

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2002-0130

NPDES NO. CA0083925

WASTE DISCHARGE REQUIREMENTS  
FOR

RIVIERA WEST MUTUAL WATER COMPANY  
DOMESTIC WATER TREATMENT PLANT  
LAKE COUNTY

The California Regional Water Quality Control Board, Central Valley Region, (hereafter Regional Board) finds that:

1. Riviera West Mutual Water Company (hereafter Discharger) submitted a Report of Waste Discharge, dated 1 May 2001, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES), from the Riviera West Mutual Water Company, Domestic Water Treatment Plant. Supplemental information to complete filing of the application was submitted 17 January 2002.
2. The Discharger owns and operates a water treatment system for potable water supply in the Riviera West area of Lake County, near Konocti Bay. The Treatment Plant is at the edge of Clear Lake in Assessors Parcel Number 44-340-25, Section 9, T13N, R8W, MDB&M, at Latitude N 38°59'57" and Longitude W 122°44'56". Additional pumps and storage tanks are located near the intersection of Riviera West and Mountain Crest Roads. Attachment A shows Clear Lake and the surrounding communities and Attachment B shows the location of the water treatment plant and discharge point. Attachments A and B are a part of this Order.
3. Water is extracted from Clear Lake and treated for potable supply. The treatment system includes prechlorination and alum coagulation, followed by pressurized multi-media filtration through anthracite and sand, followed by filtration through an activated carbon pressure filter, and postchlorination. Alum sludge is gravity settled in backwash water from the filters in a backwash tank or clearwell. The supernatant is decanted from the backwash tank and discharged intermittently to Clear Lake. Sludge is hauled off-site for disposal at a local publicly owned treatment works.
4. The backwash wastewater is discharged at the end of a pier owned by the Discharger. The discharge pipeline is attached to the pier and includes a down-pipe into Clear Lake. The approximate length of the pipeline is 60 feet and the wastewater is discharged approximately 4 to 15 feet below the surface of the Lake (depending on Lake depth). The primary purpose of the pier is recreational, and a floating dock is attached to the end of the pier.

5. The Report of Waste Discharge describes the Water Treatment Plant flow rates, in million gallons per day (mgd), as follows:

Average Daily Flow Rate (Domestic Water)	0.092 mgd (92,000 gallons per day or gpd)
Average Daily Flow Rate (Discharged Water)	0.0052 mgd (5,200 gpd)
Average Flow Per Discharge	0.0005 mgd
Number of Times Per Year Discharge Occurs	300
Average Duration of Each Discharge	3.5 hours
Number of Homes Served	197

6. The U.S. Environmental Protection Agency (U.S. EPA) and the Regional Board have classified this discharge as a minor discharge.

### BASIN PLAN

7. The Regional Board adopted *The Water Quality Control Plan for the California Regional Water Quality Control Board, Central Valley Region, the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition – 1998* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.
8. Water treatment system backwash is discharged to Clear Lake. As designated in the Basin Plan, Clear Lake is in the Clear Lake Hydrologic Subarea (513.52), Upper Cache Creek Hydrologic Area (513.50), and Cache Creek Hydrologic Unit (513.00), in the Sacramento Hydrologic Basin. Clear Lake drains into Cache Creek, which flows into the Yolo Bypass, which then drains toward the Sacramento River Delta.
9. The Basin Plan states, on page IV-23.00, “*The Porter-Cologne Water Quality Control Act allows the Regional Water Board to prohibit certain discharges (Water Code Section 13243).*” The Basin Plan further states, on page IV-23.00, “*Water Bodies for which the Regional Water Board has held that the direct discharge of wastes is inappropriate as a permanent disposal method include sloughs and streams with intermittent flow or limited dilution capacity. The direct discharge of municipal and industrial wastes (excluding storm water discharges) into the following specific water bodies has been prohibited, as noted*”. Clear Lake is included on the list of prohibited water bodies on page IV-24.00 of the Basin Plan. However, the Regional Board has found, by adoption of existing Waste Discharge Requirements Order No. 96-099, that the discharge is different from either industrial or municipal waste. Therefore, the discharge does not violate the Basin Plan prohibition.

## SURFACE WATER BENEFICIAL USES

10. The Basin Plan states, on page II-1.00, “*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*” and “*...disposal of wastewaters is [not] a prohibited use of waters of the state; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*” Existing and potential beneficial uses that currently apply to surface waters of the hydrologic basins are presented in Figure II-1 and Table II-1 of the Basin Plan. The Existing Beneficial Uses of Clear Lake, as identified in Table II-1 of the Basin Plan, are Municipal and Domestic Supply, Irrigation and Stock Watering, Contact and Non-Contact Recreation including esthetic enjoyment, Warm Freshwater Habitat, Warm Spawning Habitat, and Wildlife Habitat. Cold Freshwater Habitat was also identified in Table II-1 as a Potential Beneficial Use of Clear Lake. Additional Beneficial Uses, listed on pages II-1.00 and II-2.00 that apply to Clear Lake, include Groundwater Recharge and Freshwater Replenishment. Upon review of the flow conditions, habitat values, and beneficial uses of Clear Lake, the Regional Board finds that the beneficial uses identified in the Basin Plan for Clear Lake are applicable based on the following facts:

a. **Municipal, Domestic, and Agricultural Supply**

The State Water Resources Control Board Resolution No. 88-63, “Sources of Drinking Water”, provides that: all surface and ground waters of the State are considered to be suitable or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards. The State Water Resources Control Board (SWRCB) has recorded water rights for municipal, domestic uses, irrigation uses, recreational uses, and fish and wildlife protection and/or enhancement on Clear Lake. Riparian Rights, for landowners along lakes, streams, and rivers, are not recorded with the SWRCB and have precedence over other water rights. There may be other domestic and irrigation uses along Clear Lake that are not registered with the SWRCB. Regional Board staff observed residences, businesses, and recreation areas located adjacent to and near Clear Lake, which may use the water for domestic and irrigation purposes.

The Discharger extracts water from Clear Lake and treats it for domestic supply.

Clear Lake may provide groundwater recharge at times. Groundwater is a designated source of drinking and irrigation water and there may be groundwater wells located near Clear Lake, which provide domestic and irrigation water supply.

b. **Water Contact and Non-contact Water Recreation and Aesthetic Enjoyment**

The Regional Board has determined that there is direct public access to Clear Lake and there are numerous recreation and residential areas adjacent to the lake. There is swimming, boating, water skiing, other water sports, and fishing on the lake.

c. **Cold and Warm Freshwater Habitat (including preservation or enhancement of fish and invertebrates), Warm Water Spawning Habitat, and Wildlife Habitat**

The Basin Plan (Table II-1) designates Clear Lake as warm freshwater habitat and potential cold freshwater habitat. The California Department of Fish and Game has recorded the presence of the following species of fish in Clear Lake:

Black Crappie	Large Mouth Bass
Blackfish	Sacramento Brown Perch
Blue Gill	Sacramento Pike Minnow
Channel Catfish	Threadfin Shad
Carp	Tule Perch
Hitch (Squawfish)	White Catfish
Inland Silversides	White Crappie

The presence of the fish species indicates the habitat designation for Clear Lake is appropriate. The cold freshwater habitat and warm water spawning designations necessitate that the dissolved oxygen concentration in the lake be maintained at, or above, 7.0 mg/l.

d. **Groundwater Recharge**

In areas where the groundwater elevation is below the bottom of the lake, water from the lake will percolate to groundwater. Although specific hydrogeologic information is not available, it is reasonable to assume that at times Clear Lake may provide groundwater recharge. Groundwater provides a source of municipal and irrigation water supply.

e. **Freshwater Replenishment**

The water in Clear Lake is hydraulically connected to Cache Creek and the Sacramento River Delta. Clear Lake contributes to the quantity and may impact the quality of the water in the downstream waters.

### **GROUNDWATER BENEFICIAL USES**

11. The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service and process supply, and agricultural supply.

## ESTABLISHING LIMITATIONS/STUDIES

### 12. **NTR/CTR**

U.S. EPA adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain criteria for priority pollutants and water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan or SIP), which contains guidance on implementation of the NTR and the CTR.

### 13. **Pollutant Study**

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. This Order contains provisions that:

- a. Require the Discharger to conduct a study to determine whether concentrations of NTR, CTR, or other pollutants in the discharge cause or contribute to an in-stream excursion above a water quality or Basin Plan numeric or narrative objective;
- b. Require the Discharger to submit information to calculate effluent limitations for those constituents in the discharge that have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective; and
- c. Allow the Regional Board to reopen this Order and include effluent limitations for those constituents.

On 10 September 2001, the Executive Officer issued a letter, in conformance with Section 13267 of the California Water Code, requiring the Discharger to prepare a technical report assessing water quality. This Finding is intended to be consistent with the requirements for the technical report, in requiring sampling for NTR, CTR, and additional constituents, to determine the full water quality impacts of the discharge. The technical report requirements list specific constituents, detection levels, acceptable time frames, and report requirements. The technical report requirements shall take precedence in resolving any conflicts.

### 14. **Discharge Limitations**

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above water quality standards and objectives for the constituents discussed below. Effluent limitations and/or studies have been included in this Order.

Wastewater from the treatment facility is discharged to Clear Lake. Monitoring reports have not been submitted and no sampling has been conducted to show that assimilative capacity exists for any constituents discharged to Clear Lake. In addition, there has been no analysis of Clear Lake to show that currents in the lake would provide mixing for mixing zone or dilution credits. In general, lake and reservoir systems tend to accumulate pollutants. Therefore, dilution has not been considered in establishing discharge limitations. To protect the beneficial uses of Clear Lake, limitations, both acute and chronic, have been established as end-of-pipe limits.

a. **Consideration of Dissolved Oxygen Limits**

The Basin Plan, on page III-5.00, identifies a numerical Water Quality Objective for Dissolved Oxygen (DO) of 7 mg/l, in waters designated for cold water beneficial uses. As specified in Table II-1 of the Basin Plan, cold water habitat is a potential Beneficial Use of Clear Lake. Therefore, the proposed Order contains an Effluent Limitation for DO of 7 mg/l.

b. **Consideration of pH Limits**

On page III-5.00, the Basin Plan Water Quality Objective for pH states *“The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.”* As specified in Table II-1 of the Basin Plan, cold water habitat is a potential Beneficial Use and warm water habitat is a designated Beneficial Use of Clear Lake. The existing Order has an Effluent Limitation that specifies that the discharge shall not have a pH less than 6.0 nor greater than 9.0. However, this limitation does not conform to the Water Quality Objective. Therefore, the proposed Order contains Effluent Limitations for pH based on the Basin Plan Water Quality Objective, that pH must be maintained between 6.5 and 8.5.

c. **Consideration of Temperature Limits**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. On page III-8.00, the Basin Plan Water Quality Objective for temperature states, *“At no time or place shall the temperature of COLD or WARM interstate waters be increased more than 5°F above natural receiving water temperature.”*

Comparison of the discharge temperature with the temperature of the Lake would require collecting temperature samples from Clear Lake. However, collecting temperature data from Clear Lake involves more variables than encompassed by the scope of the proposed Order. Therefore, Effluent Limitations are not proposed at this time. The proposed Order contains Receiving Water Limitations based on the Basin Plan Water Quality Objective. The proposed Order also contains a Provision for the Discharger to report raw water, effluent, and receiving water temperature data, and consult with the California Department of Fish and Game regarding the impact the discharge temperature has on Clear Lake fisheries. The Provision also allows the Regional Board to reopen the Order and establish Effluent Limitations for temperature if new data indicates Effluent Limitations are warranted.

d. **Consideration of Turbidity Limits**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. The water treatment process results in accumulation of solids and the discharge of filter backwash into Clear Lake. The filter backwash may be higher in turbidity than the waters of Clear Lake. On page III-9.00, the Basin Plan Water Quality Objective for turbidity states, “*Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.*”

The existing Order contains an Effluent Limitation for Turbidity of 20 NTU. However, the explanation for establishing the turbidity limitation at 20 NTU was not included in the existing Order; the value was not a former Basin Plan Water Quality Objective and it is not consistent with current Objectives. Therefore, the proposed Order does not contain the 20 NTU Effluent Limitation.

The proposed Order contains Receiving Water Limitations based on the Basin Plan Water Quality Objective for turbidity. However, establishing the turbidity of Clear Lake waters in the vicinity of the discharge is beyond the scope of this Order and the resources of the Discharger. The volume of the discharge is miniscule in comparison to the volume of Clear Lake. Therefore, the impact of the turbidity of the discharge upon the turbidity of the waters of Clear Lake is minimal and Effluent Limitations are not proposed. The proposed Order contains a Provision to reopen the Order and establish Effluent Limitations, if additional turbidity information indicates that Effluent Limitations are warranted.

e. **Consideration of Limits for Electrical Conductivity and Total Dissolved Solids**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. The water treatment process results in accumulation of solids and the discharge of filter backwash into Clear Lake. The solids and filter backwash may be higher in Electrical Conductivity (EC) and Total Dissolved Solids (TDS) than Clear Lake. Title 22 of the California Code of Regulations, contains Secondary Maximum Contaminant Levels (MCLs) for EC and TDS as follows:

<u>Constituent</u>	<u>Recommended Level</u>	<u>Upper Level</u>	<u>Short Term Maximum</u>
EC (µmhos/cm)	900	1600	2200
TDS (mg/l)	500	1000	1500

Irrigation supply is a beneficial use of both surface and groundwater. An EC limitation of 700 µmhos/cm is recommended to protect salt-sensitive crops. Clear Lake is used for irrigation. The discharge from the water treatment facility has the potential to discharge wastewater that has high EC and TDS. Therefore, Effluent Limitations for EC and TDS, based on the Secondary MCLs have been included in the proposed Order. Because the Effluent Limitations are based on existing Drinking Water Objectives, a schedule for compliance with the EC and TDS Effluent Limitations is included in the accompanying Cease and Desist Order No. R5-2002-0131.

f. **Consideration of Chlorine Limits**

The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters in sufficient concentrations. U.S. EPA recommends, in its Ambient Water Quality Criteria for the Protection of Fresh Water Aquatic Life, that chlorine concentrations not exceed 0.02 mg/l as a 1-hour average (daily maximum) and 0.01 mg/l as a 4-day average. The Discharger uses chlorine for disinfection as part of the water treatment process, and as a result, may discharge chlorine to Clear Lake. The use of chlorine in the treatment process presents a reasonable potential that chlorine residual could be discharged in toxic concentrations. The existing Order contains an Effluent Limitation for chlorine of 0.1 mg/l as a Daily Maximum, which does not conform to U.S. EPA criteria. Therefore, in the proposed Order, Effluent Limitations for chlorine residual based on Ambient Water Quality Criteria, have been included to protect the aquatic life beneficial uses of Clear Lake. The Discharger has the capability of installing a temporary dechlorination system to meet the discharge limitations for chlorine. A temporary system can quickly be installed to add a dechlorination chemical. Because the Effluent Limitations are based on the Narrative Toxicity Objective, the requirement for immediate compliance with the chlorine limitations is included in the accompanying Cease and Desist Order No. R5-2002-0131.

g. **Consideration of Bromodichloromethane Limits**

Bromodichloromethane was detected in an effluent sample at 1.5 µg/l. In the CTR, the U.S. EPA has listed a criterion for the protection of Human Health ( $10^{-6}$  risk for carcinogens), for Consumption of Water and Organisms, at 0.56 µg/l. The detected concentration exceeds the criterion. Therefore, an Effluent Limitation for Bromodichloromethane of 0.56 µg/l has been established in the proposed Order. The effluent concentration of Bromodichloromethane threatens to exceed the proposed Effluent Limitation, which was based on the CTR. Therefore, the proposed Order contains a Provision with a compliance schedule for implementing the Effluent Limitations for Bromodichloromethane. The Provision also allows the Regional Board to reopen the Order to modify the Bromodichloromethane Effluent Limitations based on the adoption of new criteria by U.S. EPA and/or information collected by the Discharger in the monthly monitoring reports.

h. **Consideration of Aluminum Limits**

This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Aluminum is an element that is found naturally in soils and the water that comes in contact with the soil. The Discharger uses alum (Aluminum sulfate) as a coagulant in the water treatment process, and as a result, may discharge aluminum to Clear Lake. The U.S. EPA has developed Drinking Water Standards and Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for aluminum. The use of aluminum in the treatment process presents a reasonable potential that aluminum could be discharged in toxic concentrations. It is possible for the Discharger to stop discharging or significantly reduce aluminum by replacing alum with a different coagulant. The proposed Order contains Effluent Limitations of 87 µg/l on a 4-Day Average, and 750 µg/l on a 1-Hour Average, based on Ambient Water Quality Criteria. Because the imposition of Effluent Limitations is based on the Narrative Toxicity

Objective, a compliance schedule is included in the accompanying Cease and Desist Order No. R5-2002-0131.

i. **Consideration of Mercury Limits**

**Water Quality Limited Segments/303(d) List**

On page IV-7.00, the Basin Plan defines Water Quality Limited Segments (WQLSs) as “*those sections of lakes, streams, rivers, or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate effluent limitations for point sources.*” The Basin Plan goes on to state on page IV-7.00, “*Additional treatment beyond minimum federal requirements will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*” The Basin Plan contains a list (known as the 303(d) List) of WQLSs in Appendix Item 38.

Mercury is included on the 303(d) list, as a pollutant that causes impairment of Clear Lake. Mercury concentrations in water samples from Clear Lake have exceeded 0.050 µg/l, the Human Health criterion for mercury, for consumption of water and aquatic organisms. Mercury concentrations in tissue from fish and birds, living in and on Clear Lake, have also exceeded health criteria. Therefore, the discharge from the water treatment facility must not cause or contribute to increased mercury levels in fish tissue to meet the requirements of the anti-degradation policy described in Resolution No. 68-16 and the anti-degradation policy described in the Code of Federal Regulations 40 CFR 131.12(a)(1) (included in the Basin Plan as Appendix Items 2 and 39, respectively).

**California Toxics Rule Criteria for Mercury**

The Human Health criterion ( $10^{-6}$  risk for carcinogens) in the CTR for mercury, for consumption of water and aquatic organisms, is 0.050 µg/l. U.S. EPA acknowledges in the Code of Federal Regulations, 40 CFR Part 131, that Human Health criteria may not be protective of some aquatic or endangered species and that “more stringent mercury limits may be determined and implemented through use of the State’s narrative criterion.” In the CTR, the U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

**California Toxics Rule/Intake Water Credits**

On pages 17 and 18, the State Implementation Plan (SIP) for the CTR also contains Section 1.4.4 Intake Water Credits, which states that after the Discharger has met five conditions (specified in the SIP) to the satisfaction of the Regional Board:

*“A RWQCB may consider priority pollutants in intake water on a pollutant-by-pollutant and discharge-by-discharge basis when establishing water quality-based effluent limitations...*

*Where the above conditions are met, the RWQCB may establish effluent limitations allowing the facility to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration found in the facility’s intake water...*

*The permit shall specify how compliance with mass- and concentration-based limitations for the intake water pollutant will be assessed. This may be done by basing the effluent limitation on ambient background concentration data. Alternatively, the RWQCB may determine compliance by simultaneously monitoring the pollutant concentration in the intake water and in the effluent. This monitoring may be supplemented by monitoring internal waste streams or by a RWQCB evaluation of the use of best management practices.”*

As defined in the SIP in Appendix 1:

*“Best Management Practices (BMPs) are methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from the point and nonpoint source discharges including storm water. BMPs include structural and non-structural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.”*

#### **Application of Intake Water Credits**

To consider Intake Water Credits when establishing discharge limits for mercury to Clear Lake, the conditions listed in the SIP must be met by the discharge, as follows:

- Condition (1) - Concentrations of mercury in water samples from Clear Lake exceed current water quality standards;
- Condition (2) – There are, as yet, no TMDLs established for Clear Lake;
- Condition (3) – The Discharger extracts water from Clear Lake, treats it for drinking water consumption, and discharges backwash from the filters back into Clear Lake.
- Conditions (4) and (5) –Because the only source of filter backwash water is Clear Lake, discharging it back into Clear Lake will not increase the mass of mercury discharged. The filter process does not alter mercury chemically, but mercury may be more concentrated in the backwash discharge than in Clear Lake. Therefore, a mass-based Effluent Limit for mercury qualifies for Intake Water Credits, while a concentration-based Effluent Limit does not.

#### **Concentration-Based Effluent Limitation for Mercury**

Clear Lake is known to contain mercury concentrations in excess of water quality standards. The Discharger extracts water from Clear Lake, treats it for drinking water supply, and discharges backwash from the water treatment filters back into Clear Lake. The filter backwash discharge into Clear Lake may contain mercury in excess of water quality standards and at higher concentrations than the water in Clear Lake. Methylmercury probably also concentrates in the discharge and is the form of mercury of greatest concern. However, there is currently no standard method to translate the fish tissue concentration of methylmercury into a water column concentration. The Code of Federal Regulations, 40 CFR 122.44(d)(1)(iii), states that when a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above allowable numeric criteria for an individual pollutant, the NPDES permit must contain an effluent limit. Clear Lake is a source of drinking water. Therefore, based on the considerations enumerated and discussed above, a concentration-based Effluent

Limitation has been established for mercury, in the proposed Order, at the Human Health Criterion of 0.050 µg/l.

**Mass-Based Effluent Limitation for Mercury**

The proposed Order contains a mass-based Effluent Limitation for mercury, such that the mass of mercury in the discharge shall not exceed the monthly mass of mercury in water samples from Clear Lake. The mass of mercury in the discharge and in lake samples must be calculated for each reporting period. The Effluent Limitation is calculated by multiplying the volume of water extracted per month by the concentration of mercury reported by the laboratory. The amount of mercury that is discharged, and that must be compared to the Effluent Limitation, must be calculated by multiplying the total volume discharged per month by the concentration of mercury in the effluent reported by the laboratory.

Because the Effluent Limitations are based on the CTR, the proposed Order contains a Provision with a schedule for implementing the Effluent Limitations for mercury. The Provision also allows the Regional Board to reopen the Order to modify the mercury Effluent Limitations based on the adoption of new mercury criteria by U.S. EPA and/or information collected by the Discharger in the monthly monitoring reports.

15. This Order contains new Effluent Limitations for Dissolved Oxygen (DO), pH, Chlorine, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Bromodichloromethane, Aluminum, and Mercury. This Order contains Provisions with compliance schedules for the Discharger to implement the necessary improvements to comply with the new Mercury and Bromodichloromethane Limitations. The accompanying Cease and Desist Order contains schedules for compliance with the new EC, TDS, Chlorine, and Aluminum Limitations.

**BASIN PLAN WATER QUALITY OBJECTIVE FOR TOXICITY**

16. The Basin Plan contains a narrative Water Quality Objective for Toxicity on page III-8.00, which states in part:

*“All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board...”*

*As a minimum, compliance with this objective... shall be evaluated with a 96-hour bioassay...*

*In addition, effluent limitations based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”*

The existing Order has no Provisions, Effluent Limitations or monitoring and reporting requirements for toxicity. The proposed Order contains an Effluent Limitation for the 96-hour bioassay. The proposed Monitoring and Reporting Program contains requirements for conducting chronic biotoxicity tests. The proposed Order also contains a Provision for establishing Effluent Limitations, if necessary based on the results of the chronic biotoxicity tests.

### **VIOLATIONS OF REPORTING REQUIREMENTS**

17. The Regional Board adopted existing Waste Discharge Requirements Order No. 96-099 on 3 May 1996. Provision E.3 states, "*The Discharger shall comply with the attached Monitoring and Reporting Program No. 96-099, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.*" The Monitoring and Reporting Program specifies the frequency of monitoring and constituents to be monitored. The Monitoring and Reporting Program specifies that monitoring data for Raw Water Supply, Surface Water Effluent, and Receiving Water is to be submitted quarterly and Sludge monitoring data is to be submitted annually. The Discharger, in violation of Provision E.3, has submitted no quarterly or annual monitoring reports. Past failures to submit monitoring reports indicate that the Discharger threatens to violate the similar Provision in the proposed Order. The accompanying Cease and Desist Order No. R5-2002-0131 requires that the Discharger begin submittal of monitoring reports immediately.

Continued failure to submit monitoring reports may result in additional enforcement, including Administrative Civil Liability. Failure to submit monitoring reports is a violation of Section 13383 of the California Water Code, which gives the Regional Board the authority to establish monitoring and reporting requirements for NPDES permits. Civil Liability for violation of Section 13383 is up to \$10,000 for each day in which the violation occurs. In addition, failure to submit monitoring reports is a violation of Section 13267 of the California Water Code, which gives the Regional Board authority to require submittal of technical reports. Civil Liability for violation of Section 13267 is up to \$1,000 per day in which the violation occurs.

### **GENERAL INFORMATION**

18. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.), which requires preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.
19. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

20. Effluent limitations, and toxic and pretreatment effluent standards established pursuant to Sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the Clean Water Act (CWA) and amendments thereto are applicable to the discharge.
21. The discharge is presently governed by Waste Discharge Requirements Order No. 96-099 (NPDES No. CA0083925), adopted by the Regional Board on 3 May 1996.
22. The Regional Board has considered the information in the attached Information Sheet in developing the Findings of this Order. The attached Information Sheet is part of this Order.
23. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
24. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
25. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided U.S. EPA has no objections.

**IT IS HEREBY ORDERED** that Order No. 96-099 is rescinded and Riviera West Mutual Water Company, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions:**

1. Discharge of wastewater at a location or in a manner different from that described in the Findings, is prohibited.
2. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
3. The discharge or storage of waste classified as ‘hazardous’ or ‘designated’, as defined in Sections 2521(a) and 2522(a) of Title 27, is prohibited.
4. The bypass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached “Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)”].

**B. Effluent Limitations:**

1. Effluent shall not exceed the following limits:

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>4-Day Average</u>	<u>1-Hour Average</u>	<u>Daily Maximum</u>
EC	µmhos/cm	700	1,600			2,000
TDS	mg/l	500	1,000			1,500
Total Chlorine	mg/l			0.01		0.02
Bromodichloromethane	µg/l	0.56				
Aluminum	µg/l			87	750	
Mercury	µg/l	0.05				

2. The mass of mercury in the discharge shall not exceed the monthly mass of mercury in water samples from Clear Lake. The mass of mercury in the discharge and in lake samples must be calculated for each reporting period. The mass-based Effluent Limitation is calculated by multiplying the volume, of water extracted from the lake per month, by the concentration of mercury reported by the laboratory. The amount of mercury that is discharged, and that must be compared to the Effluent Limitation, must be calculated by multiplying the total volume discharged per month by the concentration of mercury in the effluent reported by the laboratory. The two calculations are then compared. The calculation of the mass of mercury in the effluent shall not exceed the calculation of the mass of mercury in the raw water supply:

**Calculation to determine monthly mass-based mercury Effluent Limitation:**

$$(\text{Volume}) \times (\text{Concentration}) \times (\text{Conversion Factor}) = \text{Mass of Mercury (grams)}$$

or

$$(\# \text{ gallons in 1 month}) \times (\# \mu\text{g/l}) \times (3.785 \text{ liters/gallon}) = \text{Mass of Mercury (grams)}$$

Volume = Gallons of Raw Water extracted from the Lake in 1 month

Concentration = Mercury concentration in Raw Water sample reported by laboratory (µg/l)

Conversion Factor = 3.785 liters/gallon

**Calculation to determine mass of mercury in the effluent in 1 month:**

$$(\text{Volume}) \times (\text{Concentration}) \times (\text{Conversion Factor}) = \text{Mass of Mercury (grams)}$$

or

$$(\# \text{ gallons in 1 month}) \times (\# \mu\text{g/l}) \times (3.785 \text{ liters/gallon}) = \text{Mass of Mercury (grams)}$$

Volume = Gallons of Effluent discharged to the Lake in 1 month

Concentration = Mercury concentration in Effluent sample reported by laboratory (µg/l)

Conversion Factor = 3.785 liters/gallon

3. The discharge to the receiving water shall not have a dissolved oxygen concentration less than 7.0 mg/l.
4. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
5. The average daily discharge flow shall not exceed 5,200 gallons per day.
6. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:  

Minimum for any one bioassay -----70%  
Median for any three or more consecutive bioassays -----90%

**C. Receiving Water Limitations:**

Receiving Water Limitations are based on water quality objectives contained in the Basin Plan. As such, they are a required part of this Order.

The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7.0 mg/l. The monthly median of the mean daily dissolved oxygen (DO) shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent of saturation.
2. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.
3. The ambient temperature to increase more than 5°F.
4. The turbidity to increase as follows:
  - a. More than 1 Nephelometric Turbidity Unit (NTU) where natural turbidity is between 0 and 5 NTUs.
  - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
  - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
5. Oils, greases, waxes, sediments, fine sediments, or other materials to form a visible film or coating on the water surface or on the stream bottom.
6. Oils, greases, waxes, floating material (liquids, solids, foams, and scums), or suspended material to create a nuisance or adversely affect beneficial uses.

7. Aesthetically undesirable discoloration.
8. Fungi, slimes, or other objectionable growths.
9. Deposition of material that causes nuisance or adversely affects beneficial uses.
10. Deposition of material that reduces or restricts the natural flow.
11. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.
12. Taste or odor-producing substances to impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin or to cause nuisance or adversely affect beneficial uses.
13. Toxic pollutants to be present in the water column, sediments, or biota in concentrations that adversely affect beneficial uses; that produce detrimental response in human, plant, animal, or aquatic life; or that bioaccumulate in aquatic resources at levels which are harmful to human health.
14. Violation of any applicable water quality standard for receiving waters adopted by the Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

**D. Groundwater Limitations:**

The discharge shall not cause groundwater to be degraded.

**E. Provisions:**

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year frequency.
2. The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if the State Water Resources Control Board adopts a chronic toxicity water quality objective, this Order may be reopened and a limitation based on that objective included.

3. There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives. The constituents, specifically listed in a technical report requirement issued by the Executive Officer on 10 September 2001, include NTR, CTR, and additional constituents, which could exceed Basin Plan numeric or narrative water quality objectives. The Discharger shall comply with the following compliance schedule in conducting a study of the potential effects of these constituents on surface waters:

<u>Task</u>	<u>Compliance Date</u>
Submit Study Report	<b>1 March 2003</b>
Submit Study Report for Dioxins	<b>1 March 2003</b>

This Order is intended to be consistent with the 10 September 2001 technical report requirement, which shall take precedence in resolving any conflicts. The Discharger shall submit the specified document, or a written report detailing compliance or noncompliance with the specific date and task, to the Regional Board on or before each compliance date. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with schedule.

If after review of the study results, it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened and Effluent Limitations added for the appropriate constituents.

4. The Discharger shall submit an annual report to the California Department of Fish and Game (CDFG), containing the raw water, effluent, and receiving water temperature data, required by the Monitoring and Reporting Program, and requesting input from CDFG regarding the impact of the discharge on Clear Lake fisheries.

If after review of the monitoring results, it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective for Temperature, this Order may be reopened and Effluent Limitations added for Temperature.

5. If after review of the monitoring results, it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective for Turbidity, this Order may be reopened and Effluent Limitations added for Turbidity.
6. If after review of the monitoring results, it is determined that the discharge has a reasonable potential to cause or contribute to an exceedance of a water quality objective for Chloroform, this Order may be reopened and Effluent Limitations added for Chloroform.

7. The Discharger shall comply with the following schedule to develop a Bromodichloromethane source control program or treatment measures necessary to achieve compliance with this Order:

<u>Task</u>	<u>Compliance Date</u>
Submit Plan for Bromodichloromethane Compliance	<b>120 days after permit adoption</b>
Begin Implementation	<b>1 year after permit adoption</b>
Full Compliance with Effluent Limitations	<b>2 years after permit adoption</b>

The Discharger shall submit to the Regional Board on or before each compliance date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the compliance schedule.

8. The Discharger shall comply with the following schedule to develop a Mercury source control program or treatment measures necessary to achieve compliance with this Order:

<u>Task</u>	<u>Compliance Date</u>
Submit Plan for Mercury Compliance	<b>120 days after permit adoption</b>
Begin Implementation	<b>1 year after permit adoption</b>
Full Compliance with Effluent Limitations	<b>2 years after permit adoption</b>

The Discharger shall submit to the Regional Board on or before each compliance date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the compliance schedule.

If U.S. EPA adopts new criteria for Mercury, this Order will be reopened and effluent limitations for Mercury will be modified.

9. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission, pursuant to Section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.
10. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated 1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

11. The Discharger shall comply with Monitoring and Reporting Program No.R5-2002-0130, which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
12. When requested by U.S. EPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.
13. This Order expires on **1 July 2007** and the Discharger must file a Report of Waste Discharge in accordance with Title 23, CCR, not later than 180 days in advance of such date in application for renewal of waste discharge requirements if it wishes to continue the discharge.
14. Prior to making any change in the discharge point, place of use, or purpose of use of the wastewater, the Discharger shall obtain approval of, or clearance from the State Water Resources Control Board (Division of Water Rights).
15. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to this office.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

I, THOMAS R. PINKOS, Acting Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 19 July 2002.

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THOMAS R. PINKOS, Acting Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2002-0130

NPDES NO. CA0083925

FOR

RIVIERA WEST MUTUAL WATER COMPANY  
DOMESTIC WATER TREATMENT PLANT  
LAKE COUNTY

The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Regional Board's staff, and a description of the stations shall be attached to this Order.

**RAW WATER SUPPLY MONITORING**

A sampling station shall be established at the headworks of the water treatment facilities. A representative sample of the raw water supply will be obtained and tested for the following:

<u>Constituent</u>	<u>Units</u>	<u>Sampling Frequency</u>
Flow <sup>1</sup>	gpd	Daily
Dissolved Oxygen (DO)	mg/l	Weekly
pH	--	Weekly
Electrical Conductivity @ 25°C (EC)	µmhos/cm	Weekly
Turbidity	NTU	Weekly
Temperature	°F	Weekly
Mercury <sup>2</sup>	µg/l	Monthly

<sup>1</sup> Shall be measured with a Continuous or Cumulative Recording Instrument

<sup>2</sup> "Clean Techniques" must be used for all mercury analyses. Method 1631 for mercury can achieve a reporting limit of 0.5 ng/L with an MDL of 0.2 ng/L.

**RECEIVING WATER MONITORING**

A log shall be kept of the receiving water conditions at the same time that effluent samples are collected. Attention shall be given to the presence or absence of:

- |                                 |                                            |
|---------------------------------|--------------------------------------------|
| a. Floating or suspended matter | e. Visible films, sheens, or coatings      |
| b. Discoloration                | f. Fungi, slimes, or objectionable growths |
| c. Bottom deposits              | g. Potential nuisance conditions           |
| d. Aquatic life                 |                                            |

Notes on receiving water conditions shall be summarized in the monthly monitoring report.

### EFFLUENT MONITORING

When Effluent samples shall be collected just prior to discharge to the drop inlet. Effluent samples should be representative of the volume and nature of the discharge. If the discharge is intermittent rather than continuous, then the Discharger shall monitor and record data for the weekly samples once per week while effluent is being discharged. Time of collection of a grab sample shall be recorded. Effluent monitoring shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	GPD	Cumulative	While Discharging
DO	mg/l	Grab	Weekly
PH	--	Grab	Weekly
EC	µmhos/cm	Grab	Weekly
TDS	mg/l, g/day	Grab	Weekly
Turbidity	NTU	Grab	Weekly
Temperature	°F	Grab	Weekly
Residual Chlorine	mg/l, g/day	Grab	Weekly
Aluminum	µg/l, g/day	Grab	Monthly
Mercury	µg/l, g/day	Grab	Monthly
Acute Toxicity	% Survival	Grab	Quarterly
Priority Pollutants	mg/l	Grab	Annually

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GPD = Gallons Per Day  
 g/day = grams per day

### THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to the receiving water. The testing shall be conducted as specified in EPA 600/4-91/002. Chronic toxicity samples shall be collected from Discharge No. 001, the non-contact cooling water, prior to its entering Clear Lake. A grab sample shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The control water, or standard dilution water, shall be provided by the laboratory or collected from the potable water supply at the facility. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Both the reference toxicant and effluent test must meet all test acceptability criteria as specified in the chronic manual. If the test acceptability criteria are not achieved, then the Discharger must re-sample and re-test as soon as possible after being notified by the laboratory, but not later than 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas* (larval stage), *Ceriodaphnia dubia*, *Selenastrum capricornutum*  
 Frequency: Semi-annually (every six months)  
 Dilution Series: None, the tests shall be conducted using 100% effluent

### SLUDGE MONITORING

A composite sample of sludge shall be collected annually, and tested for the following metals:

Arsenic	Chromium	Lead	Nickel
Cadmium	Copper	Mercury	Zinc

Sampling records shall be retained for a minimum of five years. A log shall be kept of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log should be complete enough to serve as a basis for part of the annual report.

When sludge has been removed from the water treatment facility, the Discharger shall submit:

- a. Annual sludge production in dry tons and percent solids.
- b. A description of disposal methods. If more than one method is used, include the percentage of annual sludge production disposed by each method.
- c. For Landfill disposal, include (1) the names and locations of the landfill(s), (2) the Regional Board WDR Order Number that regulates the landfill(s), and (3) the classification of the landfill(s).

Sludge shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.

### REPORTING

Monitoring results shall be submitted to the Regional Board by the **first day of the second month following sample collection**. Quarterly and annual monitoring results shall be submitted by the **first day of the second month following each calendar quarter, semi-annual period, and year**, respectively.

The Mercury mass-based Effluent Limitation will be calculated as described in Effluent Limitation B.2 of Waste Discharge Requirements Order No. R5-2002-0130 and reported with monitoring results.

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the time and date of sample collection, the constituents, and the concentrations are readily discernible. The data shall be summarized to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages and medians, should be determined and recorded.

If the Discharger monitors any pollutant at the locations designated herein more frequently than is required by this Order, the results of such monitoring shall be included in the calculation and reporting of

the values required in the discharge monitoring report form. Such increased frequency shall be indicated on the discharge monitoring report form.

By **30 January** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

- a. The names and general responsibilities of all persons employed at the Domestic Water Treatment Plant (Standard Provision A.5).
- b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
- c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).
- d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the Regional Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

All reports submitted in response to this Order shall comply with the signatory requirements of Standard Provision D.6.

The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: \_\_\_\_\_  
THOMAS R. PINKOS, Acting Executive Officer

\_\_\_\_\_  
19 July 2002  
(Date)

EAT/eat

## **INFORMATION SHEET**

**WASTE DISCHARGE REQUIREMENTS ORDER NO. R5-2002-0130**  
**NPDES NO. CA0083925**  
**RIVIERA WEST MUTUAL WATER COMPANY**  
**DOMESTIC WATER TREATMENT PLANT**  
**LAKE COUNTY**

### **SCOPE OF PERMIT**

This renewed Order regulates the discharge of 0.0052 MGD (average dry weather flow) of filter backwash wastewater from the Domestic Water Treatment Plant of the Riviera West Mutual Water Company. The wastewater is discharged to Clear Lake in Lake County.

### **SITE DESCRIPTION**

Riviera West Mutual Water Company owns and operates the Riviera West Mutual Water Company, Domestic Water Treatment Plant, a water treatment system for potable water supply in the Riviera West area of Lake County, near Konocti Bay. The Treatment Plant is at the edge of Clear Lake in Assessors Parcel Number 44-340-25, Section 9, T13N, R8W, MDB&M, at Latitude N 38°59'57" and Longitude W 122°44'56". Additional pumps and storage tanks are located near the intersection of Riviera West and Mountain Crest.

Water is extracted from Clear Lake and treated for potable supply. The treatment system includes prechlorination and alum coagulation, followed by pressurized multi-media filtration through anthracite and sand, followed by filtration through an activated carbon pressure filter, and postchlorination. Alum sludge is gravity settled in backwash water from the filters in a backwash tank or clearwell. The supernatant is decanted from the backwash tank and discharged intermittently to Clear Lake. Sludge is hauled off-site for disposal at a local publicly owned treatment works.

The backwash wastewater is discharged at the end of a pier owned by the Discharger. The discharge pipeline is attached to the pier and includes a down-pipe into the Lake. The approximate length of the pipeline is approximately 60 feet and the wastewater is discharged approximately 4 to 15 feet below the surface of the Lake (depending on Lake depth). The primary purpose of the pier is recreational, and a floating dock is attached to the end of the pier.

The Report of Waste Discharge describes the Water Treatment Plant flow rates, in million gallons per day (mgd), as follows:

Average Daily Flow Rate (Domestic Water day or gpd)	0.092 mgd (92,000 gallons per day)
Average Daily Flow Rate (Discharged Water)	0.0052 mgd (5,200 gpd)
Average Flow Per Discharge	0.0005 mgd
Number of Times Per Year Discharge Occurs	300
Average Duration of Each Discharge	3.5 hours
Number of Homes Served	197

## **SITE HISTORY**

The existing NPDES Permit, Order No. 96-099, was issued in May 1996. Riviera West Mutual Water Company provided drinking water from Clear Lake to 167 residences in the Riviera West Subdivision. The maximum buildout potential is approximately 420 lots. At the time of application, the plant produced an average daily demand of 39,800 gallons per day (GPD), including backwashes. The average daily dry weather demand was 82,000 GPD. Filter backwash water was discharged at a rate of approximately 6,000 GPD. The Discharger was in the process of making improvement to the treatment plant and projected that at ultimate buildout, there will be a discharge of 40,000 gallons per week of decanted backwash water and that approximately 2000 pounds per year of sludge of will be removed.

## **BASIN PLAN**

The Regional Board adopted *The Water Quality Control Plan for the California Regional Water Quality Control Board, Central Valley Region, the Sacramento River Basin and the San Joaquin River Basin, Fourth Edition – 1998* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin.

Water treatment system backwash is discharged to Clear Lake. As designated in the Basin Plan, Clear Lake is in the Clear Lake Hydrologic Subarea (513.52), Upper Cache Creek Hydrologic Area (513.50), and Cache Creek Hydrologic Unit (513.00), in the Sacramento Hydrologic Basin. Clear Lake drains into Cache Creek, which flows into the Yolo Bypass, which then drains toward the Sacramento River Delta.

The Basin Plan states, on page IV-23.00, “*The Porter-Cologne Water Quality Control Act allows the Regional Water Board to prohibit certain discharges (Water Code Section 13243).*” The Basin Plan further states, on page IV-23.00, “*Water Bodies for which the Regional Water Board has held that the direct discharge of wastes is inappropriate as a permanent disposal method include sloughs and streams with intermittent flow or limited dilution capacity. The direct discharge of municipal and industrial wastes (excluding storm water discharges) into the following specific water bodies has been prohibited, as*

*noted*'. Clear Lake is included on the list of prohibited water bodies on page IV–24.00 of the Basin Plan. However, the proposed discharge is distinctly different, in quality and origin, from either industrial or municipal waste. Therefore, the discharge does not violate the Basin Plan prohibition.

## **SURFACE WATER BENEFICIAL USES**

The Basin Plan states, on page II-1.00, “*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*” and “*...disposal of wastewaters is [not] a prohibited use of waters of the state; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*” Existing and potential beneficial uses that currently apply to surface waters of the hydrologic basins are presented in Figure II-1 and Table II-1 of the Basin Plan. The Existing Beneficial Uses of Clear Lake, as identified in Table II-1 of the Basin Plan, are Municipal and Domestic Supply, Irrigation and Stock Watering, Contact and Non-Contact Recreation including esthetic enjoyment, Warm Freshwater Habitat, Warm Spawning Habitat, and Wildlife Habitat. Cold Freshwater Habitat was also identified in Table II-1 as a Potential Beneficial Use of Clear Lake. Additional Beneficial Uses, listed on pages II-1.00 and II-2.00 that apply to Clear Lake, include Groundwater Recharge and Freshwater Replenishment. Upon review of the flow conditions, habitat values, and beneficial uses of Clear Lake, the Regional Board finds that the beneficial uses identified in the Basin Plan for Clear Lake are applicable based on the following facts:

### **a. Municipal, Domestic, and Agricultural Supply**

The State Water Resources Control Board Resolution No. 88-63, “Sources of Drinking Water”, provides that: all surface and ground waters of the State are considered to be suitable or potentially suitable, for municipal or domestic water supply and should be so designated by the Regional Boards. The State Water Resources Control Board (SWRCB) has recorded water rights for municipal, domestic uses, irrigation uses, recreational uses, and fish and wildlife protection and/or enhancement on Clear Lake. Riparian Rights, for landowners along lakes, streams, and rivers, are not recorded with the SWRCB and have precedence over other water rights. There may be other domestic and irrigation uses along Clear Lake that are not registered with the SWRCB. Regional Board staff observed residences, businesses, and recreation areas located adjacent to and near Clear Lake, which may use the water for domestic and irrigation purposes.

The Discharger extracts water from Clear Lake and treats it for domestic supply.

Clear Lake may provide groundwater recharge at times. Groundwater is a designated source of drinking and irrigation water and there may be groundwater wells located near Clear Lake, which provide domestic and irrigation water supply.

**b. Water Contact and Non-contact Water Recreation and Aesthetic Enjoyment**

The Regional Board has determined that there is direct public access to Clear Lake and there are numerous recreation and residential areas adjacent to the lake. There is swimming, boating, water skiing, other water sports, and fishing on the lake.

**c. Cold and Warm Freshwater Habitat (including preservation or enhancement of fish and invertebrates), Warm Water Spawning Habitat, and Wildlife Habitat**

The Basin Plan (Table II-1) designates Clear Lake as warm freshwater habitat and potential cold freshwater habitat. The California Department of Fish and Game has recorded the presence of the following species of fish in Clear Lake:

Black Crappie	Large Mouth Bass
Blackfish	Sacramento Brown Perch
Blue Gill	Sacramento Pike Minnow
Channel Catfish	Threadfin Shad
Carp	Tule Perch
Hitch (Squawfish)	White Catfish
Inland Silversides	White Crappie

The presence of the fish species indicates the habitat designation for Clear Lake is appropriate. The cold freshwater habitat designation necessitates that the dissolved oxygen concentration in the lake be maintained at, or above, 7.0 mg/l.

**d. Groundwater Recharge**

In areas where the groundwater elevation is below the bottom of the lake, water from the lake will percolate to groundwater. Although specific hydrogeologic information is not available, it is reasonable to assume that at times Clear Lake may provide groundwater recharge. Groundwater provides a source of municipal and irrigation water supply.

**e. Freshwater Replenishment**

The water in Clear Lake is hydraulically connected to Cache Creek and the Sacramento River Delta. Clear Lake contributes to the quantity and may impact the quality of the water in the downstream waters.

## **GROUNDWATER BENEFICIAL USES**

The beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service and process supply, and agricultural supply.

## **ESTABLISHING LIMITATIONS/STUDIES**

### **NTR/CTR**

U.S. EPA adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain criteria for priority pollutants and water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan or SIP), which contains guidance on implementation of the NTR and the CTR.

### **Pollutant Study**

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. The proposed Order contains provisions that:

- a. Require the Discharger to conduct a study to determine whether concentrations of NTR, CTR, or other pollutants in the discharge cause or contribute to an in-stream excursion above a water quality or Basin Plan numeric or narrative objective;
- b. Require the Discharger to submit information to calculate effluent limitations for those constituents in the discharge that have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective; and
- c. Allow the Regional Board to reopen the proposed Order and include effluent limitations for those constituents.

On 10 September 2001, the Executive Officer issued a letter, in conformance with Section 13267 of the California Water Code, requiring the Discharger to prepare a technical report assessing water quality. The proposed Order is intended to be consistent with the requirements for the technical report, in requiring sampling for NTR, CTR, and additional constituents, to determine the full water quality impacts of the discharge. The technical report requirements list specific constituents, detection levels, acceptable time frames, and report requirements. The technical report requirements shall take precedence in resolving any conflicts.

## **Discharge Limitations**

Federal regulations require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Based on information submitted as part of the application, the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above water quality standards and objectives for the constituents discussed below. Effluent limitations and/or studies have been included in the proposed Order.

Wastewater from the treatment facility is discharged to Clear Lake. Monitoring reports have not been submitted and no sampling has been conducted to show that assimilative capacity exists for any constituents discharged to Clear Lake. In addition, there has been no analysis of Clear Lake to show that currents in the lake would provide mixing for mixing zone or dilution credits. In general, lake and reservoir systems tend to accumulate pollutants. Therefore, dilution has not been considered in establishing discharge limitations. To protect the beneficial uses of Clear Lake, limitations, both acute and chronic, have been established as end-of-pipe limits.

### **a. Consideration of Dissolved Oxygen Limits**

The Basin Plan, on page III-5.00, identifies a numerical Water Quality Objective for Dissolved Oxygen (DO) of 7 mg/l, in waters designated for cold water beneficial uses. As specified in Table II-1 of the Basin Plan, cold water habitat is a potential Beneficial Use of Clear Lake. Therefore, the proposed Order contains an Effluent Limitation for DO of 7 mg/l.

### **b. Consideration of pH Limits**

On page III-5.00, the Basin Plan Water Quality Objective for pH states “*The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*” As specified in Table II-1 of the Basin Plan, cold water habitat is a potential Beneficial Use and warm water habitat is a designated Beneficial Use of Clear Lake. The existing Order has an Effluent Limitation that specifies that the discharge shall not have a pH less than 6.0 nor greater than 9.0. However, this limitation does not conform to the Water Quality Objective. Therefore, the proposed Order contains Effluent Limitations for pH based on the Basin Plan Water Quality Objective, that pH must be maintained between 6.5 and 8.5.

### **c. Consideration of Temperature Limits**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. On page III-8.00, the Basin Plan Water Quality Objective for temperature states, “*At no time or place shall the temperature of COLD or WARM interstate waters be increased more than 5°F above natural receiving water temperature.*”

Comparison of the discharge temperature with the temperature of the Lake would require collecting temperature samples from Clear Lake. However, collecting temperature data from Clear Lake involves more variables than encompassed by the scope of the proposed Order. Therefore, Effluent Limitations are not proposed at this time. The proposed Order contains Receiving Water Limitations based on the Basin Plan Water Quality Objective. The proposed Order also contains a Provision for the Discharger to report raw water, effluent, and receiving water temperature data, and consult with the California Department of Fish and Game regarding the impact the discharge temperature has on Clear Lake fisheries. The Provision also allows the Regional Board to reopen the Order and establish Effluent Limitations for temperature if new data indicates Effluent Limitations are warranted.

**d. Consideration of Turbidity Limits**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. The water treatment process results in accumulation of solids and the discharge of filter backwash into Clear Lake. The filter backwash may be higher in turbidity than the waters of Clear Lake. On page III-9.00, the Basin Plan Water Quality Objective for turbidity states, “*Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses.*”

The existing Order contains an Effluent Limitation for Turbidity of 20 NTU. However, the explanation for establishing the turbidity limitation at 20 NTU was not included in the existing Order; the value was not a former Basin Plan Water Quality Objective and it is not consistent with current Objectives. Therefore, the proposed Order does not contain the 20 NTU Effluent Limitation.

The proposed Order contains Receiving Water Limitations based on the Basin Plan Water Quality Objective for turbidity. However, establishing the turbidity of Clear Lake waters in the vicinity of the discharge is beyond the scope of the proposed Order and the resources of the Discharger. The volume of the discharge is miniscule in comparison to the volume of Clear Lake. Therefore, the impact of the turbidity of the discharge upon the turbidity of the waters of Clear Lake is minimal and Effluent Limitations are not proposed. The proposed Order contains a Provision to reopen the Order and establish Effluent Limitations, if additional turbidity information indicates that Effluent Limitations are warranted.

**e. Consideration of Limits for Electrical Conductivity and Total Dissolved Solids**

The Discharger removes water from Clear Lake, treats it to drinking water standards, and discharges filter backwash back into Clear Lake. The water treatment process results in accumulation of solids and the discharge of filter backwash into Clear Lake. The solids and filter backwash may be higher in Electrical Conductivity (EC) and Total Dissolved Solids (TDS) than Clear Lake. Title 22 of the California Code of Regulations, contains Secondary Maximum Contaminant Levels (MCLs) for EC and TDS as follows:

<u>Constituent</u>	<u>Recommended Level</u>	<u>Upper Level</u>	<u>Short Term Maximum</u>
EC (µmhos/cm)	900	1600	2200
TDS (mg/l)	500	1000	1500

Irrigation supply is a beneficial use of both surface and groundwater. An EC limitation of 700 µmhos/cm is recommended to protect salt-sensitive crops. Clear Lake is used for irrigation. The discharge from the water treatment facility has the potential to discharge wastewater that has high EC and TDS. Therefore, Effluent Limitations for EC and TDS, based on the Secondary MCLs have been included in the proposed Order. Because the Effluent Limitations are based on existing Drinking Water Objectives, a schedule for compliance with the EC and TDS Effluent Limitations is included in the accompanying Cease and Desist Order No. R5-2002-0131.

**f. Consideration of Chlorine Limits**

The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters in sufficient concentrations. U.S. EPA recommends, in its Ambient Water Quality Criteria for the Protection of Fresh Water Aquatic Life, that chlorine concentrations not exceed 0.02 mg/l as a 1-hour average (daily maximum) and 0.01 mg/l as a 4-day average. The Discharger uses chlorine for disinfection as part of the water treatment process, and as a result, may discharge chlorine to Clear Lake. The use of chlorine in the treatment process presents a reasonable potential that chlorine residual could be discharged in toxic concentrations. The existing Order contains an effluent limitation for chlorine of 0.1 mg/l as a Daily Maximum, which does not conform to U.S. EPA criteria. Therefore, in the proposed Order, Effluent Limitations for chlorine residual based on Ambient Water Quality Criteria, have been included to protect the aquatic life beneficial uses of Clear Lake. The Discharger has the capability of installing a temporary dechlorination system to meet the discharge limitations for chlorine. A temporary system can quickly be installed to add a dechlorination chemical. Because the Effluent Limitations are based on the Narrative Toxicity Objective, the requirement for immediate compliance with the chlorine limitations is included in the accompanying Cease and Desist Order No. R5-2002-0131.

**g. Consideration of Chloroform Limits**

Chloroform was detected in an effluent sample at 3.5 µg/l. In the CTR, the U.S. EPA has not listed any chloroform criteria for freshwater aquatic life, and has reserved the criteria for Human Health and may adopt new criteria at a later date. The amount of Chloroform detected was well below the U.S. EPA Drinking Water Standard Primary Maximum Contaminant Level for Total Trihalomethanes of 100 µg/l (sum of concentrations of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane). Therefore, the proposed Order contains no Effluent

Limitation from Chloroform. The proposed Order contains a Provision that allows the Regional Board to reopen the Order to add Chloroform Effluent Limitations based on the adoption of new Chloroform criteria by U.S. EPA and/or information collected by the Discharger in the monthly monitoring reports.

**h. Consideration of Bromodichloromethane Limits**

Bromodichloromethane was detected in an effluent sample at 1.5 µg/l. In the CTR, the U.S. EPA has listed a criterion for the protection of Human Health ( $10^{-6}$  risk for carcinogens), for Consumption of Water and Organisms, at 0.56 µg/l. The detected concentration exceeds the criterion. Therefore, an Effluent Limitation for Bromodichloromethane of 0.56 µg/l has been established in the proposed Order. The effluent concentration of Bromodichloromethane threatens to exceed the proposed Effluent Limitation, which was based on the CTR. Therefore, the proposed Order contains a Provision with a compliance schedule for implementing the Effluent Limitations for Bromodichloromethane. The Provision also allows the Regional Board to reopen the Order to modify the Bromodichloromethane Effluent Limitations based on the adoption of new criteria by U.S. EPA and/or information collected by the Discharger in the monthly monitoring reports.

**i. Consideration of Total Trihalomethanes Limits**

The U.S. EPA Drinking Water Standard Primary Maximum Contaminant Level for Total Trihalomethanes is 100 µg/l (sum of concentrations of Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane). Bromodichloromethane was detected in an effluent sample at 1.5 µg/l and Chloroform was detected at 3.5 µg/l. Bromoform and Dibromochloromethane were not detected. The sum of the concentrations, 5.0 µg/l, is well below the criterion of 100 µg/l. Therefore, the proposed Order does not contain an Effluent Limitation for Total Trihalomethanes.

**j. Consideration of Aluminum Limits**

The proposed Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Aluminum is an element that is found naturally in soils and the water that comes in contact with the soil. The Discharger uses alum (Aluminum sulfate) as a coagulant in the water treatment process, and as a result, may discharge aluminum to Clear Lake. The U.S. EPA has developed Drinking Water Standards and Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for aluminum. The use of aluminum in the treatment process presents a reasonable potential that aluminum could be discharged in toxic concentrations. It is possible for the Discharger to stop discharging aluminum by replacing alum with a different coagulant. The proposed Order contains Effluent Limitations based on Ambient Water Quality Criteria. Because the imposition of Effluent Limitations is based on the Narrative Toxicity Objective, a compliance schedule is included in the accompanying Cease and Desist Order No. R5-2002-0131.

**k. Consideration of Mercury Limits**

### **Water Quality Limited Segments/303(d) List**

On page IV-7.00, the Basin Plan defines Water Quality Limited Segments (WQLSs) as “those sections of lakes, streams, rivers, or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate effluent limitations for point sources.” The Basin Plan goes on to state on page IV-7.00, “Additional treatment beyond minimum federal requirements will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.” The Basin Plan contains a list (known as the 303(d) List) of WQLSs in Appendix Item 38.

Mercury is included on the 303(d) list, as a pollutant that causes impairment of Clear Lake. Mercury concentrations in water samples from Clear Lake have exceeded 0.050 µg/l, the Human Health criterion for mercury, for consumption of water and aquatic organisms. Mercury concentrations in tissue from fish and birds, living in and on Clear Lake, have also exceeded health criteria. Therefore, the discharge from the water treatment facility must not cause or contribute to increased mercury levels in fish tissue to meet the requirements of the anti-degradation policy described in Resolution No. 68-16 and the anti-degradation policy described in the Code of Federal Regulations 40 CFR 131.12(a)(1) (included in the Basin Plan as Appendix Items 2 and 39, respectively).

#### **California Toxics Rule Criteria for Mercury**

The Human Health criterion ( $10^{-6}$  risk for carcinogens) in the CTR for mercury, for consumption of water and aquatic organisms, is 0.050 µg/l. U.S. EPA acknowledges in the Code of Federal Regulations, 40 CFR Part 131, that Human Health criteria may not be protective of some aquatic or endangered species and that “more stringent mercury limits may be determined and implemented through use of the State’s narrative criterion.” In the CTR, the U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

#### **California Toxics Rule/Intake Water Credits**

On pages 17 and 18, the State Implementation Plan (SIP) for the CTR also contains Section 1.4.4 Intake Water Credits, as follows:

*“A RWQCB may consider priority pollutants in intake water on a pollutant-by-pollutant and discharge-by-discharge basis when establishing water quality-based effluent limitations, provided that the discharger has demonstrated to the satisfaction of the RWQCB that the following conditions are met:*

- (1) The observed maximum ambient background concentration, as determined in section 1.4.3.1, and the intake water concentration of the pollutant exceed the most stringent applicable criterion/objective for that pollutant;*
- (2) The intake water credits provided are consistent with any TMDL applicable to the discharge that has been approved by the RWQCB, SWRCB, and U.S. EPA;*

- (3) *The intake water is from the same water body as the receiving water body. The discharger may demonstrate this condition by showing that:*
- (a) *the ambient background concentration of the pollutant in the receiving water, excluding any amount of the pollutant in the facility's discharge, is similar to that of the intake water;*
  - (b) *there is a direct hydrological connection between the intake and discharge points;*
  - (c) *the water quality characteristics are similar in the intake and receiving waters; and*
  - (d) *the intake water pollutant would have reached the vicinity of the discharge point in the receiving water within a reasonable period of time and with the same effect had it not been diverted by the discharger.*

*The RWQCB may also consider other factors when determining whether the intake water is from the same water body as the receiving water body;*

- (4) *The facility does not alter the intake water pollutant chemically or physically in a manner that adversely affects water quality and beneficial uses; and*
- (5) *The timing and location of the discharge does not cause adverse effects on water quality and beneficial uses that would not occur if the intake water pollutant had been left in the receiving water body.*

*Where the above conditions are met, the RWQCB may establish effluent limitations allowing the facility to discharge a mass and concentration of the intake water pollutant that is no greater than the mass and concentration found in the facility's intake water. A discharger may add mass of the pollutant to its waste stream if an equal or greater mass is removed prior to discharge, so there is no net addition of the pollutant in the discharge compared to the intake water. Where proper operation and maintenance of the facility's treatment system results in the removal of an intake water pollutant, the RWQCB may establish limitations that reflect the lower mass and concentration of the pollutant achieved by such treatment...*

*The permit shall specify how compliance with mass- and concentration-based limitations for the intake water pollutant will be assessed. This may be done by basing the effluent limitation on ambient background concentration data. Alternatively, the RWQCB may determine compliance by simultaneously monitoring the pollutant concentration in the intake water and in the effluent. This monitoring may be supplemented by monitoring internal waste streams or by a RWQCB evaluation of the use of best management practices."*

As defined in the SIP in Appendix 1:

*"Best Management Practices (BMPs) are methods, measures, or practices designed and selected to reduce or eliminate the discharge of pollutants to surface waters from the point and nonpoint source discharges including storm water. BMPs include*

*structural and non-structural controls, and operation and maintenance procedures, which can be applied before, during, and/or after pollution producing activities.”*

### **Application of Intake Water Credits**

To consider Intake Water Credits when establishing discharge limits for mercury to Clear Lake, the conditions listed above must be met by the discharge, as follows:

- Condition (1) - Concentrations of mercury in water samples from Clear Lake exceed current water quality standards;
- Condition (2) – There are, as yet, no TMDLs established for Clear Lake;
- Condition (3) – The Discharger extracts water from Clear Lake, treats it for drinking water consumption, and discharges backwash from the filters back into Clear Lake.
- Conditions (4) and (5) –Because the only source of filter backwash water is Clear Lake, discharging it back into Clear Lake will not increase the mass of mercury discharged. The filter process does not alter mercury chemically, but mercury may be more concentrated in the backwash discharge than in Clear Lake. Therefore, a mass-based Effluent Limit for mercury qualifies for Intake Water Credits, while a concentration-based Effluent Limit does not.

### **Concentration-Based Effluent Limitation for Mercury**

Clear Lake is known to contain mercury concentrations in excess of water quality standards. The Discharger extracts water from Clear Lake, treats it for drinking water supply, and discharges backwash from the water treatment filters back into Clear Lake. The filter backwash discharge into Clear Lake may contain mercury in excess of water quality standards and at higher concentrations than the water in Clear Lake. Methylmercury probably also concentrates in the discharge and is the form of mercury of greatest concern. However, there is currently no standard method to translate the fish tissue concentration of methylmercury into a water column concentration. The Code of Federal Regulations, 40 CFR 122.44(d)(1)(iii), states that when a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above allowable numeric criteria for an individual pollutant, the NPDES permit must contain an effluent limit. Clear Lake is a source of drinking water. Therefore, based on the considerations enumerated and discussed above, a concentration-based Effluent Limitation has been established for mercury, in the proposed Order, at the Human Health Criterion of 0.050 µg/l.

### **Mass-Based Effluent Limitation for Mercury**

The proposed Order contains a mass-based Effluent Limitation for mercury, such that the mass of mercury in the discharge shall not exceed the monthly mass of mercury in water samples from Clear Lake. The mass of mercury in the discharge and in lake samples must be calculated for each reporting period. The Effluent Limitation is calculated by multiplying the volume of water extracted per month by the concentration of mercury reported by the laboratory. The amount of mercury

that is discharged, and that must be compared to the Effluent Limitation, must be calculated by multiplying the total volume discharged per month by the concentration of mercury in the effluent reported by the laboratory.

Because the Effluent Limitations are based on the CTR, the proposed Order contains a Provision with a schedule for implementing the Effluent Limitations for mercury. The Provision also allows the Regional Board to reopen the Order to modify the mercury Effluent Limitations based on the adoption of new mercury criteria by U.S. EPA and/or information collected by the Discharger in the monthly monitoring reports.

**Calculation to determine monthly mass-based mercury Effluent Limitation:**

$$\text{(Volume)} \times \text{(Concentration)} \times \text{(Conversion Factor)} = \text{Mass of Mercury (grams)}$$

or

$$\text{(# gallons in 1 month)} \times \text{(# } \mu\text{g/l)} \times \text{(3.785 liters/gallon)} = \text{Mass of Mercury (grams)}$$

Volume = Gallons of Raw Water extracted from the Lake in 1 month  
Concentration = Mercury concentration in Raw Water sample reported by laboratory ( $\mu\text{g/l}$ )  
Conversion Factor = 3.785 liters/gallon

**Calculation to determine mass of mercury in the effluent in 1 month:**

$$\text{(Volume)} \times \text{(Concentration)} \times \text{(Conversion Factor)} = \text{Mass of Mercury (grams)}$$

or

$$\text{(# gallons in 1 month)} \times \text{(# } \mu\text{g/l)} \times \text{(3.785 liters/gallon)} = \text{Mass of Mercury (grams)}$$

Volume = Gallons of Effluent discharged to the Lake in 1 month  
Concentration = Mercury concentration in Effluent sample reported by laboratory ( $\mu\text{g/l}$ )  
Conversion Factor = 3.785 liters/gallon

The proposed Order contains new Effluent Limitations for Dissolved Oxygen (DO), pH, Chlorine, Electrical Conductivity (EC), Total Dissolved Solids (TDS), Aluminum, and Mercury. The proposed Order contains Provisions with compliance schedules for the Discharger to implement the necessary improvements to comply with the new Mercury and Bromodichloromethane Limitations. The accompanying Cease and Desist Order contains schedules for compliance with the new EC, TDS, Chlorine, and Aluminum Limitations.

## **BASIN PLAN WATER QUALITY OBJECTIVE FOR TOXICITY**

The Basin Plan contains a narrative Water Quality Objective for Toxicity on page III-8.00, which states in part:

*“All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances. Compliance with this objective will be determined by analyses of indicator organisms, species diversity, population density, growth anomalies, and biotoxicity tests of appropriate duration or other methods as specified by the Regional Water Board...”*

*As a minimum, compliance with this objective... shall be evaluated with a 96-hour bioassay...*

*In addition, effluent limitations based upon acute biotoxicity tests of effluents will be prescribed where appropriate...”*

The existing Order has no Provisions, Effluent Limitations or monitoring and reporting requirements for toxicity. The proposed Order contains an Effluent Limitation for the 96-hour bioassay. The proposed Monitoring and Reporting Program contains requirements for conducting chronic biotoxicity tests. The proposed Order also contains a Provision for establishing Effluent Limitations, if necessary based on the results of the chronic biotoxicity tests.

## **VIOLATIONS OF REPORTING REQUIREMENTS**

The Regional Board adopted existing Order 96-099 on 3 May 1996. Provision E.3 states, *“The Discharger shall comply with the attached Monitoring and Reporting Program No. 96-099, which is part of this Order, and any revisions thereto, as ordered by the Executive Officer.”* The Monitoring and Reporting Program specifies the frequency of monitoring and constituents to be monitored. The Monitoring and Reporting Program specifies that monitoring data for Raw Water Supply, Surface Water Effluent, and Receiving Water is to be submitted quarterly and Sludge monitoring data is to be submitted annually. The Discharger, in violation of Provision E.3, has submitted no quarterly or annual monitoring reports. Past failures to submit monitoring reports indicate that the Discharger threatens to violate the similar Provision in the proposed Order. The accompanying Cease and Desist Order No. R5-2002-0131 requires that the Discharger begin submittal of monitoring reports immediately.

Continued failure to submit monitoring reports may result in additional enforcement, including Administrative Civil Liability. Failure to submit monitoring reports is a violation of Section 13383 of the California Water Code, which gives the Regional Board the authority to establish monitoring and reporting requirements for NPDES permits. Civil Liability for violation of Section 13383 is up to \$10,000 for each day in which the violation occurs. In addition, failure to submit monitoring reports is a violation of Section 13267 of the California Water Code, which gives the Regional Board authority to

require submittal of technical reports. Civil Liability for violation of Section 13267 is up to \$1,000 per day in which the violation occurs.