)(2) states that technology-based permit limits shall be stated as average weekly and average monthly discharge limitations, unless impracticable, for POTWs. 40 C.F.R. section 103.102 provides detailed specifications for establishing effluent limitations for the technology-based constituents BOD_5, TSS, and pH. Effluent limitations for BOD_5, TSS, and pH in Effluent Limitations in section 4.1.1, Table 2 of this Order were established as required by 40 C.F.R. 103.102 and have been retained in this Order.

Regulations promulgated in 40 C.F.R. 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.

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 U.S. EPA Administrator.

Based on this statutory requirement, U.S. EPA developed secondary treatment regulations, which are specified in 40 C.F.R. part 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 (BOD5), total suspended solids (TSS), and pH, as follows:

4.2.1.1. **BOD_5 and TSS**

4.2.1.1.1. The 30-day average shall not exceed 30 mg/L.

4.2.1.1.2. The 7-day average shall not exceed 45 mg/L.

4.2.1.1.3. The 30-day average percent removal shall not be less than 85 percent.

4.2.1.2. **pH**

The pH shall be maintained within the limits of 6.0 to 9.0.

The effluent limitation for pH required to meet the water quality objective is contained in the Basin Plan, Table 3-1.

In addition, 40 C.F.R. section 122.45(f) requires the establishment of mass-based effluent limitations for all pollutants limited in Orders, except for 1) pH, temperature, radiation, or other pollutants which cannot be appropriately expressed by mass, and 2) when applicable standards and limitations are expressed in terms of other units of measure.

4.2.2. **Applicable Technology-Based Effluent Limitations**

4.2.2.1. **Secondary Treatment Standards (BOD_5, TSS, and pH).** As described above, the secondary treatment standards at 40 C.F.R. part 133 establish the minimum level of effluent quality attainable by secondary treatment in terms of BOD_5, TSS, and pH. Numeric effluent limitations for BOD_5, TSS, and the lower end of the range for pH, including the percent removal requirements for BOD_5 and TSS, are retained from Order No. R1-2016-0001 and reflect the secondary treatment standards at 40 C.F.R. part 133.

4.2.2.2. **Mass-Based Effluent Limitations.** Federal regulations at 40 C.F.R. section 122.45(f) require that, except under certain conditions, all permit limits, standards, or prohibitions be expressed in terms of mass units. Among the conditions exempting the application of mass-based limitations is section 40 C.F.R. section 122.45(f)(1)(i), which states "*for pH, temperature, and radiation, or other pollutants which cannot appropriately be expressed by*

mass" and 40 C.F.R. section 122.45(f)(1)(ii), which states "*when applicable standards and limitations are expressed in terms of other units of measure*."

This Order does not include mass-based effluent limitations for the following pollutants pursuant to the exceptions in 40 C.F.R. section 122.45(f)(1)(i) and (ii):

4.2.2.2.1. BOD_5 and TSS, because these two parameters are expressed in terms of concentration and percent removal;

4.2.2.2.2. pH, because these parameters cannot appropriately be expressed by mass.

4.3. Water Quality-Based Effluent Limitations (WQBELs)

4.3.1. Scope and Authority

CWA Section 301(b) and 40 C.F.R. 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.

Section 122.44(d)(1)(i) of 40 C.F.R. requires that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, water quality-based effluent limitations (WQBELs) must be established using: (1) U.S. EPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, 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 designated 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.

4.3.2. Applicable Beneficial Uses and Water Quality Criteria and Objectives

4.3.2.1. **Beneficial Uses.** Beneficial use designations for receiving waters for discharges from the Facility are presented in section 3.3.1 of this Fact Sheet.

4.3.2.2. **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, including Humboldt Bay. For waters designated for use as MUN, the Basin Plan establishes, as applicable water quality criteria, the MCLs established by the State Water Board, DDW 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).

4.3.2.3. **SIP, CTR, and NTR.** Water quality criteria and objectives applicable to this receiving water are established by the CTR, established by the U.S. EPA at 40 C.F.R. 131.38, and the NTR, established by the U.S. EPA at 40 C.F.R. 131.36. Criteria for most of the 126 priority pollutants are contained within the CTR and NTR.

The SIP, which is described in section 3.3.5 of this Fact Sheet, includes procedures for determining the need for, and the calculation of, WQBELs and requires Permittees to submit data sufficient to do so.

At title 22, division 4, chapter 15 of the CCR, DDW has established MCLs for certain pollutants for the protection of drinking water. Chapter 3 of the Basin Plan establishes these MCLs as water quality objectives applicable to receiving waters with the beneficial use designation of municipal and domestic supply. As described in section 3.3.1 of this Fact Sheet, the MUN use is not applicable to the receiving water in the vicinity of the discharge.

Aquatic life freshwater and saltwater criteria are identified as criterion maximum concentrations (CMC) and criterion continuous concentrations (CCC). The CTR defines the CMC as the highest concentration of a pollutant to which aquatic life can be exposed for a short period of time without deleterious effects and the CCC as the highest concentration of a pollutant to which aquatic life can be exposed for an extended period of time (4 days) without deleterious effects. The CMC is used to calculate an acute or 1-hour average numeric effluent limitation and the CCC is used to calculate a chronic or 4-day average numeric effluent limitation.

Human health criteria are further identified as “water and organisms” and “organisms only”. “Water and organism” criteria are designed to address risks to human health from multiple exposure pathways. As stated in section 3.3.1 of this Fact Sheet, the municipal and domestic supply use is not applicable to the receiving water in the vicinity of the discharge; therefore, the “water and organisms” criteria do not apply and the “organisms only” criteria were used for the RPA.

4.3.2.4. **Minimum Dilution**

Order No. R1-2009-0033 applied a 30:1 zone of initial dilution for the discharge based on a modeling study performed in 1979. The 1979 study demonstrated that discharge at ebb tide conveyed all effluent out of Humboldt Bay and into the Pacific Ocean. A zone of initial dilution was granted based upon design of the outfall diffuser and application of Ocean Plan criteria.

On November 1, 2021, the Permittee submitted a numeric modeling report for ammonia titled, "*Enclosed Bays and Estuaries Compliance Feasibility Study: Evaluation of Ammonia Toxicity during Elk River Wastewater Effluent Mixing in Humboldt Bay".* The 2021 Report concludes that the proposed discharge will meet acute and chronic ammonia criteria within less than three feet of the diffuser.

Based on Staff review, the dilution modeling documented in the 2021 Study appears adequate to support the authorization of dilution credits in the reissued permit for ammonia. The critical conditions described in California's *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP) are structured for flowing rivers and streams, and are not easily translatable to an open-water estuarine environment. However, the critical conditions used in the Scenario E model run appear consistent with the intent of the SIP. This Order uses minimum center line dilution under Scenario E of the 2021 Report, which results in a dilution ratio of 31:1.

Additionally, the SIP allows for the Regional Water Board to apply dilution credits on a limited and/or pollutant-by-pollutant basis, which may result in a dilution credit for all, some, or no priority pollutants in a discharge. Staff have determined that the application of the 31:1 dilution ratio may be further applied to cyanide as cyanide does not bioaccumulate. Furthermore, the 31:1 dilution rate may also be applied to alpha-Endosulfan as the intermittent discharge performed by the Permittee, during periods of outgoing tide, prevents the presence of alpha-Endosulfan from exceeding the Saltwater Aquatic Life Protection, Continuous Concentration (4-day average) threshold of 0.0087 µg/L.

4.3.3. **Determining the Need for WQBELs**

NPDES regulations at 40 C.F.R. section 122.44(d) require effluent limitations to control all pollutants, which are or may be discharged at a level that will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard.

4.3.3.1. **Non-Priority Pollutants**

4.3.3.1.1. **Fecal Coliform**

Order No. R1-2016-0001 specified that the disinfected effluent discharged through Discharge Points 001 shall not contain concentrations of fecal coliform bacteria exceeding the following limitations:

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

4.3.3.1.1.2. No samples shall exceed an MPN of 43 per 100 mL.

These effluent limitations for fecal coliform bacteria have been retained from Order No. R1-2016-0001 and reflect water quality objectives for bacteria established by the Basin Plan for the protection of shellfish harvesting areas. Because Humboldt Bay is home to large shellfish harvesting operations, it is appropriate to continue to retain fecal coliform limitations for the protection of shellfish harvesting areas. The Basin Plan criteria are based on recommendations from the National Shellfish Sanitation Program's Fecal Coliform Standard for Adverse Pollution Conditions in the 2003 *Guide for the Control of Mulluscan Shellfish, Model Ordinance for Shellstock Growing Areas* (U.S. Department of Health and Human Services, Public Health Service, Food and Drug Administration).

4.3.3.1.2. **Enterococci Coliform**

On August 7, 2018, the State Water Board adopted Part 3 of the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California – Bacteria Provisions and a Water Quality Standards Variance Policy* (Statewide Bacteria Provisions), which establishes water quality objectives for reasonable protection of people that recreate within all surface waters, enclosed bays, and estuaries of the state that have the water contact recreation beneficial use (REC-1). In accordance with the water quality objectives outlined in the Statewide Bacteria Provisions for the protection of waters where salinity is greater than 1 ppth more than 5 percent of the time and used for water contact recreation Order No. R1-2023-0016 establishes the following effluent limitations for *enterococci* bacteria:

4.3.3.1.2.1. The concentration of enterococci shall not exceed 30 colony forming units (cfu) per 100 milliliters (mL) as a six-week rolling geometric mean, calculated weekly.

4.3.3.1.2.2. A statistical threshold value (STV) of 110 cfu/100 mL shall not be exceeded by more than 10 percent of the samples collected in a calendar month and calculated in a static manner.

The effluent limitations for enterococci bacteria will ensure that bacterial standards for water contact recreation are maintained throughout the receiving water.

4.3.3.1.3. **pH**

Chapter 3, Table 3-1 of the Basin Plan includes site-specific water quality objectives for pH applicable to Humboldt Bay, which specify that the pH shall not be depressed below natural background levels nor raised above 8.5. This Order includes an instantaneous minimum effluent limitation for pH of 6.0 based on the secondary treatment standards at 40 C.F.R. part 133 and an instantaneous maximum effluent limitation for pH of 8.5 based on the site-specific maximum water quality objective for Humboldt Bay established in chapter 3, Table 3-1 of the Basin Plan. The federal technology-based maximum requirement prescribed in the secondary treatment standards at 40 C.F.R. part 133 is not sufficient to meet the Basin Plan water quality standard.

4.3.3.1.4. **Ammonia**

Untreated domestic wastewater contains ammonia nitrogen. Nitrification is a biological process that converts ammonia to nitrite and nitrate. Denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Inadequate or incomplete nitrification may result in the discharge of ammonia to Humboldt.

Ammonia is known to cause toxicity to aquatic organisms in surface waters. 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*." Due to concerns regarding ammonia toxicity, the Regional Water Board relies on U.S. EPA's recommended water quality criteria for ammonia to interpret the Basin Plan's narrative objective for toxicity. For saltwater, the recommended criteria are from the April 1989 *Ambient Water Quality Criteria for Ammonia*, EPA-440/5-88-004 (1989 Saltwater Criteria). For freshwater, the recommended criteria are from the April 2013 *Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*, EPA 822-R-13-001 (2013 Freshwater Criteria). The 2013 Freshwater Criteria is an update to the December 1999 *Update of Ambient Water Quality Criteria for Ammonia* (1999 Freshwater Criteria).

The 1989 Saltwater Criteria document includes three tables of recommended criteria for receiving water salinities of 10 g/kg, 20 g/kg, and 30 g/kg. Based on samples collected at the receiving water in the vicinity of the discharge between September 2016 and June 2021, the receiving water salinity was ranged from 28 ppt to 34 ppt. Therefore, the table for receiving waters with salinity of 30g/kg was used. The acute (1-hour average) and chronic (4-day average) criteria are based on pH and temperature.

Effluent monitoring results ranged from 0.30 mg/L to 18 mg/L based on 129 samples collected at Monitoring Location EFF-001 between September 2016 and June 2021. Monitoring for ammonia in the receiving water was not conducted over the term of Order No. R1-2016-0001. Because ammonia levels in the effluent have been measured at concentrations greater than EPA's 1989 Saltwater Criteria, the Regional Water Board concludes that discharges from the Facility have a reasonable potential to cause or contribute to exceedances of applicable water quality criteria for toxicity.

For this Order, the Regional Water Board has changed its approach for evaluating ammonia toxicity. This Order establishes an Ammonia Impact Ratio (AIR) for determining compliance with ammonia effluent limitations. The AIR is calculated as the ratio of the ammonia value in the effluent to the applicable 1989 Saltwater Criteria. See Attachment H of this Order for a sample log to help calculate and record the AIR values and Attachment G for applicable pH, temperature and salinity dependent criteria.

Therefore, this Order includes effluent limitations for ammonia for the protection of aquatic life. This Order establishes an AMEL and MDEL for total ammonia, expressed as N, through the use of an AIR at Discharge Point 001 based on EPA's 1989 Saltwater Criteria. Calculations of the applicable multipliers are included in section 4.3.4 of this Fact Sheet.

4.3.3.1.5. **Chlorine Residual**

The Basin Plan establishes a narrative water quality objective for toxicity which states *"[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 this Order includes effluent limitations for chlorine. U.S. EPA has established the following criteria for chlorine-produced oxidants for protection of saltwater aquatic life in *Quality Criteria for Water* 1986 (The Gold Book, 1986, EPA440/5-86-001).

Chronic Criterion	Acute Criterion
0.0075 mg/L	0.013 mg/L

Consistent with Order No. R1-2016-0001, the water quality criteria for total chlorine residual recommended by U.S. EPA have been translated to an AMEL of 6.1 µg/L and an MDEL of 12 µg/L in this Order.

4.3.3.1.6. **Settleable Solids**

Effluent limitations for settleable solids are retained from Order No. R1-2016-0001 and reflect levels of treatment attainable by secondary treatment facilities. This limitation is based on the Basin Plan water quality

objective prohibiting bottom deposits for all surface waters of the North Coast Region. Consistent with Order No. R1 2016 0001, this Order applies the effluent limitations for settleable solids at Discharge Point 001.

4.3.3.2. CTR 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.

Section 1.3 of the SIP requires the Regional Water Board to use all available, valid, relevant, and representative receiving water and effluent data and information to conduct an RPA. For this Order, the Regional Water Board has conducted an RPA for discharges to Humboldt Bay at Discharge Point 001 using monitoring data collected at Monitoring Location EFF-001. During the term of Order No. R1-2016-0001, CTR priority pollutant sampling was conducted annually between September 01, 2016, and June 30, 2021, at Monitoring Location EFF-001. In addition, the Permittee conducted monthly monitoring for copper, and quarterly monitoring for cyanide, and TCDD-equivalents. All of this data was used to complete the RPA. No CTR priority pollutant data was available for the receiving water.

Hardness: The CTR and the NTR contain water quality criteria for seven metals (cadmium, copper, chromium (III), lead, nickel, silver, and zinc) that vary as a function of hardness; the lower the hardness, the lower the water quality criteria. The SIP requires water quality criteria be properly adjusted for hardness, using the hardness of the receiving water. 40 C.F.R. section 131.38(c)(4)(i) states, “For waters with a hardness of over 400 mg/L as calcium carbonate, a hardness of 400 mg/L shall be used with a default Water-Effect Ratio (WER) of 1, or the actual hardness of the ambient surface water shall be used with a WER.” For the RPA, a hardness of 400 mg/L and a WER of 1 was used to calculate the criteria for all hardness-dependent metals except copper because saline waters found in estuaries typically have hardness concentrations in excess of 400 mg/L. For copper, the RPA identified the U.S EPA saltwater criteria as most protective in Humboldt Bay. The U.S EPA saltwater criteria for copper is not hardness dependent. The Permittee conducted a WER study for copper. As a result, the RPA for copper has been conducted with the copper WER of 12.6.

To conduct the RPA, Regional Water Board staff identified the maximum effluent concentration (MEC) and maximum background (B) concentration 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 with applicable water quality criteria 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.

4.3.3.3. Reasonable Potential Determination

The RPA demonstrated reasonable potential for discharges of cyanide, and alpha-Endosulfan from the Facility to cause or contribute to exceedances of applicable water quality criteria. Reasonable potential could not be determined for all pollutants, as there are not applicable water quality criteria for all pollutants. The RPA determined that there is either no reasonable potential or there was insufficient information to conclude affirmative reasonable potential for 124 of the 126 CTR priority pollutants.

Table F-4 summarizes the RPA for each pollutant that was reported in detectable concentrations in the effluent or the receiving water. The MECs, most stringent water quality objectives/water quality criteria (WQO/WQCs), and background concentrations (B) used in the RPA are presented, along with the RPA results (Yes or No and which trigger) for each toxic pollutant analyzed. No other pollutants with applicable, numeric water quality criteria from the NTR, CTR, and the Basin Plan were measured above detectable concentrations during the monitoring events conducted by the Permittee. Attachment F-1 to this Order summarizes the RPA for all 126 CTR priority pollutants.

Table F-4. Summary of Reasonable Potential Analysis Results

CTR#	Pollutant	Unit	C or Most Stringent WQO/WQC	MEC or Minimum DL[1]	B or Minimum DL[1,2]	RPA Results[3]
1	Antimony	µg/L	No Criteria	19	Not Available	No

CTR#	Pollutant	Unit	C or Most Stringent WQO/WQC	MEC or Minimum DL[1]	B or Minimum DL[1,2]	RPA Results[3]
2	Arsenic	µg/L	36	2	Not Available	No
3	Beryllium	µg/L	No Criteria	0.78	Not Available	No
5b	Chromium (V)	µg/L	11	1.4	Not Available	No
6	Copper[4]	µg/L	47	42	Not Available	No
9	Nickel	µg/L	8	5	Not Available	No
10	Selenium	µg/L	5	3.8	Not Available	No
11	Silver	µg/L	2.2	1.3	Not Available	No
13	Zinc	µg/L	86	70	Not Available	No
14	Cyanide	µg/L	1.0	2.9	Not Available	Yes (Trigger 1)
23	Chlorodibromomethane	µg/L	No Criteria	2.1	Not Available	No
26	Chloroform	µg/L	No Criteria	5.5	Not Available	No
27	Dichlorobromomethane	µg/L	No Criteria	5	Not Available	No
34	Methyl Bromide	µg/L	No Criteria	0.6	Not Available	No
35	Methyl Chloride	µg/L	No Criteria	0.25	Not Available	No
39	Toluene	µg/L	No Criteria	0.62	Not Available	No
68	Bis(2-Ethylhexyl) Phthalate	µg/L	No Criteria	3.2	Not Available	No
109	4,4'-DDE	µg/L	No Criteria	0.02	Not Available	No

CTR#	Pollutant	Unit	C or Most Stringent WQO/WQC	MEC or Minimum DL[1]	B or Minimum DL[1,2]	RPA Results[3]
112	alpha-Endosulfan	µg/L	0.0087	0.0089	Not Available	Yes (Trigger 1)
	Ammonia (mg/L)	mg/L	1.33	18	Not Available	Yes (Trigger 1)

Table Notes

1. 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).
2. The MEC or B is "Not Available" when there is no monitoring data for a constituent.
3. RPA Results:
   = Yes, if MEC > WQO/WQC, or B > WQO/WQC and MEC is detected.
   = No, if MEC and B or < WQO/WQC or all effluent data are undetected.
   = Undetermined (UD).
4. Copper WQO calculated with a WER of 12.6 and the most stringent WQO from the CTR using a hardness of 400 mg/L (12.6 x 3.73 = 47 µg/L).
5. The saltwater criterion represented in this table is based upon chronic exposure and a temperature of 14°C, a pH of 8.1, and a salinity value of 28 g/kg.

4.3.3.3.1. Additional details regarding CTR priority pollutant constituents for which reasonable potential was found are included in the following paragraphs:

4.3.3.3.1.1. **Cyanide.** Order No. R1-2016-0001 included effluent limitations for cyanide. The CTR establishes a water quality objective for the protection of saltwater aquatic life of 1.0 µg/L and a water quality objective for the protection of freshwater aquatic life of 5.2 µg/L for cyanide. The Permittee sampled the effluent for cyanide 27 times during the term of Order No. R1-2016-0001. Cyanide was detected in 9 of the effluent samples, with results ranging from 1.1 µg/L to 2.9 µg/L. A determination of reasonable potential has been made for discharges from Discharge Point 001 based on the MEC of 2.9 µg/L exceeding the most stringent water quality objective of 1.0 µg/L. Effluent limitations for cyanide will be applied at Discharge Point 001.

4.3.3.3.1.2. **Alpha-Endosulfan.** Order No. R1-2016-0001 did not include effluent limitations for alpha-Endosulfan at Discharge Point 001. The CTR establishes a most stringent saltwater chronic water quality objective for alpha-Endosulfan for the protection of aquatic life of 0.0087 µg/L. The

Permittee sampled the effluent for alpha-Endosulfan 4 times during the term of Order No. R1-2016-0001. Alpha-Endosulfan was detected in the effluent in one sample, with a result of 0.0089 µg/L. Receiving water monitoring for alpha-Endosulfan was not conducted over the term of Order No. R1-2016-0001. A determination of reasonable potential has been made for discharges from Discharge Points 001 based on the MEC of 0.0089 µg/L exceeding the most stringent water quality objective of 0.0087 µg/L. Effluent limitations for alpha-Endosulfan will be applied at Discharge Point 001.

4.3.3.3.2. Additional details regarding CTR priority pollutant constituents for which reasonable potential was not found but warrant further explanation are included in the following paragraphs:

4.3.3.3.2.1. **Copper.** Order No. R1-2016-0001 included effluent limitations for copper. The CTR includes criteria for the protection of saltwater aquatic life and hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper is in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The U.S. EPA default conversion factors for copper in saltwater are 0.83 for both the acute and the chronic criteria. The default WER used for calculating criteria for copper is 1.0. The Permittee has conducted a WER study to determine the site-specific toxicity of copper in the receiving water at Discharge Point 001. The Permittee's study concluded that a site specific WER of 12.6 for total recoverable copper applies to the discharge. Using a receiving water hardness of 400 mg/L, the U.S. EPA recommended dissolved-total translator of 0.83, and the site-specific WER, the applicable chronic criterion (maximum 4-day average concentration) is adjusted to 47 µg/L and the applicable acute criterion (maximum 1-hour average concentration) is adjusted to 73 µg/L. The Permittee sampled the effluent for copper 65 times during the term of Order No. R1-2016-0001. Copper was detected in all 65 effluent samples, with results ranging from 15 µg/L to 42 µg/L. Since the MEC was less than the applicable water quality objective for copper, a determination of no reasonable potential has been made, and effluent limitations have not been retained in this Order.

4.3.3.3.2.2. **2,3,7,8-TCDD.** Order No. R1-2016-0001 included effluent limitations for TCDD-equivalents. The CTR establishes a water quality criterion for the protection of human health for 2,3,7,8-TCDD of 1.3 x 10-8 µg/L. As stated in section 3.3.1 of this Fact Sheet, the MUN use is not applicable to the receiving water in the vicinity of the discharge; therefore, for human health, the "water and organisms" criteria do not apply and the "organisms only" criteria were used for the RPA. The Permittee sampled the effluent for 2,3,7,8-TCDD 13 times during the term of Order No. R1-2016-0001. All sample concentrations were non-detect, so a

determination of no reasonable potential has been made for 2,3,7,8-TCDD and effluent limitations have not been retained in this Order.

4.3.4. **WQBEL Calculations**

Final WQBELs for ammonia, chlorine, cyanide, and alpha-endosulfan have been determined using the methods described in section 1.4 of the SIP.

4.3.4.1. **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 effluent 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

For ammonia, alpha-Endosulfan, and cyanide,a dilution credit of 31:1 (D = 31) is applied as discussed in Fact Sheet section 4.3.2.4. For all other constituents, no credit for dilution is allowed, which results in the ECA being equal to the applicable criterion (ECA=C).

4.3.4.2. **Step 2:** For each ECA based on an aquatic life criterion/objective (copper, cyanide, and ammonia), 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, or when 80 percent or more of the data set is reported as ND, the CV is set equal to 0.6. Derivation of the multipliers is presented in section 1.4 of the SIP.

The SIP procedure assumes a 4-day averaging period for calculating the LTA. However, U.S. EPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA for ammonia corresponding to the 30-day CCC was calculated assuming a 30-day averaging period.

From Table 1 in the SIP, the ECA multipliers for calculating LTAs at the 99th percentile occurrence probability for cyanide are 0.206 (acute multiplier) and 0.377 (chronic multiplier). The ECA multipliers for alpha-endosulfan are 0.321 (acute multiplier) and 0.527 (chronic multiplier).

Table F-5. Determination of Long-Term Averages

Pollutant	Units	Acute ECA	Chronic ECA	Acute ECA Multiplier	Chronic ECA Multiplier	Acute LTA	Chronic LTA
Cyanide, Total (as CN)	µg/L	32	32	0.206	0.377	6.61	12.05
alpha-Endosulfan	µg/L	1.088	0.2784	0.321	0.527	0.349	0.1468

4.3.4.3. **Step 3:** WQBELs, including an AMEL and 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. The CV is set equal to 0.99 for cyanide, and 0.60 for alpha-endosulfan. The sampling frequency is set equal to 4 (n = 4) for both the acute and chronic criteria. 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 for cyanide is 4.84 and the AMEL multiplier is 1.93. From Table 2 of the SIP, the MDEL multiplier for alpha-endosulfan is 3.11 and the AMEL multiplier is 1.55. Final WQBELs for cyanide and alpha endosulfan are determined as follows.

Table F-6. Determination of Final WQBELs Based on Aquatic Life Criteria

Pollutant	Units	LTA	MDEL Multiplier	AMEL Multiplier	MDEL	AMEL
Cyanide, Total (as CN)	µg/L	6.61	4.84	1.93	32.0	12.76
alpha-Endosulfan	µg/L	0.1468	3.11	1.55	0.4573	0.2280

Final WQBELs for ammonia are determined by calculating the AIR for each of the ammonia standards (AMEL and MDEL). Attachment H of this Order includes two tables that display the AMEL and MDEL ammonia standards.

The ammonia standards are calculated by taking the variable ammonia criteria and multiplying it by the ECA multiplier and the appropriate AMEL and MDEL multiplier.

The 1989 Ambient Water Quality Criteria for ammonia are dependent on the pH, temperature, and salinity of the receiving water. For example:

AMEL Ammonia Standard *= (1989 Chronic Ammonia Criteria (ECA) * AMEL Multiplier (1.55) * ECA Multiplier (0.53)*

MDEL Ammonia Standard *= (1989 Chronic Ammonia Criteria (ECA) * MDEL Multiplier (3.11) * ECA Multiplier (0.53)*

The AIR, or final WQBEL, is determined by dividing the ammonia sample by the appropriate ammonia standard (AMEL and MDEL). If the AIR is greater than 1.0 then the Permittee is not in compliance with the AIR effluent limitation.

4.3.4.4. **Step 4:** As discussed earlier in this Fact Sheet, RPAs were conducted and effluent limitations were calculated using the SIP procedures. The table below contains the final summary of WQBELs applicable to this Facility.

Table F-7. Summary of Water Quality Based Effluent Limitations

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
pH	standard units	--	--	--	6.0	8.5
Ammonia Total (as N)	mg/L	1.0[1]	--	1.0[1]	--	--
Chlorine, Total Residual	mg/L	6.1	--	12	--	--
Cyanide, Total (as CN)	µg/L	12.76	--	32.0	--	--
alpha-Endosulfan	µg/L	0.2280	--	0.4573	--	--
Fecal Coliform Bacteria	MPN/100 mL	14[1]	--	43[2]	--	--
Enterococci Bacteria	cfu/100 mL	110[3]	30[4]	--	--	--

Parameter	Units	Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum

Table Notes

1. The Ammonia Impact Ratio (AIR) is calculated as the ratio of the ammonia concentration in the effluent and the applicable ammonia standard (AMEL and MDEL). Attachment H contains a PDF example of the calculator that will be sent to the Permittee to determine compliance with the AMEL/MDEL AIR. For each of the applicable ammonia standards, Attachment G includes two tables that provide the variable AMEL and MDEL ammonia standards used in calculating the AIR. The AIR is the ammonia effluent limit and must be reported in the self-monitoring reports in addition to ammonia, pH, salinity, and temperature values. Monitoring for ammonia, pH, salinity, and temperature must be conducted concurrently in order for the AIR to be calculated properly. Compliance determination will be based on the receiving water data and ammonia effluent data taken on the same day.
2. The median value of fecal coliform bacteria shall not exceed 14 MPN/100 mL.
3. No samples shall exceed 43 MPN/100 mL a statistical threshold value (STV) of 110 cfu/100 mL shall not be exceeded by more than 10 percent of the samples collected in a calendar month and calculated in a static manner.
4. Shall not exceed 30 cfu/100 mL as a six-week rolling geometric mean, calculated weekly.

4.3.5. **Whole Effluent Toxicity (WET)**

Effluent limitations for whole effluent toxicity protect the receiving water from the aggregate effect of a mixture of pollutants that may be present in effluent. There are two types of WET tests – acute and chronic. An acute toxicity test is conducted over a short time period and measures mortality. A chronic test is conducted over a longer period of time and may measure mortality, reproduction, and/or growth.

WET requirements are derived from the CWA and the Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Plan). The Plan establishes objectives for water quality and sediment quality that apply to all inland surface waters, enclosed bays, and estuaries and coastal lagoons of the state, including both waters of the United States and surface waters of the state. For compliance with the Plan's water quality objective, this Order requires the Permittee to conduct WET testing for chronic and acute toxicity, as specified in the MRP (Attachment E, section 5). Additionally, the Basin Plan establishes a narrative water quality objective for toxicity that states "*All waters shall be maintained free of toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in human, plant, or aquatic life.*" 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.

Test of Significant Toxicity (TST). In 2010, U.S. EPA endorsed the peer-reviewed Test of Significant Toxicity (TST) two-concentration hypothesis testing approach in *National Pollutant Discharge Elimination System Test of Significant Toxicity Implementation Document* (EPA 833-R-10-003, 2010) as an improved hypothesis-testing tool to evaluate data from U.S. EPA's toxicity test methods. The TST hypothesis testing approach more reliably identifies toxicity—in relation to the chronic (0.25 or more) and acute (0.20 or more) mean responses of regulatory management concern—than the current NOEC hypothesis-testing approach used previously.

On December 1, 2020, the State Water Board adopted resolution No. 2020-0044, establishing the *Water Quality Control Plan for Inland Surface Waters, Enclosed Bays, and Estuaries* (ISWEBE Plan) and adopting statewide numeric water quality objectives for both acute and chronic toxicity and a program of implementation to control toxicity, which are collectively known as the Toxicity Provisions. The Toxicity Provisions will standardize the regulation of aquatic toxicity for all non-oceanic surface waters. U.S. EPA's TST approach is an essential component of Toxicity Provisions as it forms the basis for utilizing numeric water quality objectives and acts as the primary means of determining compliance with the proposed effluent limitations.

In a letter dated February 12, 2014, the State Water Board submitted an alternative test process (ATP) request to U.S. EPA Region 9 for the statewide use of a two-concentration toxicity test design when using the TST approach. This two-concentration test design is composed of a single effluent concentration and a control concentration. U.S. EPA approved the ATP request on March 17, 2014. In June 2014, the approval was challenged in court on procedural grounds under the Administrative Procedures Act by the Southern California Alliance of Publicly Owned Treatment Works (SCAP) and the Central Valley Clean Water Association (CVCWA). The U.S. EPA withdrew the approval and notified State Water Board in a memo dated February 11, 2015.

It is important to note that U.S. EPA's rescission of its approval of the ATP is not based on the substantive TST statistical analysis or the scientific validity of a two-concentration test design. The withdrawal letter also states that currently there is a proposed rulemaking to change the language in the ATP regulations at 40 C.F.R. part 136.

The benefits of requiring the TST in new or amended permits include improving the statistical power of the toxicity test, and simplifying the analysis as compared to the traditional hypothesis statistical approaches or point estimates. The calculations are straightforward and provide a clear pass/fail result. With the withdrawal of the two-concentration test design approval, an NPDES permit can still require the TST for statistical analyses. If the two-concentration test design

is approved at a future date, the MRP may be modified to remove the need for a five-concentration test. Toxicity tests shall be run using a multi-concentration test design in accordance with 40 C.F.R. section 136.3, and the TST shall be utilized with the biological responses from the permitted in-stream waste concentration (IWC) and the control (effluent concentration of zero). However, even with only two of the five concentration biological responses being used, cost savings in the form of time and effort are still realized for the statistical analysis and data interpretation carried out by the Permittee, lab, and permit manager. This Order requires application of the TST for statistical analysis of whole effluent aquatic toxicity data.

Test of Significant Toxicity Design. The TST's null hypothesis for chronic toxicity is:

H0: Mean response (In-stream Waste Concentration (IWC) in % effluent) ≤ 0.75 mean response (control)

Results are analyzed using the TST approach and an acceptable level of chronic toxicity is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P".

The chronic IWC (in % effluent) for Discharge Point 001 is 100%. The chronic toxicity trigger for Discharge Point 001 is expressed as a null hypothesis (H0) and regulatory management decision (b value) of 0.75 for the chronic toxicity methods in the MRP. The null hypothesis for this discharge is:

H0: Mean response (100% effluent) ≤ 0.75 mean response (control)

Results shall be analyzed using the TST hypothesis testing approach in section 5.2.6.1 of the MRP. Compliance with this chronic toxicity limitation is demonstrated by rejecting the null hypothesis and reporting "Pass" or "P".

When there is one violation of the MDEL or MMEL, but not two violations in a calendar month, the Permittee must perform an Additional Routine Monitoring Test as specified in the MRP (Attachment E, section 5). If any combination of two or more MDEL or MMEL violations occur within a single calendar month or within two successive calendar months, the Permittee will be required to conduct a TRE, as described by the MRP.

Notification requirements for aquatic toxicity testing include a 24-hour notification requirement if test results do not meet an applicable MDEL or MMEL, per the Toxicity Provisions. Verbal notification of aquatic toxicity test exceedances may be left by voice mail if the Regional Water Board staff person is not immediately available by telephone.

4.3.5.1. **Acute Aquatic Toxicity**

The Permittee conducted acute toxicity testing at the IWC of 100% during the term of Order No. R1-2016-0001. The effluent exhibited acute toxicity to *A. bahia* survival in two of twenty-six tests conducted between November 2016 and November 2022. Low dissolved oxygen (i.e., <4.0 mg/L) was observed in the effluent treatment for both of the failed tests, confounding the laboratory's interpretation of the test results. Additionally, one passing test result was reported with a percent effect of greater than 10 percent.

Table F-8. Summary of Acute Toxicity Results (*Americamysis bahia*)

Test Date	IWC[1]	Pass/Fail	Percent Effect
November 30, 2016	100	Pass	97.5 (% Survival)
February 15, 2017	100	Pass	92.5 (% Survival)
May 2, 2017	100	Pass	95 (% Survival)
July 25, 2017	100	Pass	97.5 (% Survival)
October 19, 2017	100	Pass	92.5 (% Survival)
January 23, 2018	100	Pass	100 (% Survival)
July 31, 2018	100	Pass	97.5 (% Survival)
October 10, 2018	100	Pass	92.5 (% Survival)
January 23, 2019	100	Pass	85 (% Survival)
April 17, 2019	100	Pass	95.0 (% Survival)
August 1, 2019	100	Pass	100 (% Survival)
November 6, 2019	100	Pass	100 (% Survival)
February 19, 2020	100	Pass	-2.5
April 15, 2020	100	Pass	-2.6
August 5, 2020	100	Pass	2.7
October 29, 2020	100	Fail	52.8
February 24, 2021	100	Pass	-2.7
May 5, 2021	100	Pass	-2.6
August 18, 2021	100	Fail	23.1
August 31, 2021	100	Pass	0
November 10, 2021	100	Pass	7.5
February 24, 2022	100	Pass	-2.7
May 11, 2022	100	Pass	0

Test Date	IWC[1]	Pass/Fail	Percent Effect

Table Notes

1. IWC = In=Stream Waste Concentration (% Effluent). This Order retains the requirement for the Permittee to conduct a screening test using at least one vertebrate, invertebrate, and plant species. After the screening test is completed, monitoring can be reduced to the most sensitive species.

The Toxicity Provisions identify that a discharge has reasonable potential to cause or contribute to an excursion above the acute aquatic toxicity water quality objectives if any of the acute aquatic toxicity tests results in a 'fail" at the in-stream waste concentration (IWC), or if any of the acute aquatic toxicity tests have a percent effect at the IWC greater than 10 percent. Acute aquatic toxicity testing during the term of Order No. R1-2016-0001 provided both "fail" results and a percent effect result that exceeded 10%. As such, it has been determined that a discharge from this Facility has reasonable potential to cause or contribute to an exceedance of the water quality objectives for acute toxicity. Therefore, this Order establishes a new numeric effluent limitation for acute toxicity.

4.3.5.2. **Chronic Aquatic Toxicity**

The Permittee conducted chronic toxicity testing at the IWC of 100% during the term of Order No. R1-2016-0001. As shown in the following table, the effluent exhibited chronic toxicity to *M. pyrifera* germination and growth four times each, indicating that the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives for chronic toxicity using the TST approach. In addition, the Toxicity Provisions state, "a reasonable potential analysis for chronic aquatic toxicity is not required for POTW dischargers that are authorized to discharge at a rate equal to or greater than 5.0 MGD and are required to have a pretreatment program by the terms of 40 CFR § 403.8(a) (effective January 1, 2020)", because the Regional Water Board shall include an effluent limitation for these dischargers. Therefore, this Order establishes a new numeric effluent limitation for chronic toxicity.

Table F-9. Summary of Chronic Toxicity Results

Test Date	IWC[1]	*M. pyrifera* Growth	*M. pyrifera* Germination
November 30, 2016	100	Pass	Pass
February 15, 2017	100	Pass	Pass
May 2, 2017	100	Pass	Pass

Test Date	IWC[1]	*M. pyrifera* Growth	*M. pyrifera* Germination
July 25, 2017	100	Pass	Fail
October 19, 2017	100	Pass	Pass
January 23, 2018	100	Fail	Pass
July 31, 2018	100	Pass	Pass
February 7, 2019	100	Fail	Fail
April 17, 2019	100	Pass	Pass
September 12, 2019	100	Pass	Pass
November 6, 2019	100	Pass	Pass
February 19, 2020	100	Fail	Fail
March 18, 2020	100	Pass	Pass
March 31, 2020	100	Pass	Pass
April 15, 2020	100	Pass	Pass
May 1, 2020	100	Pass	Pass
August 5, 2020	100	Fail	Fail
September 9, 2020	100	Pass	Pass
September 23, 2020	100	Pass	Pass
October 7, 2020	100	Pass	Pass
October 21 2020	100	Pass	Pass
February 24, 2021	100	Pass	Pass
June 4, 2021	100	Pass	Pass
August 17, 2021	100	Pass	Pass
November 9, 2021	100	Pass	Pass
January 19, 2022	100	Pass	Pass
May 10,2022	100	Fail	Fail

Table Notes

1. IWC = In=Stream Waste Concentration (% Effluent). This Order retains the requirement for the Permittee to conduct a screening test using at least one vertebrate, invertebrate, and plant species. After the screening test is completed, monitoring can be reduced to the most sensitive species.

4.4. Final Effluent Limitation Considerations

4.4.1. Anti-Backsliding Requirements

Sections 402(o) and 303(d)(4) of the CWA and federal regulations at 40 C.F.R. section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of mass-based effluent limitations for BOD_5 and TSS and effluent limitations for cyanide, copper and 2,3,7,8-TCDD.

Order No. R1-2016-0001 established final mass-based effluent limitations for BOD_5 and TSS. Mass limitations for BOD_5 and TSS for discharges of treated wastewater have been removed because Regional Water Board staff misinterpreted the exception of 40 C.F.R. section 122.45(f)(2), which states that mass limitations are not required "when applicable standards and limitations are expressed in terms of other units of measure." Secondary treatment standards for BOD_5 and TSS in 40 C.F.R. section 133.102, on which the effluent limitations in previous permits were based, are expressed in concentration and percent removal (i.e., other units of measure). The relaxation of effluent limitations for BOD_5 and TSS in this Order is permissible under CWA section 402(o)(2)(B), because Regional Water Board staff has determined that mass-based limitations for BOD_5 and TSS were applied in the previous permits as a result of a mistaken interpretation of law when issuing those previous permits.

Historically, the Regional Water Board routinely incorporated mass-based limits (in addition to concentration-based limits) for BOD_5 and TSS in NPDES permits to encourage correction of Inflow & Infiltration (I&I). Applied in this way, mass-based limitations effectively restrict a POTW's wet-weather influent flows to less than or equal to the treatment facility's design capacity in situations where POTW's experience excessive I&I as a result of climate conditions and/or aging infrastructure.

In addition, Regional Water Board staff previously held that anti-backsliding regulations prevented the removal of mass-based limitations for BOD_5 and TSS because they were appropriate and necessary to protect water quality and prevent water quality degradation in receiving waters. While it is conceivable that the absence of mass-based limitations for these pollutants may result in an increased pollutant loading to surface waters, even if there is a resulting increase in pollutant loading, there is no evidence that the increase will result in degradation of water quality. Therefore, relaxation of effluent limitations for BOD_5 and TSS in this Order is also permissible under CWA section 402(o)(2)(B), based on new information available to the Regional Water Board.

Regional Water Board staff conducted an I&I analysis utilizing the definitions of excessive I&I in the federal regulations at 40 C.F.R. sections 35.2005(b) and 133.103(d). Using influent flow data collected between September 2016 and June 2021 and a population of 46,583 as reported in the ROWD, the Regional Water Board conducted an analysis of per capita flows for comparison with the definitions of "excessive I&I" in 40 C.F.R section 35.2005(b)(28) and 133.103(d) (i.e., greater than 275 gpd per capita per day). Effluent flows exceeded 275 gpd per capita on 28 occasions.

In addition, the methodology in a report titled Recommended Standards for Wastewater Treatment Facilities, Policy for the Design, Review, and Approval of Plans and Specifications for Wastewater Collection and Treatment Facilities, 2014 Edition, A Report of the Wastewater Committee of the Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers was used to calculate a peaking factor, above which excessive infiltration is indicated. Using Figure 1 of this methodology report, a peaking factor of 2.3 is the maximum rate of wastewater flow that is calculated for a population of 46,583. The analysis revealed 36 exceedances of the peaking factor, with exceedances ranging from 2.34 to 5.31.

As discussed in section 2.1.1 of this Fact Sheet, the Permittee is actively addressing I&I to the facility.

Order No. R1-2016-0001 included effluent limitations for copper and 2,3,7,8-TCDD at Discharge Point 001 based on the CTR human health criterion for waters from which both water and organisms are consumed. Based on receiving water salinity monitoring conducted by the Discharger, salinity in Humboldt Bay in the vicinity of the discharge exceeds the salinity threshold in Resolution No. 88-63. Therefore, this Order does not apply the MUN designation to Humboldt Bay and only the CTR human health criteria for waters from which organisms are consumed are applicable to the discharge. As shown in Table F-6 of this Fact Sheet, effluent monitoring data for copper and 2,3,7,8-TCDD indicates that the discharge does not demonstrate reasonable potential to cause or contribute to an exceedance of the applicable CTR human health criterion. The updated effluent copper and 2,3,7,8-TCDD data and the updated receiving water salinity data constitute new information, which permits the removal of effluent limitations consistent with CWA section 402(o)(2)(B). Therefore, this Order does not retain effluent limitations for copper and 2,3,7,8-TCDD at Discharge Point 001.

Order No. R1-2016-0001 included effluent limitations for ammonia at Discharge Point 001 based on the 1989 Saltwater Criteria for the protection of aquatic organisms. The Permittee submitted a *Technical Memorandum No. 1 Evaluation of Ammonia Toxicity during Elk River Wastewater Effluent Mixing in Humboldt Bay* along with the *Humboldt Bay Effluent Modeling for the Elk River Wastewater Treatment Plant* to define the water quality impacts associated with discharging ammonia to Humboldt Bay. As discussed in section 4.3.2.4, this

Order contains a dilution ratio of 31:1 when calculating compliance with the AIR effluent limitations.

Order No. R1-2016-0001 included effluent limitations for cyanide at Discharge Point 001 based on the Saltwater Criteria for the protection of aquatic organisms. The Permittee identified that a dilution ratio of 31:1 is appropriate for their discharge within their submittal Technical Memorandum No. 1 Evaluation of Ammonia Toxicity during Elk River Wastewater Effluent Mixing in Humboldt Bay along with the Humboldt Bay Effluent Modeling for the Elk River Wastewater Treatment Plant (Technical Memorandum). Regional Water Board staff determined that the dilution ratio may additionally be applied to cyanide and have provided updated effluent limitations based on this consideration. Relaxation of effluent limitations for cyanide in this Order is permissible under CWA section 402(o)(2)(B) because the Technical Memorandum constitutes new information available to the Regional Water Board.

4.4.2. Antidegradation Policies

This Order is consistent with applicable federal and state antidegradation policies, as it does not authorize the discharge of increased concentrations of pollutants or increased volumes of treated wastewater beyond that which was permitted to discharge in accordance with Order No. R1-2016-0001.

4.4.3. 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 $BOD_{5,}$ TSS, and pH. Restrictions on these pollutants are discussed in section 4.2 of this Fact Sheet This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order contains effluent limitations for fecal coliform, enterococci bacteria, pH, ammonia, total residual chlorine, settleable solids, cyanide, and alpha-endosulfan that are more stringent than the minimum, federal technology-based requirements but are necessary to meet water quality standards. These requirements are discussed in section 4.3.3 of the Fact Sheet.

Water quality-based effluent limitations have been 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. Most beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by U.S. EPA prior to May 30, 2000. Any water quality objectives and beneficial uses submitted to U.S. EPA prior to May 30, 2000, but not approved by U.S. EPA before that date, are nonetheless "*applicable water quality standards for purposes of the CWA*" pursuant to 40 C.F.R. section 131.21(c)(1). Collectively, this Order's restrictions on individual

pollutants are no more stringent than required to implement the requirements of the CWA.

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

4.5. Interim Effluent Limitations – Not Applicable

This Order does not establish interim effluent limitations or schedules for compliance with final limitations.

4.6. Land Discharge Specifications – Not Applicable

This Order does not authorize discharges to land.

4.7. Recycling Specifications – Not Applicable

This Order does not authorize discharges of recycled water.

4.8. Other Requirements

4.8.1. This Order requires the Permittee to begin discharge 45 minutes before slack tide. This requirement has been retained from Order No. R1-2016-0001 because the Permittee's Effluent Discharge Study determined that this was the optimal timing to maximize the volume of effluent that is conveyed to the Pacific Ocean. Given the current circumstances of the discharge, discharging under this scenario provides the greatest level of consistency with the State Board, Water Quality Control Policy for Enclosed Bays and Estuaries of California (1974, 1995) and the intent of State Water Board Resolution 80-87 which requires that all effluent be discharged to the Pacific Ocean.

4.8.2. This Order contains discharge specifications for total chlorine residual that apply to treated wastewater discharged from the effluent storage pond to the Overflow Marsh. In accordance with this provision, discharges of treated wastewater to the Overflow Marsh must have no detectable chlorine residual. U.S. EPA has established a chronic criterion of 0.011 mg/L and an acute criterion of 0.019 mg/L 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)].

In order to ensure compliance with protection of fresh water aquatic life criteria, this dish discharge specification shall be determined using a total chlorine detection method with a minimum detection level of 0.01 mg/L. This provision is consistent with the effluent daily maximum effluent limit of 0.01 mg/L for total chlorine residual contained in all previous Orders for discharges to the Wildlife Management Area. The purpose of the limitation was to ensure that the treated wastewater discharged to the Wildlife Management Area for the purpose of enhancing wetland and riparian habitat and for temporary storage of treated

effluent would not contain concentrations of residual chlorine that could impair the function of the Wildlife Management Area.

5. RATIONALE FOR RECEIVING WATER LIMITATIONS

5.1. 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. Chemical and biological survey data are necessary to ensure compliance with Basin Plan objectives.

The dissolved oxygen limitation in this Order reflects the new Basin Plan dissolved oxygen limit that was adopted by the Regional Water Board on June 18, 2015, and effective beginning April 24, 2017, after receiving approval from U.S. EPA. The new Basin Plan dissolved oxygen limitation specifies limits for the WARM, COLD, and SPWN beneficial uses. The COLD and SPWN beneficial uses occur in Humboldt Bay and its tributaries. This Order includes only the SPWN limitations because it is the most restrictive and protective limit and the SPWN beneficial use is present throughout the entire discharge season.

5.2. Groundwater

Groundwater limitations are included in this Order to protect the beneficial uses of the underlying groundwater. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, agricultural supply, and freshwater replenishment to surface waters. Discharges from the Facility shall not cause exceedance of applicable water quality objectives or create adverse impacts to beneficial uses of groundwater. Groundwater data must be evaluated using appropriate statistical tools to determine when groundwater degradation is occurring.

The Basin Plan further requires that groundwaters shall not contain toxic substances in concentrations that are toxic to, or that produce detrimental physiological responses in humans, or that adversely affects beneficial uses. This limitation applies regardless of whether the toxicity is caused by a single substance or the synergistic effect of multiple substances.

6. RATIONALE FOR PROVISIONS

6.1. Standard Provisions

6.1.1. Federal Standard Provisions

Standard Provisions, which apply to all NPDES permits in accordance with 40 C.F.R. section 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 C.F.R. section 122.42, are provided in Attachment D to the Order. The Permittee must comply with all standard provisions and with those additional conditions that are applicable under 40 C.F.R. section 122.42. The rationale for the special conditions contained in the Order is provided in section 6.2, below.

Sections 122.41(a)(1) and (b) through (n) of 40 C.F.R. 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 40 C.F.R. section 123.25, this Order omits federal conditions that address enforcement authority specified in 40 C.F.R. 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).

6.1.2. Regional Water Board Standard Provisions

In addition to the Federal Standard Provisions (Attachment D), the Permittee shall comply with the Regional Water Board Standard Provisions provided in Standard Provisions 6.1.2 of the Order.

6.1.2.1. Order Provision 6.1.2.1 identifies the state's enforcement authority under the Water Code, which is more stringent than the enforcement authority specified in the federal regulations (e.g., 40 C.F.R. sections 122.41(j)(5) and (k)(2)).

6.1.2.2. Order Provision 6.1.2.2 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.

6.2. Special Provisions

6.2.1. Reopener Provisions

6.2.1.1. **Standard Revisions (Special Provision 6.3.1.1).** Conditions that necessitate a major modification of a permit are described in 40 C.F.R. section 122.62, which include the following:

6.2.1.1.1. 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.

6.2.1.1.2. When new information that was not available at the time of permit issuance would have justified different permit conditions at the time of issuance.

6.2.1.2. **Reasonable Potential (Special Provision 6.3.1.2).** 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.

6.2.1.3. **Species Sensitivity Screening (Special Provision 6.3.1.3).** This provision allows the Regional Water Board to modify this Order if the species sensitivity screening identifies a most sensitive species that is different than the most sensitive species already identified in the Order.

6.2.1.4. **Whole Effluent Toxicity (Special Provision 6.3.1.4).** 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, numeric acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE.

6.2.1.5. **303(d)-Listed Pollutants (Special Provision 6.3.1.5).** 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.

6.2.1.6. **Water Effects Ratios (WERs) and Metal Translators (Special Provision 6.3.1.6).** 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 WER or metal translator to a water quality objective for one or more priority pollutants.

6.2.1.7. **Mixing Zone Study (Special Provision 6.3.1.7).** This provision allows the Regional Water Board to reopen this Order if a future mixing zone study undertaken by the Permittee provides new information and justification for granting a mixing zone to the Facility.

6.2.1.8. **Nutrients (Special Provision 6.3.1.8).** This Order contains effluent limitations and effluent monitoring for ammonia. This provision allows the Regional Water Board to reopen this Order if future monitoring data indicates the need

for new or revised effluent limitations for additional nutrients (unionized ammonia, nitrate, nitrite, organic nitrogen, and total phosphorus).

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

6.2.2.1. **Pollutant Minimization Program (Special Provision 6.3.2.1).** This provision is included in this Order pursuant to 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.

6.2.3. **Construction, Operation, and Maintenance Specifications**

6.2.3.1. **Operation and Maintenance (Special Provisions 6.3.3.1 and 6.3.3.2).** 40 C.F.R. 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 manual, as required by Provision 6.3.3.2 of this Order, is an integral part of a well-operated and maintained facility.

6.2.3.2. **Septage Handling Requirements (Special Provision 6.3.3.3).** The Permittee currently accepts and treats septage at the Facility. Domestic septage is defined as the liquid or solid material removed from a septic tank, cesspool, portable toilet, type III marine sanitation device, recreational vehicle's sanitation tank, or similar storage or treatment works that receives only domestic septage. Septage is characterized by high organic strength, high solids content, high odor potential, high vector attraction potential, and high potential to pollute groundwater. Septage may be 6 to 80 times more concentrated than typical municipal wastewater and may also contain heavy metals and illicitly dumped hazardous materials. Septage has the potential to upset treatment plant operations or process performance or both if the plant is not designed to handle septage. Some of the impacts of septage addition to WWTFs include: potential toxic shock to biological processes; increased odor emissions; increased volume of grit, scum, screenings, and sludge; increased organic loading to biological processes; and increased housekeeping requirements. This Order requires the Permittee to manage septage accepted at the Facility in a manner that ensures that pollutants associated with domestic septage do not pass through or interfere with the operation or performance of the Facility.

6.2.4. **Special Provisions for Publicly-Owned Treatment Works (POTWs)**

6.2.4.1. **Wastewater Collection Systems (Special Provision 6.3.4.1)**

6.2.4.1.1. **Statewide General WDRs for Sanitary Sewer Systems.** On May 2, 2006, the State Water Board adopted General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ

(General Order). The General Order requires public agencies that own or operate sanitary sewer systems with greater than one 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.

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 Statewide General Waste Discharge Requirements for Sanitary Sewer Systems, 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. On August 6, 2013, the State Water Board adopted Order No. WQ 2013-0058-EXEC Amending Monitoring and Reporting Program for Statewide General Waste Discharge Requirements for Sanitary Sewer Systems. Order No. WQ 2013-0058-EXEC addressed compliance and enforceability of the Monitoring and Reporting Program and superseded the amendments in Order No. WQ-2008-0002-EXEC. Notification and reporting of SSOs is conducted in accordance with the requirements of Order Nos. 2006 0003 DWQ and WQ 2013-0058-EXEC, and any revisions thereto for operation of its wastewater collection system.

On December 6, 2022, the State Water Board adopted State Water Board Order No. WQ 2022-0103-DWQ, Statewide Waste Discharge Requirements, General Order for Sanitary Sewer Systems. This Order became effective on June 5, 2023, and replaces Order No. 2006-0003-DWQ and all associated amendments thereof.

6.2.5. **Pretreatment of Industrial Waste (Special Provision 6.3.4.2).** Section 402(b)(8) of the CWA requires that POTWs receiving pollutants from significant industrial sources subject to section 307(b) standards establish an industrial pretreatment program to ensure compliance with these standards. The implementing regulations at 40 C.F.R. section 403.8(a) state, "*any POTW (or combination of POTWs operated by the same authority) with a total design flow greater than 5 million gallons per day (mgd) and receiving from industrial users pollutants which pass through or interfere with operation of the POTW or are otherwise subject to pretreatment standards will be required to establish a POTW pretreatment program unless the NPDES State exercises its option to assume local responsibilities as provided in 403.10(e)*." The Facility is subject to pretreatment standards as described in section 307(b) of the CWA and 40 C.F.R. section 403.8(a).

6.2.6. **Sludge Disposal and Handling Requirements (Special Provision 6.3.4.3).** The disposal or reuse of wastewater treatment screenings, sludges, or other solids removed from the liquid waste stream is regulated by 40 C.F.R. parts 257, 258, 501, and 503, and the State Water Board promulgated provisions of title 27

of the CCR. All solids are currently transported and land applied as Class B biosolids to authorized properties.

6.2.7. **Operator Certification (Special Provision 6.3.4.4).** This provision requires the Facility to be operated by supervisors and operators who are certified as required by title 23, section 3680 of the CCR.

6.2.8. **Adequate Capacity (Special Provision 6.3.4.5).** 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.

6.2.9. **Other Special Provisions**

6.2.9.1. **Storm Water (Special Provision 6.3.5.1).** This provision requires the Permittee, if applicable, to obtain coverage under the State Water Board's Water Quality Order No. 2014-0057-DWQ, NPDES General Permit No. CAS000001, General Permit for Storm Water Discharges Associated with Industrial Activities (or subsequent renewed versions of the NPDES General Permit CAS000001). Currently, the Facility is exempted from these requirements based because all storm water falling within the Facility is routed to the Facility headworks for treatment.

The Order requires the Permittee to implement and maintain BMPs to control the run-on of storm water to the Facility and to describe the effectiveness of these storm water BMPs, as well as activities to maintain and upgrade these BMPs during the previous year, in its Annual Facility Report to the Regional Water Board.

6.2.9.2. **Humboldt Bay Management Plan (Special Provision 6.3.5.2).** This provision requires the Permittee to meet the mandatory notification requirements included in the latest version of the Humboldt Bay Management Plan issued by the California Department of Public Health for the protection of commercial shellfishing.

6.2.10. **Compliance Schedules**

This Order establishes compliance schedules for prohibitions but does not establish interim effluent limitations or schedules of compliance for final numeric effluent limitations.

7. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS

Section 122.48 of 40 C.F.R. requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code section 13383 authorizes the Regional Water Board to require technical and monitoring reports. The MRP, Attachment E, establishes monitoring and reporting requirements that implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the MRP for this Facility.

7.1. **Influent Monitoring**

7.1.1. Influent monitoring requirements at Monitoring Location INF-001 for BOD_5 and TSS are retained from Order No. R1-2016-0001 and are necessary to determine compliance with the Order's 85 percent removal requirement for these parameters.

7.1.2. Influent monitoring requirements for flow at Monitoring Location INF-001 are retained from Order No. R1-2016-0001 and are necessary to determine compliance with Discharge Prohibition 3.8 of this Order.

7.2. **Effluent Monitoring**

7.2.1. Effluent monitoring requirements are necessary to determine compliance with prohibitions and/or effluent limitations established by the Order. Monitoring at Monitoring Location EFF-001 is necessary to demonstrate compliance with effluent limitations and demonstrate whether or not the discharge poses reasonable potential for a pollutant to exceed any numeric or narrative water quality objectives.

7.2.1.1. Effluent monitoring frequencies and sample types for flow, BOD_5, TSS, settleable solids, turbidity, total residual chlorine, pH, temperature, cyanide, fecal coliform bacteria, and ammonia at Monitoring Location EFF-001 have been retained from Order No. R1-2016-0001.

7.2.1.2. Effluent monitoring data collected during the term of Order No. R1-2016-0001 indicates that the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives for alpha-endosulfan at Monitoring Location EFF-001; therefore, this Order establishes monthly monitoring requirements for alpha-endosulfan at Monitoring Location EFF-001.

7.2.1.3. Effluent monitoring data collected during the term of Order No. R1-2016-0001 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives for TCDD equivalents. Therefore, this Order discontinues effluent monitoring requirements for TCDD equivalents.

7.2.1.4. Effluent monitoring data collected during the term of Order No. R1-2016-0001 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives for copper. Therefore, this Order discontinues effluent monitoring requirements for copper.

7.2.1.5. Consistent with Order No. R1-2016-0001, this Order requires annual CTR priority pollutant monitoring in order to generate adequate data to perform an RPA.

7.2.1.6. Effluent monitoring for enterococci bacteria has been established at Monitoring Location EFF-001 in this Order to ensure that the discharge is protective of the water contact recreation beneficial use (REC-1). The monitoring for enterococci has been delayed until the Permittee can attain ELAP accreditation for enterococci testing, no later than December 1, 2025. If the Permittee is unable to obtain the services of an ELAP accredited lab within the deadline set forth in this Order, the Permittee may request, in writing, that the Regional Water Board Executive Officer grant an extension of the time. The extension request shall include justification for the delay and shall be submitted at least 30 days prior to the deadline to be considered timely.

7.3. Whole Effluent Toxicity Testing Requirements

Effluent monitoring data collected during the term of Order No. R1-2016-0001 indicates that the discharge exhibits reasonable potential to cause or contribute to an exceedance of water quality objectives for acute aquatic toxicity. Therefore, this Order retains quarterly effluent monitoring requirements for acute aquatic toxicity.

NPDES permits for POTW dischargers that are authorized to discharge at a rate equal to or greater than 5.0 MGD and are required to have a pretreatment program are required to include an effluent limitation for chronic aquatic toxicity as identified in section IV.B.2.c.i of the Toxicity Provisions. Furthermore, effluent data collected from the term of Order No. R1-2016-0001 also identifies that the discharge has reasonable potential to cause or contribute to an exceedance of water quality objectives for chronic aquatic toxicity. Therefore, this Order has a new monthly effluent monitoring requirements for chronic aquatic toxicity, in order to determine compliance with the newly-established effluent limitation for chronic toxicity.

In addition to routine toxicity monitoring, this Order requires the Permittee to maintain and update their TRE Work Plan, in accordance with appropriate U.S. EPA guidance, to ensure that 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 routine and MMEL testing for chronic aquatic toxicity.

The Toxicity Provisions allow the Regional Water Broad to use a species sensitivity screening generated within ten years prior to the renewal of this Permit when the data are representative of the effluent, the Regional Water Board accepts use of the data, the data are analyzed using the TST, and the data are from chronic aquatic testing of, at minimum, one vertebrate, one invertebrate, and one plant/algae from Table 1 of Section IV.B.1.b. of the Toxicity Provisions. The Regional Water Board has determined that the species sensitivity screening conducted in November 2016 meets the above requirements, and the species used for chronic toxicity monitoring shall be *Macrocystis pyrifera* until the Order is

modified to reflect a new most sensitive species, as identified by the required species sensitivity screening.

7.4. Land Discharge Monitoring Requirements – Not Applicable

This Order does not authorize discharges to land.

7.5. Recycling Monitoring Requirements

This Order does not authorize discharges of recycled water.

7.6. Receiving Water Monitoring

7.6.1. Surface Water

Receiving water monitoring requirements have been retained from Order No. R1-2016-0001 to better characterize the receiving water. Receiving water monitoring is conducted using equipment currently in place at the Chevron dock, accessed from the CeNCOOS website (http://www.cencoos.org/data/shore/humboldt). Additional bay monitoring locations have been identified within this Order at both the Samoa Boat Dock and the United States Coast Guard Station Humboldt Bay dock for new receiving water monitoring requirements. Should they so choose, and after they receive approval from the Executive Officer, the Permittee may propose and participate in group monitoring of the receiving water with other Permittee's discharging to Humboldt Bay.

Receiving water monitoring for enterococci bacteria has been established in this Order to assess compliance with bacteria WQOs in the vicinity of the Permittee's outfall. The monitoring for enterococci has been delayed until the Permittee can attain ELAP accreditation for enterococci testing, no later than December 1, 2025.

Receiving water monitoring for priority pollutants has been established in this Order to inform Regional Water Board staff of the reasonable potential for the Permittee to cause or contribute to an excursion above any priority pollutant water quality criteria or objective.

7.6.2. Groundwater – Not Applicable

This order does not require groundwater monitoring at this time.

7.7. Other Monitoring Requirements

7.7.1. **Disinfection System Monitoring.** During periods when high influent flow exceeds the hydraulic capacity of the Facility, excess flow from the effluent holding pond can be directed to a 13-acre freshwater holding marsh (Overflow Marsh) and pumped back to the effluent storage pond once flows subside.

Although the Overflow Marsh is a component of the Facility, monitoring of treated wastewater from the effluent storage pond to the Overflow Marsh is required to ensure that the discharge does not contain concentrations of residual chlorine that could impair the biological function of the marsh, which provides beneficial wildlife habitat. The requirement that the discharge to this area contains no detectable level of chlorine, using a minimum detection limit of 0.01 mg/L, is retained from Order No. R1-2016-0001.

7.7.2. **Bypass Monitoring.** During periods when high influent flow exceeds the hydraulic capacity of the Facility, effluent bypassing secondary treatment overflows into the effluent holding pond, in violation of Discharge Prohibitions 3.1 and 3.5 established in Order No. R1-2016-0001. The Permittee could not, feasibly, comply with these Discharge Prohibitions in a short period of time as new or modified control measures are dependent on the completion of a series of studies, so the Regional Water Board issued CDO No. R1-2016-0012 (as amended by Modification Order No. R1-2020-0021), establishing compliance schedules for the Permittee to achieve compliance with Discharge Prohibitions 3.1 and 3.5. The compliance schedule established in the CDO accounted for the considerable uncertainty in determining effective measures necessary to achieve compliance with Order No. R1-2016-0001 and was based on reasonably expected times needed to evaluate potential compliance measures in a step-wise manner. This CDO is proposed to be rescinded with this Order. Therefore, the Compliance Schedule included in this Order provides until July 1, 2028 for the Permittee to come into compliance with Discharge Prohibition 3.5, so monitoring of primary treated wastewater bypassing secondary treatment is required in this Order to monitor the volume of partially treated wastewater and concentrations of BOD_5 and TSS combining with the stored, secondary-treated effluent.

7.7.3. **Septage Station Monitoring.** The Permittee currently accepts and treats septage at the Facility. Consistent with Order No. R1-2016-0001, this Order includes septage monitoring requirements, at Monitoring Location SEP-001, to characterize discharges of septage into the treatment system and to ensure that pollutants associated with domestic septage do not pass through or interfere with the operation or performance of the Facility.

7.7.4. **Sludge Monitoring.** Sludge monitoring requirements at Monitoring Location BIO-001 serve as a basis for the Permittee to develop the Sludge Handling and Disposal Activity Report that is required as part of the Annual Report pursuant to section 9.5.2 of the MRP.

7.7.5. **Visual Monitoring.** Visual monitoring requirements for the effluent (Monitoring Location EFF-001) and the receiving water (Monitoring Location RSW-001) have been added to ensure compliance with receiving water limitations in section 5 of the Order.

7.7.6. **Outfall Inspection.** Consistent with Order No. R1-2016-0001, this Order requires the Permittee to inspect the outfall location to determine the structural integrity and operational status of the outfall structure at least once during the term of the permit. This requirement is required to demonstrate proper operation and maintenance of the POTW as required by 40 C.F.R. section 122.4, and to ensure that the calculated minimum probable initial dilution is not compromised as a result of unanticipated structural or operational changes in the outfall structure.

7.7.7. **Discharge Monitoring Report-Quality Assurance (DMR-QA) Study Program**

Under the authority of section 308 of the CWA (33 U.S.C. § 1318), U.S. EPA requires major and selected minor Permittees under the NPDES Program to participate in the annual DMR-QA Study Program. The DMR-QA Study evaluates the analytical ability of laboratories that routinely perform or support self-monitoring analyses required by NPDES permits. There are two options to satisfy the requirements of the DMR-QA Study Program: (1) The Permittee can obtain and analyze a DMR-QA sample as part of the DMR-QA Study; or (2) Per the waiver issued by U.S. EPA to the State Water Board, the Permittee can submit the results of the most recent Water Pollution Performance Evaluation Study from its own laboratories or its contract laboratories. A Water Pollution Performance Evaluation Study is similar to the DMR-QA Study. Thus, it also evaluates a laboratory's ability to analyze wastewater samples to produce quality data that ensure the integrity of the NPDES Program. The Permittee shall ensure that the results of the DMR-QA Study or the results of the most recent Water Pollution Performance Evaluation Study are submitted annually to the State Water Board. The State Water Board's Quality Assurance Program Officer will send the DMR-QA Study results or the results of the most recent Water Pollution Performance Evaluation Study to U.S. EPA's DMR-QA Coordinator and Quality Assurance Manager.

7.7.8. **Flow Monitoring.** Section 1.4 of the MRP requires proper installation, calibration, operation, and maintenance of flow metering devices to provide accurate flow monitoring as required to determine compliance with the discharge prohibitions contained in this Order.

7.7.9. **Spill Notification.** The MRP that is part of this Order establishes requirements for reporting spills and unauthorized discharges, with the exception of SSOs, which must be reported in accordance with the requirements of State Water Board Order No. 2022-0103-DWQ and any future revisions.

7.8. **Special Studies and Additional Monitoring Requirements**

7.8.1. **Source Control and Pretreatment Studies.** This Order requires the Permittee to update its pretreatment program that conforms to Federal regulations. Thus, in order to prevent interference with the POTW or pass through of pollutants to the receiving water, this Order requires the Permittee to update its approved

pretreatment program by conducting a local limits study and review and update, if necessary, its sewer use ordinances, legal authority, enforcement response plan and list of industrial users

8. PUBLIC PARTICIPATION

The California Regional Water Quality Control Board, North Coast Region (North Coast Regional Water Board) is considering the issuance of waste discharge requirements (WDRs) that will serve as an National Pollutant Discharge Elimination System (NPDES) permit for the City of Eureka, Elk River Wastewater Treatment Plant. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs and has encouraged public participation in the WDR adoption process.

8.1. Notification of Interested Parties

The Regional Water Board notified the Permittee and interested agencies and persons of its intent to prescribe WDRs for the discharge and provided an opportunity to submit 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 10, 2023.**

The public had access to the agenda and any changes in dates and locations through the Regional Water Board's website at: http://www.waterboards.ca.gov/northcoast/public_notices/public_hearings/npdes_permits_and_wdrs.shtml.

8.2. Written Comments

Interested persons were invited to submit written comments concerning these tentative WDRs as provided through the notification process. Comments were due to the Regional Water Board Executive Office electronically via e-mail to NorthCoast@waterboards.ca.gov or on disk (CD or DCD) in Portable Document Format (PDF) file in lieu of paper-sourced documents. The guidelines for electronic submittal of documents can be found on the Regional Water Board website at http://www.waterboards.ca.gov/northcoast.

To be fully responded to by staff and considered by the Regional Water Board, the written comments were due at the Regional Water Board office by 5:00 p.m. on **April 14, 2023.**

8.3. Public Hearing

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

Date: **October 5-6, 2023**
Time: 9:00 a.m. or as announced in the Regional Water Board's agenda
Location: Eureka City Hall Council Chambers
531 K Street
Eureka, CA 95501

Interested persons were invited to attend. At the public hearing, the Regional Water Board heard testimony pertinent to the discharge, WDRs, and permit. For accuracy of the record, important testimony was requested in writing.

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

8.4. Waste Discharge Requirements and Petitions

Any person aggrieved by this action of the Regional Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., within 30 calendar days of the date of adoption of this Order at the following address, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day:

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

Or by email at waterqualitypetitions@waterboards.ca.gov

For instructions on how to file a petition for review, see the at Water Quality Petitions Website
http://www.waterboards.ca.gov/public_notices/petitions/water_quality/wqpetition_instr.shtml

8.5. Information and Copying

The Report of Waste Discharge, other supporting documents, and comments received 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.

8.6. 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.

8.7. Additional Information

Requests for additional information or questions regarding this order should be directed to Justin McSmith at Justin.McSmith@waterboards.ca.gov or (707) 576-2082.

Attachment F-1. Wastewater Treatment Facility RPA Summary

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
Antimony	µg/L	=	19	--	--	No Criteria	--	--	--	--	--	--	--	No
Arsenic	µg/L	=	2	--	--	36	340	150	69.00	36.00	--	--	--	No
Beryllium	µg/L	=	0.78	--	--	No Criteria	--	--	--	--	--	--	--	No
Cadmium	µg/L	<	0.2	--	--	7.3	21.6	7.3	42.25	9.36	--	--	--	No
Chromium (III)	µg/L	--	--	--	--	644	5404.6	644.2	--	--	--	--	--	No
Chromium (VI)	µg/L	=	1.4	--	--	11	16	11	1107.75	50.35	--	--	--	No
Copper	µg/L	=	42	--	--	47	651[3]	384[3]	72.87[5]	47.06[5]	--	--	--	No
Lead	µg/L	<	0.2	--	--	8.5	476.8	18.58	221	8.52	--	--	--	No
Mercury	µg/L	<	0.045	--	--	No Criteria	--	--	--	--	--	--	--	No
Nickel	µg/L	=	5	--	--	8	1515.9	168.5	75	8.3	--	--	--	No
Selenium	µg/L	=	3.8	--	--	5	--	5	291	71	--	--	--	No
Silver	µg/L	=	1.3	--	--	2.2	44.0	--	2.24		--	--	--	No
Thallium	µg/L	<	0.2	--	--	No Criteria	--	--	--	--	--	--	--	No
Zinc	µg/L	=	70	--	--	86	387.8	387.8	95	85.6	--	--	--	No
Cyanide	µg/L	=	2.9	--	--	1.0	22	5.20	1.00	1.00	--	--	--	Yes
Asbestos	µg/L	--	--	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
2,3,7,8 TCDD	µg/L	<	2.09E-07	--	--	No Criteria	--	--	--	--	--	--	--	No
Acrolein	µg/L	<	0.33	--	--	No Criteria	--	--	--	--	--	--	--	No
Acrylonitrile	µg/L	<	0.19	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzene	µg/L	<	0.28	--	--	No Criteria	--	--	--	--	--	--	--	No
Bromoform	µg/L	<	0.32	--	--	No Criteria	--	--	--	--	--	--	--	No
Carbon Tetrachloride	µg/L	<	0.44	--	--	No Criteria	--	--	--	--	--	--	--	No
Chlorobenzene	µg/L	<	0.2	--	--	No Criteria	--	--	--	--	--	--	--	No
Chlorodibromomethane	µg/L	=	2.1	--	--	No Criteria	--	--	--	--	--	--	--	No
Chloroethane	µg/L	<	0.13	--	--	No Criteria	--	--	--	--	--	--	--	No
2-Chloroethylvinyl ether	µg/L	--	--	--	--	No Criteria	--	--	--	--	--	--	--	No
Chloroform	µg/L	=	5.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Dichlorobromomethane	µg/L	=	5	--	--	No Criteria	--	--	--	--	--	--	--	No
1,1-Dichloroethane	µg/L	<	0.29	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
1,2-Dichloroethane	µg/L	<	0.32	--	--	No Criteria	--	--	--	--	--	--	--	No
1,1-Dichloroethylene	µg/L	<	0.33	--	--	No Criteria	--	--	--	--	--	--	--	No
1,2-Dichloropropane	µg/L	<	0.25	--	--	No Criteria	--	--	--	--	--	--	--	No
1,3-Dichloropropylene	µg/L	<	0.47	--	--	No Criteria	--	--	--	--	--	--	--	No
Ethylbenzene	µg/L	<	0.2	--	--	No Criteria	--	--	--	--	--	--	--	No
Methyl Bromide	µg/L	=	0.6	--	--	No Criteria	--	--	--	--	--	--	--	No
Methyl Chloride	µg/L	=	0.25	--	--	No Criteria	--	--	--	--	--	--	--	No
Methylene Chloride	µg/L	<	0.14	--	--	No Criteria	--	--	--	--	--	--	--	No
1,1,2,2-Tetrachloroethane	µg/L	<	0.16	--	--	No Criteria	--	--	--	--	--	--	--	No
Tetrachloroethylene	µg/L	<	0.23	--	--	No Criteria	--	--	--	--	--	--	--	No
Toluene	µg/L	=	0.62	--	--	No Criteria	--	--	--	--	--	--	--	No
1,2-Trans-Dichloroethylene	µg/L	<	0.26	--	--	No Criteria	--	--	--	--	--	--	--	No
1,1,1-Trichloroethane	µg/L	<	0.31	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
1,1,2-Trichloroethane	µg/L	<	0.31	--	--	No Criteria	--	--	--	--	--	--	--	No
Trichloroethylene	µg/L	<	0.25	--	--	No Criteria	--	--	--	--	--	--	--	No
Vinyl Chloride	µg/L	<	0.07	--	--	No Criteria	--	--	--	--	--	--	--	No
2-Chlorophenol	µg/L	<	0.53	--	--	No Criteria	--	--	--	--	--	--	--	No
2,4-Dichlorophenol	µg/L	<	0.7	--	--	No Criteria	--	--	--	--	--	--	--	No
2,4-Dimethylphenol	µg/L	<	0.59	--	--	No Criteria	--	--	--	--	--	--	--	No
2-Methyl- 4,6-Dinitrophenol	µg/L	<	0.74	--	--	No Criteria	--	--	--	--	--	--	--	No
2,4-Dinitrophenol	µg/L	<	0.51	--	--	No Criteria	--	--	--	--	--	--	--	No
2-Nitrophenol	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
4-Nitrophenol	µg/L	<	0.55	--	--	No Criteria	--	--	--	--	--	--	--	No
3-Methyl 4-Chlorophenol	µg/L	<	0.67	--	--	No Criteria	--	--	--	--	--	--	--	No
Pentachlorophenol	µg/L	<	0.97	--	--	7.90	16	12	13	7.9	--	--	--	No
Phenol	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
2,4,6-Trichlorophenol	µg/L	<	0.71	--	--	No Criteria	--	--	--	--	--	--	--	No
Acenaphthene	µg/L	<	0.27	--	--	No Criteria	--	--	--	--	--	--	--	No
Acenaphthylene	µg/L	<	0.011	--	--	No Criteria	--	--	--	--	--	--	--	No
Anthracene	µg/L	<	0.029	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzidine	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzo(a)Anthracene	µg/L	<	0.023	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzo(a)Pyrene	µg/L	<	0.03	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzo(b)Fluoranthene	µg/L	<	0.03	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzo(ghi)Perylene	µg/L	<	0.029	--	--	No Criteria	--	--	--	--	--	--	--	No
Benzo(k)Fluoranthene	µg/L	<	0.029	--	--	No Criteria	--	--	--	--	--	--	--	No
Bis(2-Chloroethoxy) Methane	µg/L	<	0.55	--	--	No Criteria	--	--	--	--	--	--	--	No
Bis(2-Chloroethyl) Ether	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Bis(2-Chloroisopropyl) Ether	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
Bis(2-Ethylhexyl) Phthalate	µg/L	=	3.2	--	--	No Criteria	--	--	--	--	--	--	--	No
4-Bromophenyl Phenyl Ether	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Butylbenzyl Phthalate	µg/L	<	1.2	--	--	No Criteria	--	--	--	--	--	--	--	No
2-Chloronaphthalene	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
4-Chlorophenyl Phenyl Ether	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Chrysene	µg/L	<	0.028	--	--	No Criteria	--	--	--	--	--	--	--	No
Dibenzo(a,h)Anthracene	µg/L	<	0.027	--	--	No Criteria	--	--	--	--	--	--	--	No
1,2-Dichlorobenzene	µg/L	<	0.19	--	--	No Criteria	--	--	--	--	--	--	--	No
1,3-Dichlorobenzene	µg/L	<	0.18	--	--	No Criteria	--	--	--	--	--	--	--	No
1,4-Dichlorobenzene	µg/L	<	0.23	--	--	No Criteria	--	--	--	--	--	--	--	No
3,3 Dichlorobenzidine	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Diethyl Phthalate	µg/L	<	0.54	--	--	No Criteria	--	--	--	--	--	--	--	No
Dimethyl Phthalate	µg/L	<	1.1	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
Di-n-Butyl Phthalate	µg/L	<	0.73	--	--	No Criteria	--	--	--	--	--	--	--	No
2,4-Dinitrotoluene	µg/L	<	0.59	--	--	No Criteria	--	--	--	--	--	--	--	No
2,6-Dinitrotoluene	µg/L	<	0.77	--	--	No Criteria	--	--	--	--	--	--	--	No
Di-n-Octyl Phthalate	µg/L	<	0.72	--	--	No Criteria	--	--	--	--	--	--	--	No
1,2-Diphenylhydrazine	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Fluoranthene	µg/L	<	0.033	--	--	No Criteria	--	--	--	--	--	--	--	No
Fluorene	µg/L	<	0.15	--	--	No Criteria	--	--	--	--	--	--	--	No
Hexachlorobenzene	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Hexachlorobutadiene	µg/L	--	--	--	--	No Criteria	--	--	--	--	--	--	--	No
Hexachlorocyclopentadiene	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Hexachloroethane	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
Indeno(1,2,3-cd)Pyrene	µg/L	<	0.035	--	--	No Criteria	--	--	--	--	--	--	--	No
Isophorone	µg/L	<	0.55	--	--	No Criteria	--	--	--	--	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
Naphthalene	µg/L	<	0.018	--	--	No Criteria	--	--	--	--	--	--	--	No
Nitrobenzene	µg/L	<	0.52	--	--	No Criteria	--	--	--	--	--	--	--	No
N-Nitrosodimethylamine	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
N-Nitrosodi-n-Propylamine	µg/L	<	0.5	--	--	No Criteria	--	--	--	--	--	--	--	No
N-Nitrosodiphenylamine	µg/L	<	0.71	--	--	No Criteria	--	--	--	--	--	--	--	No
Phenanthrene	µg/L	<	0.012	--	--	No Criteria	--	--	--	--	--	--	--	No
Pyrene	µg/L	<	0.04	--	--	No Criteria	--	--	--	--	--	--	--	No
1,2,4-Trichlorobenzene	µg/L	--	--	--	--	No Criteria	--	--	--	--	--	--	--	No
Aldrin	µg/L	<	0.0016	--	--	1.30	3	--	1.3	--	--	--	--	No
alpha-BHC	µg/L	<	0.0016	--	--	No Criteria	--	--	--	--	--	--	--	No
beta-BHC	µg/L	<	0.0018	--	--	No Criteria	--	--	--	--	--	--	--	No
gamma-BHC	µg/L	<	0.0014	--	--	0.160	0.95	--	0.16	--	--	--	--	No
delta-BHC	µg/L	<	0.0014	--	--	No Criteria	--	--	--	--	--	--	--	No
Chlordane	µg/L	<	0.02	--	--	0.004	2.4	0.0043	0.09	0.004	--	--	--	No

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential
4,4'-DDT	µg/L	<	0.001	--	--	0.001	1.1	0.001	0.13	0.001	--	--	--	No
4,4'-DDE	µg/L	=	0.02	--	--	No Criteria	--	--	--	--	--	--	--	No
4,4'-DDD	µg/L	<	0.0024	--	--	No Criteria	--	--	--	--	--	--	--	No
Dieldrin	µg/L	<	0.0015	--	--	0.0019	0.24	0.056	0.71	0.0019	--	--	--	No
alpha-Endosulfan	µg/L	=	0.0089	--	--	0.009	0.22	0.056	0.034	0.0087	--	--	--	Yes
beta-Endolsulfan	µg/L	<	0.00092	--	--	0.009	0.22	0.056	0.034	0.0087	--	--	--	No
Endosulfan Sulfate	µg/L	<	0.0018	--	--	No Criteria	--	--	--	--	--	--	--	No
Endrin	µg/L	<	0.0019	--	--	0.002	0.086	0.036	0.037	0.0023	--	--	--	No
Endrin Aldehyde	µg/L	<	0.002	--	--	No Criteria	--	--	--	--	--	--	--	No
Heptachlor	µg/L	<	0.0018	--	--	0.0036	0.52	0.0038	0.053	0.0036	--	--	--	No
Heptachlor Epoxide	µg/L	<	0.0012	--	--	0.0036	0.52	0.0038	0.053	0.0036	--	--	--	No
PCBs sum	µg/L	<	0.05	--	--	0.014	--	0.014	--	0.03	--	--	--	No
Toxaphene	µg/L	<	0.038	--	--	0.00020	0.73	0.0002	0.21	0.0002	--	--	--	No
Ammonia	mg/L	=	18	--	--	1.33	--	--	8.85	1.33	--	--	--	Yes
TCDD Equivalents	µg/L	<	0.000000178	--	--	No Criteria	--	--	--	--	--	--	--	No

Table Notes

1. Receiving Water monitoring data was not required under Order R1-2016-0001.
2. Water quality criteria for the protection of freshwater aquatic life.

Pollutant	Units	Qualifier	MEC	Qualifier	B[1]	C	CMC[2]	CCC[2]	CMC[3]	CCC[3]	Water & Org[4]	Org Only[4]	MCL[4]	Reasonable Potential

3. Water quality criteria for the protection of saltwater aquatic life.
4. The Basin Plan designates a beneficial use of municipal and domestic supply (MUN) to Humboldt Bay. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which establishes state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for MUN. Salinity in Humboldt Bay in the vicinity of the discharge exceeds the salinity threshold in Resolution No. 88-63 of 5,000 µS/cm. Therefore, consistent with Order No. R1-2016-0001, MCLs and CTR human health criteria for consumption of water and organisms were not considered when conducting the RPA.
5. Water quality criteria calculated using a WER of 12.6 for Discharge Point 001.

ATTACHMENT G - AMEL AND MDEL AMMONIA STANDARDS BASED ON THE 1989 SALTWATER ACUTE CRITERIA

Table G-1. pH, Salinity, and Temperature Dependent AMEL Ammonia Standards

	Temperature, °C							
pH	0	5	10	15	20	25	30	35
	Salinity = 10 g/kg							
7.0	30	21	15	10	6.9	4.8	3.2	2.3
7.2	19	13	8.8	6.4	4.3	3.0	2.0	1.5
7.4	12	8.8	5.7	3.9	2.7	1.9	1.3	0.88
7.6	7.3	5.3	3.7	2.5	1.8	1.2	0.88	0.61
7.8	4.8	3.4	2.3	1.6	1.1	0.80	0.55	0.39
8.0	3.0	2.1	1.5	1.0	0.71	0.50	0.34	0.25
8.2	2.0	1.3	1.0	0.64	0.45	0.32	0.23	0.17
8.4	1.2	0.88	0.59	0.41	0.30	0.21	0.15	0.12
8.6	0.80	0.55	0.39	0.27	0.20	0.15	0.11	0.08
8.8	0.50	0.37	0.25	0.18	0.13	0.10	0.08	0.06
9.0	0.32	0.23	0.17	0.12	0.10	0.07	0.06	0.05
	Salinity = 20 g/kg							
7.0	32	22	15	10	7.1	4.8	3.4	2.3
7.2	20	14	9.5	6.6	4.5	3.2	2.2	1.5
7.4	13	8.8	5.9	4.1	3.0	2.0	1.4	0.95
7.6	8.0	5.5	3.9	2.5	1.8	1.2	0.88	0.61
7.8	5.0	3.4	2.5	1.7	1.2	0.80	0.57	0.39
8.0	3.2	2.2	1.5	1.1	0.73	0.53	0.37	0.25
8.2	2.0	1.4	0.95	0.69	0.48	0.34	0.23	0.18
8.4	1.3	0.88	0.61	0.43	0.32	0.22	0.16	0.12
8.6	0.80	0.57	0.41	0.30	0.20	0.15	0.11	0.09

	Temperature, °C							
8.8	0.53	0.37	0.27	0.19	0.14	0.10	0.08	0.06
9.0	0.34	0.25	0.18	0.13	0.10	0.07	0.06	0.05
	Salinity = 30 g/kg							
7.0	34	23	16	11	8.0	5.3	3.7	2.5
7.2	21	15	10	7.1	4.8	3.4	2.3	1.6
7.4	14	9.5	6.4	4.1	3.0	2.1	1.5	1.0
7.6	8.8	5.9	4.1	2.7	2.3	1.3	0.95	0.66
7.8	5.5	3.7	2.5	1.8	1.2	0.88	0.59	0.41
8.0	3.4	2.3	1.6	1.2	0.80	0.55	0.39	0.27
8.2	2.2	1.5	1.0	0.73	0.50	0.37	0.25	0.18
8.4	1.4	0.95	0.66	0.45	0.32	0.23	0.17	0.12
8.6	0.88	0.61	0.43	0.30	0.22	0.16	0.12	0.09
8.8	0.57	0.39	0.27	0.20	0.15	0.11	0.08	0.07
9.0	0.37	0.25	0.19	0.14	0.10	0.08	0.06	0.05

Table G-2. pH, Salinity, and Temperature Dependent MDEL Ammonia Criteria

	Temperature, °C							
pH	0	5	10	15	20	25	30	35
	Salinity = 10 g/kg							
7.0	75	53	36	25	17	12	8.0	5.6
7.2	47	33	22	16	11	7.5	5.1	3.6
7.4	31	22	14	9.6	6.7	4.7	3.3	2.2
7.6	18	13	9.1	6.2	4.4	3.1	2.2	1.5
7.8	12	8.6	5.6	4.0	2.7	2.0	1.4	0.96
8.0	7.5	5.3	3.6	2.5	1.8	1.3	0.86	0.62

	Temperature, °C							
8.2	4.9	3.3	2.4	1.6	1.1	0.80	0.56	0.42
8.4	3.1	2.2	1.5	1.0	0.75	0.53	0.38	0.29
8.6	2.0	1.4	0.96	0.67	0.49	0.36	0.27	0.20
8.8	1.3	0.91	0.62	0.46	0.33	0.25	0.20	0.15
9.0	0.80	0.56	0.42	0.31	0.24	0.18	0.15	0.13
	Salinity = 20 g/kg							
7.0	80	55	38	25	18	12	8.6	5.6
7.2	49	35	24	16	11	8.0	5.5	3.8
7.4	33	22	15	10	7.5	4.9	3.5	2.4
7.6	20	14	10	6.2	4.6	3.1	2.2	1.5
7.8	13	8.6	6.2	4.2	2.9	2.0	1.4	0.96
8.0	8.0	5.5	3.8	2.7	1.8	1.3	0.91	0.62
8.2	5.1	3.5	2.4	1.7	1.2	0.86	0.56	0.44
8.4	3.3	2.2	1.5	1.1	0.80	0.55	0.40	0.29
8.6	2.0	1.4	1.0	0.75	0.51	0.36	0.27	0.22
8.8	1.3	0.91	0.67	0.47	0.35	0.25	0.20	0.15
9.0	0.86	0.62	0.44	0.33	0.24	0.18	0.15	0.13
	Salinity = 30 g/kg							
7.0	86	56	40	27	20	13	9.1	6.2
7.2	53	36	25	18	12	8.6	5.6	4.0
7.4	35	24	16	10	7.5	5.3	3.6	2.5
7.6	22	15	10	6.7	5.6	3.3	2.4	1.6
7.8	14	9.1	6.2	4.4	3.1	2.2	1.5	1.0
8.0	8.6	5.6	4.0	2.9	2.0	1.4	0.96	0.67
8.2	5.5	3.8	2.5	1.8	1.3	0.91	0.62	0.46

	Temperature, °C							
8.4	3.5	2.4	1.6	1.1	0.80	0.56	0.42	0.31
8.6	2.2	1.5	1.1	0.75	0.55	0.40	0.29	0.22
8.8	1.4	0.96	0.67	0.49	0.36	0.27	0.20	0.16
9.0	0.91	0.62	0.47	0.35	0.25	0.20	0.15	0.13

ATTACHMENT H - EXAMPLE AMMONIA IMPACT RATIO (AIR) CALCULATOR

A	B	C	D	E	F	G	H	I	J
Date of Sample	Ammonia Value in Effluent (mg/L N)	Dilution Ratio + 1 (32)	Receiving Water pH	Receiving Water Temperature (°C)	Receiving Water Salinity (g/kg)	MDEL Ammonia Standard as determined from Ammonia Criteria Tables	AMEL Ammonia Standard as determined from Ammonia Criteria Tables	MDEL Ammonia Impact Ratio (Column B/ (Column G*Column C))	AMEL Ammonia Impact Ratio (Column B/ (Column H* Column C))

ATTACHMENT I - ELK RIVER ESTUARY TIDAL ENHANCEMENT PROJECT DESCRIPTION

1. INTRODUCTION

The Elk River is the largest and most ecologically significant river entering Humboldt Bay. Ecological values of the Elk River include Old Growth Redwoods, Marbled Murrelet, Bald Eagle, Coho and Chinook Salmon, and Steelhead, all of which utilize estuarine habitat for rearing and foraging. This watershed is heavily impacted by upstream land use including grazing, farming, and timber harvesting, which have significantly impacted water quality, hydrology, and sediment transport. Figure 3 is included showing the scale of Elk River Watershed. Structures such as roadways, dikes and tide gates restrict natural hydrology and sediment accretion, create barriers to fish passage, and degrade wildlife habitat. The City of Eureka seeks to improve these issues through the development of the Elk River Tidal Enhancement Project (The Project).

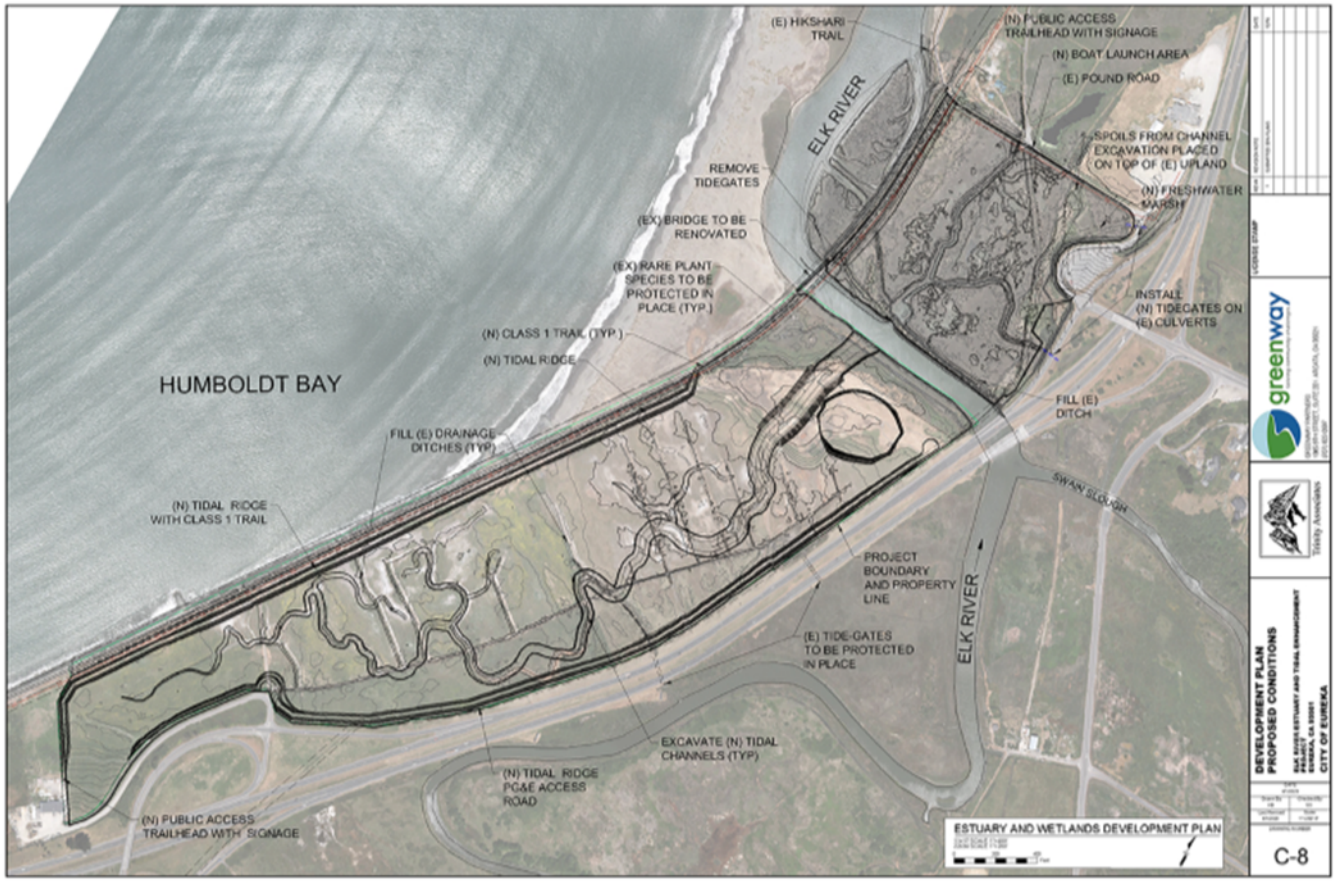
Figure 1: South Bank of the Elk River Looking East from Existing Bridge

2. PROJECT SUMMARY

The Project will restore and enhance estuary and inter-tidal wetland habitats on approximately 114 acres adjacent to Elk River, create approximately 2.8 miles of navigable tidal slough channels connecting to the Elk River Estuary, as well as provide public access amenities to Elk River and Humboldt Bay with a one mile extension of Class 1 ADA-compliant Waterfront Trail , the construction of a non-motorized boat access point, a trailhead parking area off Tooby Road and, in a later phase, an Elk River Interpretive Center.

The Project area currently consists of pasture, coastal scrub, degraded seasonal wetlands dominated by pasture grasses, and salt marsh dominated by invasive Spartina (Spartina densiflora), lacking key ecosystem processes such as tidal exchange. The Project will restore a functioning tidal marsh complex with native vegetation and a network of tidal channels to allow for full tidal exchange with Elk River Slough. This will require the conversion of some degraded seasonal freshwater and brackish wetlands, currently used for livestock grazing, to inter-tidal wetlands (salt marsh) and tidal channels (open water, Eelgrass habitat, and mud flat).

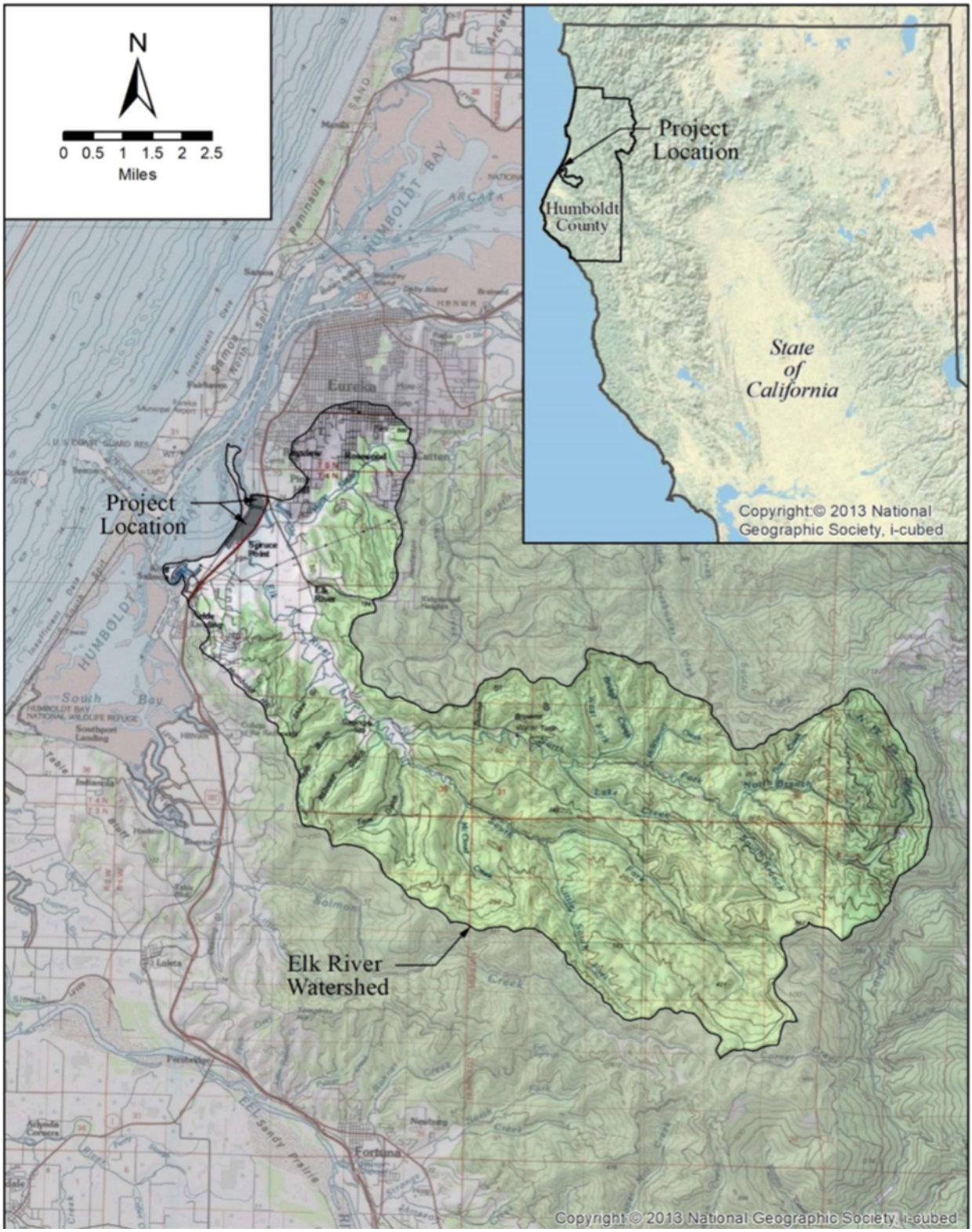
Figure 2: Proposed Site Plan of the Elk River Tidal Enhancement Project



2.1. Location

The Project is bound by U.S. Highway 101 and Humboldt County's Tooby Road on the east and the North Coast Railroad Authority (NCRA) right of way on the west. The City's Waterfront Trail, wastewater treatment facility, and private properties border the project on the north. The southern project boundary is bordered by private property. The entire site is owned by the City of Eureka.

Figure 3: Map of the Elk River Watershed



2.2. **Estuary Function**

The Elk River Estuary provides a critical opportunity to rebuild a portion of the lost tidal marsh systems around Humboldt Bay. Between the years 1870 and 1910, Humboldt Bay lost an estimated 90% of its salt marsh and wetland habitat due to diking and draining for agricultural and railroad purposes (Shapiro and Associates, 1980). The estuary is currently very limited in area and habitat diversity. It has generally become a three-mile long, linear, diked slough channel with very few tidal marsh areas.

Healthy tidal marsh systems provide invaluable nutrients within an estuary ecosystem. An estuary is an enclosed body of brackish water formed by part saline water from ocean tides, along with freshwater flows from steams or rivers. The combination of seawater and freshwater produce high level of nutrients in the water column. A tidal marsh is a unique feature within an estuary where the area floods and drains based upon the tidal influence. The proposed project will create a functioning tidal marsh system across more than 100 acres to provide these unique habitat and water quality benefits.

3. **SUMMARY OF PROPOSED ACTIONS**

The Project site is organized as Area 1 to the north of Elk River and Area 2 to the south of Elk River. Area 1 is approximately 25 acres of degraded inter-tidal wetland that will be restored by removing the riverfront levee and tide gate infrastructure, and excavating slough channels, integrating salt marsh plains, and public access via extension of the City's Waterfront Trail. A simplified list of the proposed actions and sequence for Area 1:

- Re-contour the entire site and expand existing channel: Excavate and enlarge (widen and deepen) inter-tidal channels. Excavate approximately 3,385 ft of existing and 2,394 ft of new inter-tidal channels and excavate and intersperse tidal ponds or depressions in channels.

- Repurpose the excavated soil material to create sloped channel edges and marsh plains. Fill artificial depressions and levee borrow ditches, and create tidal mounds/hummocks (islands). Provide cover for wildlife and create habitat diversity by placing wood debris on site.

- Remove non-native vegetation, specifically eradicate 20 acres of invasive Spartina, and revegetate the site over multiple years.

- Excavate and remove interior, exterior dikes and Elk River tide gates allowing river currents and tidal slough currents to travel into the project Area.

- Construct public access amenities: Install non-motorized boat access near the terminus of Pound Road. Extend the Waterfront Trail 1,000 feet from its existing terminus at Pound Road, southward parallel to the railroad grade to

Elk River. Design and construct the future Interpretive Center facility north of Pound Road.

Figure 4: Elk River Estuary Tidal Enhancement Project, Areas 1 and 2

Figure 5: Looking West at High Tide in Area 1 at Spartina Dominated Salt Marsh.

Area 2 is approximately 89 acres located south of the Elk River. It is comprised of agricultural ditches, pasture, and degraded seasonal wetlands. The area is

separated from the Elk River on the north side by a natural windblown sand formation, parallel to Elk River Slough. Construction of a rock seawall and the railroad infrastructure on the west side has isolated Area 2 from Humboldt Bay. Most of Area 2 is drained by a network of linear agricultural ditches and there is no freshwater inflow. Area 2 will be converted to an inter-tidal wetland with a network of tidal slough channels. The channel area will be contained by tidal ridges (living shorelines) that will host riparian habitat as well as public access trails.

Generalized list of proposed actions and sequence for Area 2:

- Re-contour the area by excavating approximately 125,200 cubic yards to create a network of new inter-tidal channels. Use excavated material to fill agricultural ditches, and construct the design features such as sloped tidal ridge(s), marsh plains, and create depressions and mounds (tidal islands).

- Remove invasive vegetation, including Spartina, and install a variety of native vegetation types and create habitat features by placing woody debris.

- Construct public access amenities including new gravel parking area at the southern end of Tooby Road, and the Waterfront Trail Extension trail from the new parking lot northward to the Elk River.

Figure 6: Area 2 Existing Pastureland

3.1. Reclaim Historic Tidelands and Restore Elk River Floodplain

The lower portion of the Elk River watershed, has been impacted by urban development and human activities that encroach upon the floodplains and have affected the distribution and timing of drainage during rainfall and storm events.

The lower Elk River drains through fragmented floodplains, diked from floodplain overflow which means that the rain fall, and storm water is restricted and constrained between the dikes, roadways, culverts, pasture, degraded marsh, and man-made levees. Highway 101 bisects the Elk River floodplains controlling the drainage along its length. During extreme storm events the highway acts as a weir with water traveling through under-sized culverts and remaining water sheet-flowing across paved surfaces, pasture, and surrounding areas. Water on the east side of Highway 101 becomes trapped in upslope drainage ponds and contributes to localized flooding.

The Project area contains historical tidal wetlands that were diked off from the Elk River for agricultural and railroad purposes in the early 1900's. The Project site is situated between the railroad levee to the west and Highway 101 infrastructure to the east. These man-made structures trap storm water from draining. Additionally, the dikes, levees, and resulting sand deposits create a barrier to tidal activity within the project. As part of an effort to not increase flood levels on adjacent properties and critical infrastructure (Highway 101) this Project has gone through an iterative design process with design alteration based on hydraulic analysis. This led to the proposed project design that not only avoids increasing flood levels, it reduces them.

The Project will remove the riverfront dikes along the Elk River frontage to allow high-flowing turbid stormwater in the river channel to enter a newly constructed tidal channel flowing into and onto marsh plain surfaces. Stormwater will flow from the Elk River into project wetlands that serve as tidal marshes and stormwater flood basins. The proposed design allows for drainage into the Elk River though the newly constructed tidal channel mouth when river levels recede downstream as tides drop and when upstream floodwaters cease.

Not only will the Project result in a reduction of flooding for various adjacent areas, it will also reduce flooding in distant areas. During a large storm event, river flows will move down river, enter the Project site, and then be captured and detained within the Project. When the river levels then recede or the tide levels recede through a natural tidal cycle, water will naturally exit the Project area through the mouth of the channel and back into Elk River Estuary.

Figure 7:In Area 2 the Existing Degraded Pasture

The project team has analyzed the extreme (estimated 100-year recurrence interval) coastal and fluvial events in the Lower Elk River. The project has been designed to either pose no adverse impacts, or to lower adverse impacts to infrastructure such as Highway 101 and adjacent properties.

The design of elements to restore the floodplain directly addresses the exception criteria and evaluation metrics. As climate change causes larger and more extreme storm events, the new Project areas will provide capacity for stormwater, reduce localized flooding to adjacent properties, as well as reduce flooding upstream. As noted above, current stormwater often travels across paved surfaces, through man-made culverts and other infrastructure, carrying pollutants directly into the Elk River and Humboldt Bay. The Project provides a new mechanism to direct stormwater into a natural biologic system to filter pollutants and sediments before water is returned to the Elk River Slough, thereby improving water quality in Humboldt Bay.

Similarly, the Project will restore historic tidelands and provide an enhancement that is adaptive to Sea Level Rise (SLR). The hydrological design will provide longevity of the enhancement for a minimum of 30 years, is adaptable to SLR, is consistent with regional planning efforts toward SLR, and will ensure that the City can maintain the enhancement for its' useful life of 30 years.

Without these improvements to the historic tideland and floodplain, the storm flows and high tide events will continue to carry pollutants into Humboldt Bay. Without the Project, the beneficial uses of Humboldt Bay as well as water quality benefits cannot be achieved.

This demonstrates that the enhancement Project will create benefits that would not be present in the absence of the discharge, and the Project is a creation of unique benefits and enhancement to the receiving waters of Humboldt Bay. By approving the Project as an exception to the discharge permit, the Regional Water Board plays a role in protecting protect beneficial uses and yielding significant water quality improvements.

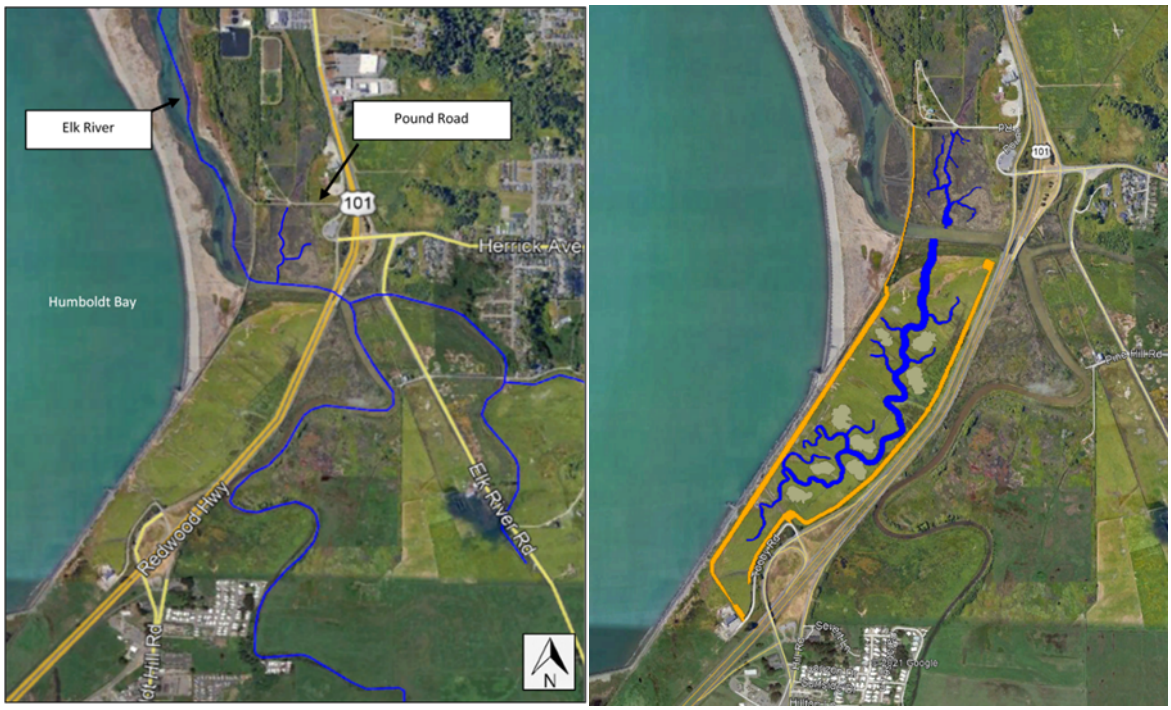
3.2. **Create Tidal Marsh Systems and Improve Water Quality**

Use of design features: Channels, Marsh Plains, Tidal Ridge

While an estuary may be viewed as one large flat space when filled with water, it should be viewed as a unique set of elevations that are under water. Each elevation has a function to perform within the wetland system. The project design features result in various elevations including deep channels, shallow channels, sloped edges, marsh plains, wetland depressions and hummocks, riparian upland areas, as well as higher sloped tidal ridges. These features integrated across the 114 acre site provide a vast system to perform water quality enhancement through settling of solids and sediments, filtration of pollutants in the water column, and chemical detoxification by adding oxygen and biologic elements into the water through wetland vegetation.

The restoration components of the Project include re-connecting the historic floodplain property to the lower Elk River. The Lower Elk River is listed as an impaired water body under Section 303(d) of the Clean Water Act due to the sedimentation and siltation as well as indicator bacteria. By connecting the river's lower floodplains through a series of new tidal channels the fine sediments will be metered and stored. The proposed network of tidal slough channels will capture and receive the twice-daily tidal cycle as well as receive stormwater making the entire project perform as a tidal marsh system with deep channels, low wet-lands, and upper marsh plains. Vegetating the marsh plains with native tidal, brackish, and freshwater marsh plant species will filter and trap sediment on the marsh plains, while improving the richness of the habitat and building soils. By reducing the accumulation of fine sediments within the water column, and providing for natural sediment deposits along marsh plains, the project will improve water quality.

Figure 8: Site Images Showing Existing Channel North of the Elk River in 25 Acres of Area 1, and Existing Pasture South of Elk River in 89 acres of Area 2. Proposed Channel Network in Blue and Tidal Ridge in Yellow.



The proposed tidal slough channel shape and geometry is designed to transport a full tidal regime into the restoration areas, during each tide cycle. The proposed marsh plains are designed at target elevations to accommodate existing high-tide events as well as predicted sea level rise to promote a natural colonization of native salt marsh species and sedimentation to enhance water quality. As a result, rising tide levels will naturally deposit native seed material as well as sediment onto the marsh plains and thereby establish grasses and native plant species so the site can evolve and perform related water quality enhancement that is enduring and longstanding after the project.

The Project will create a tidal ridge on the west, south, and east edge of the project to establish a high-point around the lower channel and marsh systems. A tidal ridge is often called a living shoreline, and includes constructing a gradually sloping berm with vegetation along its slopes. Living shorelines often have water travel through a berm or levee structure creating water filtration. While the proposed tidal ridge is permeable and provides some filtration, the design is intended to hold water within the project and support the hydrologic connection between the River and the project features. For the purpose of this project a tidal ridge is defined as a berm rising from the intertidal zone to an elevation above the tidal zone. This elongated linear berm feature will provide immense water quality benefits due to the exchange of water with tides and storm events.

The gradual slope design allows the project to establish native vegetation at the site, and the tidal influence will carry sediment to the tidal ridge. When sediment is deposited this is called sediment accretion. This helps the biologic diversity at the site and encourages native plant establishment.

Wetlands function as natural water cleansing systems by spreading low velocity, shallow water through densely vegetated surfaces filtering pollution from the water column. Stormwater and tidal water will drain into and from the project site through tidal channel networks and flow into connected side-channels and marsh systems. During storm events the channel network will provide detention area and hold water until storm flows and tide levels recede. This constant movement of water in-and-out of the channel network, reaching across the site, provides an expansive marsh filtration system with tremendous enhancement to water quality. As water enters the site, caring pollutants and bacteria in the water column, the water will spread through the channels and across the marsh plains, filtering pollutants, and depositing sediments, before the tides pull water back through the site returning to the Elk River and into Humboldt Bay.

The noted Project design features along with the hydrologic modeling and use of varied elevations create a true enhancement project to meet the exception criteria. Similarly, the Project features explicitly create marshlands, wetlands, and other enhancing features. The tidal channels provide open waters, and navigational waters, for both human uses and aquatic species providing beneficial uses noted for Humboldt Bay. (Beneficial uses are explored further and later in this document). The design elements will self-perform and adapt over time, as well as provide climate resilience and adaptation to Sea Level Rise providing longevity.

Figure 9: Area 1 Proposed Elevations Based Upon Hydrologic Modeling.

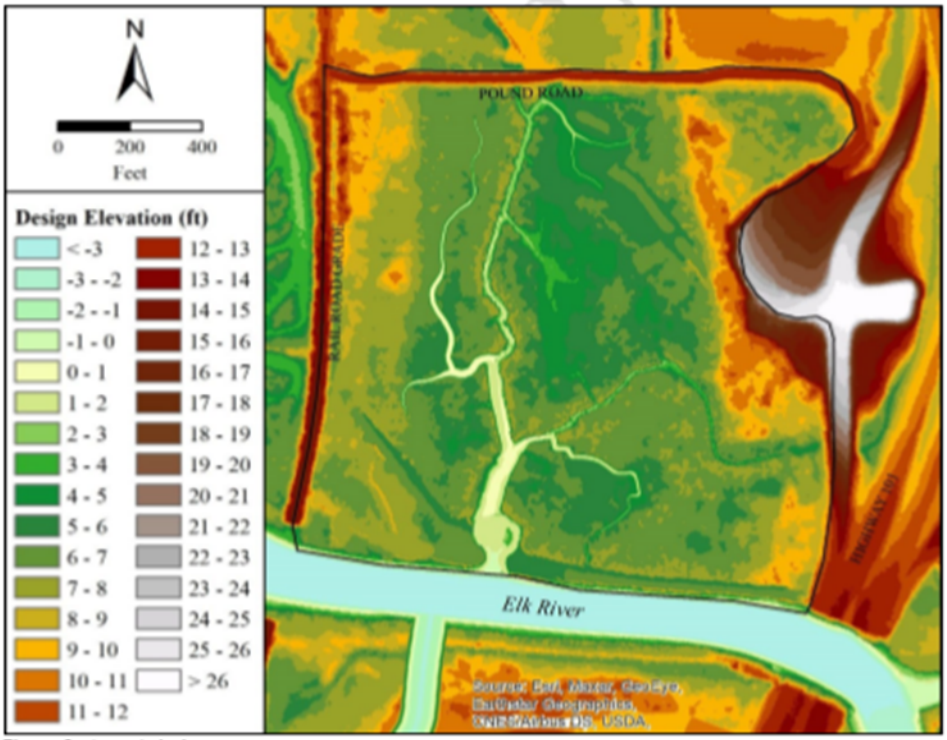
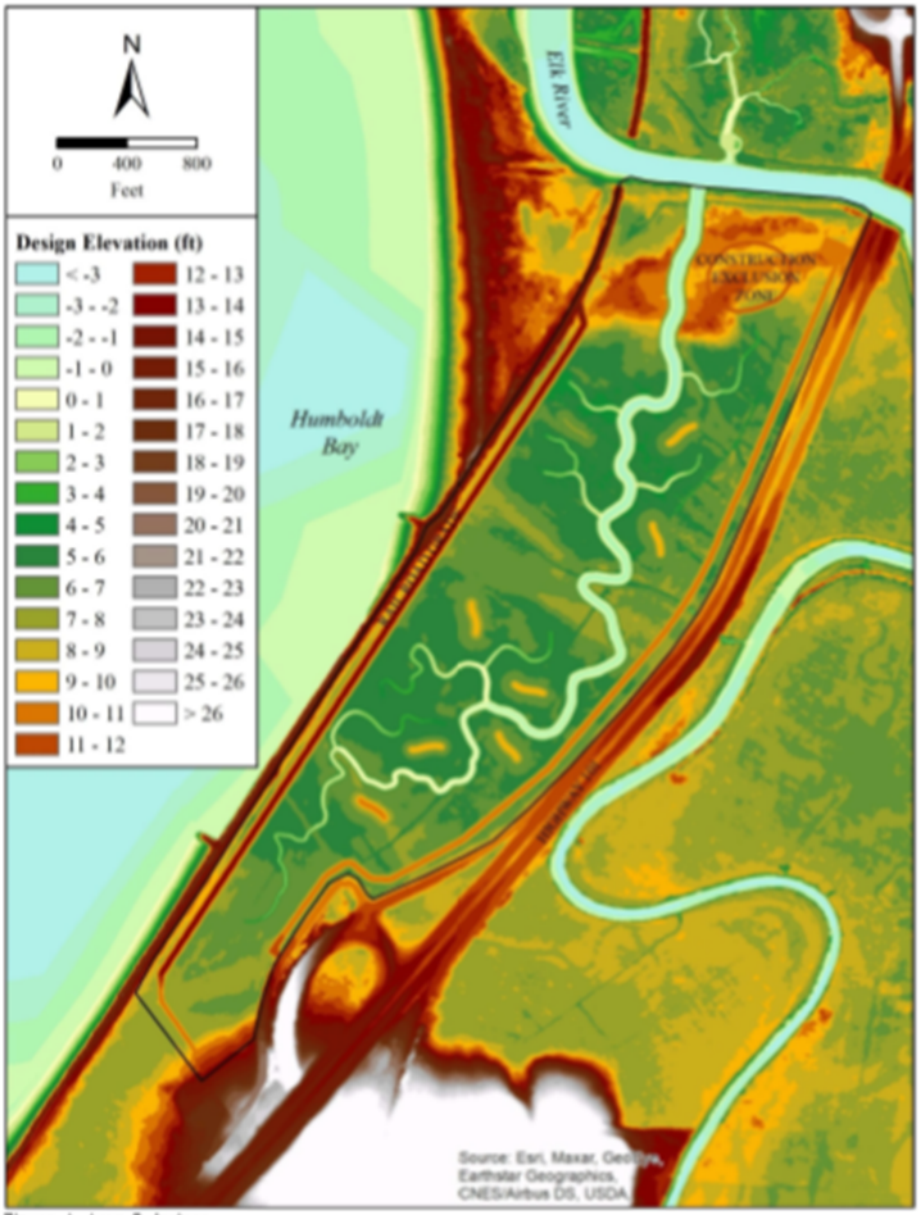


Figure 10: Area 2 Proposed Elevations Based Upon Hydrologic Modeling.



3.3. **Establish Habitat**

Tidal marshes filter out pollutants; buffer adjacent lands from flood tides and storms; contribute invaluable nutrients to the estuarine ecosystem; and provide important habitat for fish, invertebrates, many shorebirds, and other waterfowl. The project will establish habitat over 114 acres with the development of salt marsh, freshwater wetlands, brackish marsh, open waters, riparian areas, and upland areas. The Project will provide much needed habitat types for a variety of endangered, threatened, and special status species along with migratory birds.

- By removing dikes and tides gates the Project will create new fish habitat and fish refuge to support listed salmonid species including Chinook Salmon (Oncorhynchus tshawytscha), Coho Salmon (Oncorhynchus kisutch), and Steelhead Trout (Oncorhynchus mykiss).

- The new channel network and marsh plains will increase inter-tidal, brackish, and freshwater habitats for important aquatic species including but not limited to Eelgrass, Olympia Oyster (Ostrea lurida), Dungeness Crab (Metacarcinus magister), Longfin Smelt (Spirinus thaleichthys), Tidewater Goby (Eucyclogbius newberryi), Humboldt Bay owl's clover (Castilleja ambigua ssp. humboldtiensis), Lyngbye's sedge (Carex lyngbyei), and Point Reyes bird's-beak (Chloropyron maritimum ssp. palustre).

- Removal of invasive dense-flowered cordgrass (Spartina densiflora) vegetation from the site, and creation of healthy salt marsh with a range of surface elevations to support low and high salt marsh vegetation, including protection and re-introduction of special status plant species Lyngbye's sedge and Humboldt Bay Owl's Clover.

- By re-establishing riparian and upland habitat with native vegetation, this will provide needed shelter and vegetation for resident and migratory bird species.

Table 9: Existing and Projected Acreages of Habitats, Agricultural lands, Roads and Trails Area 1 and 2 Combined.

Land Type	Existing Acreage[15]	Proposed Acreage	Net Change in Acreage
Eelgrass (on mudflats within tidal channels)	0	6.0	+ 6.0
Open Waters	1.2	3.0	+ 1.8
Brackish Marsh 1	1.3	0	-1.3
Agricultural Wetlands (Pastureland)	68.9	0	- 68.9
Agricultural Uplands (Pastureland)	13.8	0	- 13.8
Freshwater (Vegetated Drainage Ditches)	0.7	0	- 0.7
Freshwater Marsh	0	0.7	+ 0.7
Salt Marsh	20.8	77.8	+ 57
Riparian	0.2	11.3	+ 11.1
Uplands	5.8	0	- 5.8
Road/Trail	1.2	9.3	+ 8.1

[15] All acreages are approximate

The Project will provide necessary habitat types for a variety of species, which touches on the integration of the Project to address regional planning efforts. The Project design functions to support fish habitat are consistent with the goals of the California Department of Fish and Game Recovery Strategy for California Coho Salmon, as well as the US Fish and Wildlife Service Recovery Plan for the Tidewater Goby.

While the rearing habitat and refuge in the estuary is currently scarce, Coho and other anadromous fish are still spawning in the upper reaches of Elk River. With climate change, the lower reaches of the river could warm and become too shallow to support fish during the drier months. Similar barrier removal projects have been completed in other estuaries on Humboldt Bay and report success in providing critical rearing habitat and estuarine refuge.

Figure 11:One of the Main Restoration Components in Area 1 is the Removal of Existing Tides Gates to Allow Tidal Inundation of the New Channel System. Removal of Barriers Such as this Will Increase Habitat for Fish and Aquatic Species

Restoration of vegetation types at the Project includes the removal of more than 20 acres of dense-flowered cordgrass (Spartina densiflora). Spartina can grow year-round in varied salt-marsh environments and naturally out-competes the native vegetation which will generally go dormant in the winter. Spartina is so invasive it can actually reshape the landscape by the physical structure, large stem, and root density, and impacts to sediment retention.

The Project will remove Spartina over multiple years, to encourage native vegetation. These efforts are consistent with the Humboldt Bay Regional Spartina Eradication Plan.

Existing plants species documented at the project site, and listed as threatened or endangered include Lyngbye's Sedge and Humboldt Bay Owl's Clover. Both of these plants will be protected as they exist in small quantities, and re-introduced throughout the project site. The US Fish and Wildlife Service facilitates a monitoring program for the Owl's Clover at the Humboldt Bay Wildlife Refuge.

Establishment of tidal marsh vegetation along with the tidal marsh plains will provide direct benefits to many resident and migratory bird species. Humboldt Bay is located within the Pacific Flyway, which is the north-south travel route for migratory birds extending from Alaska to Patagonia. The Project will provide a location to rest and forage. Numerous species utilize coastal landscapes and marsh plains including small species; swallow, wrens, and sparrows, as well as waterfowl; ducks and geese. Larger bird families are also present including heron, egret and even raptors, like red-tailed and red-shouldered hawks. But the bay is most famous for the vast species of shorebirds such as plovers, sandpipers, and godwits. The number of shorebirds utilizing the bay and surrounding seasonally wet pasture and wetlands are higher than any other bay or estuary in California, except San Francisco Bay. Eighteen State-listed bird species ("endangered" of "species of concern") utilize similar habitats along Humboldt Bay.

The exception criteria stress that the Project must provide full protection of beneficial uses which the receiving water is capable of in the absence of the discharge. The Project has been analyzed against the beneficial uses attributed to Humboldt Bay in the North Coast Region Basin Plan. The creation of habitat touches on a minimum of six of the beneficial uses; Estuarine Habitat, Marine Habitat, Wildlife Habitat, Preservation of Rare, Threatened or Endangered Species, Migration of Aquatic Organisms, and Spawning, Reproduction, and Early Development.

Many of the noted endangered, threatened, and concern-status species are vulnerable to the impacts of climate change. The project provides climate adaptation and resilience for wildlife in the form of habitat connectivity, improvement of habitat quality for climate vulnerable species, sea level rise adaptability, and invasive species removal. The project will decrease the climate change vulnerability of ecosystems and species important to Humboldt Bay by providing marsh habitat types and their related benefits.

Incorporating passive public use with trails, non-motorized boat launch, signage and the future Elk River Interpretive Center also creates a method to reach and teach the public about the importance of habitat. The public access amenities provide a way to engage with the surroundings and develop an appreciation and respect for these impressive habitat systems.

The trails and site features are designed to encourage passive use, while also creating a wide buffer to protect vegetation and waterways from being trampled or negative impacts of human uses.

3.4. **Provide Public Access Amenities**

Design Features: trail, parking, boat launch, future Interpretive Center

The Project includes an approximately one-mile-long Class I, ADA-accessible, non-motorized multiuse trail along Humboldt Bay that will serve as part of the California Coastal Trail. As designed to meet Caltrans Class I multi-use trail design standards (Caltrans Highway Design Manual, Chapter 1000) and Americans with Disabilities Act (ADA) design standards, the proposed trail will expand shoreline access for a variety of users including bicyclists, walkers, hikers, runners, skaters, wildlife viewers, nature educators, persons in wheelchairs, and other non-motorized outdoor users. The trail will promote access to the Bay, the Elk River estuary, and surrounding marshlands for wildlife viewing and recreation. As part of the California Coastal Trail, it will attract users regionally and state-wide.

The one mile-long trail extension, which terminates at the southern boundary of Eureka, will essentially complete the California Coastal Trail through the length of the City's waterfront, approximately six miles of which the City has constructed over the past seven years. In addition, the City's trail system is being developed as part of a collaborative regional trail effort with the County of Humboldt, the City of Arcata, the Humboldt County Association of Governments, the State Coastal Conservancy, the North Coast Railroad Authority, and other partners to develop a continuous coastal trail network along the eastern shoreline of Humboldt Bay for a total length of over 13 miles.

Not only does the trail provide an access point to nature and a larger trail network, it has been designed as a regional transportation facility. This has multiple benefits for health and wellness, reduction of emissions by encouraging bike and walk options, as well as improved safety for bike and pedestrians. The south trail entrance at Tooby Road provides a critical access point for bike and pedestrian travel approaching Eureka from the south, specifically from the isolated residential area of Humboldt Hill. There are no sidewalks, access trails, or other non-motorized facilities available between Humboldt Hill and Eureka City limits. As a result, bikes and pedestrians utilize the narrow shoulder of Highway 101, increasing conflicts between vehicles and non-motorized vehicles and resulting in fatalities. The trail will provide an off-highway alternative for users traveling between Humboldt Hill and Eureka proper.

The City will provide a coastal access parking area in an existing upland adjacent to Tooby Road at the south end of the Project. The parking area will be graveled and will support approximately 10 vehicles. In addition, parking at the north end of Area 1 is available along Pound Road.

Preliminary signage concepts include installing access welcome signs at Pound Road (north end) and Tooby Road (south end).

The new non-motorized boat launch will be installed on the north side of the project, with access from Pound Road where an existing park and ride parking lot provides parking. This boating amenity will offer the ideal setting for a kayak, canoe, or stand-up paddle board, to access the new channel network on the north side of Elk River. At high-tide users can paddle through the channel and continue upriver into the Elk River watershed, or down river into the Elk River Slough, and then into Humboldt Bay.

Adjacent to the location of the new boat-launch, the City has identified a property for the future Elk River Interpretive Center. The planning for this facility is still in the early stages, but the current property owner is interested in selling to the City. The parcel is approximately three acres and is positioned between the Project and the City's Elk River Wastewater Treatment Plant. The property will accommodate the future Interpretive Center facility to include a building with gathering areas both interior and exterior, restrooms, and interpretive displays. Adjacent to the Interpretive Center, the Project may be further expanded to provide for nature viewing opportunities on trails in and adjacent to the Center and the neighboring Elk River Wastewater Treatment Plant.

The amenities provide for protection of beneficial uses of Humboldt Bay including:

- Improvements to navigation with new non-motorized boat launch and a new expanded navigable channel extending 2.8 miles;
- Improvement in water contact recreation, for boating, paddling, and fishing;
- Improvement in water quality related to non-contact water recreation for activities such as nature viewing and bird watching, with the project attracting resident and migratory bird species; and
- Improvements in the recreational and sport fishery by helping to enhance fish health and diversity of species.

Figure 12:Existing Waterfront Trail Connection on Pound Road Looking West Near Boat Launch Location

Figure 13:Existing Waterfront Trail Along Pound Road, Looking South at Boat Launch Location

Figure 14:Looking South from Proposed Boat Launch Location at Low Tide. Viewing the Existing Slough Channel in Area 1 that will be Widened and Deepened Through the Enhancement Project.

3.5. Project Longevity

The project will be self-sustaining over the long-term and adaptable to Sea Level Rise (SLR). The fully functioning tidal marsh complex includes various channel depths, variable marsh plains, wetland depressions, upland riparian areas, and sloped tidal ridges. The high projections for sea level rise on Humboldt Bay are: 2030 at 0.9 feet, 2050 at 1.9 feet, 2070 at 3.2 feet, and 2100 at 5.4 feet. The design of the salt marsh plains range in elevation from 5.8 to 8.8. Mean high water (MHW) currently is 5.8 feet NAVD 88 as measured at the North Spit tide gage. By 2050, MHW may be as high as 7.7 feet and by 2070 at 9.0 feet. With increasing high tides, the project elevations will shift over time. The gradually sloping marsh plains and tidal ridges will allow wetlands to migrate upslope and remain viable for a longer period. Using an average accretion rate of 2.5mm/year and a projected rate of sea level rise, along with the project design, it is estimated the tidal marsh will be supported through at least 2050, with the upland riparian areas and tidal ridges are expected to support marsh habitat long past 2100 since they will be construction at elevations ranging from 9 to 12 feet. Habitat distribution for eelgrass and mudflat will also expand through 2100.

The new trail extension and similar public access amenities will become part of the City's larger trail network and will be scheduled for routine maintenance and upgrades as the system ages. Similarly, parking areas, the non-motorized boat access point, and signage or other amenities within the Project will be part of a scheduled assessment for upgrades or replacement as they age through the City's Capital Improvement Program (CIP). The City will be actively managing and maintaining this facility to provide for long-term planning and upgrades as necessary.

Per the evaluation metrics, the Project will be enduring and provide intended benefits for a minimum time frame equivalent to the infrastructure life of 30 years. The design will adapt to changing conditions in the natural environment over time. The project will continue to provide benefits that address climate change over time. The project components can be maintained for their useful life and the City can address long term maintenance costs and responsibilities.

4. WATER QUALITY BENEFIT FROM ENHANCEMENT PROJECT

The City of Eureka has worked closely with Regional Water Board staff over the past two years regarding the viability of the Project as an enhancement component of the continued discharge permit. There were 16 pollutants identified as of concern by the Regional Water Board: TCDD Equivalents (i.e., dioxins), PCBs, Total Suspended Solids, Arsenic, Chromium, Copper, Lead, Nickel, Zinc, BOD, Ammonia, Nitrogen, Phosphorus, Bacteria, Trace Organics, and Hydrocarbons (e.g., Creosote). The City identified potential constituents and metrics to be used in the analysis, and then completed a review of research and literature. The analysis showed that projects similar to the proposed Elk River Estuary project can reduce pollutants of concern entering the Bay. The analysis looked at multiple project options for comparison, and this Project scored the highest in reducing pollutants in the water column and providing water quality benefits.

Similar projects have demonstrated improvements to water quality through the removal of hydrologic barriers. This enhancement project includes the removal of man-made dikes, tide-gates, agricultural ditches, as well as removal of more than 20 acres of Spartina (Spartina densiflora). These measures alone will contribute to the ability of the tidal slough channel systems to increase sediment loads to the marsh plains, increase nutrient load throughout the Project site, and provide contaminant filtration.

While the water quality analysis reviewed similar projects, it is important to note the specific attributes of an estuary environment that contribute improvements to water quality with factors such as nutrients and dissolved oxygen. Nutrients can be limited in a freshwater river, such as Elk River. However, the estuary environment brings together the freshwater and tidal saline water delivering carbon, nitrogen, and phosphates and creating a nutrient rich environment. As the tidal cycle carries water and vegetation particles through the slough channel network, the organic matter settles with sediments, adding to nutrient values for vegetation but also adding to water quality. Micro-organisms depend upon these smaller particles as their food source. Those micro-organisms feed fish and other aquatic species, that in-turn feed larger species building the vast estuary food-web.

Similarly, the success of various species involved in an estuary food-web hinge on the presence of dissolved oxygen in the water. Dissolved oxygen (DO) is the measured or saturation content of oxygen in the water column. Oxygen is carried from the surface, through currents, or wave wind and turbulence into the water

column. Vegetation can also deliver oxygen to the water column. The ability of the water to hold oxygen is an indicator of water quality.

Without the Project, the river currents will travel past the project location, continue toward the Elk River Estuary and into Humboldt Bay, providing no improvement to water quality. However, with the implementation of the project design features, the new channel network, and marsh system, tidal waters and river currents will travel into the Project area during the twice-daily tide cycle. Through this the Project will provide water quality enhancement through settling of solids and sediments, filtration of pollutants in the water column, and chemical detoxification by adding oxygen and biologic elements into the water.

4.1. Bay Enhancement: Project will Provide Full Protection of Beneficial Uses

An analysis of beneficial uses showed that the Project features will continue to support and protect beneficial uses, either enhancing or having no effect on Humboldt Bay designated uses. These have been evaluated and listed here:

- Navigation (NAV): The enhancement will result in improvements to navigation. The project includes a new non-motorized boat launch and a new expanded navigable channel extending 2.8 miles throughout.

- Water Contact Recreation (REC-1): Project will result in an enhancement to water quality and thus an improvement in water quality related to water contact recreation, for boating, paddling, and fishing.

- Non-Contact Water Recreation (REC-2): Project will result in an enhancement to water quality and thus an improvement in water quality related to non-contact water recreation for activities such as nature viewing and bird watching, with the project attracting resident and migratory bird species.

- Commercial and Sport Fishing (COMM): Anticipated improvements in water quality would result in improvements in the recreational and sport fishery by helping to enhance fish health and diversity of species.

- Estuarine Habitat (EST): Project will create new estuarine habitat or improve existing estuarine habitat. The expansion of estuarine habitat will benefit anadromous salmonids, Longfin Smelt, and other marine species. Restored tidal channels will result in new habitat for Eelgrass.

- Marine Habitat (MAR): Project will create new marine habitat or improve existing estuarine habitat. Seabirds, marine mammals, migratory waterfowl, and other marine species utilize habitats in and near the Elk River estuary. Enhanced and created wetlands will also be important nursery habitat for marine fishes.

- Wildlife Habitat (WILD): Project will enhance or create new wildlife habitat or uses of water that would support wildlife habitat beyond existing conditions. In providing higher marsh habitat the Project will specifically support expanded bird habitat.

- Preservation of Rare, Threatened, or Endangered Species (RARE): As noted for Estuarine Habitat (EST), the Project would result in direct habitat and water quality improvements for special status anadromous species and Longfin Smelt. Within the Project, habitat benefits for Tidewater Goby area are also expected in Area 1. Special status migratory waterfowl would also benefit from enhancements resulting from these habitats.

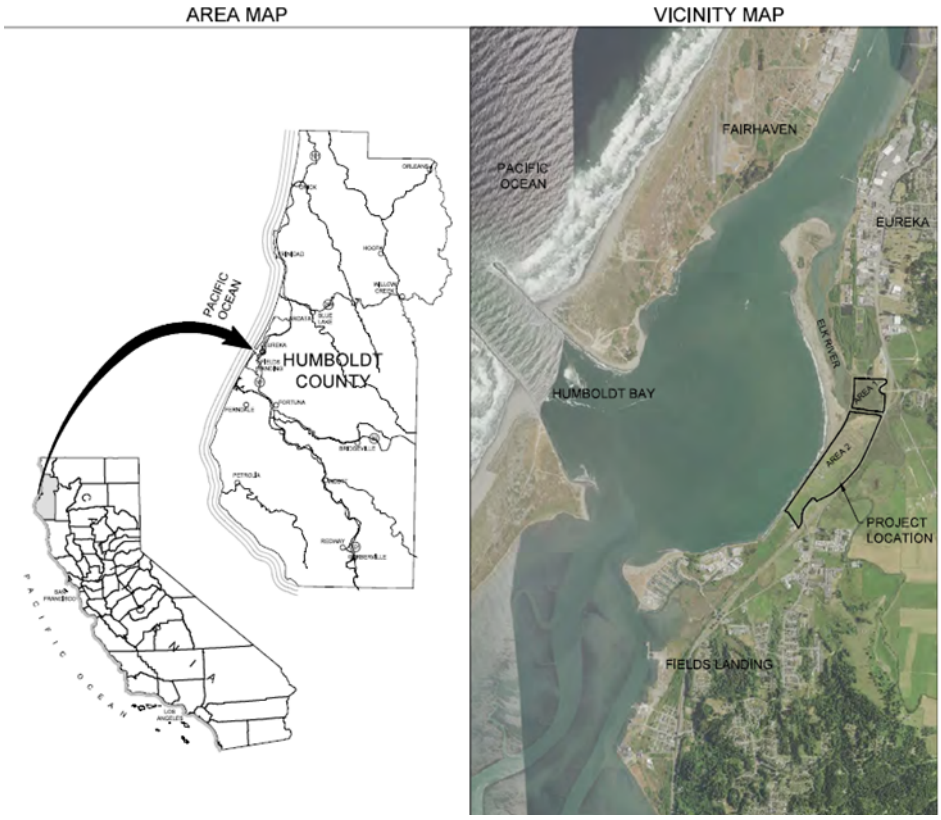
- Migration of Aquatic Organisms (MIGR): Within the Project, removal of the large tide gate along the Elk River would result in removal of a fish passage barrier and allow passage of fish into restored aquatic habitats throughout.

- Spawning, Reproduction, and/or Early Development (SPWN): Adult Longfin Smelt migrate into low salinity or freshwater reaches of coastal rivers and tributary streams to spawn. These types of habitats will be provided with the Project.

- Shellfish Harvesting (SHELL): The project will provide improvements in water quality would result in improvements in shellfish harvesting by helping to enhance water quality throughout Humboldt Bay as a whole.

- Aquaculture (AQUA): As with shellfish harvesting, the Project will provide improvements in water quality which will result in improvements in aquaculture by helping to enhance water quality throughout Humboldt Bay as a whole.

Figure 15: Project Vicinity Map and Relationship of the Project to the Entrance of Humboldt Bay. The Project Area Position Within Humboldt Bay is Significant as it Relates to Tidal Inundation and Sea Level Rise.



5. NATURAL RESILIENCE & CLIMATE CHANGE RESILIENCE

Through the restoration Project, the Elk River Estuary will have greater natural resilience and adaptability to climate change. The riparian areas and tidal ridges are expected to support restored habitat into 2100 due to their design elevations and the gradual upslopes that will allow wetland transgression. Persistence of the Project's wetland habitats through time will ensure the continued reduction of Sea Level Rise impacts to adjacent property, and related infrastructure such as Highway 101, protecting them from climate change coastal hazards. Similarly, with new connection to historic floodplain, the Project will protect adjacent property, as well as upstream areas, from large storms events resulting from climate change.

The restored wetlands will also sequester carbon, reducing the magnitude of climate change. The Project will sequester carbon at rates that are higher than existing marsh and pasture habitat, which emits methane at higher rates than salt marsh. The transition of land back to tidally influenced wetlands will sequester much more carbon than the existing dryland.

Without the Project, the lower reaches of the river could warm and become too shallow to support fish during the drier months. The Project will increase the

adaptive capacity of Elk River to support fish by removing tide gates and berms and creating multiple acres of fish habitat, including climate refugia. These features will add to the climate change adaptation by providing refuge as temperatures rise.

6. CONSISTENT WITH REGIONAL PLANNING EFFORTS

The project builds on restoration efforts already identified or underway in the Elk River Watershed and around Humboldt Bay, including the Martin Slough Restoration upstream of the estuary, White Slough Restoration, South Jacoby Creek Restoration, the Wood Creek Restoration Project, and the Ryan Creek Wetlands Acquisition Project. These projects work at a landscape scale toward protecting threatened salmonids, restoring tidal marshes and watershed processes such as sediment transport, and protecting water quality and supply.

The Project is located in the Lower Elk River, a recognized part of the Eureka Area Watersheds Storm Water Resource Plan (EAWSWRP, GHD, 2018). The Elk River is one of two main surface waters within the EAWSWRP watershed that flow into Humboldt Bay. It is listed as a Clean Water Act 303(d) impaired water body due to sedimentation, siltation, and indicator bacteria. According to the EAWSWRP this is due to historic and current harvesting practices, road construction, and non-point source runoff. The Upper Elk River has a completed TMDL implementation plan; Total Maximum Daily Load. The Project design features provide natural watershed processes as part of the integrated approach to improve water quality.

The project design is also consistent with a number of regional planning efforts, including by not limited to:

- Support regional trail planning, and connectivity, by coordination with regional and state offices such as Cal Trans, North Coast Railroad Authority, County of Humboldt and others.

- Restore floodplain to reduce localized flooding, and integrate regional efforts toward adaptation to climate change, and large storm events.

- Support regional Sea Level Rise goals by implementing a project that includes science-based hydrologic modeling, and addresses increase in tide-levels over multiple decades.

- Include design features such as tidal channel and marsh features that are consistent with the goals of the CDFG Recovery Strategy for California Coho Salmon.

- Create habitat via design of channel systems and marsh to support the US Fish and Wildlife Service Recovery Plan for the Tidewater Goby.

- Implement removal of invasive Spartina consistent with the Humboldt Bay Regional Spartina Eradication Plan.

7. MAINTENANCE

The project will be maintained as estuary tidal marsh with public access in perpetuity. A Monitoring and Reporting Plan (MRP) has been developed and will be used to measure the Project's success. The City will be responsible for implementing the MRP and employing adaptive management strategies, as necessary, for five years following construction. In this effort, the City will retain specialized professional services to implement the MRP and the integrated framework of the Wetland and Riparian Monitoring Program (WRAMP), namely, to provide inventories and assessments, report data using California Rapid Assessment Method (CRAM) and data collection and sampling of vegetation coverage.

The initial five years of monitoring are largely funded by grant sources and will involve professional services and support to the City in these efforts. Multiple years of Spartina eradication as well as seasonal planting and revegetation will occur during the five-year monitoring period.

The project will be managed and maintained by the City. Because the restoration will restore ecosystem processes such as tidal exchange and sediment transport, and will restore conditions that support tidal marsh, eelgrass, and riparian habitats, the site is expected to be largely self-maintaining. Maintenance activities necessary to sustain beneficial outcomes will include the ongoing maintenance of Spartina throughout the two project areas. After primary removal and follow-up treatment, ongoing maintenance treatments will be necessary.

Funding for ongoing maintenance will be available via the City's Community Services and Public Works budgets and staff from those departments will oversee the daily and seasonal maintenance activities, including staffing of the future Elk River Interpretive Center (for educational and programming purposes). The City may also contract with or develop partnerships with work programs, or specialized professionals for maintenance services.

8. PROJECT STATUS – PERMITS/TIMELINE

The City of Eureka began working through the project design concepts and project planning in 2016. Portions of the project received early planning grants toward advancing the design and environmental documents. Following concept planning and environmental, the City pursued the necessary permits. The table below includes permits that have been applied-to or secured for the Enhancement Project (these permits do not include the future Interpretive Center). While the City was successful through the planning and design stages, there has been a challenge to assemble funding and move the project forward to final design and construction.

8.1. **Permits**

Table 10: Permit Agency and Status of Application

Name of permit	Permit Title/Description	Permit Status
City of Eureka	CEQA Lead Agency – IS/MND-Conditional Use Permit SCH#2017082048	Complete
Humboldt Bay Harbor Recreation Conservation District	Development Permit	Complete
California Coastal Commission	Coastal Development Permit	Complete
California Department of Fish and Wildlife	Streambed Alteration Agreement Incidental Take Permit - Consistency Determination	Complete
North Coast Regional Water Quality Control Board	Section 401 Water Quality Certification	Complete
United States Army Corps of Engineers	Section 10 RHA Permit Section 404 CWA Permit	Complete
National Marine Fisheries Service	Section 7 ESA Biological Opinion Incidental Take Statement	Complete
United States Fish and Wildlife Service	No Effect Determination	Complete

Figure 16: Looking East from Existing Bridge Crossing Elk River at Low Tide.

8.2. **Implementation Timeline**

Construction for estuary enhancement features must occur during the dry-season (July 1 – Oct 15) due to the conditions at the site. Construction could begin as early as the summer of 2021 if funding is approved. The construction will likely occur over two seasons, 2021 and 2022, with ongoing adaptive management, and monitoring for an additional five years through 2027.

For the development and implementation of the Elk River Interpretive Center, the City has engaged architectural services and initiated property negotiations. The larger work plan for the future Elk River Interpretive Center includes acquisition of property, property remediation as necessary, site design, professional services toward construction documents, permitting, and construction. This process would occur over a five-year period beginning in 2021 and continuing into 2026.

9. **CLOSING SUMMARY**

The Elk River is the largest freshwater tributary to Humboldt Bay. The river originates in the coastal hills southeast of the City of Eureka and flows northwestward to the Bay near the city's southern boundary. Historically the entire site was part of the Elk River estuary, which included intertidal channels, mudflats, salt marsh, windblown sand deposits and riparian forest. Early in the last century, the railroad was constructed between the project area and Humboldt Bay. Additional dikes were constructed, and the site was drained to support agriculture.

Throughout the environmental studies for the development of the Elk River Estuary Tidal Enhancement Project it became evident there is a basic need to reclaim these low-quality salt-marsh and livestock graving parcels and restore them as part of the larger watershed systems.

The large-scale restoration proposed not only supports a variety of habitat types within the Elk River Slough and the tidal Elk River Estuary but increases tidal connectivity, improves water quality, and provides greater capacity for large storm events, and high-tide events building resiliency to Sea Level Rise.