CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2005-0030

NPDES NO. CA0077712

WASTE DISCHARGE REQUIREMENTS FOR CITY OF AUBURN WASTEWATER TREATMENT PLANT PLACER COUNTY

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

BACKGROUND

1. The City of Auburn (hereafter Discharger) submitted a Report of Waste Discharge, dated 3 March 2003, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the City's Wastewater Treatment Plant (WWTP). Supplemental information to complete filing of the application was received on 17 June 2003, 15 July 2003, 25 July 2003, 19 August 2003, 21 August 2003, 2 September 2003, 19 September 2003, 2 December 2003, and 20 February 2004.

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the City of Auburn with a population of approximately 13,000. The treatment plant and discharge point are located on Assessor's Parcel Number (APN) 40-111-11 in the southeast quarter of Section 17, T12N, R8E, MDB&M, with the plant at the point latitude 38º 52' 35" (degrees, minutes, seconds) and longitude 121º 06' 18", and the discharge point at latitude 38º 53' 13" and longitude 121º 06' 21", as shown on Attachment A, a part of this Order. Treated wastewater is discharged to Auburn Ravine, which is tributary to East Side Canal, Natomas Cross Canal, and the Sacramento River.

3. The treatment system consists of bar screening; grit removal; biological treatment in an oxidation ditch and unlined, aerated equalization pond(s), including nitrification; secondary sedimentation; coagulation and filtration; disinfection; and dechlorination. Sludge is dewatered with a belt filter press and removed to a landfill.

4. The Report of Waste Discharge describes the wastewater discharge to Auburn Ravine as follows:

Design Average Dry Weather Flow Rate:	1.67	million gallons per day (mgd)
Annual Average Daily Flow Rate:	1.34	mgd
Maximum Daily Flow Rate:	5.67	mgd
Average Temperature, Summer:	73.8 (23.2)	ºF (ºC)
Average Temperature, Winter:	57.6 (14.2)	ºF (ºC)
Average Daily Biochemical Oxygen Demand (BOD):	6.7	mg/*l*
Maximum Daily BOD:	54	mg/*l*

Average Daily Total Suspended Solids (TSS):	2.4	mg/*l*
Maximum Daily TSS:	10.2	mg/*l*
Average Daily Ammonia (as N):	0.72	mg/*l*
Average Daily Nitrate + Nitrite (as N):	7.33	mg/*l*
Average Daily Total Dissolved Solids:	242	mg/*l*
Average Daily Electrical Conductivity:	392	µmhos/cm

[1] 5-day, 20°C biochemical oxygen demand

5. The Discharger utilizes unlined equalization ponds. The quality of the raw domestic wastewater contained in the unlined equalization ponds is largely uncharacterized. Available monitoring of the water contained in the ponds indicates an average ammonia concentration of 13 mg/*l*, an average chloride concentration of 29 mg/*l*, and an average total dissolved solids concentration of 200 mg/*l*. Raw domestic wastewater also contains high concentrations of pathogens. The unlined nature of the ponds allows the percolation of raw wastewater into the underlying soil and, potentially, to groundwater. Based on groundwater monitoring data submitted by the Discharger, pollutants have migrated to groundwater.

6. The Regional Board adopted a *Water Quality Control Plan*, *Fourth Edition, for the Sacramento and San Joaquin River Basins* (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.

7. 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 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), which contains guidance on implementation of the NTR and the CTR.

8. This Order contains new Effluent Limitations for a significant number of constituents. As a means of achieving compliance, the City of Auburn has communicated that they are actively investigating the feasibility and pursuing options of participation in a regional wastewater treatment facility, as directed by the Regional Board in Resolution No. 98-191. In a letter to Regional Board staff dated 11 February 2004, the City stated that it "*is committed to connecting its wastewater system into a regional facility; however, a definitive implementation schedule has yet to be developed*."

BENEFICIAL USES OF THE RECEIVING STREAM

9. The Basin Plan at page II-2.00 states: "*Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial*

uses of any specifically identified water body generally apply to its tributary streams." The Basin Plan does not specifically identify beneficial uses for Auburn Ravine, but the Basin Plan does identify present and potential uses for the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge, to which Auburn Ravine, via East Side Canal and Natomas Cross Canal, is tributary.

The Basin Plan identifies the following beneficial uses for the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge: municipal and domestic supply; agricultural irrigation; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration; cold migration; warm spawning; cold spawning; navigation; and wildlife habitat. In addition, State Board Resolution No. 88-63, incorporated into the Basin Plan pursuant to Regional Board Resolution No. 89-056, requires the Regional Board to assign the municipal and domestic supply use to water bodies that do not have beneficial uses listed in Table II-1.

The Basin Plan on page II-1.00 states: "*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*" and with respect to disposal of wastewaters states that "*...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*."

The federal Clean Water Act, Section 101(a)(2), states: "*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983*." Federal Regulations, developed to implement the requirements of the Clean Water Act, create a rebuttable presumption that all waters be designated as fishable and swimable. Federal Regulations, 40 CFR Sections 131.2 and 131.10, require that all waters of the State be regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after November 28, 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR Section 131.10, requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected, and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

In reviewing whether the existing and/or potential uses of the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge apply to Auburn Ravine**,** the Regional Board has considered the following facts:

a. Municipal and Domestic Supply and Agricultural Supply

The Regional Board is required to apply the beneficial uses of municipal and domestic supply to Auburn Ravine based on State Board Resolution No. 88-63 which was

incorporated in the Basin Plan pursuant to Regional Board Resolution No. 89-056. In addition, the State Water Resources Control Board (SWRCB) has issued water rights to existing water users along Auburn Ravine, East Side Canal, Natomas Cross Canal, and the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge downstream of the discharge for irrigation (including stockwatering) uses. Riparian Rights, for landowners along streams and rivers, may not be recorded with the SWRCB. Staff observed homes and farms along Auburn Ravine, which may use the water for domestic and irrigation purposes. Since Auburn Ravine is a low-flow stream, Auburn Ravine likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water. In addition to the existing water uses, growth in the area, downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in Auburn Ravine.

b. Water Contact and Noncontact Recreation and Esthetic Enjoyment

The Regional Board finds that the discharge flows through residential areas, there is ready public access to Auburn Ravine, exclusion of the public is unrealistic, contact recreational activities currently exist along Auburn Ravine and downstream waters, and these uses are likely to increase as the population in the area grows. Regional Board staff have surveyed the downstream water and found ample evidence of contact recreational uses, easy public access, and numerous residential backyards landscaped for waterway access. Prior to flowing into the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge, Auburn Ravine flows through areas of general public access and residential areas.

c. Groundwater Recharge

In areas where groundwater elevations are below the stream bottom, water from the stream will percolate to groundwater. Since Auburn Ravine would, without the discharge and the contribution of irrigation flows, at times be dry, it is reasonable to assume that the stream water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply.

d. Freshwater Replenishment

When water is present in Auburn Ravine, there is hydraulic continuity between Auburn Ravine, East Side Canal, Natomas Cross Canal, and the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge. During periods of hydraulic continuity, Auburn Ravine adds to the water quantity and may impact the quality of water flowing down stream in East Side Canal, Natomas Cross Canal, and the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge.

e. Warm and Cold Freshwater Habitats (including preservation or enhancement of fish and invertebrates) and Wildlife Habitat

Auburn Ravine flows to East Side Canal, Natomas Cross Canal, and the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge. The California Department of Fish and Game (DFG) has verified that the fish species present in Auburn Ravine and downstream waters are consistent with both cold and warm water fisheries and that rainbow and brown trout, both cold water species, have been found in Auburn Ravine to its headwaters in Auburn. The Basin Plan (Table II-1) designates the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge as being both a cold and warm freshwater habitat. The habitat designation for the upstream waters is appropriate since DFG has verified the presence of both salmon and steelhead (an anadromous species) in Auburn Ravine. Therefore, pursuant to the Basin Plan (Table II-1, Footnote (2)), the cold designation applies to Auburn Ravine, East Side Canal, and Natomas Cross Canal. The cold-water habitat designation necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 7.0 mg/*l*.

Upon review of the flow conditions, habitat values, and beneficial uses of Auburn Ravine, and the facts described above, the Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge are applicable to Auburn Ravine.

10. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that: "*The numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses*."

NARRATIVE OBJECTIVES

11. The federal Clean Water Act (CWA) mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., § 1311(b)(1)(C); 40 C.F.R., § 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to Federal Regulations, 40 C.F.R. section 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that "*are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality*." Federal Regulations, 40 CFR, Section 122.44(d)(1)(vi), further provide that "[w]*here a state has*

not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."

12. The Regional Board's Basin Plan, page IV-17.00, contains an implementation policy ("Policy for Application of Water Quality Objectives") that specifies that the Regional Board "*will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives*." This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Regional Board must establish effluent limitations using one or more of three specified sources, including EPA's published water quality criteria, a proposed state criterion (*i.e*., water quality objective), or an explicit state policy interpreting its narrative water quality criteria (*i.e*., the Regional Board's "Policy for Application of Water Quality Objectives")(40 C.F.R. 122.44(d)(1) (vi) (A), (B) or (C)). The Basin Plan contains a narrative objective requiring that: "*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*". The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances that adversely affect beneficial uses. The beneficial uses include municipal and domestic supply; agricultural irrigation; water contact recreation, including canoeing and rafting; non-contact water recreation, including aesthetic enjoyment; warm freshwater habitat; cold freshwater habitat; warm migration; cold migration; warm spawning; cold spawning; navigation; and wildlife habitat. The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The Basin Plan also limits chemical constituents in concentrations that adversely affect surface water beneficial uses. For waters designated as municipal, the Basin Plan specifies that, at a minimum, waters shall not contain concentrations of constituents that exceed Maximum Contaminant Levels (MCL) of CCR Title 22. The Basin Plan further states that, to protect all beneficial uses, the Regional Board may apply limits more stringent than MCLs. When a reasonable potential exists for exceeding a narrative objective, Federal Regulations mandate numerical effluent limitations and the Basin Plan narrative criteria clearly establish a procedure for translating the narrative objectives into numerical effluent limitations.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

13. 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.

14. Section 13263.6(a), California Water Code, requires that "*the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances*

that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRKA) indicate as discharged into the POTW, for which the state board or the regional board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective". U.S. EPA's Toxics Release Inventory lists no compounds for the 95603 and 95604 (post office boxes only) ZIP codes (Auburn, CA). The Toxics Release Inventory database lists lead compounds from a single facility for the 95602 ZIP code (Auburn, CA). This facility, however, discharges to the collection system for the Placer County Sewer Maintenance District No. 1 wastewater treatment plant and not to the collection system for the City of Auburn WWTP. The Regional Board has not, at this time, identified any substance that requires an effluent limitation based on Section 13263.6(a) for the discharge regulated by this Order.

15. 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, in studies, and as directed by monitoring and reporting programs the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, chloroform, copper, diazinon, dibromochloromethane, dichlorobromomethane, lead, manganese, mercury, methyl tert butyl ether (MTBE), methylene blue active substances (MBAS), nickel, nitrate plus nitrite, nitrite, organochlorine pesticides, silver, and zinc. Effluent limitations for these constituents are included in this Order.

16. In the report of waste discharge, the Discharger requested that dilution, mixing, and assimilative capacity be considered when determining constituent limitations for the effluent. The SIP defines a completely-mixed discharge condition to mean that there is "*…not more than a 5 percent difference, accounting for analytical variability, in the concentration of a pollutant across a transect of the water body at a point within two stream/river widths from the discharge point*." Following submittal of the report of waste discharge and at the request of the Discharger, the drafting of this permit was delayed to allow the Discharger time to conduct a mixing zone study. The Discharger has submitted the results of a study of the variation of a conservative constituent (electrical conductivity) downstream of the point of discharge. The results of the study indicated that a complete mix condition does not exist for the discharge, as defined in the SIP. The study report stated that a new diffuser could be specified and installed to aid in achieving complete mix; however, the Discharger has not proposed to do so. In discussing mixing zones, the SIP also states that "[d]*ilution credits and mixing zones for incompletely-mixed discharges shall be considered by the RWQCB only after the discharger has completed an independent mixing zone study and demonstrated to the satisfaction of the RWQCB that a dilution credit is appropriate. Mixing zone studies may include, but are not limited to, tracer studies, dye studies, modelling studies, and monitoring upstream and downstream of the discharge that the extent of actual dilution*." The results of the initial mixing zone study

submitted by the Discharger are inconclusive. The Basin Plan also contains requirements that must be met before a mixing zone may be granted. This Order does not provide for dilution or mixing, since the Discharger's dilution study recommended that additional studies and modification of the diffuser are necessary to determine how much assimilative capacity exists, if any, for any individual constituent.

17. ***Aluminum***—Based on information included in analytical laboratory reports submitted by the Discharger, aluminum in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a level necessary to protect aquatic life, and, therefore to violate the Basin Plan's narrative toxicity objective. The maximum observed effluent aluminum concentration was 495 µg/*l*. U.S. EPA developed National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. The recommended four-day average (chronic) and one-hour average (acute) criteria for aluminum are 87 µg/*l* and 750 µg/*l*, respectively. U.S. EPA recommends that the ambient aluminum criteria are protective of the aquatic beneficial uses of receiving waters in lieu of site-specific criteria. The receiving stream has been measured to have a low hardness and the receiving water and the effluent have each been measured to have a pH below the minimum Basin Plan water quality objective of 6.5. Both of these conditions are supportive of the applicability of the ambient water quality criteria for aluminum, according to U.S. EPA's development document.

18. ***Ammonia, nitrite, and nitrate***—Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia would violate the Basin Plan narrative toxicity objective. U.S. EPA has developed Ambient Water Quality Criteria for ammonia. Effluent limitations for ammonia are included in this Order, which will vary with pH and temperature, to assure the treatment process adequately nitrifies the waste stream to protect the beneficial uses of the receiving stream and to prevent aquatic toxicity.

Nitrate and nitrite are known to cause adverse health effects in humans. Municipal and domestic water supply is a beneficial use of the Auburn Ravine. The California Department of Health Services (DHS) has adopted Primary Maximum Contaminant Levels (MCLs) for the protection of human health for nitrite and nitrate that are equal to 1 mg/*l* and 10 mg/*l* (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/*l* for the sum of nitrate and nitrite, measured as nitrogen. The discharge from the Auburn Wastewater Treatment Plant has a reasonable potential to cause or contribute to an in-stream excursion above water quality standards for ammonia, nitrite, and nitrate. Effluent limits for nitrite and nitrate are based on the MCLs. Effluent Limitations for ammonia, nitrite, and nitrate are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial uses of aquatic habitat and municipal and

domestic supply.

19. ***Chlorine***—The Discharger uses chlorine for disinfection of the effluent waste stream. Aquatic habitat is a beneficial use of Auburn Ravine. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. U.S. EPA recommends, in its Ambient Water Quality Criteria for the protection of fresh water aquatic life, maximum 1-hour average and 4-day average chlorine concentrations of 0.019 mg/*l* and 0.011 mg/*l*, respectively. The use of chlorine as a disinfectant presents a reasonable potential that it could be discharged in toxic concentrations. Effluent Limitations for chlorine have been included in this Order to protect the receiving stream aquatic life beneficial uses. Effluent Limitations have been established based on the ambient water quality criteria for chlorine.

20. ***Chloroform***—Municipal and domestic supply is a beneficial use of the receiving stream. The narrative toxicity objective and this beneficial use designation comprise a water quality standard applicable to pollutants in the receiving stream. The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/*l* (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S. EPA in applying human health protective criteria contained in the NTR and the CTR to priority toxic pollutants in California surface waters. The maximum observed effluent chloroform concentration was 49 µg/*l*. Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to degradation of the municipal and domestic supply beneficial use by discharging elevated concentrations of chloroform. Therefore, an Effluent Limitation for chloroform is included in this Order and is based on the Basin Plan toxicity objective and OEHHA Toxicity Criteria for the protection of human health.

21. ***Copper***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for copper. The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. The criteria for copper are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved

concentrations to total concentrations. The conversion factors for copper in freshwater are 0.960 for both the acute and the chronic criteria. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding criteria are 1.7 µg/*l* and 1.4 µg/*l* for the acute and chronic criteria, respectively. The maximum observed effluent copper concentration was 8.4 µg/*l*. The Effluent Limitations for copper included in this Order are presented in total concentrations, and are based on CTR criteria for the protection of freshwater aquatic life.

22. ***Diazinon***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objectives for diazinon. The Basin Plan contains a narrative toxicity objective that all waters "*be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." The Basin Plan requires the Regional Board to consider relevant numerical criteria and guidelines developed by other agencies in determining compliance with the narrative toxicity objective (Basin Plan, IV-17.00). In March 2000, the California Department of Fish and Game (DFG) established acute and chronic criteria for these compounds to protect fresh water aquatic protection. The acute (one-hour average) and chronic (four-day average) criteria are 0.08 µg/*l* and 0.05 µg/*l*, respectively. Based on evaluation of the information provided, the discharge does have the reasonable potential to cause or contribute to an excursion above the narrative toxicity objective in the Basin Plan. The Regional Board recently completed a total maximum daily load (TMDL) for diazinon in the Sacramento and Feather Rivers and amended the Basin Plan to include diazinon waste load allocations and water quality objectives on 16 October 2003. The Basin Plan now contains water quality objectives for diazinon of 0.080 µg/*l* as a one-hour average and 0.050 µg/*l* as a four-day average for the Sacramento River from the Colusa Basin Drain to the I Street Bridge. The Basin Plan also states that "[c]*ompliance with water quality objectives, waste load allocations, and load allocations for diazinon in the Sacramento and Feather Rivers is required by June 30, 2008*" and "[t]*he waste load allocations for all NPDES-permitted discharges are the diazinon water quality objectives*." The maximum observed effluent diazinon concentration was 0.073 µg/*l*. Effluent Limitations for diazinon are included in this Order and are based on the Basin Plan objectives.

23. ***Dibromochloromethane***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for dibromochloromethane. The CTR includes criteria for the protection of human health based on a one-in-a-million cancer risk for dibromochloromethane. The criterion for waters from which both water and organisms are consumed is 0.41 µg/*l*. The maximum observed effluent dibromochloromethane concentration was 1.4 µg/*l*. Effluent Limitations for dibromochloromethane are included in this Order and are based on the CTR criterion for the protection of human health.

24. ***Dichlorobromomethane***— Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an

in-stream excursion above the CTR standards for dichlorobromomethane. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for dichlorobromomethane. The standard for waters from which both water and organisms are consumed is 0.56 µg/*l*. The maximum observed effluent dichlorobromomethane concentration was 9.2 µg/*l*. Effluent Limitations for dichlorobromomethane are included in this Order and are based on the CTR standard for the protection of human health.

25. ***Lead***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for lead. The CTR includes hardness-dependent standards for the protection of both freshwater and saltwater aquatic life for lead. The standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for lead in freshwater are 1.46203-[0.145712 X ln(hardness)] for both the acute and the chronic criteria. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding standards are 4.9 µg/*l* and 0.19 µg/*l* for the acute and chronic criteria, respectively. The maximum observed effluent lead concentration was 7.1 µg/*l*. The Effluent Limitations for lead included in this Order are presented in total concentrations, and are based on the CTR standards for the protection of freshwater aquatic life.

26. ***Manganese***—Based on information included in analytical laboratory reports submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 50 µg/*l* for manganese. The Basin Plan also includes water quality objectives that water be free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Sacramento River. Manganese concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable discoloration and taste. The maximum observed effluent manganese concentration was 90 µg/*l*. An Effluent Limitation for manganese is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the DHS Secondary MCL.

27. ***Mercury***—The Sacramento River (Knights Landing to the Delta) has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. Mercury bioaccumulates in fish tissue and, therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective and impacts on beneficial uses. Because the Sacramento River (Knights Landing to the Delta) has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. The maximum observed effluent mercury concentration was 0.0025 µg/*l*. This Order contains an interim performance-based mass Effluent Limitation of 0.010 lbs/twelve months for mercury for the effluent discharge to Auburn Ravine. This limitation is based on maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established. The

mass limitation was derived using the maximum observed effluent mercury concentration and the reported average daily effluent flow rate. Compliance time schedules have not been included since the discharge currently meets the concentration based limitation and the mass limitation can be met through implementation measures and/or by limiting new sewer discharges containing mercury concentrations.

28. ***Methyl tert butyl ether (MTBE)***—Based on information included in analytical laboratory reports submitted by the Discharger, MTBE in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 5 µg/*l* for MTBE. The maximum observed effluent MTBE concentration was 39 µg/*l*. An Effluent Limitation for MTBE is included in this Order and is based on the Basin Plan water quality objectives for chemical constituents, the DHS Secondary MCL.

29. ***Methylene blue active substances (MBAS)***—Order No. 98-189 contains Effluent Limitations for MBAS of 1.0 mg/*l* (1,000 µg/*l*) as a monthly average and 2.0 mg/*l* (2,000 µg/*l*) as a daily maximum. Based on information included in analytical laboratory reports submitted by the Discharger, MBAS in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 500 µg/*l* for foaming agents (MBAS). The Basin Plan also includes water quality objectives that water not contain floating material or taste- or odor-producing substances in concentrations that causes nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Receiving Water. MBAS concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable froth, taste, and odor. The maximum observed effluent MBAS concentration was 350 µg/*l*. The Discharger is currently using a food-grade defoaming agent. Failure to use the defoaming agent results in a reasonable potential to exceed the MDL. An Effluent Limitation for MBAS is included in this Order and is based on the Basin Plan water quality objectives for chemical constituents, floating material, and tastes and odors; and the DHS Secondary MCL.

30. ***Nickel***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for nickel. The CTR includes hardness-dependent standards for the protection of both freshwater and saltwater aquatic life for nickel. Freshwater aquatic habitat is a beneficial use of the receiving water. The standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for nickel in freshwater are 0.998 for the acute criteria and 0.997 for the chronic criteria. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding standards are 8.1 µg/*l* and 73 µg/*l* for the acute and chronic criteria, respectively. The maximum observed effluent nickel concentration was 11.4 µg/*l*. The Effluent Limitations for nickel included in this Order are presented in total concentrations, and are based on the CTR standards for the

protection of freshwater aquatic life.

31. ***Oil and Grease***—The Basin Plan includes water quality objectives for oil and grease and floating material in surface waters, which state: "*Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses*" and that: "[w]*ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses*". The antidegradation provisions of the State Water Resources Control Board, Resolution No. 68-16 state that: " *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*." Non-contact water recreation, including aesthetic enjoyment, is a beneficial use of Auburn Ravine. The existing permit includes monthly average and daily maximum Effluent Limitations of 10 mg/*l* and 15 mg/*l*, respectively, for oil and grease. Based on information included in self-monitoring reports submitted by the Discharger, oil and grease in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above Basin Plan narrative objectives for oil and grease and floating material and SWRCB Resolution No. 68-16 (antidegradation policy). This Order maintains the oil and grease limitations in accordance with anti-backsliding requirements contained in the Code of Federal Regulations to assure that the Discharger requires proper removal and disposal of oil and grease from commercial food service sources and properly operates and maintains the collection system to minimize plugging from oil and grease. The Discharger can also maintain compliance through educating the public on the impacts of discharging oil and grease into the collection system. The maximum observed effluent total oil and grease concentration was 9.6 mg/*l*. The Effluent Limitations from Order No. 98-189 are maintained in this Order and are based on the Basin Plan narrative objectives for oil and grease and floating materials and the antidegradation policy (SWRCB Resolution No. 68-16).

32. ***Organochlorine Pesticides***—Based on information included in analytical laboratory reports submitted by the Discharger, chlordane; 4, 4'-DDE; endrin; and lindane were detected in the WWTP effluent in concentrations as high as 0.01 µg/*l*, 0.01 µg/*l*, 0.02 µg/*l*, and 0.02 µg/*l*, respectively. Each of these constituents are chlorinated hydrocarbon pesticides. The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The CTR contains numeric criteria for chlordane; 4,4'-DDE; and lindane of 0.00057 µg/*l*, 0.00059 µg/*l*, and 0.019 µg/*l*, respectively, for freshwaters from which both water and organisms are consumed. The CTR contains numeric criteria for endrin of 0.036 µg/*l* as a four-day average (chronic) and 0.086 µg/*l* as a one-hour average (acute) for the protection of freshwater aquatic life. The

detection of chlordane at 0.01 µg/*l*; 4,4'-DDE at 0.01 µg/*l*; endrin at 0.02 µg/*l*, and lindane at 0.02 µg/*l* in the WWTP effluent presents a reasonable potential to exceed the Basin Plan limitations for chlorinated hydrocarbon pesticides and the CTR criteria for chlordane; 4,4'-DDE; endrin; and lindane. In addition to chlordane; 4,4'-DDE; endrin; and lindane (gamma BHC), the chlorinated hydrocarbon pesticides include alpha BHC, beta BHC, delta BHC, 4,4'-DDE, 4,4'-DDT, aldrin, dieldrin, endrin aldehyde, alpha and beta endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, and toxaphene. Effluent Limitations for organochlorine pesticides are included in this Order and are based on the Basin Plan objective of no detectable concentrations of chlorinated hydrocarbon pesticides. The limitation for chlorinated hydrocarbon pesticides is included in this Order based on reasonable potential to violate the water quality objective.

33. ***Pathogens***—The beneficial uses of Auburn Ravine include contact recreation uses and irrigation. To protect these beneficial uses, the Regional Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses. The treatment system currently provides tertiary treatment.

The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 m*l* as a 7-day median. Title 22 also requires that recycled water used as a source of water supply for nonrestricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A nonrestricted recreational impoundment is defined as "…*an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities*." Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply an equivalent level of treatment to that required by DHS's reclamation criteria because Auburn Ravine, East Side Canal, and Natomas Cross Canal are used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

In addition to coliform testing, a turbidity effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is also capable of reliably meeting a turbidity limitation of 2 nephelometric turbidity units (NTU) as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform concentrations.

The Discharger has requested that this Order contain secondary treatment plus filtration effluent limitations to provide relief under a significant storm event when a 20-to-1 dilution is available. The DHS has recommended that secondary treatment with a minimum dilution of 20-to-1 provides an equivalent protection of human health as does tertiary treatment. The Discharger will be required to establish an in-stream flow measuring system to accurately determine periods when 20-to-1 dilution exists. The BOD and TSS limitations for secondary treatment plus filtration are set at 15 mg/l as a monthly average; the total coliform organisms limitation is 23 MPN/100 ml as a 7-day median; and the turbidity limitations are suspended. Full tertiary treatment is required when less than 20-to-1 dilution is available. BOD, TSS, total coliform organisms, and turbidity limitations are the only Effluent Limitations relaxed under the 20-to-1 dilution conditions. The Discharger has not conducted analyses that would support relaxation of Effluent Limitations for other constituents under the 20-to-1 flow conditions. Other Effluent Limitations based on the lesser degree of treatment have been maintained at a constant level in this Order to assure compliance with water quality standards and objectives including the CTR and NTR.

34. ***pH—***The Basin Plan includes numeric water quality objectives that the pH "*…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*." The Receiving Water is designated as having both COLD and WARM beneficial uses. Effluent Limitations for pH are included in this Order and are based on the Basin Plan objectives for pH.

35. ***Silver***—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for silver. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for silver. Freshwater aquatic habitat is a beneficial use of the receiving water. The CTR standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for silver in freshwater is 0.85 for the instantaneous maximum criterion. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding standard is 0.091 µg/*l*. The maximum observed effluent silver concentration was 1.0 µg/*l*. Effluent Limitations for silver (in total concentrations) are included in this Order and are based on the CTR standards for the protection

of freshwater aquatic life.

36. ***Zinc***—Based on information included in analytical laboratory reports submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for zinc. The CTR includes hardness-dependent standards for the protection of both freshwater and saltwater aquatic life for zinc. The hardness-dependent CTR standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding standards are 18 µg/*l* and 18 µg/*l* for the acute and chronic criteria, respectively. The maximum observed effluent zinc concentration was 170 µg/*l*. Effluent Limitations for zinc (in total concentrations) are included in this Order and are based on the CTR standards for the protection of freshwater aquatic life.

37. The SIP, Section 2.1, provides that: "*Based on an existing discharger's request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit*." Section 2.1 further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted*:…"(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control and/or pollution minimization efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable."* This Order requires the Discharger to provide this information. The new water quality-based effluent limitations for copper, dibromochloromethane, dichlorobromomethane, lead, nickel, silver, and zinc become effective on 1 June 2005 if an acceptable compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality-based effluent limitations for copper, dibromochloromethane, dichlorobromomethane, lead, nickel, silver, and zinc become effective 1 November 2009.

38. 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.

39. As stated in the above Findings, the U.S. EPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge and the SIP contains guidance on implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations

must: be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year, and; be included in the Provisions. The interim limitations in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration has been established as the interim limitation. When there are less than ten sampling data points available, the *Technical Support Document for Water Quality Based Toxics Control* ((EPA/505/2-90-001), TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling point to obtain the daily maximum interim limitation (*TSD, Table 5-2*). The Regional Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based Effluent Limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final Effluent Limitations, but in compliance with the interim Effluent Limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. For example, U.S. EPA states in the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper, that it will take an unstressed system approximately three years to recover from a pollutant in which exposure to copper exceeds the recommended criterion. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the Effluent Limitation can be achieved.

40. The SIP states that if "*…all reported detection limits of the pollutant in the effluent are greater than or equal to the C* [water quality criterion or objective] *value, the RWQCB* [Regional Board] *shall establish interim requirements…that require additional monitoring for the pollutant….*" All reported detection limits for 1,1-dichloroethene; 1,1,2,2-tetrachloroethane; acrylonitrile; hexachlorobenzene; 1,2-benzanthracene; 1,2-diphenylhydrazine; 2,4-dinitrotoluene; 3,3'-dichlorobenzidine; 3,4-benzofluoranthene; benzidine; benzo(a)pyrene; benzo(k)fluoranthene; bis (2-chloroethyl) ether; chrysene; dibenzo(a,h)-anthracene; indeno(1,2,3-c,d)pyrene; n-nitrosodimethylamine; n-nitrosodi-n-propylamine; 4,4'-DDD; 4,4'-DDE; 4,4'-DDT; alpha-hexachlorocyclohexane (alpha-BHC); aldrin; chlordane; dieldrin; heptachlor; heptachlor epoxide; toxaphene; and 2,3,7,8-TCDD (dioxin) are greater than or equal to corresponding applicable water quality criteria or objectives. Monitoring for these

constituents has been included in this Order in accordance with the SIP.

41. The Basin Plan, on page III-8.00, requires that receiving water temperatures not be increased by more than 5ºF above the natural receiving water temperature. The Discharger's Report of Waste Discharge contained a characterization of the summertime surface water discharge as having an average daily temperature of 73.8ºF. The beneficial uses of Auburn Ravine include warm and cold freshwater habitat, spawning, and migration. This Order requires the Discharger to conduct a study of the thermal impacts of the discharge on the beneficial uses of Auburn Ravine.

42. As stated in *Standard Provisions and Reporting Requirements, For Waste Discharge Requirements, 1 March 1991, General Provisions, No. 13*, this Order prohibits bypass from any portion of the treatment facility. Federal Regulations, 40 CFR 122.41 (m), define "bypass" as the intentional diversion of waste streams from any portion of a treatment facility. This section of the Federal Regulations, 40 CFR 122.41 (m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Regional Board's prohibition of bypasses, the State Water Resources Control Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the Federal Regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation. In the case of United States v. City of Toledo, Ohio (63 F. Supp 2d 834, N.D. Ohio 1999) the Federal Court ruled that "*any bypass which occurs because of inadequate plant capacity is unauthorized…to the extent that there are 'feasible alternatives', including the construction or installation of additional treatment capacity*".

The Federal Clean Water Act, Section 301, requires that not later than 1 July 1977, publicly owned wastewater treatment works meet effluent limitations based on secondary treatment or any more stringent limitation necessary to meet water quality standards. Federal Regulations, 40 CFR, Part 133, establish the minimum level of effluent quality attainable by secondary treatment for BOD, TSS, and pH. Tertiary treatment requirements for BOD and TSS are based on the technical capability of the process. Biochemical oxygen demand (BOD) is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. The solids content—suspended (TSS) and settleable (SS)—is also an important characteristic of wastewater. The secondary and tertiary treatment standards for BOD and TSS are indicators of the effectiveness of the treatment processes.

A wet weather influent wastestream may contain significantly diluted levels of BOD and TSS. A bypassed diluted wastestream may have BOD and TSS levels that meet the secondary or tertiary objectives, either alone or when blended with treated wastewater. However, the bypassed wastestream would not have been treated to reduce pathogens or other individual pollutants. The indicator parameters of BOD and TSS cannot be diluted to a level that may indicate the adequate treatment has occurred as an alternative to providing appropriate treatment.

43. The Clean Water Act, Section 303(a-c), required states to adopt numeric criteria where they are necessary to protect designated uses. The Regional Board adopted numeric criteria in the Basin

Plan. The Basin Plan is a regulatory reference for meeting the state and federal requirements for water quality control (40 CFR 131.20). State Board Resolution No. 68-16, the Antidegradation Policy, does not allow changes in water quality less than that prescribed in Water Quality Control Plans (Basin Plans). The Basin Plan states that; "*The numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses*."

RECEIVING WATER LIMITATIONS

44. This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for Biostimulatory Substances, Chemical Constituents, Color, Dissolved Oxygen, Floating Material, Oil and Grease, pH, Pesticides, Radioactivity, Salinity, Sediment, Settleable Material, Suspended Material, Tastes and Odors, Temperature, Toxicity and Turbidity. The Basin Plan includes numeric water quality objectives for various beneficial uses and water bodies. Numeric Basin Plan objectives that are applicable to this discharge and which have been included as Receiving Water Limitations are:

    a. *Bacteria*—The Basin Plan includes a water quality objective that "[i]*n waters designated for contact recreation (REC-1), the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.*" The Sacramento River is designated as having a beneficial use of contact recreation. As described in Finding 9.b, the beneficial use of water contact recreation is applicable to Auburn Ravine. A numeric Receiving Water Limitation for bacteria is included in this Order and is based on the Basin Plan objective for bacteria.

    b. *Dissolved Oxygen*—The Basin Plan includes a water quality objective that "[f]*or surface water bodies outside the legal boundaries of the Delta, the monthly median of the mean daily dissolved oxygen (DO) concentration shall not fall below 85 percent of saturation in the main water mass, and the 95 percentile concentration shall not fall below 75 percent saturation*." In addition, for water bodies designated as having the beneficial uses of cold freshwater habitat or spawning, reproduction, and/or early development, the Basin Plan includes an objective that the dissolved oxygen concentration not fall below 7.0 mg/*l* at any time. The Sacramento River is designated as having the beneficial uses of warm freshwater habitat and a cold fish migration and spawning habitat. As described in Finding 9.e, the beneficial uses of cold fish migration and spawning habitat are applicable to Auburn Ravine. Numeric Receiving Water Limitations for minimum dissolved oxygen concentration and percent saturation are included in this Order and are based on the Basin Plan objectives.

    c. *pH*—The Basin Plan includes water quality objectives that the pH "*…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." The Sacramento River is designated as having both COLD and WARM beneficial uses. As described in Finding 9.e, the beneficial uses of cold fish migration and spawning habitat are applicable to Auburn Ravine. The change in pH of 0.5 (standard pH units) is not included as necessary to protect aquatic life in U.S. EPA's Ambient Criteria for the Protection of Freshwater Aquatic Life as long as pH does not fall below 6.5 or exceed 8.5 units. Therefore, an averaging period of 30 days has been applied to the Basin Plan receiving water objective for changes in pH. Numeric Receiving Water Limitations for pH are included in this Order and are based on the Basin Plan objectives for pH.

d. *Temperature*—The Basin Plan includes a water quality objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." The Sacramento River is designated as having both COLD and WARM beneficial uses. As described in Finding 9.e, the beneficial uses of cold fish migration and spawning habitat are applicable to Auburn Ravine. A numeric Receiving Water Limitation for temperature is included in this Order and is based on the Basin Plan objective for temperature.

e. *Turbidity*—The Basin Plan includes a water quality objective that "[i]*ncreases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

- *Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.*
- *Where natural turbidity is between 5 and 50 NTUs, increases shall not exceed 20 percent.*
- *Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTUs.*
- *Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent."*

The discharge from the Auburn WWTP is a controllable water quality factor. Tertiary wastewater treatment plants are technically capable of achieving an average effluent turbidity of 2 nephelometric turbidity units (NTU). In high quality ephemeral or low-flow streams, the natural turbidity may be less than 5 NTU. Turbidity at these levels is based on antidegradation and is not expected to have any impact on aquatic life. A numeric Receiving Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity. A monthly averaging period, where the natural upstream turbidity is less than 5 NTU, has been applied to the Receiving Water Limitation.

BENEFICIAL USES OF GROUNDWATER

45. The Water Quality Control Plan for the Sacramento River Basin and San Joaquin River Basin, Fourth Edition, designates beneficial uses, establishes narrative and numerical water quality objectives, and contains implementation plans and policies for protecting all waters of the Basin. The Basin Plan includes plans and policies of the State Water Resources Control Board (SWRCB or State Board) incorporated by reference. Pursuant to Section 13263(a) of the CWC, waste discharge requirements must implement the Basin Plan and, by extension, the beneficial uses of surface and groundwaters potentially affected by the discharge. The Basin Plan defines groundwater as including "*…all subsurface waters that occur in fully saturated zones and fractures within soils and other geologic formations*" (page I-1.00). The Basin Plan designates the beneficial uses of groundwater in the discharge area as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply. The Basin Plan establishes numerical and narrative water quality objectives for surface water and groundwater within the basin. Numerical water quality objectives are maximum limits directly applicable to the protection of designated beneficial uses of the water. The Basin Plan requires that the Regional Board, on a case-by-case basis, follow specified procedures to determine maximum numerical limitations that apply the narrative objectives when it adopts waste discharge requirements. The Basin Plan also stipulates that the water quality objectives "*apply to all waters within a surface water or ground water resource for which beneficial uses have been designated, rather than at intake, wellhead, or other point of consumption*" (page IV-16.00).

46. Water quality objectives for groundwater include narrative objectives for chemical constituents in and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states that groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. For groundwaters designated as municipal supply, the Basin Plan establishes numerical objectives for bacteria and for chemical constituents related to drinking water quality. The water quality objective for groundwater for bacteria states: "*In ground waters used for domestic or municipal supply (MUN) the most probable number of coliform organisms over any seven-day period shall be less than 2.2/100 mL*" (page III-9.00). Numerical water quality objectives related to drinking water quality include maximum contaminant levels (MCLs) in Title 22, CCR [*i.e.*, Section 64431 (Inorganic Chemicals); Section 64431 (Fluoride); Section 64443 (Radioactivity); Section 64444 (Organic Chemicals); and Section 64449 (Secondary MCLs – Consumer Acceptance Limits)].

47. The Regional Board designates all groundwaters as suitable or potentially suitable for MUN in the Basin Plan (pages II-2.00 and –3.00). Regardless of the data that a discharger or other interested party may provide supporting a determination that groundwater within a particular area should be excepted from the MUN designation, the Regional Board can only "de-designate" a particular resource through amendment of the Basin Plan.

48. Compliance with groundwater limitations (*e.g.*, nitrogen compounds, bacteria, disinfection, and decomposition byproducts) has been and should continue to be, at a minimum, by means of wells extracting water from first-encountered groundwater.

49. State Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters of the State") (hereafter Resolution 68-16) requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (*e.g.*, quality that does not conform to water quality objectives). Resolution 68-16 characterizes "high quality waters" as waters that are of higher quality than that established in policies "*as of the date on which such policies become effective.*" In addition, Resolution 68-16 requires that discharges of waste to high quality waters "*be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*."

GROUNDWATER DEGRADATION, LIMITATIONS, AND CONTROL PRACTICES

50. This Order employs specific terms relating to groundwater quality for regulatory purposes. "Natural background quality", for the purposes of evaluating compliance with this Order's groundwater limitations, is defined as the quality of groundwater in the discharge vicinity unaffected by concentrated controllable sources of waste constituents. "Existing natural background quality", for the purposes of evaluating the discharge's consistency with Resolution 68-16, is defined as the quality of natural background groundwater in the discharge vicinity as of 1968. Limited available information and best professional judgment has been sufficient to characterize existing natural background quality.

51. Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for total dissolved solids (TDS). The average and maximum observed upgradient (MW-5) well TDS concentrations were 140 mg/*l* and 180 mg/*l*, respectively. The average and maximum observed downgradient (average of MW-1, MW-2, MW-3, and MW-4) TDS concentrations were 300 mg/*l* and 370 mg/*l*, respectively.

Summary of Groundwater TDS Concentrations (mg/l) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	270	300	280	330	140
Maximum	320	380	340	430	180

Groundwater Limitations for TDS are included in this Order and are based on protection of the beneficial use of agricultural irrigation.

52. Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for nitrate and caused an exceedance of the Basin Plan groundwater chemical constituents objective of 10 mg/*l*. The average and maximum observed upgradient (MW-5) well nitrate concentrations were 1.3 mg/*l* and 3 mg/*l*, respectively. The average and maximum observed downgradient (average of MW-1, MW-2, MW-3, and MW-4) nitrate concentrations were 3.9 mg/*l* and 13 mg/*l*, respectively.

Summary of Groundwater Nitrate Concentrations (mg/l) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	2.7	1.1	11	0.9	1.3
Maximum	13	2.0	31	4.0	3.0

Groundwater Limitations for nitrate are included in this Order and are based on protection of the beneficial use of municipal and domestic supply.

53. Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for total coliform organisms and caused an exceedance of the Basin Plan groundwater bacteria objective of 2.2 MPN/100 m*l*. Monitoring data show an increase in total coliform organisms from the upgradient well (MW-5) to the downgradient wells. A summary of the available total coliform organisms results is shown below.

Summary of Groundwater Total Coliform Organisms Concentrations (MPN/100 ml) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Median	2.0	16.1	5.1	16.1	1.1
Maximum	30	>1,600	23	300	>23

Groundwater Limitations for total coliform organisms are included in this Order and are based on protection of the beneficial uses of municipal and domestic supply and agricultural irrigation supply.

54. The degradation of groundwater by constituents specified in the groundwater limitations in this Order, and by constituents that can be effectively removed by conventional treatment (*e.g.*, oxygen-demanding substances, nutrients, bacteria) is inconsistent with Resolution 68-16. The Regional Board finds that BPTC is not being provided for the land disposal of wastewater at this facility. Waste treatment and control at this facility could include, but is not necessarily limited to, lining of the pond(s) regularly containing untreated or partially treated wastewater. The ponds provide for emergency storage and equalization of the influent flow; technology is readily and cost-effectively available to achieve these worthwhile goals, without allowing percolation to groundwater. This Order contains Provision G.6, which includes a time schedule requiring the

Discharger to implement BPTC.

COLLECTION SYSTEM

55. The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, *etc*.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary sewer overflows, provided that the waste is fully contained within these temporary storage facilities.

    Sanitary sewer overflows consist of varying mixtures of domestic sewage, industrial wastewater, and commercial wastewater. This mixture depends on the pattern of land use in the sewage collection system tributary to the overflow. The chief causes of sanitary sewer overflows include lack of maintenance; blockages due to grease, roots, and debris; sewer line flood damage; manhole structure failures; vandalism; pump station mechanical failures; power outages; stormwater or groundwater inflow/infiltration; insufficient capacity; and contractor-caused blockages.

    Sanitary sewer overflows often contain high levels of suspended solids, pathogenic organisms, toxic pollutants, nutrients, oxygen demanding organic compounds, oil and grease, and other pollutants. Sanitary sewer overflows can cause exceedance of applicable water quality objectives, pose a threat to public health, adversely affect aquatic life, and impair the public recreational use and aesthetic enjoyment of surface waters in the area

56. The Discharger is required to take all necessary steps to adequately maintain and operate its sanitary sewer collection system.

STORMWATER

57. U.S. EPA promulgated Federal Regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from municipal sanitary sewer systems. Wastewater Treatment Plants are applicable industries under the stormwater program and are obligated to comply with the Federal Regulations. Storm water discharges from the Auburn Wastewater Treatment Plant are regulated under the General Permit for Discharges of Storm Water Associated with Industrial Activities (State Water Resources Control Board, Water Quality Order No. 97-03-DWQ, NPDES General Permit No. CAS000001). The Discharger's waste discharge identification (WDID) number for the storm water permit is 5S31S002989.

GENERAL

58. Pursuant to CWC Section 13263(g), discharge is a privilege, not a right, and adoption of this Order does not create a vested right to continue the discharge.

59. The discharge authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 *et seq*. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

    a. The waste consists primarily of domestic sewage and treated effluent;

    b. The waste discharge requirements are consistent with water quality objectives; and

    c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.

60. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

61. Monitoring is required by this Order for the purposes of assessing compliance with permit limitations and water quality objectives and gathering information to evaluate the need for additional limitations.

62. Section 13267 of the California Water Code states, in part, "*(a) A regional board, in establishing…waste discharge requirements… may investigate the quality of any waters of the state within its region"* and *"(b) (1) In conducting an investigation…, the regional board may require that any person who has discharged, discharges, or is suspected of discharging, or who proposes to discharge within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of discharging, or who proposes to discharge waste outside of its region that could affect the quality of waters of the state within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the reports and the benefits to be obtained from the reports. In requiring these reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify evidence that supports requiring the person to provide the reports.*" *The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports.* The attached Monitoring

and Reporting Program is issued pursuant to California Water Code Section 13267. The technical reports required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The City of Auburn is responsible for the discharges of waste at the facility subject to this Order and is, therefore, subject to CWC Section 13267(b).

63. The California Department of Water Resources set standards for the construction and destruction of groundwater wells, as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981). These standards, and any more stringent standards adopted by the State or county pursuant to CWC Section 13801, apply to all monitoring wells.

64. State regulations that prescribe procedures for detecting and characterizing the impact of waste constituents from waste management units on groundwater are found in Title 27. While the wastewater treatment facility is exempt from Title 27, the data analysis methods of Title 27 may be appropriate for determining whether the discharge complies with the terms for protection of groundwater specified in this Order.

65. The Regional Board has considered the information in the attached Fact Sheet in developing the Findings of this Order. The Fact Sheet, Monitoring and Reporting Program No. R5-2005-0030, and Attachments A through I are a part of this Order.

66. The discharge is presently governed by Waste Discharge Requirements Order No. 98-189, adopted by the Regional Board on 11 September 1998.

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

68. 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*.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

69. 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.

70. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.

71. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon **1 April 2005**, provided U.S. EPA has no objections.

IT IS HEREBY ORDERED that Order No. 98-189 is rescinded and City of Auburn, 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. The by-pass 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)"].

3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.

B. Effluent Limitations—Discharge to Auburn Ravine (001):

1. Effluent shall not exceed the following limits when less than 20:1 dilution is available:

Constituents	Units	Average Monthly	Monthly Median	Average Weekly	Average Daily	Instantaneous Maximum
BOD[1]	mg/*l*	10[2]	--	15[2]	20[2]	--
	lbs/day[3]	140	--	210	280[2]	--
Total Suspended Solids	mg/*l*	10[2]	--	15[2]	20[2]	--
	lbs/day[3]	140	--	210	280[2]	--
Settleable Solids	m*l*/*l*·hr	0.1	--	--	0.2	--
Total Coliform Organisms	MPN/100m*l*	--	2.2	--	--	23[4]
Turbidity	NTU	--	--	--	2	5[5]
Oil and Grease	mg/*l*	10	--	--	15	--
	lbs/day[3]	140	--	--	210	--
Organochlorine Pesticides	µg/*l*	--	--	--	--	ND[6]
Diazinon[7]	µg/*l*	0.040	--	--	0.080	--
	lbs/day[8]	0.00056	--	--	0.0011	--

1 5-day, 20ºC biochemical oxygen demand (BOD)
2 To be ascertained by a 24-hour composite
3 Based upon a design treatment capacity of 1.67 mgd (*x* mg/*l* X 8.345 X 1.67 mgd = *y* lbs/day)
4 The total coliform organisms concentration shall not exceed 23 MPN/100 m*l* more than once in any 30-day period. No sample shall exceed a concentration of 240 MPN/100 m*l*.
5 The turbidity shall not exceed 5 NTU more than 5 percent of the time within a 24-hour period. At no time shall the turbidity exceed 10 NTU.
6 The non-detectable (ND) limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques with the lowest possible detectable level for organochlorine pesticides with a maximum acceptable detection level of 0.05 µg/*l*.
7 Compliance due **30 June 2008**.
8 Based upon a design treatment capacity of 1.67 mgd [*x* µg/*l* X (1 mg/1000 µg) X 8.345 X 1.67 mgd = *y* lbs/day]

2. Effluent shall receive secondary treatment and be filtered and shall not exceed the following limits when 20:1 dilution (receiving water:effluent), or greater, is available:

Constituents	Units	Average Monthly	7-Day Median	Average Weekly	Average Daily	Instantaneous Maximum
BOD[1]	mg/*l*	15[2]	--	25[2]	40[2]	--

1 5-day, 20ºC biochemical oxygen demand (BOD)
2 To be ascertained by a 24-hour composite

Constituents	Units	Average Monthly	7-Day Median	Average Weekly	Average Daily	Instantaneous Maximum
	lbs/day[3]	210	--	350	560	--
Total Suspended Solids	mg/*l*	15[2]	--	25[2]	40[2]	--
	lbs/day[3]	210	--	350	560	--
Settleable Solids	m*l*/*l*-hr	0.1	--	--	0.2	--
Total Coliform Organisms	MPN/100 m*l*	--	23	--	--	240[4]
Oil and Grease	mg/*l*	10	--	--	15	--
	lbs/day[3]	140	--	--	210	--
Organochlorine Pesticides	µg/*l*	--	--	--	--	ND[5]
Diazinon[6]	µg/*l*	0.040	--	--	0.080	--
	lbs/day[7]	0.00056	--	--	0.0011	--

3 Based upon a design treatment capacity of 1.67 mgd (*x* mg/*l* X 8.345 X 1.67 mgd = *y* lbs/day)
4 Not to be exceeded more than once in a 30-day period
5 The non-detectable (ND) limitation applies to each individual pesticide. No individual pesticide may be present in the discharge at detectable concentrations. The Discharger shall use EPA standard analytical techniques with the lowest possible detectable level for organochlorine pesticides with a maximum acceptable detection level of 0.05 µg/*l*.
6 Compliance due **30 June 2008**.
7 Based upon a design treatment capacity of 1.67 mgd [*x* µg/*l* X (1 mg/1000 µg) X 8.345 X 1.67 mgd = *y* lbs/day]

3. Effluent shall not exceed the following limits (from adoption until **30 November 2009**):

Constituents	Units	Average Monthly	Average 4-Day	Average Daily	Average 1-Hour
Aluminum [1]	µg/*l*	71	--	140	--
	lbs/day[2]	0.99	--	2.0	--
Ammonia	mg/*l*	Attachment B	Attachment C	--	Attachment D
(as N)	lbs/day[3]	[4]	[4]	--	[4]
Chlorine, Total Residual	mg/*l*	--	0.01	--	0.02
	lbs/day[2]	--	0.15	--	0.26
Chloroform	µg/*l*	1.1	--	--	--
	lbs/day[2]	0.015	--	--	--
Manganese	µg/*l*	50	--	--	--
(total recoverable)	lbs/day[2]	0.70	--	--	--

1 Acid-soluble or total
2 Based upon a design treatment capacity of 1.67 mgd [*x* µg/*l* X (1 mg/1000 µg) X 8.345 X 1.67 mgd = *y* lbs/day]
3 Based upon a design treatment capacity of 1.67 mgd (*x* mg/*l* X 8.345 X 1.67 mgd = *y* lbs/day)
4 The mass limit (lb/day) for ammonia shall be equal to the concentration limit (from Attachments) multiplied by the design flow of 1.67 mgd and the unit conversion factor of 8.345 (see footnote 2 for equation).

Constituents	Units	Average Monthly	Average 4-Day	Average Daily	Average 1-Hour
Methyl tert butyl ether	µg/*l*	5	--	--	--
(MTBE)	lbs/day[2]	0.070	--	--	--
Methylene blue active	µg/*l*	500	--	--	--
substances (MBAS)	lbs/day[2]	7.0	--	--	--
Nitrite	mg/*l*	1	--	--	--
(as N)	lbs/day[3]	14	--	--	--
Nitrate + Nitrite	mg/*l*	10	--	--	--
(as N)	lbs/day[3]	140	--	--	--

	Interim Average Daily Limitations for Priority Pollutants[1]	
Constituents	µg/*l*	lbs/day[2]
Copper (total recoverable)	26	0.36
Dibromochloromethane	2.2	0.031
Dichlorobromomethane	13	180
Lead (total recoverable)	7.8	0.11
Nickel (total recoverable)	12	0.17
Silver (total recoverable)	1.4[3]	--
Zinc (total recoverable)	530	7.4

1 Interim Limitations are the maximum of the values in this table and the Effluent Limitations contained in B.4.
2 Based upon a design treatment capacity of 1.67 mgd [*x* µg/*l* x (1 mg/1000 µg) x 8.345 x 1.67 mgd = *y* lbs/day]
3 Instantaneous maximum

4. The effluent shall not exceed the following limitations (from **1 December 2009** forward):

Constituents	Units	Average Monthly	Average 4-Day	Average Daily	Average 1-Hour	Instantaneous Maximum
Aluminum[1]	µg/*l*	71	--	140	--	--
	lbs/day[2]	0.99	--	2.0	--	--
Ammonia	mg/*l*	Attach. B[4]	Attach. C[4]	--	Attach. D[4]	--
(as N)	lbs/day[3]			--		--
Chlorine, Total Residual	µg/*l*		0.01	--	0.02	--

1 Acid-soluble or total
2 Based upon a design treatment capacity of 1.67 mgd [*x* µg/*l* X (1 mg/1000 µg) X 8.345 X 1.67 mgd = *y* lbs/day]
3 Based upon a design treatment capacity of 1.67 mgd (*x* mg/*l* X 8.345 X 1.67 mgd = *y* lbs/day)
4 The mass limit (lb/day) for ammonia shall be equal to the concentration limit (from Attachments) multiplied by the design flow of 1.67 mgd and the unit conversion factor of 8.345 (see footnote 3 for equation).

Constituents	Units	Average Monthly	Average 4-Day	Average Daily	Average 1-Hour	Instantaneous Maximum
	lbs/day		0.15	--	0.26	--
Chloroform	µg/*l*	1.1	--	--	--	--
	lbs/day	0.015	--	--	--	--
Copper	µg/*l*	Attach. E	--	Attach. E	--	--
(total recoverable)	lbs/day	[5]	--	[5]	--	--
Dibromochloromethane	µg/*l*	0.41	--	0.84	--	--
	lbs/day	0.0057	--	0.012	--	--
Dichlorobromomethane	µg/*l*	0.56	--	1.0	--	--
	lbs/day	0.0078	--	0.014	--	--
Lead	µg/*l*	Attach. F	--	Attach. F	--	--
(total recoverable)	lbs/day	[5]	--	[5]	--	--
Manganese	µg/*l*	50	--	--	--	--
(total recoverable)	lbs/day	0.70	--	--	--	--
Methyl tert butyl ether	µg/*l*	5	--	--	--	--
(MTBE)	lbs/day	0.070	--	--	--	--
Methylene blue active	µg/*l*	500	--	--	--	--
Substances (MBAS)	lbs/day	7.0	--	--	--	--
Nickel	µg/*l*	Attach. G	--	Attach. G	--	--
(total recoverable)	lbs/day	[5]	--	[5]	--	--
Nitrite	mg/*l*	1	--	--	--	--
(as N)	lbs/day	14	--	--	--	--
Nitrate + Nitrite	mg/*l*	10	--	--	--	--
(as N)	lbs/day	140	--	--	--	--
Silver	µg/*l*	--	--	--	--	Attach. H
(total recoverable)						
Zinc	µg/*l*	Attach. I	--	Attach. I	--	--
(total recoverable)	lbs/day	[5]	--	[5]	--	--

5 The mass limit (lbs/day) shall be equal to the concentration limit (from corresponding Attachment, for corresponding period) multiplied by the design flow of 1.67 mgd and the unit conversion factor of 8.345 and divided by 1000 µg/*l* per mg/*l* (see footnote 1 for equation).

5. The arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).

6. The effluent mass mercury loading to Auburn Ravine shall not exceed 0.010 pounds as a twelve-month average.

a. In calculating for compliance, the Discharger shall count all non-detect results at one half of the method detection limit and shall apply the monthly average flow from the discharge. If compliance with the effluent limit is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance will be evaluated with consideration of the detection limits.

b. Twelve month mass loadings shall be calculated for each calendar month. For monthly measures, calculate monthly loadings using average monthly flow and the average of all mercury analyses conducted that month. The Discharger shall submit a cumulative total of mass loadings for the previous twelve months with each self-monitoring report. Compliance will be determined based on monitoring results from the previous twelve calendar months.

7. The discharge shall not have a pH less than 6.5 nor greater than 8.5.

8. The average daily dry weather discharge flow shall not exceed 1.67 million gallons.

9. Wastewater shall continue to be oxidized, coagulated, filtered, and disinfected, or equivalent treatment provided.

10. 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. Equalization/Emergency Storage Pond Limitations:

1. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.

2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.

3. As a means of discerning compliance with Discharge Specification No.C.2, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/*l*.

4. Basin freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

5. Ponds shall not have a pH less than 6.5 or greater than 8.5 as a daily average.

6. Ponds shall be managed to prevent breeding of mosquitoes. In particular,

   a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

   b. Weeds shall be minimized.

   c. Dead algae, vegetation, and debris shall not accumulate on the water surface.

D. Sludge Disposal:

1. Collected screenings, sludges, and other solids removed from liquid wastes 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*.

2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and U.S. EPA Regional Administrator at least **90 days** in advance of the change.

3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

   If the State Water Resources Control Board and the Regional Water Quality Control Boards are given the authority to implement regulations contained in 40 CFR 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR 503 whether or not they have been incorporated into this Order.

4. The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.

E. Receiving Water Limitations:

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

The discharge shall not cause the following in Auburn Ravine:

1. The fecal coliform concentration in any 30-day period to exceed a geometric mean of 200 MPN/100 m*l* or cause more than 10 percent of total samples to exceed 400 MPN/100 m*l*.

2. Biostimulatory substances that promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.

3. Esthetically undesirable discoloration.

4. Concentrations of dissolved oxygen to fall below 7.0 mg/*l*. The monthly median of the mean daily dissolved oxygen concentration shall not fall below 85 percent of saturation in the main water mass, and the 95th percentile concentration shall not fall below 75 percent of saturation.

5. Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.

6. Oils, greases, waxes, or other materials to accumulate in concentrations that cause nuisance or adversely affect beneficial uses.

7. The ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units. A one-month averaging period may be applied when calculating the pH change of 0.5 units.

8. Radionuclides to be present in concentrations that harm human, plant, animal, or aquatic life; or that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.

9. Deposition of material that causes nuisance or adversely affects beneficial uses.

10. 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.

11. The ambient temperature to increase more than 5°F.

12. 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.

13. The turbidity to increase as follows:

a. More than 1 Nephelometric Turbidity Units (NTUs) 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.

When wastewater is treated to a tertiary level (including coagulation) or equivalent, a one-month averaging period may be used when determining compliance with Receiving Water Limitation E.13.a.

14. Aquatic communities and populations, including vertebrate, invertebrate, and plant species, to be degraded.

F. Groundwater Limitations:

Release of waste constituents from any storage, treatment, or disposal component associated with the WWTP shall not, in combination with other sources of the waste constituents, cause groundwater within influence of the WWTP to contain waste constituents in concentrations in excess of natural background quality or that listed below, whichever is greater:

1. Total coliform organisms median of 2.2 MPN/100 m*l* over any seven-day period.

2. Chemical constituents in concentrations that adversely affect beneficial uses, including:

a. Constituent concentrations listed below:

Constituent	Units	Limitation
Ammonia, Total (as NH_4)	mg/*l*	0.5
Total Dissolved Solids[1]	mg/*l*	450
Nitrate + Nitrite (as N)	mg/*l*	10

[1] A cumulative constituent comprised of dissolved matter consisting mainly of inorganic salts, small amounts of organic matter, and dissolved gases (*e.g.*, ammonia, bicarbonate alkalinity, boron, calcium, chloride, copper, iron, magnesium, manganese, nitrate, phosphorus, potassium, sodium, silica, sulfate, total alkalinity).

G. Provisions:

1. The treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.

2. The Discharger shall not allow pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

3. The Discharger shall use best practicable treatment and control, including proper operation and maintenance, to comply with terms of this Order.

4. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, Sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, Sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

5. **Groundwater Monitoring Tasks.** The Discharger shall continue to monitor groundwater in existing monitoring wells in accordance with the MRP unless and until individual existing wells are removed from the approved network and properly closed or the use of the equalization basins is discontinued, in which case the groundwater monitoring may cease. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's MRP. After two years of monitoring, the Discharger shall characterize natural background quality of monitored constituents in a technical report. The report shall present a summary of monitoring data and determine natural background quality for each parameter/constituent identified in the MRP based on data from at least eight consecutive groundwater monitoring events using the methods described in Title 27, Section 20415(e)(10). For each parameter/constituent, the report shall compare measured concentrations in wells used to monitor impacts from the discharge against the calculated natural background concentration, as well as the interim numeric groundwater limitations.

6. **BPTC Evaluation Tasks**. The Discharger shall propose a work plan and schedule for providing BPTC as required by Resolution 68-16. The technical report describing the work plan and schedule shall contain a preliminary evaluation of each component and propose a time schedule for completing the comprehensive technical evaluation.

   Following completion of the comprehensive technical evaluation, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated

component with respect to BPTC and minimizing the discharge's impact on groundwater quality. Where deficiencies are documented, the technical report shall provide recommendations for necessary modifications (*e.g.*, new or revised salinity source control measures, WWTP component upgrade and retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications. The schedule shall be as short as practicable but in no case shall completion of the necessary modifications exceed four years past the Executive Officer's determination of the adequacy of the comprehensive technical evaluation, unless the schedule is reviewed and specifically approved by the Regional Board. The technical report shall include specific methods the Discharger proposes as a means to measure processes and assure continuous optimal performance of BPTC measures. The Discharger shall comply with the following compliance schedule in implementing the work required by this Provision:

	Task	Compliance Date
a.	Submit technical report: work plan and schedule for comprehensive evaluation	**Within 6 months** following Order adoption
b.	Submit technical report: alternatives	**60 days** following completion of task a, or three years following Order adoption, whichever is sooner
c.	Full compliance with BPTC requirements	**1 April 2007**

Technical reports submitted pursuant to this Provision shall be prepared in accordance with Provision G.4.

7. This permit, and the Monitoring and Reporting Program which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed **within six months of adoption** of this permit. For systems installed following permit adoption, the notification system shall be installed simultaneously.

8. ***Sanitary Sewer System Operation, Maintenance, and Overflow Prevention***—The Discharger shall maintain all portions of the wastewater collection system to assure compliance with this Order. Collection system overflows and/or discharges are prohibited by this Order. All violations of this Order must be reported as specified in Standard Provisions and the public shall be notified, in coordination with the Health Department, in areas that have been contaminated with sewage. All parties with a reasonable potential for exposure to a sewage overflow shall be notified.

   Upon reduction, loss, or failure of the sanitary sewer system resulting in a sanitary sewer

overflow, the discharger shall, to the extent necessary to maintain compliance with this Order, take any necessary remedial action to 1) control or limit the volume of sewage discharged, 2) terminate the sewage discharge as rapidly as possible, and 3) recover as much of the sewage discharged as possible for proper disposal, including any wash down water. The dischargers shall implement all remedial actions to the extent they may be applicable to the discharge.

9. 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 workplan 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 a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

10. The Discharger shall comply with the following time schedule to assure compliance with Effluent Limitations contained in B.4 of this Order:

Task	Compliance Date	Report Due Date
Submit Annual Status Report		**1 March, annually**
Submit Workplan/Time Schedule		**1 December 2005**
Full Compliance	**1 December 2009**	

The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule date and task. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus 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 time schedule.

11. The Discharger must submit and utilize U.S. EPA test methods and detection limits to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the Monitoring Requirements for these constituents as outlined in Section 2.3 and 2.4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by the U.S. EPA test methods shall be reported.

12. Minimum detection levels for monitoring required by this Order shall, unless impracticable, be adequate to demonstrate compliance with permit limitations.

13. The interim limitations in this Order are based on the current treatment plant performance and have been established as described in Finding 39. Interim limitations have been established since compliance with NTR- and CTR-based Effluent Limitations cannot be achieved by the existing discharge. The interim Effluent Limitations contained in B.3 establish enforceable mass and concentration ceilings until compliance with the final Effluent Limitations contained in B.4 (required by **1 December 2009**) can be achieved.

14. The Discharger shall conduct a study of the thermal impacts of the discharge on the beneficial uses of Auburn Ravine. The Discharger shall submit a workplan for the study **within six months of the adoption date of this Order**. It is recommended that the workplan be reviewed by the California Department of Fish and Game and the National Marine Fisheries Service prior to submittal. The study shall assess compliance with this Order. The results of the study shall be submitted by **1 March 2007**.

    The Discharger shall submit to the Regional Board on or before each compliance due 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 time schedule.

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

15. The Discharger shall use the best practicable treatment or control technique currently available to limit mineralization to no more than a reasonable increment.

16. 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.

17. 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."

18. The Discharger shall comply with Monitoring and Reporting Program No. R5-2005-0030, which is part of this Order, and any revisions thereto as ordered by the Executive

Officer.

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.

19. **Dibromochloromethane, Dichlorobromomethane, Copper, Lead, Nickel, Silver and Zinc Compliance Schedule**: This Order contains Effluent Limitations based on water quality criteria contained in the CTR for dibromochloromethane, dichlorobromomethane, copper, lead, nickel, silver, and zinc. By **10 May 2005**, the Discharger shall complete and submit a compliance schedule justification for dibromochloromethane, dichlorobromomethane, copper, lead, nickel, silver, and zinc. The compliance schedule justification shall include all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. The new water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, copper, lead, nickel, silver, and zinc become effective on **1 July 2005** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Otherwise, the new final water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, copper, lead, nickel, silver, and zinc required by this Order shall become effective on **1 December 2009**. As this compliance schedule is greater than one year, the Discharger shall submit semi-annual progress reports on **1 September** and **1 March** of each year until the Discharger achieves compliance with the final water quality based effluent limitations for dibromochloromethane, dichlorobromomethane, copper, lead, nickel, silver, and zinc.

20. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect on **1 April 2005**, provided U.S. EPA has no objections.

21. This Order expires on **1 March 2010** 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.

22. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:

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

    b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to

accommodate such wastes;

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

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

e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;

f. Petroleum oil, nonbiodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;

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

h. Any trucked or hauled pollutants, except at points predesignated by the Discharger.

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

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

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

24. 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).

25. 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, 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 17 March 2005.

_____
THOMAS R. PINKOS, Executive Officer

MRH

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2005-0030

NPDES NO. CA0077712

FOR

CITY OF AUBURN
WASTEWATER TREATMENT PLANT
PLACER COUNTY

This Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267 and 13383. 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.

Within **60 days** of permit adoption, the Discharger shall submit a report outlining minimum levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring requirements for CTR constituents as outlined in Section 2.3 and 2.4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, adopted 2 March 2000 by the State Water Resources Control Board. All peaks identified by analytical methods shall be reported. Detected method blank concentrations shall not be subtracted from sample results. Sample results with corresponding method blanks having concentrations equal to or greater than 10% of the sample concentration will be considered unacceptable and re-sampling shall be required.

INFLUENT MONITORING

Samples shall be collected at approximately the same time as effluent samples and should be representative of the influent for the period sampled. Influent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
20°C BOD_5	mg/*l*, lbs/day	24-hr. Composite [1]	3 Times Weekly
Total Suspended Solids	mg/*l*, lbs/day	24-hr. Composite[1]	3 Times Weekly
pH	Number	Meter	Continuous[2]
Flow	mgd	Meter	Continuous

1 The BOD and TSS samples shall be flow-proportional composite samples collected on the same day as the effluent samples.

2 The continuous monitoring system, or functional equivalent, shall be operational no later than **1 November 2006**. Until that time, grab samples shall be collected and analyzed daily.

EFFLUENT MONITORING OF DISCHARGE TO AUBURN RAVINE

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall, following the last unit process. Effluent samples should be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded.

Effluent monitoring shall include at least the following:

Constituents	Units	Type of Sample	Sampling Frequency
Flow	mgd	Meter	Continuous
Total Residual Chlorine	mg/*l*, lbs/day	Meter	Continuous[1]
pH	Number	Meter	Continuous[1]
Turbidity	NTU	Meter	Continuous[1]
Temperature	°F	Grab	5 Times Weekly
Electrical Conductivity @ 25°C	µmhos/cm	Grab	5 Times Weekly
Settleable Solids	m*l*/*l*	24-hr Composite[2]	5 Times Weekly
Total Coliform Organisms[3]	MPN/l00 m*l*	Grab	3 Times Weekly
20°C BOD_5	mg/*l*, lbs/day	24-hr Composite[2]	3 Times Weekly
Total Suspended Solids	mg/*l*, lbs/day	24-hr Composite[2]	3 Times Weekly
Ammonia, Total (as N)[4, 5, 6,7]	mg/*l*, lbs/day	Grab	Twice Weekly
Nitrate (as N)[8]	mg/*l*, lbs/day	Grab	Twice Monthly
Nitrite (as N)[8]	mg/*l*, lbs/day	Grab	Twice Monthly
Oil and Grease	mg/*l*, lbs/day	Grab	Monthly
Total Dissolved Solids	mg/*l*, lbs/day	Grab	Monthly
Chloroform	µg/*l*, lbs/day	Grab	Monthly
Dibromochloromethane	µg/*l*, lbs/day	Grab	Monthly

1 The continuous monitoring system, or functional equivalent, shall be operational no later than **1 October 2006**. Until that time, grab samples shall be collected and analyzed daily.
2 These samples shall be flow-proportional composite samples.
3 Total coliform organisms samples may be collected at any point following disinfection, provided that samples are dechlorinated at the time of collection. The Discharger shall report the sampling location(s) in the monthly self-monitoring reports.
4 Report as total ammonia.
5 Concurrent with biotoxicity monitoring.
6 In reporting lbs/day, the Discharger shall report both the lbs/day discharged and the calculated lbs/day limitation.
7 Temperature and pH shall be recorded at the time of ammonia sample collection.
8 Nitrate and nitrite must be sampled concurrently.

Constituents	Units	Type of Sample	Sampling Frequency
Dichlorobromomethane	µg/*l*, lbs/day	Grab	Monthly
MBAS	µg/*l*, lbs/day	Grab	Monthly
Silver (total recoverable)	µg/*l*	Grab	Monthly
Hardness (as $CaCO_3$)	mg/*l*	24-hr Composite[2]	Monthly[9]
Aluminum [6,10]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Copper (total recoverable)[6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Diazinon[6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Manganese (total recoverable)[6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Mercury (total recoverable)[6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Nickel (total recoverable) [6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Organochlorine Pesticides[6,11]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Zinc (total recoverable) [6]	µg/*l*, lbs/day	24-hr Composite[2]	Monthly
Acute Toxicity[12,13]	% Survival	Grab	Quarterly
Cyanide	µg/*l*, lbs/day	24-hr Composite[2]	Quarterly
Priority Pollutants[11,14]	µg/*l*, lbs/day	As Appropriate[15]	Annually[16]

9 Concurrent with metals sampling.

10 Acid-soluble or total. Aluminum samples may be analyzed using the acid-soluble method described in U.S. EPA's *Ambient Water Quality Criteria for Aluminum – 1988* [EPA 440/5-86-008], with the modification that an inductively coupled plasma (ICP)/mass spectrometry analysis be substituted for the ICP/atomic emission spectrometric analysis.

11 All peaks are to be reported, along with any explanation provided by the laboratory.

12 The acute bioassay samples shall be analyzed using EPA/821-R-02-012, Fifth Edition, or later amendment with Regional Board staff approval. Temperature and pH shall be recorded at the time of bioassay sample collection. Test species shall be juvenile rainbow trout (*Oncorhynchus mykiss*), with no pH adjustment unless approved by the Executive Officer following adoption of this Order.

13 Concurrent with ammonia monitoring.

14 Priority Pollutants is defined as U.S. EPA priority toxic pollutants and other constituents listed in the 10 September 2001 CWC Section 13267 letter issued by the Executive Officer.

15 Volatile samples and samples with hold times of less than 24 hours shall be grab samples; the remainder shall be 24-hour composite samples.

16 Hardness, pH, and temperature data shall be collected at the same time and on the same date as the Priority Pollutant samples.

If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, except for priority pollutants, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule.

RECEIVING WATER MONITORING

All receiving water samples shall be grab samples. Receiving water monitoring shall be conducted when discharging to Auburn Ravine and shall include at least the following:

Station	Description
R-1	Auburn Ravine, 50 feet upstream of the point of discharge
R-2	Auburn Ravine, 100 feet downstream of the point of discharge

Constituents	Units	Station	Sampling Frequency
Dissolved Oxygen[1]	mg/*l*[2]	R-l, R-2	Weekly
	% saturation[3]		
pH[1]	Number	R-l, R-2	Weekly
Turbidity[1]	NTU	R-l, R-2	Weekly
Temperature[1]	°F (°C)	R-l, R-2	Weekly
Electrical Conductivity @25°C[1]	µmhos/cm	R-l, R-2	Weekly
Fecal Coliform Organisms	MPN/100 m*l*	R-l, R-2	Quarterly
Radionuclides	pCi/*l*[4]	R-l, R-2	Annually
Hardness (as $CaCO_3$)	mg/*l*	R-1, R-2	Monthly[5]

1 A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the WWTP.
2 Temperature shall be determined at the time of sample collection for use in determining saturation concentration. Any additional factors or parameters used in determining saturation concentration shall also be reported.
3 Report both percent saturation and saturation concentration.
4 pCi/*l* = picocuries per liter
5 Samples shall be collected on the same date as the effluent metals and priority pollutant samples.

In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-l and R-2. Attention shall be given to the presence or absence of:

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

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

POND MONITORING

Pond monitoring shall be conducted when water is present in the pond(s). All pond samples shall be grab samples. Pond monitoring shall, at a minimum, consist of the following:

Constituents	Units	Sampling Frequency
Freeboard	feet[1]	Weekly
Dissolved Oxygen[2]	mg/*l*	Weekly
Odors	--	Weekly
pH[2]	pH units	Weekly
Electrical Conductivity @25°C[2]	µmhos/cm	Weekly

1 To be measured vertically to the lowest point of overflow

2 A hand-held field meter may be used, provided the meter utilizes a U.S. EPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the WWTP.

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/821-R-02-013. Chronic toxicity samples shall be collected from the effluent of the wastewater treatment facility when discharging to Auburn Ravine, after the last unit process, prior to its entering the receiving stream. Twenty-four hour composite samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. Control waters shall be obtained immediately upstream of the discharge from an area unaffected by the discharge in the receiving waters. The sensitivity of the test organisms to a reference toxicant shall be determined concurrently with each bioassay and reported with the test results. Monthly laboratory reference toxicant tests may be substituted. 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 within 14 days. Chronic toxicity monitoring shall include the following:

Species: *Pimephales promelas* (larval stage)*, Ceriodaphnia dubia,* and *Selenastrum capricornutum*

Frequency: Monitoring shall be conducted once per quarter, four quarters per year.

Dilution: 100% effluent

GROUNDWATER MONITORING

Groundwater grab samples shall be collected from all groundwater monitoring wells. Prior to collecting samples and after measuring the water level, each monitoring well shall be adequately purged to remove water that has been standing within the well screen and casing that may not be chemically representative of formation water. Depending on the hydraulic conductivity of the geologic setting, the volume removed during purging typically does not exceed 3 to 5 volumes of the standing water within the well casing and screen, or additionally the filter pack pore volume. At least quarterly and concurrently with groundwater quality sampling, the Discharger shall measure the water level in each well as groundwater depth (in feet and hundredths) and as groundwater surface elevation (in feet and hundredths above mean sea level). Samples shall be collected from approved monitoring wells and analyzed for at least the following constituents:

Constituent/Parameter	Units	Type of Sample	Frequency
Depth to Groundwater[1]	feet	Measured	Quarterly[2]
Groundwater elevation[1]	feet	Calculated	Quarterly[2]
pH	pH Units	Grab	Quarterly[2]
Chemical Oxygen Demand	mg/*l*	Grab	Quarterly[2]
Total Coliform Organisms	MPN/100 m*l*	Grab	Quarterly[2]
Fecal Coliform[3]	MPN/100 m*l*	Grab	Quarterly[2]
Fecal Streptococcus[3]	MPN/100 m*l*	Grab	Quarterly[2]
Escherichia Coliform[3]	MPN/100 m*l*	Grab	Quarterly[2]
Total Organic Carbon	mg/*l*	Grab	Quarterly[2]
Ammonia and Ammonium ion as NH_4	mg/*l*	Grab	Quarterly[2]
Nitrate (as N)	mg/*l*	Grab	Quarterly[2]
TKN	mg/*l*	Grab	Quarterly[2]
Total Nitrogen	mg/*l*	Calculated	Quarterly[2]
Electrical Conductivity at 25ºC	µmhos/cm	Grab	Quarterly[2]
TDS	mg/*l*	Grab	Quarterly[2]
SAR[4]	None	Calculated	Quarterly[2]
Phosphorus, Total	mg/*l*	Grab	Quarterly[2]
General Minerals	mg/*l*	Grab	Quarterly[2]

1 The groundwater elevation shall be used to calculate the direction and gradient of groundwater flow. Elevations shall be measured to the nearest one-hundredth of a foot from mean sea level. The groundwater elevation and depth to groundwater shall be measured prior to purging the wells.

2 January, April, July and October

3 Sampling for these shall be performed for at least two consecutive quarters in any groundwater monitoring well following the detection in that well of Total Coliform Organisms in excess of 2.2 MPN/100 m*l*.

4 Soil adsorption ratio

Constituent/Parameter	Units	Type of Sample	Frequency
Metals	µg/*l*	Grab	Quarterly[2]
Title 22 Constituents[5]	varies	Grab	Quarterly[2]

5 Monitoring of Title 22 constituents will be limited to wells, selected in concurrence with Regional Board staff, that are representative of groundwater reflecting the greatest impact from the WWTP and its discharges.

SLUDGE MONITORING

A composite sample of dewatered sludge shall be collected annually in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). The composite sample shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours.

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.

Annually by January 31, the Discharger shall submit an annual sludge report containing:

1. Annual sludge production in dry tons and per cent solids.

2. Quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols).

Suggested methods for analysis of sludge are provided in U.S. EPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Recommended analytical holding times for sludge samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in U.S. EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989.

WATER SUPPLY MONITORING

A sampling station shall be established where a representative sample of the municipal water supply can be obtained. Water supply monitoring shall include at least the following:

Constituents	Units	Sampling Frequency
Electrical Conductivity @ 25°C	µmhos/cm	Annually
Total Dissolved Solids	mg/*l*	Annually

If the water supply is from more than one source, the monitoring report shall report the electrical conductivity and total dissolved solids results as a weighted average and include copies of supporting calculations.

REPORTING

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

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the reported analytical result are readily discernible. The data shall be summarized in such a manner to clearly illustrate whether the discharge complies with waste discharge requirements. Monthly maximums, minimums, and averages shall be reported for each monitored constituent and parameter. Removal efficiencies (%) for biochemical oxygen demand and total suspended solids and all periodic averages and medians for which there are limitations shall also be calculated and reported.

The Discharger shall report minimum levels and method detection limits as defined in and required by the SIP.

With the exception of flow, all constituents monitored on a continuous basis (metered), shall be reported as daily maximums, daily minimums, and daily averages; flow shall be reported as the total volume discharged per day for each day of discharge.

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.

Quarterly groundwater monitoring reports shall be submitted under separate cover to the Regional Board by the **1st day of the second month following each calendar quarter** (*i.e.*, the first quarter report is due by May 1st). The Quarterly Report shall include the following:

a. Tabular summary of groundwater monitoring results.

b. A scaled map showing relevant structures and features of the facility, the locations of monitoring wells and any other sampling stations, and groundwater elevation contours referenced to mean sea level datum.

c. An assessment of groundwater flow direction and gradient on the date of measurement, comparison of previous flow direction and gradient data, and discussion of seasonal trends, if any.

d. A narrative discussion of the analytical results for all groundwater locations monitored including spatial and temporal tends, with reference to summary data tables, graphs, and appended analytical reports (as applicable).

e. A comparison of the monitoring data during the reporting period to numerical groundwater limitations in the WDRs and an explanation of any exceedances of limitations.

f. A narrative description of all preparatory, monitoring, sampling, and analytical testing activities for the groundwater monitoring (reference to previous submitted report(s) describing standard sampling procedures is acceptable).

g. Field logs for each well documenting depth to groundwater; parameters measured before, during, and after purging; method of purging; calculation of casing volume; and total volume of water purged.

h. Summary data tables of historical and current water table elevations and analytical results.

i. Copies of laboratory analytical report(s) for groundwater monitoring.

A letter transmitting the self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period, and actions taken or planned for correcting noted violations, such as operation or facility modifications. If the Discharger has previously submitted a report describing corrective actions and/or a time schedule for implementing the corrective actions, reference to the previous correspondence will be satisfactory. The transmittal letter shall contain the penalty of perjury statement by the Discharger, or the Discharger's authorized agent, as described in the Standard Provisions.

By **1 February** of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

a. The names, certificate grades, and general responsibilities of all persons employed at the WWTP (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.

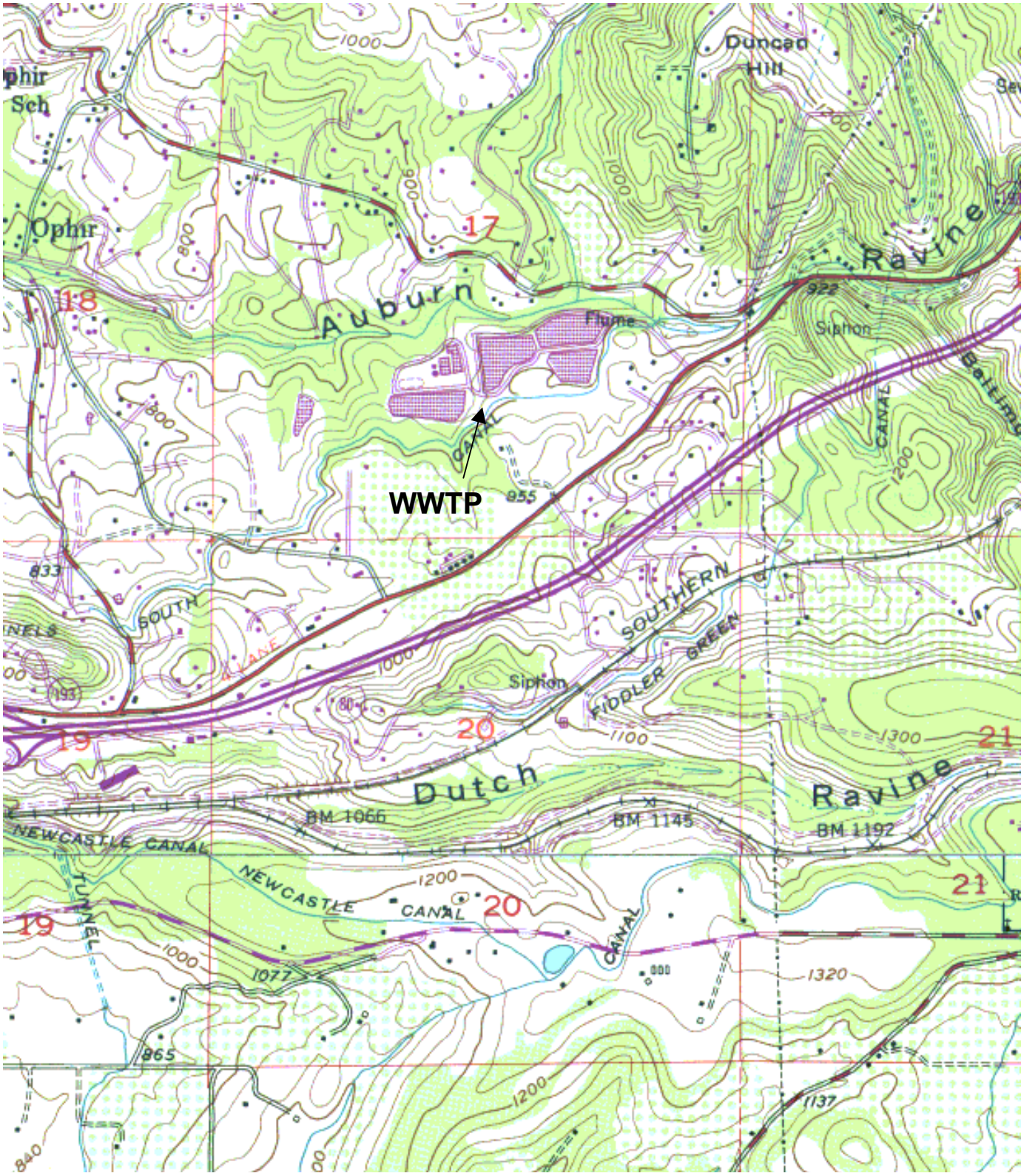
The Discharger shall implement the above monitoring program on the first day of the month following effective date of this Order.

Ordered by: _____
THOMAS R. PINKOS, Executive Officer

17 March 2005
(Date)

MRH

ATTACHMENT A



Drawing Reference: AUBURN U.S.G.S TOPOGRAPHIC MAP 7.5 MINUTE QUADRANGLE *Photorevised 1981* *Not to scale*	SITE LOCATION MAP CITY OF AUBURN WASTEWATER TREATMENT PLANT PLACER COUNTY	N W E S

Temperature- and pH-Dependent Effluent Limits for Ammonia
Criterion Continuous Concentration, Maximum Average Monthly Concentration

Ammonia Concentration Limitation (mg N/*l*)										
	Temperature, ºC (ºF)									
pH	**0** (32)	**14** (57)	**16** (61)	**18** (64)	**20** (68)	**22** (72)	**24** (75)	**26** (79)	**28** (82)	**30** (86)
6.5	6.67	6.67	6.06	5.33	4.68	4.12	3.62	3.18	2.80	2.46
6.6	6.57	6.57	5.97	5.25	4.61	4.05	3.56	3.13	2.75	2.42
6.7	6.44	6.44	5.86	5.15	4.52	3.98	3.50	3.07	2.70	2.37
6.8	6.29	6.29	5.72	5.03	4.42	3.89	3.42	3.00	2.64	2.32
6.9	6.12	6.12	5.56	4.89	4.30	3.78	3.32	2.92	2.57	2.25
7.0	5.91	5.91	5.37	4.72	4.15	3.65	3.21	2.82	2.48	2.18
7.1	5.67	5.67	5.15	4.53	3.98	3.50	3.08	2.70	2.38	2.09
7.2	5.39	5.39	4.90	4.31	3.78	3.33	2.92	2.57	2.26	1.99
7.3	5.08	5.08	4.61	4.06	3.57	3.13	2.76	2.42	2.13	1.87
7.4	4.73	4.73	4.30	3.78	3.32	2.92	2.57	2.26	1.98	1.74
7.5	4.36	4.36	3.97	3.49	3.06	2.69	2.37	2.08	1.83	1.61
7.6	3.98	3.98	3.61	3.18	2.79	2.45	2.16	1.90	1.67	1.47
7.7	3.58	3.58	3.25	2.86	2.51	2.21	1.94	1.71	1.50	1.32
7.8	3.18	3.18	2.89	2.54	2.23	1.96	1.73	1.52	1.33	1.17
7.9	2.80	2.80	2.54	2.24	1.96	1.73	1.52	1.33	1.17	1.03
8.0	2.43	2.43	2.21	1.94	1.71	1.50	1.32	1.16	1.02	0.897
8.1	2.10	2.10	1.91	1.68	1.47	1.29	1.14	1.00	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

$$CCC = \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) x\ MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right)$$

Where: CCC = criteria continuous concentration
T = temperature in degrees Celsius (ºC)

Temperature- and pH-Dependent Effluent Limits for Ammonia
Maximum 4-day Average

Ammonia Concentration Limitation (mg N/*l*)										
Temperature, ºC (ºF)										
pH	**0** (32)	**14** (57)	**16** (61)	**18** (64)	**20** (68)	**22** (72)	**24** (75)	**26** (79)	**28** (82)	**30** (86)
6.5	16.7	16.7	15.1	13.3	11.8	10.3	9.04	7.95	6.99	6.14
6.6	16.4	16.4	14.9	13.1	11.5	10.1	8.91	7.83	6.88	6.05
6.7	16.1	16.1	14.6	12.9	11.3	9.94	8.74	7.68	6.75	5.94
6.8	15.7	15.7	14.3	12.8	11.1	9.71	8.54	7.51	6.60	5.80
6.9	15.3	15.3	13.9	12.2	10.7	9.44	8.30	7.30	6.41	5.64
7.0	14.8	14.8	13.4	11.8	10.4	9.12	8.02	7.05	6.19	5.45
7.1	14.2	14.2	12.9	11.3	9.95	8.75	7.69	6.76	5.94	5.22
7.2	13.5	13.5	12.3	10.8	9.46	8.32	7.31	6.43	5.65	4.97
7.3	12.7	12.7	11.5	10.1	8.91	7.84	6.89	6.05	5.32	4.68
7.4	11.8	11.8	10.8	9.46	8.31	7.31	6.42	5.65	4.96	4.36
7.5	10.9	10.9	9.92	8.72	7.66	6.74	5.92	5.20	4.57	4.02
7.6	9.94	9.94	9.03	7.94	6.98	6.14	5.39	4.74	4.17	3.66
7.7	8.95	8.95	8.13	7.15	6.28	5.52	4.85	4.27	3.75	3.30
7.8	7.96	7.96	7.23	6.36	5.59	4.91	4.32	3.79	3.34	2.93
7.9	6.99	6.99	6.36	5.59	4.91	4.32	3.80	3.34	2.93	2.58
8.0	6.08	6.08	5.53	4.86	4.27	3.76	3.30	2.90	2.55	2.24
8.1	5.24	5.24	4.77	4.19	3.68	3.24	2.85	2.50	2.20	1.93
8.2	4.48	4.48	4.07	3.58	3.15	2.77	2.43	2.14	1.88	1.65
8.3	3.81	3.81	3.46	3.04	2.68	2.35	2.07	1.82	1.60	1.40
8.4	3.22	3.22	2.93	2.58	2.26	1.99	1.75	1.54	1.35	1.19
8.5	2.72	2.72	2.48	2.18	1.91	1.68	1.48	1.30	1.14	1.00
8.6	2.30	2.30	2.09	1.84	1.61	1.42	1.25	1.10	0.964	0.848
8.7	1.95	1.95	1.77	1.55	1.37	1.20	1.06	0.928	0.816	0.717
8.8	1.65	1.65	1.50	1.32	1.16	1.02	0.897	0.788	0.693	0.609
8.9	1.41	1.41	1.28	1.13	0.992	0.872	0.766	0.674	0.592	0.520
9.0	1.22	1.22	1.11	0.971	0.854	0.751	0.660	0.580	0.510	0.448

$$2.5CCC = 2.5 \times \left(\frac{0.0577}{1+10^{7.688-pH}} + \frac{2.487}{1+10^{pH-7.688}} \right) \times MIN\left(2.85, 1.45 \cdot 10^{0.028(25-T)}\right)$$

Where: CCC = criteria continuous concentration
T = temperature in degrees Celsius (ºC)

pH-Dependent Effluent Limits for Ammonia
Criterion Maximum Concentration, Maximum 1-hour Average

pH	Ammonia Concentration Limit (mg N/*l*)
6.5	**32.6**
6.6	**31.3**
6.7	**29.8**
6.8	**28.0**
6.9	**26.2**
7.0	**24.1**
7.1	**21.9**
7.2	**19.7**
7.3	**17.5**
7.4	**15.3**
7.5	**13.3**
7.6	**11.4**
7.7	**9.64**
7.8	**8.11**
7.9	**6.77**
8.0	**5.62**
8.1	**4.64**
8.2	**3.83**
8.3	**3.15**
8.4	**2.59**
8.5	**2.14**
8.6	**1.77**
8.7	**1.47**
8.8	**1.23**
8.9	**1.04**
9.0	**0.885**

$$CMC_{salmonids\ present} = \left(\frac{0.275}{1+10^{7.204-pH}} + \frac{39.0}{1+10^{pH-7.204}} \right)$$

Where: CMC = criteria maximum concentration

Hardness-Dependent Effluent Limitations for Copper (expressed as total recoverable metal)

Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)	Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)
<25	*Calc.*	*Calc.*	180	12	24
25	1.9	3.8	190	13	26
30	2.2	4.5	200	13	27
35	2.6	5.2	210	14	28
40	2.9	5.9	220	15	29
45	3.3	6.6	230	15	31
50	3.6	7.3	240	16	32
55	4.0	8.0	250	17	33
60	4.3	8.7	260	17	34
65	4.7	9.3	270	18	36
70	5.0	10	280	18	37
75	5.3	11	290	19	38
80	5.7	11	300	20	39
85	6.0	12	310	20	40
90	6.3	13	320	21	41
95	6.6	13	330	21	43
100	7.0	14	340	22	44
110	7.6	15	350	22	45
120	8.3	17	360	23	46
130	8.9	18	370	23	47
140	9.6	19	380	24	48
150	10	21	390	24	49
160	11	22	400	25	50
170	12	23	>400	25	50

$$CCC = e^{[0.8545\ln(hardness)-1.702]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.9422\ln(hardness)-1.700]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Where: CCC = criteria continuous concentration
CMC = criteria maximum concentration
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation

1 The Discharger shall sample for hardness at the same time as the metal listed in the above table and, in calculating the applicable limitation, the Discharger shall use the R-2 hardness result for a sample collected on the same date.

Hardness-Dependent Effluent Limitations for Lead (expressed as total recoverable metal)

Hardness1 (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)	Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)
<25	*Calc.*	*Calc.*	180	5.5	11
25	0.44	0.90	190	5.9	12
30	0.56	1.1	200	6.3	13
35	0.68	1.4	210	6.7	14
40	0.81	1.6	220	7.1	14
45	0.94	1.9	230	7.5	15
50	1.1	2.2	240	7.9	16
55	1.2	2.5	250	8.3	17
60	1.4	2.8	260	8.7	18
65	1.5	3.0	270	9.2	19
70	1.6	3.3	280	9.6	20
75	1.8	3.7	290	10	20
80	1.9	4.0	300	10	21
85	2.1	4.3	310	11	22
90	2.3	4.6	320	11	23
95	2.4	4.9	330	12	24
100	2.6	5.3	340	12	25
110	2.9	6.0	350	13	26
120	3.3	6.7	360	13	27
130	3.6	7.4	370	14	28
140	4.0	8.1	380	14	29
150	4.3	8.8	390	15	30
160	4.7	9.6	400	15	31
170	5.1	10	>400	15	31

$$CCC = e^{[1.273\ln(hardness)-4.705]} \qquad AMEL = 1.57[\min(0.312CMC, 0.517CCC)]$$

$$CMC = e^{[1.273\ln(hardness)-1.460]} \qquad MDEL = 3.20[\min(0.312CMC, 0.517CCC)]$$

Where: CCC = criteria continuous concentration
CMC = criteria maximum concentration
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation

1 The Discharger shall sample for hardness at the same time as the metal listed in the above table and, in calculating the applicable limitation, the Discharger shall use the R-2 hardness result for a sample collected on the same date.

Hardness-Dependent Effluent Limitations for Nickel (expressed as total recoverable metal)

Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)	Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)
<25	*Calc.*	*Calc.*	180	70	140
25	13	27	190	74	150
30	15	31	200	77	150
35	18	35	210	80	160
40	20	39	220	83	170
45	22	44	230	86	170
50	24	48	240	90	180
55	26	52	250	93	190
60	28	56	260	96	190
65	30	60	270	99	200
70	32	63	280	100	200
75	33	67	290	110	210
80	35	71	300	110	220
85	37	75	310	110	220
90	39	78	320	110	230
95	41	82	330	120	240
100	43	86	340	120	240
110	46	93	350	120	250
120	50	100	360	130	250
130	53	110	370	130	260
140	57	110	380	130	270
150	60	120	390	140	270
160	64	130	400	140	280
170	67	130	>400	140	280

$$CCC = e^{[0.8460\ln(hardness)+0.0584]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.8460\ln(hardness)+2.255]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Where: CCC = criteria continuous concentration
CMC = criteria maximum concentration
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation

1 The Discharger shall sample for hardness at the same time as the metal listed in the above table and, in calculating the applicable limitation, the Discharger shall use the R-2 hardness result for a sample collected on the same date.

Hardness-Dependent Effluent Limitations for Silver (expressed as total recoverable metal)

Hardness[1] (mg/*l* as $CaCO_3$)	Instantaneous Maximum (µg/*l*)	Hardness[1] (mg/*l* as $CaCO_3$)	Instantaneous Maximum (µg/*l*)
<25	*Calc.*	180	11
25	0.37	190	12
30	0.51	200	13
35	0.67	210	15
40	0.84	220	16
45	1.0	230	17
50	1.2	240	18
55	1.5	250	20
60	1.7	260	21
65	1.9	270	22
70	2.2	280	24
75	2.5	290	25
80	2.8	300	27
85	3.1	310	28
90	3.4	320	30
95	3.7	330	32
100	4.1	340	33
110	4.8	350	35
120	5.6	360	37
130	6.4	370	39
140	7.2	380	40
150	8.2	390	42
160	9.1	400	44
170	10	>400	44

Instantaneous Maximum = $e^{[1.72\ln(hardness)-6.52]}$

1 The Discharger shall sample for hardness at the same time as the metal listed in the above table and, in calculating the applicable limitation, the Discharger shall use the R-2 hardness result for a sample collected on the same date.

Hardness-Dependent Effluent Limitations for Zinc (expressed as total recoverable metal)

Hardness1 (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)	Hardness[1] (mg/*l* as $CaCO_3$)	AMEL Average Monthly (µg/*l*)	MDEL Average Daily (µg/*l*)
<25	*Calc.*	*Calc.*	180	98	200
25	18	37	190	100	210
30	22	43	200	110	220
35	25	49	210	110	220
40	27	55	220	120	230
45	30	61	230	120	240
50	33	67	240	130	250
55	36	72	250	130	260
60	39	78	260	130	270
65	41	83	270	140	280
70	44	89	280	140	290
75	47	94	290	150	300
80	49	99	300	150	300
85	52	100	310	160	310
90	55	110	320	160	320
95	57	110	330	160	330
100	60	120	340	170	340
110	65	130	350	170	350
120	70	140	360	180	350
130	75	150	370	180	360
140	79	160	380	190	370
150	84	170	390	190	380
160	89	180	400	190	390
170	94	190	>400	190	390

$$CCC = e^{[0.8473\ln(hardness)+0.884]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.8473\ln(hardness)+0.884]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Where: CCC = criteria continuous concentration
CMC = criteria maximum concentration
AMEL = average monthly effluent limitation
MDEL = maximum daily effluent limitation

1 The Discharger shall sample for hardness at the same time as the metal listed in the above table and, in calculating the applicable limitation, the Discharger shall use the R-2 hardness result for a sample collected on the same date.

FACT SHEET

ORDER NO. R5-2005-0030
CITY OF AUBURN
WASTEWATER TREATMENT PLANT
PLACER COUNTY
NPDES NO. CA0077712

SCOPE OF PERMIT

This renewed Order regulates the discharge of up to 1.67 million gallons per day (mgd), design average dry weather flow (ADWF), of effluent from the Auburn Wastewater Treatment Plant. This Order includes effluent, groundwater, water supply, sludge, and surface water limitations, monitoring and reporting requirements, additional study requirements, and reopener provisions for effluent and groundwater constituents.

BACKGROUND INFORMATION

The City of Auburn (Discharger) provides sewerage service for the City of Auburn and serves a population of approximately 13,000. The WWTP design average dry weather flow capacity is 1.67 mgd. The treatment system at this facility consists of bar screening; grit removal; biological treatment in an oxidation ditch and/or aerated pond(s), including nitrification; secondary sedimentation; coagulation and filtration; disinfection; and dechlorination. The outfall is equipped with a multi-port diffuser. Sludge is dewatered using a belt filter press. Treated municipal wastewater is discharged to Auburn Ravine.

RECEIVING WATER BENEFICIAL USES AND ASSIMILATIVE CAPACITY

The receiving stream is Auburn Ravine, which is tributary to the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge. In the report of waste discharge, the Discharger requested that dilution, mixing, and assimilative capacity be considered when determining constituent limitations for the effluent. The SIP defines a completely-mixed discharge condition to mean that there is "*…not more than a 5 percent difference, accounting for analytical variability, in the concentration of a pollutant across a transect of the water body at a point within two stream/river widths from the discharge point*." Following submittal of the report of waste discharge and at the request of the Discharger, the drafting of this permit was delayed to allow the Discharger time to conduct a mixing zone study. The Discharger has submitted the results of a study of the variation of a conservative constituent (electrical conductivity) downstream of the point of discharge. The results of the study indicated that a complete mix condition does not exist for the discharge, as defined in the SIP. The study report stated that a new diffuser could be specified and installed to aid in achieving complete mix; however, the Discharger has not proposed to do so. In discussing mixing zones, the SIP also states that "[d]*ilution credits and mixing zones for incompletely-mixed discharges shall be considered by the RWQCB only after the discharger has completed an independent mixing zone study and demonstrated to the satisfaction of the RWQCB that a dilution credit is appropriate. Mixing zone studies may include, but are not limited to, tracer studies, dye studies, modelling* [sic] *studies, and monitoring upstream and downstream of the discharge that the extent of actual dilution*." The results of the initial mixing zone study submitted by the Discharger are inconclusive. The Basin Plan also contains requirements that must be met before a mixing zone may be granted.

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*." The existing and beneficial uses that currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1 of the Basin Plan. The beneficial uses of the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge, as identified in Table II-1 of the Basin Plan, are municipal and domestic supply, agricultural irrigation, water contact recreation, non-contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, cold spawning habitat, and wildlife habitat. Other beneficial uses identified in the Basin Plan apply to the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge, including groundwater recharge and freshwater replenishment.

EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL

The City of Auburn conducted monitoring for priority and non-priority pollutants. The analytical results of twelve comprehensive sampling events were submitted to the Regional Board. The results of these sampling events were used in developing Order No. R5-2005-0030. A summary of detected effluent results and corresponding blanks used is included in Tables 1 and 2 (below). Effluent limitations are included in the Order to protect the beneficial uses of the receiving stream and to ensure that the discharge complies with the Basin Plan objective that toxic substances not be discharged in toxic amounts. Unless otherwise noted, all mass limitations in Order No. R5-2005-0030 were calculated by multiplying the concentration limitation by the design flow and the appropriate unit conversion factors.

Reasonable potential (RP) was determined by calculating the projected MEC (maximum effluent concentration) for each constituent and comparing it to applicable water quality criteria; if a criterion was exceeded, the discharge was determined to have reasonable potential to exceed a water quality objective for that constituent. The projected MEC (maximum effluent concentration) is determined by multiplying the observed MEC (the maximum detected concentration) by a factor that accounts for statistical variation. The multiplying factor is determined (for 99% confidence level and 99% probability basis) using the number of results available and the coefficient of variation (standard deviation divided by the mean) of the sample results. In accordance with the SIP, non-detect results were counted as one-half the detection level when calculating the mean. For all constituents for which the source of the applicable water quality standard is the CTR or NTR, the multiplying factor is 1. Reasonable potential evaluation was based on the methods used in the SIP and the U.S. EPA Technical Support Document for Water Quality-Based Toxics Control [EPA/505/2-90-001].

Effluent Limitations for water quality-based limitations were calculated in accordance with Section 1.4 of the SIP and the TSD. The following paragraphs describe the general methodology used for calculating Effluent Limitations.

Calculations for Effluent Limitations

In calculating maximum effluent limitations, the effluent concentration allowances were set equal to the criteria/standards/objectives.

$$ECA_{acute} = CMC \qquad ECA_{chronic} = CCC \qquad ECA_{HH} = HH$$

where: ECA_{acute} = effluent concentration allowance for acute (one-hour average) toxicity criterion
$ECA_{chronic}$ = effluent concentration allowance for chronic (four-day average) toxicity criterion
ECA_{HH} = effluent concentration allowance for human health, agriculture, or other long-term criterion/objective
CMC = criteria maximum concentration (one-hour average)
CCC = criteria continuous concentration (four-day average, unless otherwise noted)
HH = human health, agriculture, or other long-term criterion/objective

Acute and chronic toxicity ECAs were then converted to equivalent long-term averages (LTA) using statistical multipliers and the lowest is used. Additional statistical multipliers were then used to calculate the maximum daily effluent limitation (MDEL) and the average monthly effluent limitation (AMEL). The statistical multipliers were calculated using data shown in Tables 1 and 2.

Human health ECAs are set equal to the AMEL and a statistical multiplier is used to calculate the MDEL.

$$AMEL = mult_{AMEL}\left[\min\left(\overbrace{M_A ECA_{acute}}^{LTA_{acute}}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}}\right)\right]$$

$$MDEL = mult_{MDEL}\left[\min\left(M_A ECA_{acute}, M_C ECA_{chronic}\right)\right]$$

$$MDEL_{HH} = \left(\frac{mult_{MDEL}}{mult_{AMEL}}\right) AMEL_{HH}$$

where: $mult_{AMEL}$ = statistical multiplier converting minimum LTA to AMEL
$mult_{MDEL}$ = statistical multiplier converting minimum LTA to MDEL
M_A = statistical multiplier converting CMC to LTA
M_C = statistical multiplier converting CCC to LTA

Table 1—Auburn Wastewater Treatment Plant, Order No. R5-2005-0030: CTR+ Detectable Results (µg/l)

	29 January 2002		28 February 2002		26 March 2002		24 April 2002	
Constituents	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]
1,2-Dichloroethane	**0.18**[2]	--	ND	ND	**0.11**[2, 3]	**0.13**[2]	**0.10**[2]	ND
1,2,4-Trichlorobenzene	ND	--	ND	ND	ND	**0.27**[2]	ND	ND
1,4-Dichlorobenzene	ND	--	**0.13**[2]	ND	ND	ND	**0.13**[2]	ND
Chloroform	**7.9**	--	**1.0**	ND	**8.0**	ND	**3.0**	ND
Dibromochloromethane	**0.33**[2]	--	ND	ND	**0.40**[2]	ND	ND	ND
Dichlorobromomethane	**2.9**	--	ND	ND	**2.7**	ND	**0.55**	ND
Dichloromethane	ND	--	**0.24**[2]	ND	**0.40**[2]	ND	**0.28**[2]	ND
Hexachlorobutadiene	ND	--	ND	ND	ND	**0.36**[2]	ND	ND
Toluene	ND	--	**0.20**[2]	ND	**0.13**[2]	ND	**0.14**[2]	ND
Naphthalene	ND	--	ND	ND	ND	0.49[2]	ND	ND
Methyl-tert-butyl ether	**0.62**[2]	--	**0.69**[2]	ND	**39**	**0.49**[2]	**3.5**[2]	ND
Aluminum	**89**[3]	**21**	**120**	--	**95**	ND	**276**	--
Arsenic	ND	--	ND	ND	ND	--	ND	ND
Chromium (total)	ND	ND	ND	--	ND	--	ND	--
Copper	**1.5**[3,4]	**2.6**	**1.0**	--	**0.9**[2,3,4]	**7.1**[5]	ND	--
Cyanide	ND	ND	ND	ND	ND	ND	ND	--
Iron	ND	ND	ND	ND	ND	ND	ND	ND
Lead	**4.2**[3,4]	**3.5**[5]	**2.0**[2]	**4.3**[5]	**0.5**[2]	--	**1.6**[2]	--
Mercury	**0.0025**	ND	**0.0013**	ND	**0.0010**	ND	**0.0015**	ND
Manganese	ND	ND	**60**	ND	ND	ND	**90**	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	--	ND	ND	ND	ND	ND	--
Tributyltin	**0.009**	ND	ND	ND	ND	ND	ND	ND
Zinc	**25**[3]	**14**	**20**	ND	**11**[4]	**2.0**	**40**[3]	**16**
4,4'-DDE	**0.01**	--	--	--	--	--	ND	ND
Chlordane	**0.01**	--	--	--	--	--	ND	ND
Endrin	**0.01**	--	--	--	--	--	**0.02**	ND
Lindane	ND	--	--	--	--	--	ND	ND
Diazinon	ND	--	--	--	--	--	**0.073**[6]	ND
Chloride (mg/*l*)	**30**[7]	ND	**31**	ND	**26**	ND	**44**	ND
Hardness (mg/*l*)	**88**	ND	**100**	ND	**97**	ND	**81**	ND
Hardness @ R-1 (mg/*l*)	**36**	ND	**29**	ND	**45**	ND	**28**	ND
Nitrate (as N)	**7.7**[7]	ND	**1.4**	ND	**1.2**	ND	**2.3**	ND
Nitrite (as N)	ND[7]	ND	**0.13**	ND	ND	ND	**0.060**	ND
Phosphorous, Total (as P, mg/*l*)	**1.0**[7]	--	**1.0**	ND	ND	ND	**2.3**	--
Sulfate (mg/*l*)	**23**[7]	ND	**25**	ND	ND	<0.50	**26**	ND
Sulfide (as S, mg/*l*)	**2.9**[7]	--	**5.5**	--	**3.4**	--	**7.8**	--
Sulfite (as S, mg/*l*)	**--**	--	**1.75**	ND	**1.25**	--	**1.15**	--

1 Method blank
2 J flag (estimated concentration)
3 Blank result exceeds 10% of sample result; sample result considered suspect.
4 Laboratory subtracted blank result from sample result reported.
5 Average of all blank results for this batch
6 Also result of 0.10 µg/*l* DNQ for same sample, by same method (EPA 507), by different lab.
7 Average of result and duplicate(s) for this sample

Table 1—Auburn Wastewater Treatment Plant, Order No. R5-2005-0030: CTR+ Detectable Results (µg/l)								
	28 May 2002		27 June 2002		29 July 2002		12 August 2002	
Constituents	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]
1,2-Dichloroethane	**0.12**[2,3]	**0.13**[2]	**0.15**[2,3]	**0.12**[2]	ND	**0.11**[2]	**0.12**[2]	ND
1,2,4-Trichlorobenzene	ND	**0.30**[2]	ND	ND	ND[8]	ND	**0.16**[2]	ND
1,4-Dichlorobenzene	**0.16**[2,3]	**0.24**[2]	ND	ND	**0.18**[2,3]	**0.10**[2]	**0.13**[2]	ND
Chloroform	**20**	ND	**29**	ND	**28**	ND	**49**	ND
Dibromochloromethane	**0.95**	ND	**1.2**	ND	**1.1**	ND	**0.85**	ND
Dichlorobromomethane	**6.1**	ND	**9.1**	ND	**7.5**	ND	**9.2**	ND
Dichloromethane	**0.68**	ND	ND	ND	ND	ND	**0.97**	ND
Hexachlorobutadiene	ND	**0.43**[2]	ND	ND	ND	ND	**0.13**[2]	ND
Toluene	ND	ND	ND	ND	ND	ND	ND	ND
Naphthalene	ND	**0.47**[2]	ND	ND	ND[9]	ND	**0.13**[2]	ND
Methyl-tert-butyl ether	ND	ND	**0.31**[2]	ND	**0.28**[2]	ND	**0.096**[2]	ND
Aluminum	**512**	--	**76**	--	**495**	--	**213**	--
Arsenic	ND	--	**1.2**[2]	--	ND	--	ND	--
Boron	--	--	--	--	--	--	--	--
Chromium (total)	**1.3**	ND	ND	ND	ND	ND	ND	--
Copper	**5.3**[3, 4]	**9.7**[5]	ND	**7.6**	**1.8**[3, 4]	**1.8**	**2.8**	--
Cyanide	ND	ND	ND	ND	ND	ND	ND	ND
Iron	ND	ND	ND	ND	ND	ND	ND	--
Lead	**3.0**	ND	**1.9**[2]	--	**7.1**	ND	**2.0**[2]	--
Mercury	**0.0015**	ND	**0.0014**	--	**0.0007**	ND	**0.0017**	ND
Manganese	**30**	ND	ND	ND	ND	ND	ND	--
Nickel	**11.4**	ND	ND	--	ND	ND	ND	--
Silver	**1.0**	ND	ND	ND	ND	ND	ND	ND
Thallium	ND	ND	ND	--	**1.0**	--	ND	--
Tributyltin	ND	ND	ND	ND	ND	ND	ND	ND
Zinc	**90**[3, 4]	**20**	**40**[3]	**60**	**60**	**16**	**55**[3]	**25**
4,4'-DDE	--	--	--	--	ND	ND	--	--
Chlordane	--	--	--	--	ND	ND	--	--
Endrin	--	--	--	--	ND	ND	--	--
Lindane	--	--	--	--	ND	ND	--	--
Diazinon	--	--	--	--	ND	ND	--	--
Chloride (mg/*l*)	**55**	ND	**42**	ND	**47**	ND	**57**	ND
Hardness (mg/*l*)	**61**	ND	**61**	ND	**53**	ND	**51**	ND
Hardness @ R-1 (mg/*l*)	**19**	ND	**11**	ND	**15**	ND	**17**	ND
Nitrate (as N)	**1.3**	ND	**7.8**	ND	**3.9**	ND	**9.3**	ND
Nitrite (as N)	ND	ND	ND	ND	ND	ND	ND	ND
Phosphorous, Total (as P, mg/*l*)	**1.4**	ND	**2.5**	--	**2.4**	--	**3.0**	ND
Sulfate (mg/*l*)	**23**	ND	**26**	ND	**24**	ND	**23**	ND
Sulfide (as S, mg/*l*)	**6.1**	--	**4.4**	ND	**3.4**	--	**3.0**	--
Sulfite (as S, mg/*l*)	**1.65**	--	ND	--	**2.0**	--	**1.3**	--

8 Method 8270C. Method 8260B yielded results of 0.14 µg/*l* (J flags) for both the sample and the blank.

9 Method 8270C. Method 8260B yielded results of 0.16 µg/*l* (J) for the sample and 0.23 µg/*l* (J) for the blank. 8270C blank was ND.

Table 1—Auburn Wastewater Treatment Plant, Order No. R5-2005-0030: CTR+ Detectable Results (µg/l)								
	26 September 2002		30 October 2002		25 November 2002		11 December 2002	
Constituents	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]	Effluent	Blank[1]
1,2-Dichloroethane	**0.14**[2,3]	**0.14**[2]	**0.17**[2,3]	**0.16**[2]	**0.11**[2]	ND	**0.15**[2,3]	**0.14**[2]
1,2,4-Trichlorobenzene	ND	ND	ND[10]	ND	ND	ND	ND	ND
1,4-Dichlorobenzene	ND	ND	ND	ND	ND	ND	**0.12**[2]	ND
Chloroform	ND	ND	**16**	ND	**16**	ND	**9.0**	ND
Dibromochloromethane	ND	ND	**1.3**	ND	ND	ND	**0.90**	ND
Dichlorobromomethane	ND	ND	**6.5**	ND	**5.4**	ND	**4.1**	ND
Dichloromethane	ND	ND	**0.67**	ND	ND	ND	ND	**0.30**[2]
Hexachlorobutadiene	ND	ND	ND	**0.30**[2]	ND	ND	ND	ND
Toluene	ND	ND	ND	ND	**0.19**[2]	ND	**0.16**[2]	ND
Naphthalene	ND	ND	ND	ND	ND	ND	ND	ND
Methyl-tert-butyl ether	ND	ND	ND	ND	ND	ND	**0.44**[2]	ND
Aluminum	**133**	--	**171**	--	**266**	--	**189**	--
Arsenic	ND	--	ND	--	ND	--	ND	--
Boron	--	--	--	--	--	--	--	--
Chromium (total)	ND	--	ND	ND	**1.4**	ND	ND	ND
Copper	**3.6**	--	**8.4**	ND	**7.1**	ND	**3.8**	ND
Cyanide	ND	ND	ND	--	**5.1**	ND	ND	ND
Iron	ND	ND	**50**	ND	ND	ND	ND	ND
Lead	**2.0**[2]	--	**4.3**	ND	**2.8**[2]	ND	**1.9**[2]	ND
Mercury	**0.0011**	ND	**0.0016**	ND	**0.0019**	ND	ND	ND
Manganese	ND	ND	ND	ND	ND	ND	ND	ND
Nickel	ND	ND	ND	ND	ND	ND	ND	ND
Silver	ND	--	ND	ND	ND	ND	**1**[3]	**1.3**[5]
Thallium	ND	--	ND	--	ND	--	ND	--
Tributyltin	ND	ND	**0.006**	ND	**3.0**	ND	ND	ND
Zinc	**170**	ND	**46**	ND	**43**	ND	**40**	ND
4,4'-DDE	--	--	ND	ND	--	--	--	--
Chlordane	--	--	ND[11]	ND	--	--	--	--
Endrin	--	--	ND	ND	--	--	--	--
Lindane	--	--	**0.02**	ND	--	--	--	--
Diazinon	--	--	ND	ND	--	--	--	--
Chloride (mg/*l*)	**38**	ND	**43**	ND	**45**	ND	**37**	ND
Hardness (mg/*l*)	**58**	ND	**50**	ND	**79**	ND	**68**	ND
Hardness @ R-1 (mg/*l*)	**23**	ND	**58**	ND	**21**	ND	**75**	ND
Nitrate (as N)	**13**	ND	**11**	ND	**18**	ND	18	ND
Nitrite (as N)	ND	ND	ND	--	ND	ND	ND	--
Phosphorous, Total (as P, mg/*l*)	**3.6**	--	**2.8**	--	**2.9**	--	**2.6**	--
Sulfate (mg/*l*)	**26**	ND	**24**	ND	**30**	ND	**24**	ND
Sulfide (as S, mg/*l*)	**6.8**	--	**2**	--	ND	--	**3.4**	--
Sulfite (as S, mg/*l*)	**4.1**	--	**1.2**	ND	**3.2**	--	**1.35**	--

10 Method 8270C. Method 8260B yielded results of ND for the sample and 0.15 µg/*l* (J flag) for the blank.
11 Spike % recovery was outside QC limits. Basis for acceptance not given.

Table 2—Auburn Wastewater Treatment Plant Order No. R5-2005-0030: Reasonable Potential Statistics Summary (µg/l)

Constituent	Max.	Mean	σ	CV[1]	# Results[2]
1,2-Dichloroethane	0.18[3]	0.102	0.0248	0.600	6
1,2,4-Trichlorobenzene	0.16[3]	0.0475	0.0356	0.600	12
1,4-Dichlorobenzene	0.13[3]	0.101	0.0832	0.821	11
Chloroform	**49**	**17.1**	**11.9**	**0.696**	**12**
Dibromochloromethane	**1.4**	**0.714**	**0.448**	**0.627**	**12**
Dichlorobromomethane	**9.2**	**5.13**	**2.49**	**0.485**	**12**
Dichloromethane	0.97	0.318	0.291	0.916	12
Hexachlorobutadiene	0.13[3]	0.0979	0.00999	0.600	12
Toluene	0.20[3]	0.100	0.0482	0.480	12
Naphthalene	0.13[3]	0.0442	0.0271	0.600	12
Methyl-tert-butyl ether	**39**	**3.75**	**3.07**	**0.820**	**12**
Aluminum	**512**	**232**	**138**	**0.596**	**11**
Arsenic	1.2[3]	0.600	0.232	0.600	12
Chromium (total)	1.4	0.454	0.411	0.600	12
Copper	**8.4**	**3.40**	**2.91**	**0.600**	**8**
Cyanide	5.1	1.47	1.20		12
Iron	50	14.6	11.7	0.600	12
Lead	**7.1**	**2.71**	**1.68**	**0.600**	**10**
Mercury	**0.0025**	**0.00137**	**0.000453**	**0.330**	**12**
Manganese	**90**	**19.2**	**24.2**	**1.261**	**12**
Nickel	**11.4**	**1.49**	**3.09**	**0.600**	**12**
Silver	**1.0**	**0.273**	**0.238**	**0.600**	**11**
Thallium	1.0	0.542	0.143	0.600	12
Tributyltin	0.009	0.00208	0.00150	0.600	12
Zinc	**170**	**59.1**	**47.4**	**0.600**	**7**
4,4'-DDE	**0.01**	**0.00400**	**0.00200**	**0.600**	**4**
Chlordane	**0.01**	**0.00513**	**0.00163**	**0.600**	**4**
Endrin	**0.02**	**0.00925**	**0.00778**	**0.600**	**4**
Lindane	**0.02**	**0.00688**	**0.00838**	**0.600**	**4**
Diazinon	**0.073**	**0.0670**	**0.0143**	**0.600**	**4**
Chloride (mg/*l*)	57	38.0	13.8	0.364	12
Hardness (mg/*l*)	--	--	--	--	12
Hardness @ R-1 (mg/*l*)	**11**[4]	**--**	**--**	**--**	**12**
Phosphorous, Total (as P, mg/*l*)	3.6	1.96	0.965	0.493	12
Sulfate (mg/*l*)	30	22.7	6.86	0.302	12
Sulfide (as S, mg/*l*)	6.8	3.43	2.59	0.755	12
Sulfite (as S, mg/*l*)	4.1	1.75	1.05	0.600	11

1 Coefficient of variation. Defaults to 0.6 for less than ten samples and/or 80% or more of results are non-detect.
2 Number of data points considered in assessing reasonable potential and in determining effluent limitations.
3 J flag (estimated concentration)
4 Minimum

Aluminum—According to information submitted by the Discharger in the Report of Waste Discharge and in additional submittals of analytical laboratory results, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the U.S. EPA National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. Aluminum was detected in an effluent sample collected 29 July 2002 at a concentration of 495 µg/*l*. The recommended continuous concentration (maximum four-day average concentration) is 87 µg/*l* and the recommended maximum concentration (maximum one-hour average concentration) is 750 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, effluent limitations for aluminum are required.

In U.S. EPA's *Ambient Water Quality Criteria for Aluminum—1988* [EPA 440/5-86-008], U.S. EPA states that "[a]*cid-soluble aluminum…is probably the best measurement at the present*…"; however, U.S. EPA has not yet approved an acid-soluble test method for aluminum. Replacing the ICP/AES portion of the analytical procedure with ICP/MS would allow lower detection limits to be achieved. Based on U.S. EPA's discussion of aluminum analytical methods, Order No. R5-2005-0030 allows the use of the alternate aluminum testing protocol described above to meet monitoring requirements.

Order No. R5-2005-0030 includes maximum average monthly and average daily effluent limitations for aluminum.

Ammonia, Nitrite, and Nitrate—Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger uses nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Aquatic habitat is a beneficial use of the receiving stream. The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. Nitrate and nitrite are known to cause adverse health effects in humans. The Basin Plan prohibits the discharge of chemical constituents in concentrations that adversely affect beneficial uses. Municipal and domestic water supply is a beneficial use of Auburn Ravine, . U.S. EPA has developed Primary Maximum Contaminant Levels (MCLs) for the protection of human health for nitrite and nitrate of 1 mg/*l* and 10 mg/*l*, respectively, and pH- and temperature-dependent Ambient Water Quality Criteria for ammonia. The discharge from the Auburn WWTP has a reasonable potential to cause or contribute to an in-stream excursion above water quality standards for ammonia, nitrite, and nitrate. Effluent Limitations for ammonia, nitrite, and nitrate are included in this Order to assure the treatment process continues to adequately nitrify and denitrify the waste stream to protect the beneficial uses of aquatic habitat and municipal and domestic supply.

In water, un-ionized ammonia (NH_3) exists in equilibrium with the ammonium ion (NH_4^+). The toxicity of aqueous ammonia solutions to aquatic organisms is primarily attributable to the un-ionized ammonia form, with the ammonium ion being relatively less toxic. The relative concentrations of these two forms are pH- and temperature-dependent. Total ammonia refers to the sum of these two forms in aqueous solutions.

The Basin Plan includes a water quality objective that "*[a]ll water shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*". U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, recommends acute (1-hour average) standards based on pH and chronic (30-day

average) standards based on pH and temperature. It also recommends a maximum four-day average concentration. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because the receiving stream has a beneficial use of cold freshwater habitat, the recommended criteria for waters where salmonids are present were used.

U.S. EPA has presented the acute ammonia criteria in three ways: as equations, in a table, and in graphs that relate pH to ammonia concentrations. Attachment B shows the equation and table used for the 30-day average concentration criteria recommended for waters where fish early life stages are present. Attachment C shows the equation and table used for the 4-day average concentration criteria recommended for waters where fish early life stages are present. Attachment D shows the equation and table used for the 1-hour average concentration criteria recommended for waters where salmonid fish are present. A 30-day period is a reasonable representation of a calendar month; so, to conform to 40 CFR §122.45, the 30-day average criteria are set equal to average monthly limitations in Order No. R5-2005-0030.

For waters designated as having the beneficial use of municipal and domestic supply (MUN), the Basin Plan includes a water quality objective that water "*shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations…: Tables 64431-A (Inorganic Chemicals)…*". U.S. EPA has developed a primary MCL and an MCL goal of 1,000 µg/*l* for nitrite (as nitrogen). The primary MCL listed in Title 22 of the California Code of Regulations (CCR), Table 64431-A, is also 1,000 µg/*l* for nitrite as nitrogen. For nitrate, U.S. EPA has developed Drinking Water Standards (10,000 µg/*l* as Primary Maximum Contaminant Level) and Ambient Water Quality Criteria for protection of human health (10,000 µg/*l* for non-cancer health effects). Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 µg/*l* for the sum of nitrate and nitrite, measured as nitrogen. Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to exceed the primary maximum contaminant levels for nitrite and the sum of nitrite and nitrate. Therefore, Order No. R5-2005-0030 includes limitations for nitrite and the sum of nitrite and nitrate.

BOD and TSS—40 Code of Federal Regulations (CFR), Section 133.102 contains regulations describing the minimum level of effluent quality—for biochemical oxygen demand (BOD) and total suspended solids (TSS)—attainable by secondary treatment.

The WWTP is required to comply with effluent limitations appropriate for treatment systems providing tertiary or equivalent treatment. Effluent limitations for both BOD and TSS have been established at 10 mg/*l*, as a 30-day average, which is technically based on the capability of a tertiary system. In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD and TSS must be achieved by a secondary treatment plant, it must also be achieved by

a tertiary (*i.e.*, treatment beyond secondary level) treatment plant. Order No. R5-2005-0030 contains a limitation requiring an average of 85 percent removal of BOD and TSS over each calendar month.

Chlorine, Total Residual—The Basin Plan prohibits the discharge of toxic materials in toxic concentrations. The Discharger uses chlorine for disinfection of the effluent waste stream. Aquatic habitat is a beneficial use of Auburn Ravine. Chlorine can cause toxicity to aquatic organisms when discharged to surface waters. U.S. EPA recommends, in its Ambient Water Quality Criteria for the protection of fresh water aquatic life, maximum 1-hour average and 4-day average chlorine concentrations of 0.019 µg/*l* and 0.011 µg/*l*, respectively. The use of chlorine as a disinfectant presents a reasonable potential that it could be discharged in toxic concentrations. Effluent Limitations for chlorine have been included in this Order to protect the receiving stream aquatic life beneficial uses. Effluent Limitations have been established based on the ambient water quality criteria for chlorine.

Because chlorine is a toxic constituent that can be and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour and four-day effluent limitations for chlorine, based on these criteria, are included in Order No. R5-2005-0030.

Chloroform—Municipal and domestic supply is a beneficial use of the receiving stream. The narrative toxicity objective and this beneficial use designation comprise a water quality standard applicable to pollutants in the receiving stream. The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The California Environmental Protection Agency (Cal/EPA) Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicologic assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and two liters per day water consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/*l* (ppb) at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S. EPA in applying human health protective criteria contained in the *National Toxics Rule* and the *California Toxics Rule* to priority toxic pollutants in California surface waters. The maximum observed effluent chloroform concentration was 49 µg/*l*. Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to degradation of the municipal and domestic supply beneficial use by discharging elevated concentrations of chloroform. Therefore, an Effluent Limitation for chloroform is included in this Order and is based on the Basin Plan toxicity objective and OEHHA Toxicity Criteria for the protection of human health.

Chloroform was detected in an effluent sample collected 12 August 2002 at a concentration of 49 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent

chloroform concentration is 157 µg/*l*. The equivalent concentration for the OEHHA cancer potency factor is 1.1 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, an Effluent Limitation for chloroform is required.

Order No. R5-2005-0030 includes an average monthly chloroform limitation.

Copper—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for copper. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for copper. The standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for copper in freshwater are 0.960 for both the acute and the chronic criteria.

The maximum observed effluent copper concentration was detected in a sample collected 30 October 2002 at a concentration of 8.4 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent copper concentration is 8.4 µg/*l*. Using the worst-case (lowest) measured hardness from the effluent and receiving water, (11 mg/*l*), the applicable continuous concentration (maximum four-day average concentration) is 1.4 µg/*l* and the applicable maximum concentration (maximum one-hour average concentration) is 1.7 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for copper are required. The Effluent Limitations for copper included in this Order are presented in total concentrations, and are based on CTR standards for the protection of freshwater aquatic life.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[0.8545\ln(hardness)-1.702]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.9422\ln(hardness)-1.700]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Order No. R5-2005-0030 includes maximum one-day and one-month hardness-dependent copper limitations.

Cyanide—Based on information included in analytical laboratory results submitted by the Discharger, the discharge does *not* have a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for cyanide. The CTR includes maximum 1-hour average and 4-day average cyanide concentrations of 22 µg/*l* and 5.2 µg/*l*, respectively, for the protection of freshwater aquatic life. Freshwater aquatic habitat is a beneficial use of Auburn Ravine.

The maximum observed effluent cyanide concentration was detected in an effluent sample collected 25 November 2002 at a concentration of 5.1 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent cyanide concentration is 5.1 µg/*l*. The measured and

projected maximum effluent concentrations do not exceed the water quality criteria; therefore, Effluent Limitations for cyanide are not required. Because the maximum detected effluent concentration is just under the 4-day average cyanide criterion, monitoring requirements for cyanide are included in this Order.

Diazinon— Based on information included in analytical laboratory results submitted by the Discharger, the discharge has reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objectives for diazinon. The Basin Plan contains a narrative toxicity objective that all waters "*be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*." The Basin Plan requires the Regional Board to consider relevant numerical criteria and guidelines developed by other agencies in determining compliance with the narrative toxicity objective (Basin Plan, IV-17.00). In March 2000, the California Department of Fish and Game (DFG) established acute and chronic criteria for these compounds to protect fresh water aquatic protection. The acute (one-hour average) and chronic (four-day average) criteria are 0.08 µg/*l* and 0.05 µg/*l*, respectively. Based on evaluation of the information provided, the discharge does have the reasonable potential to cause or contribute to an excursion above the narrative toxicity objective in the Basin Plan. The Regional Board recently completed a total maximum daily load (TMDL) for diazinon in the Sacramento and Feather Rivers and amended the Basin Plan to include diazinon waste load allocations and water quality objectives on 16 October 2003. The Basin Plan now contains water quality objectives for diazinon of 0.080 µg/*l* as a one-hour average and 0.050 µg/*l* as a four-day average for the Sacramento River from the Colusa Basin Drain to the I Street Bridge. The Basin Plan also states that "[c]*ompliance with water quality objectives, waste load allocations, and load allocations for diazinon in the Sacramento and Feather Rivers is required by June 30, 2008*" and "[t]*he waste load allocations for all NPDES-permitted discharges are the diazinon water quality objectives*." The maximum observed effluent diazinon concentration was 0.073 µg/*l*. Effluent Limitations for diazinon are included in this Order and are based on the Basin Plan objectives.

The U.S. EPA Technical Support Document for Water Quality-based Toxics Control recommends converting chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$AMEL = 1.55\left[\min(0.321MC, 0.527CCC)\right] \qquad MDEL = 3.11\left[\min\left(0.321CMC, 0.527CCC\right)\right]$$

Order No.R5-2005-0030 includes maximum one-day and one-month effluent limitations for diazinon.

Dibromochloromethane—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for dibromochloromethane. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for dibromochloromethane. Municipal and domestic supply is a beneficial use of the receiving stream. The standard for waters from which both water and organisms are consumed is 0.41 µg/*l*. The maximum observed effluent dibromochloromethane concentration was detected in an effluent sample collected 9 September 2002 at a concentration of 1.4 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent dibromochloromethane concentration is 1.4 µg/*l*. The CTR criterion for

waters from which both water and aquatic organisms are consumed is 0.41 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for dibromochloromethane are required. Effluent Limitations for dibromochloromethane are included in this Order and are based on the CTR standard for the protection of human health.

The SIP requires that CTR human health objectives be set equal to the average monthly limitation. A daily limitation was then calculated in accordance with the SIP, as shown below:

$$MDEL = \left(\frac{3.23}{1.58}\right) AMEL$$

Order No. R5-2005-0030 includes maximum one-day and one-month effluent limitations for dibromochloromethane.

Dichlorobromomethane— Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for dichlorobromomethane. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for dichlorobromomethane. Municipal and domestic supply is a beneficial use of the receiving water. The standard for waters from which both water and organisms are consumed is 0.56 µg/*l*. The maximum observed effluent dichlorobromomethane concentration was detected in an effluent sample collected 18 June 2002 at a concentration of 9.2 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent dichlorobromomethane concentration is 9.2 µg/*l*. The CTR criterion for waters from which both water and aquatic organisms are consumed is 0.56 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for dibromochloromethane are required. Effluent Limitations for dichlorobromomethane are included in this Order and are based on the CTR standard for the protection of human health.

The SIP requires that CTR human health objectives be set equal to the average monthly limitation. A daily limitation was then calculated in accordance with the SIP, as shown below:

$$MDEL = \left(\frac{2.62}{1.44}\right) AMEL$$

Order No. R5-2005-0030 includes maximum one-day and one-month effluent limitations for dichlorobromomethane.

Flow—The WWTP was designed to provide a tertiary level of treatment for up to its design flow of 1.67 mgd. The effluent flow limit is therefore set at 1.67 mgd.

Lead—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for lead. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for lead. The standards for metals are presented in dissolved concentrations. U.S. EPA

recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for lead in freshwater are 1.46203-[0.145712 X ln(hardness)] for both the acute and the chronic criteria. The maximum observed effluent lead concentration was detected in an effluent sample collected 29 July 2002 at a concentration of 7.1 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent lead concentration is 7.1 µg/*l*. Using the worst-case (lowest) measured hardness from the effluent and receiving water, (11 mg/*l*), the applicable continuous concentration (maximum four-day average concentration) is 0.19 µg/*l* and the applicable maximum concentration (maximum one-hour average concentration) is 4.9 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for lead are required. The Effluent Limitations for lead included in this Order are presented in total concentrations, and are based on the CTR standards for the protection of freshwater aquatic life.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[1.273\ln(hardness)-4.705]} \qquad AMEL = 1.57[\min(0.312CMC, 0.517CCC)]$$

$$CMC = e^{[1.273\ln(hardness)-1.460]} \qquad MDEL = 3.20[\min(0.312CMC, 0.517CCC)]$$

Monitoring and Reporting Program No. R5-2005-0030 requires 24-hour composite samples for metals. Order No. R5-2005-0030 includes hardness-dependent lead limitations.

Manganese—Based on information included in analytical laboratory reports submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 50 µg/*l* for manganese. The Basin Plan also includes water quality objectives that water be free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. Non-contact water recreation, which includes aesthetic enjoyment, is a beneficial use of Auburn Ravine. Manganese concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable discoloration and taste. An Effluent Limitation for manganese is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the DHS Secondary MCL.

Manganese was detected in an effluent sample collected 24 April 2002 at a concentration of 90 µg/*l*. The secondary maximum contaminant level is 50 µg/*l*. The measured maximum effluent concentration exceeds the water quality criterion; therefore, an Effluent Limitation for manganese is required.

Order No. R5-2005-0030 includes an average monthly Effluent Limitation for manganese that is equal to the secondary maximum contaminant level.

Mercury— The Sacramento River (Knights Landing to the Delta) has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. Mercury bioaccumulates

in fish tissue and, therefore, discharge of mercury to the receiving water is likely to contribute to exceedances of the narrative toxicity objective and impacts on beneficial uses. Because the Sacramento River (Knights Landing to the Delta) has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. The maximum observed effluent mercury concentration was 0.0025 µg/*l*. This Order contains an interim performance-based mass Effluent Limitation of 0.010 lbs/twelve months for mercury for the effluent discharge to Auburn Ravine. This limitation is based on maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established. The mass limitation was derived using the maximum observed effluent mercury concentration and the reported average daily effluent flow rate. Compliance time schedules have not been included since the discharge currently meets the concentration based limitation and the mass limitation can be met through implementation measures and/or by limiting new sewer discharges containing mercury concentrations.

The beneficial use of fish consumption has been impaired due to bioaccumulation of mercury in fish tissue. Effluent mass loading mercury limitations have been included in Order No. R5-2005-0030 and are based on current treatment plant performance and flow.

Methyl tert butyl ether (MTBE)—Based on information included in analytical laboratory reports submitted by the Discharger, MTBE in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 5 µg/*l* for MTBE. An Effluent Limitation for MTBE is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents and the DHS Secondary MCL.

MTBE was detected in an effluent sample collected 26 March 2002 at a concentration of 39 µg/*l*. The secondary maximum contaminant level is 5 µg/*l*. The measured maximum effluent concentration exceeds the water quality criterion; therefore, an Effluent Limitation for MTBE is required.

Order No. R5-2005-0030 includes an average monthly Effluent Limitation for MTBE that is equal to the secondary maximum contaminant level.

Methylene blue active substances (MBAS)—Order No. 98-189 contains Effluent Limitations for MBAS of 1.0 mg/*l* (1,000 µg/*l*) as a monthly average and 2.0 mg/*l* (2,000 µg/*l*) as a daily maximum. Based on information included in analytical laboratory reports submitted by the Discharger, MBAS in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above the Secondary Maximum Contaminant Level (MCL)-Consumer Acceptance Limit of 500 µg/*l* for foaming agents (MBAS). The Basin Plan also includes water quality objectives that water not contain floating material or taste- or odor-producing substances in concentrations that causes nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Receiving Water. MBAS concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable froth, taste, and odor. The maximum observed effluent MBAS concentration was 350 µg/*l*. The Discharger is currently using a food-grade defoaming agent. Failure to use the defoaming agent results in a reasonable potential to exceed the MDL. An Effluent Limitation for MBAS is included in this Order and is based on the Basin

Plan water quality objectives for chemical constituents, floating material, and tastes and odors; and the DHS Secondary MCL.

Order No. R5-2005-0030 includes an average monthly Effluent Limitation for MBAS that is equal to the secondary maximum contaminant level.

Nickel—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for nickel. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for nickel. The standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for nickel in freshwater are 0.998 for the acute criteria and 0.997 for the chronic criteria. The maximum observed effluent nickel concentration was detected in an effluent sample collected 28 May 2002 at a concentration of 11.4 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent nickel concentration is 11.4 µg/*l*. Using the worst-case (lowest) measured hardness from the effluent and receiving water, (11 mg/*l*), the applicable continuous concentration (maximum four-day average concentration) is 8.1 µg/*l* and the applicable maximum concentration (maximum one-hour average concentration) is 73 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for nickel are required. The Effluent Limitations for nickel included in this Order are presented in total concentrations, and are based on the CTR standards for the protection of freshwater aquatic life.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[0.8460\ln(hardness)+0.0584]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.8460\ln(hardness)+2.255]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Monitoring and Reporting Program No. R5-2005-0030 requires 24-hour composite samples for metals. Order No. R5-2005-0030 includes hardness-dependent nickel limitations.

Oil and Grease—The Basin Plan includes water quality objectives for oil and grease and floating material in surface waters, which state: "*Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses*" and that: "[w]*ater shall not contain floating material in amounts that cause nuisance or adversely affect beneficial uses*". The antidegradation provisions of the State Water Resources Control Board, Resolution No. 68-16 state that: " *Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water*

quality consistent with maximum benefit to the people of the State will be maintained." Non-contact water recreation, including aesthetic enjoyment, is a beneficial use of Auburn Ravine. The existing permit includes monthly average and daily maximum Effluent Limitations of 10 mg/*l* and 15 mg/*l*, respectively, for oil and grease. Based on information included in self-monitoring reports submitted by the Discharger, oil and grease in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above Basin Plan narrative objectives for oil and grease and floating material and SWRCB Resolution No. 68-16 (antidegradation policy). This Order maintains the oil and grease limitations in accordance with anti-backsliding requirements contained in the Code of Federal Regulations to assure that the Discharger requires proper removal and disposal of oil and grease from commercial food service sources and properly operates and maintains the collection system to minimize plugging from oil and grease. The Discharger can also maintain compliance through educating the public on the impacts of discharging oil and grease into the collection system. The maximum observed effluent total oil and grease concentration was 9.6 mg/*l*. The Effluent Limitations from Order No. 98-189 are maintained in this Order and are based on the Basin Plan narrative objectives for oil and grease and floating materials and the antidegradation policy (SWRCB Resolution No. 68-16).

Organochlorine Pesticides—Based on information submitted as part of the application, in studies, and in monitoring reports, chlordane; endrin; lindane (gamma BHC); and 4,4'-DDE (DDE) (all chlorinated hydrocarbon pesticides) in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above CTR standards for organochlorine pesticides. However, the Basin Plan requires that: no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. The detection of chlordane; endrin; lindane; and 4,4'-DDT in the WWTP effluent presents a reasonable potential to exceed the Basin Plan limitations for chlorinated hydrocarbon pesticides. In addition to chlordane; endrin; lindane (gamma BHC); and 4,4'-DDE (DDE), the chlorinated hydrocarbon pesticides include alpha BHC, beta BHC, delta BHC, DDD, DDT, aldrin, dieldrin, endrin aldehyde, alpha and beta endosulfan, endosulfan sulfate, heptachlor and heptachlor epoxide, and toxaphene. Effluent Limitations for organochlorine pesticides are included in this Order and are based on Basin Plan objectives.

Pathogens—Tertiary treatment is required to protect the beneficial uses of water contact recreation, municipal and domestic supply, and agricultural irrigation downstream of the discharge into Deer Creek. The effluent limitation for total coliform organisms is intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of pathogen removal. The method of treatment is not prescribed by Order No. R5-2005-0030; however, wastewater must be treated to a level equivalent to that specified in Title 22 and in other recommendations by the California Department of Health Services.

Upstream of the discharge point, Auburn Ravine is a low-flow stream. At times, Auburn Ravine provides little dilution for wastewater effluent discharged from the WWTP. The California Code of Regulations, Title 22, contains criteria for the reuse or recycling of wastewater as an alternative to discharging to a receiving stream. Title 22 reclamation criteria were established to create minimum wastewater treatment standards to protect the public health when this water is reused for beneficial uses.

The criteria are not directly applicable to streams that receive wastewater and the subsequent use of the combined stream/wastewater. This permit does not apply Title 22 standards to the discharge. However, in assessing the discharge standards necessary to protect the site-specific beneficial uses of Auburn Ravine, Title 22 standards were compared to the level of treatment required to protect the public health when in contact with treated wastewater or when directly using undiluted effluent for food crop irrigation. Title 22 states that, for reuse as irrigation water for food crops and to protect for nonrestricted contact recreation, it is necessary for wastewater to receive tertiary treatment resulting in coliform counts that do not exceed 2.2 MPN/100 m*l* as a 7-day median, 23 MPN/100 m*l* more than once in any 30 day period, and 240 MPN/100 m*l* ever.

The California Department of Health Services (DHS) has determined that a specific level of treatment is required for recycled water delivered in a dedicated pipe or canal. Auburn Ravine, a low-flow stream, is essentially the same as any other conveyance system (pipe or canal) when sufficient upstream flows are not present for dilution. Therefore, the same level of treatment as that required for recycled water would be necessary to protect the public if the water is delivered in a dry streambed for the same uses. In a letter to Regional Board staff, dated 8 April 1999, DHS concurred with the need to protect beneficial uses and recommended that the level of treatment required under Title 22 of the California Code of Regulations for reclaimed water in a dedicated pipe or canal be applied to agricultural drains or streams where the water may be used or diverted for beneficial uses. Therefore, Order No. R5-2005-0030 includes tertiary effluent limitations based on protecting the beneficial uses of nonrestricted contact recreation and irrigation in Auburn Ravine, East Side Canal, Natomas Cross Canal, and the Sacramento River from the Colusa Basin Drain to the "I" Street Bridge.

pH—The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the "…*pH shall not be depressed below 6.5 nor raised above 8.5*." No reliable dilution is available in the receiving stream, so the Order includes effluent limitations for pH at the Basin Plan objective values.

Settleable Solids—For inland surface waters, the Basin Plan states that "[w]*ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.*" Order No. R5-2005-0030 contains average monthly and average daily effluent limitations for settleable solids.

Silver—Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for silver. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for silver. The CTR standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factor for silver in freshwater is 0.85 for the instantaneous maximum criteria, respectively. Using the worst-case (lowest of receiving water and effluent) measured hardness of 11 mg/*l*, the corresponding standard is 0.091 µg/*l*. The maximum observed effluent silver concentration was 1.0 µg/*l*, from a sample collected 28 May 2002 at a concentration of 1.0 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent silver concentration is 0.091 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for silver are required. Effluent Limitations for silver (in

total concentrations) are included in this Order and are based on the CTR standards for the protection of freshwater aquatic life.

$$\text{Instantaneous Maximum} = e^{[1.72\ln(hardness)-6.52]}$$

Order No. R5-2005-0030 includes instantaneous maximum hardness-dependent effluent silver limitations.

Toxicity—The Basin Plan states that "[a]*ll 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*." The Basin Plan requires that "[a]*s a minimum, compliance with this objective…shall be evaluated with a 96-hour bioassay*." Order No. R5-2005-0030 requires both acute and chronic toxicity monitoring to evaluate compliance with this water quality objective.

The Basin Plan further states that "…*effluent limits based upon acute biotoxicity tests of effluents will be prescribed*…". Effluent limitations for acute toxicity have been included in the Order.

Zinc—Based on information included in analytical laboratory reports submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for zinc. The CTR includes hardness-dependent standards for the protection of freshwater aquatic life for zinc. The hardness-dependent CTR standards for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors for zinc in freshwater are 0.978 for the acute criteria and 0.986 for the chronic criteria. The maximum observed effluent zinc concentration was detected in an effluent sample collected on 9 September 2002 at a concentration of 170 µg/*l*. Using the reasonable potential analysis procedure described above, the projected maximum effluent zinc concentration is 170 µg/*l*. Using the worst-case (lowest) measured hardness from the effluent and receiving water, (11 mg/*l*), the applicable continuous concentration (maximum four-day average concentration) and the applicable maximum concentration (maximum one-hour average concentration) are both 18 µg/*l*. The measured and projected maximum effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for zinc are required. Effluent Limitations for zinc (in total concentrations) are included in this Order and are based on the CTR standards for the protection of freshwater aquatic life.

The SIP requires converting CTR chronic (four-day) and acute (one-hour) aquatic life criteria to average monthly and maximum daily effluent limitations based on the variability of the existing data and the expected frequency of monitoring. Equations summarizing the conversion are shown below:

$$CCC = e^{[0.8473\ln(hardness)+0.884]} \qquad AMEL = 1.55[\min(0.321CMC, 0.527CCC)]$$

$$CMC = e^{[0.8473\ln(hardness)+0.884]} \qquad MDEL = 3.11[\min(0.321CMC, 0.527CCC)]$$

Monitoring and Reporting Program No. R5-2005-0030 requires 24-hour composite samples for metals. Order No. R5-2005-0030 includes maximum one-day and one-month hardness-dependent zinc limitations.

Compliance Schedules—The use and location of compliances schedules in the permit depends on the Discharger's ability to comply and the source of the applied water quality criteria. For CTR-based Effluent Limitations, compliance schedules were included within the permit. For non-CTR-based Effluent Limitations, any necessary time schedules were generally included in the accompanying cease and desist order.

General Effluent Limitation Information—

Selected 40 CFR §122.2 definitions:

'*Average monthly discharge limitation* means the highest allowable average of "daily discharges" over a calendar month, calculated as the sum of all "daily discharges" measured during a calendar month divided by the number of "daily discharges" measured during that month.

Average weekly discharge limitation means the highest allowable average of "daily discharges" over a calendar week, calculated as the sum of all "daily discharges" measured during a calendar week divided by the number of "daily discharges" measured during that week.

Continuous discharge means a "discharge" which occurs without interruption throughout the operating hours of the facility, except for infrequent shutdowns for maintenance, process changes, or other similar activities.

Daily discharge means the "discharge of a pollutant" measured during a calendar day or any 24-hour period that reasonable represents a calendar day for purposes of sampling. For pollutants with limitations expressed in units of mass, the "daily discharge" is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the "daily discharge" is calculated as the average measurement of the pollutant over the day.

Maximum daily discharge limitation means the highest allowable "daily discharge".'

The SIP contains similar definitions. These definitions were used in the development of Order No. R5-2005-0030. Alternate limitation period terms were used in the permit for the sake of clarity. Alternates are shown in the following table:

Term Used in Permit	SIP/40 CFR 122.2 Term
Average monthly	Average monthly discharge limitation. 30-day averages may have been converted to monthly averages to conform with 40 CFR §122.45 (see below)
Average daily	Maximum daily discharge limitation. Since the

Term Used in Permit	SIP/40 CFR 122.2 Term
	daily discharge for limitations expressed in concentrations is defined as the average measurement of the pollutant over the day, the term 'Average Daily' was used in the Order.

40 CFR §122.45 states that:

(1) "In the case of POTWs, permit effluent limitations…shall be calculated based on design flow."

(2) "For continuous discharges all permit effluent limitations…shall unless impracticable be stated as…[a]verage weekly and average monthly discharge limitations for POTWs."

(3) "All pollutants limited in permits shall have limitations…expressed in terms of mass except…[f]or pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass…Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations."

U.S. EPA recommends a maximum daily limitation rather than an average weekly limitation for water quality-based permitting.

RECEIVING WATER LIMITATIONS AND MONITORING

***Fecal coliform*—By the tributary rule, Auburn Ravine** has been designated as having the beneficial use of contact recreation (REC-1). For water bodies designated as having REC-1 as a beneficial use, the Basin Plan includes a water quality objective limiting the "…*fecal coliform concentration based on a minimum of not less than five samples for any 30-day period*…" to a maximum geometric mean of 200 MPN/100 ml. The objective also states that "…[no] *more than ten percent of the total number of samples taken during any 30-day period* [shall] *exceed 400/100 ml*." This objective is included in the Order as a receiving water limitation.

***Dissolved Oxygen*—By the tributary rule,** Auburn Ravine has been designated as having the beneficial use of cold freshwater aquatic habitat (COLD). For water bodies designated as having COLD as a beneficial use, the Basin Plan includes a water quality objective of maintaining a minimum of 7.0 mg/*l* of dissolved oxygen. Since the beneficial use of COLD does apply to Auburn RAvine, a receiving water limitation of 7.0 mg/*l* for dissolved oxygen was included in the Order.

For surface water bodies outside of the Delta, the Basin Plan includes the water quality objective that "…*the monthly median of the mean daily dissolved oxygen (DO) concentration 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.*" This objective was included as a receiving water limitation in the Order.

***pH*—**For all surface water bodies in the Sacramento River and San Joaquin River basins, the Basin Plan includes water quality objectives stating that "[t]*he 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." The Order includes receiving water limitations for both pH range and pH change.

The Basin Plan allows an appropriate averaging period for pH change in the receiving stream. Since there is no technical information available that indicates that aquatic organisms are adversely affected by shifts in pH within the 6.5 to 8.5 range, an averaging period is considered appropriate and a monthly averaging period for determining compliance with the 0.5 receiving water pH limitation is included in the Order.

Temperature—From the tributary rule, Auburn Ravine has the beneficial uses of both COLD and WARM. The Basin Plan includes the objective that "[a]*t no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5ºF above natural receiving water temperature*." The Order includes a receiving water limitation based on this objective.

Turbidity—The Basin Plan includes the following objective: "*Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits*:

- Where natural turbidity is between 0 and 5 Nephelometric Turbidity Units (NTUs), increases shall not exceed 1 NTU.
- Where natural turbidity is between 5 and 10 NTUs, increases shall not exceed 20 percent.
- Where natural turbidity is between 50 and 100 NTUs, increases shall not exceed 10 NTU.
- Where natural turbidity is greater than 100 NTUs, increases shall not exceed 10 percent."

Ammonia and Chlorine—U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia and for chlorine. The Order contains effluent limitations for ammonia and for chlorine equal to the Ambient Water Quality Criteria. Compliance with the effluent limitations for ammonia and for chlorine means that the discharge cannot cause an exceedance of the criteria in the receiving stream; in other words, the limitations are fully protective of water quality. Therefore, no receiving water ammonia or chlorine limitations are included in the Order.

Narrative Limitations—Receiving Water Limitations E.2 (biostimulatory substances), E.3 (color), E.5(floating material), E.6 (oil and grease), E.8 (radioactivity), E.9 (settleable material), E.10 (tastes and odors), and E.12 (toxicity) are based on narrative Basin Plan objectives. The objectives are located in Chapter III: Water Quality Objectives, under the Water Quality Objectives for Inland Surface Waters heading.

POND LIMITATIONS AND MONITORING

Dissolved Oxygen—Anaerobic (lacking in oxygen) processes tend to produce aesthetically undesirable odors. To minimize production of undesirable odors, the Discharger is required to maintain some (at least 1.0 mg/*l*) dissolved oxygen in the upper one foot of the pond.

Freeboard—The Order contains a limitation for pond freeboard. Pond levees can fail for a variety of reasons, typically, a lack of maintenance or overtopping due to wave action. The Order requires a minimum pond freeboard of two feet be maintained to prevent overtopping.

pH—The disposal ponds at the City of Auburn WWTP are only partially lined, so wastewater may percolate to groundwater. The Basin Plan includes a water quality objective for groundwater that "[g]*round waters shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses*." The beneficial uses of groundwater include municipal and domestic water supply (MUN), agricultural supply (AGR), industrial service supply (IND), and industrial process supply (PRO).

U.S. EPA has a Secondary Maximum Contaminant Level (or Secondary Standard) for drinking water pH of 6.5 to 8.5 units. The noticeable effects of pH outside of the Secondary Standard range include (a) for a low pH: bitter metallic taste; corrosion and (b) for a high pH: slippery feel; soda taste; deposits [U.S. EPA, Secondary Drinking Water Regulations: Guidance for Nuisance Chemicals, http://www.epa.gov/safewater]. A pond pH limitation range of 6.5 to 8.5 helps to ensure that the Discharger's wastewater treatment activities do not cause the groundwater taste and odor objective to be violated.

Potential corrosion and deposits caused by a pH outside of the 6.5 to 8.5 range would adversely affect the beneficial use of industrial process supply, which is defined in the Basin Plan as: "Uses of water for industrial activities that depend primarily on water quality."

Low pH values cause metals to dissolve, allowing them to percolate into groundwater. Many metals are priority toxic pollutants. Elevated metal concentrations in the groundwater would violate the groundwater toxicity objective included in the Basin Plan.

GROUNDWATER LIMITATIONS AND MONITORING

Basin Plan, Beneficial Uses, and Regulatory Considerations—The *Water Quality Control Plan for the Sacramento River and San Joaquin River Basins, Fourth Edition* (Basin Plan), designates beneficial uses, establishes water quality objectives, and contains implementation plans and policies to achieve the objectives for all waters of the Basin. Beneficial use designations determine the water quality objectives that apply to a water body. For example, pursuant to the Chemical Constituents objective, waters designated as municipal and domestic supply must meet the maximum contaminant levels (MCLs) for drinking water. The Basin Plan sets forth the applicable beneficial uses (industrial process, industrial service, agricultural, and municipal and domestic supply in this instance) of groundwater, procedure for application of water quality objectives, and the process for and factors to consider in allocating waste assimilation capacity.

Antidegradation Policy (State Board Resolution No. 68-16)—State Board Resolution No. 68-16 ("Statement of Policy with Respect to Maintaining High Quality of Waters of the State") requires the Regional Board in regulating the discharge of waste to maintain high quality waters of the state until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies (*e.g.*, quality that does not conform to water quality objectives). In addition, Resolution No. 68-16 requires that discharges of waste to existing high quality waters "*be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) pollution or nuisance will not occur and (b) the highest water quality consistent with maximum benefit to the people of the State will be maintained*." Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Board Resolution No. 68-16).

Resolution No. 68-16 is applied on a case-by-case, constituent-by-constituent basis in determining whether a certain degree of water quality degradation can be justified. It is incumbent upon the Discharger to provide technical information for the Regional Board to evaluate that fully characterizes:

- All waste constituents to be discharged;
- The background quality of the uppermost layer of the uppermost aquifer;
- The background quality of other waters that may be affected;
- The underlying hydrogeologic conditions;
- Waste treatment and control measures;
- How treatment and control measures are justified as best practicable treatment or control (BPTC);
- The extent the discharge will impact the quality of each aquifer; and
- The expected degree of degradation below water quality objectives.

The Regional Board must comply with California Water Code (CWC) Section 13263 in setting appropriate discharge conditions. The Regional Board is required, with respect to the waters of the State that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential to protect those uses. The Regional Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC Section 13263(b)) and must consider other waste discharges and factors that affect that capacity.

Certain waste constituents in domestic wastewater are not fully amenable to waste treatment and control and it is reasonable to expect some impact on groundwater quality. Some degradation for certain constituents is consistent with maximum benefit to the people of California as residential housing and wastewater treatment facilities are a necessity and therefore provide a sufficient reason to accommodate increases in wastewater discharge provided terms of reasonable degradation are defined and met. The

proposed Order authorizes some degradation consistent with the maximum benefit to the people of the State.

Five groundwater monitoring wells were installed in July 1993 at the WWTP and 31 groundwater monitoring events have been performed. Based on data collected on from October 1996 through February 2004, groundwater flows to the northwest. Well MW-5 appears to be the well upgradient of the equalization ponds. A summary of the depth to groundwater is presented below:

Summary of Depth to Groundwater (feet) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	27.96	25.20	6.46	20.29	11.13
Maximum	32.11	28.83	15.80	27.38	16.18
Minimum	20.12	18.86	1.77	12.38	7.00

TDS—Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for total dissolved solids (TDS). The average and maximum observed upgradient (MW-5) well TDS concentrations were 140 mg/*l* and 180 mg/*l*, respectively. The average and maximum observed downgradient (average of MW-1, MW-2, MW-3, and MW-4) TDS concentrations were 300 mg/*l* and 370 mg/*l*, respectively.

Summary of Groundwater TDS Concentrations (mg/l) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	270	300	280	330	140
Maximum	320	380	340	430	180

Groundwater Limitations for TDS are included in this Order and are based on protection of the beneficial use of agricultural irrigation.

Chloride—Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for chloride. The average and maximum observed upgradient (MW-5) well chloride concentrations were 7 mg/*l* and 8 mg/*l*, respectively. The average and maximum observed downgradient (average of MW-1, MW-2, MW-3, and MW-4) chloride concentrations were 19 mg/*l* and 29 mg/*l*, respectively.

Summary of Groundwater Chloride Concentrations (mg/l) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	18	19	11	27	7
Maximum	23	25	23	46	8

Chloride is not limited in this Order. *Water Quality for Agriculture,* Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the chloride and total dissolved solids (TDS) concentrations in waters used for agricultural irrigation not exceed 106 mg/*l* and 450 mg/*l*, respectively. The chloride, and TDS objectives and recommended levels are all measures of the salt content of the water. Compliance with

the Groundwater Limitation for TDS based on recommended maximum concentration of 450 mg/*l* will be protective of the chloride recommended levels; therefore, no limitations are included for chloride.

Nitrate—Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for nitrate and caused an exceedance of the Basin Plan groundwater chemical constituents objective of 10 mg/*l*. The average and maximum observed upgradient (MW-5) well nitrate concentrations were 1.3 mg/*l* and 3 mg/*l*, respectively. The average and maximum observed downgradient (average of MW-1, MW-2, MW-3, and MW-4) nitrate concentrations were 3.9 mg/*l* and 13 mg/*l*, respectively.

Summary of Groundwater Nitrate Concentrations (mg/l) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Average	2.7	1.1	11	0.9	1.3
Maximum	13	2.0	31	4.0	3.0

Groundwater Limitations for nitrate are included in this Order and are based on protection of the beneficial use of municipal and domestic supply.

Pathogens—Based on information included in analytical laboratory results submitted by the Discharger as part of its quarterly groundwater monitoring reports, the raw domestic wastewater contained in the unlined ponds has degraded underlying groundwater for total coliform organisms and caused an exceedance of the Basin Plan groundwater bacteria objective of 2.2 MPN/100 m*l*. Monitoring data show an increase in total coliform organisms from the upgradient well (MW-5) to the downgradient wells. A summary of the available total coliform organisms results is shown below.

Summary of Groundwater Total Coliform Organisms Concentrations (MPN/100 ml) for October 1996 – February 2004

	MW-1	MW-2	MW-3	MW-4	MW-5
Median	2.0	16.1	5.1	16.1	1.1
Maximum	30	>1,600	23	300	>23

Groundwater Limitations for total coliform organisms are included in this Order and are based on protection of the beneficial uses of municipal and domestic supply and agricultural irrigation supply.

Although 31 groundwater sampling events have been performed, sufficient quarterly groundwater additional monitoring is needed to establish the most appropriate groundwater limits. Reasonable time is necessary to gather specific information about the WWTP and the site to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes interim groundwater limitations at a concentration protective of the beneficial uses of groundwater of the State pending the Discharger's completion of certain tasks and provides time schedules to complete specified tasks. The Discharger is expected to identify, implement, and adhere to BPTC as individual practices are reviewed and upgraded in this process. During this period, degradation may occur from certain constituents, but is not authorized to exceed the groundwater limitations.

Water quality objectives define the least stringent limits that could apply as water quality limitations for groundwater, except where natural background quality exceeds the objective. The values below are concentrations directly from the Basin Plan, or derived indirectly using Basin Plan procedures for implementation of narrative water quality objectives, and must be met to maintain specific beneficial uses of groundwater. They are based on numeric and narrative water quality objectives. Consistent with the Policy for Application of Water Quality Objectives in the Basin Plan, criteria of appropriate agencies have been used to implement narrative water quality objectives**.** Unless natural background for a constituent proves higher, the interim groundwater quality limitations established in this Order are the most stringent of the values listed for the listed constituents.

Constituent	Units	Value	Beneficial Use	Criteria or Justification
Ammonia	mg/*l*	1.5	MUN [1]	Taste and Odor [2]
Chloride	mg/*l*	106	AGR[3]	Chloride sensitivity on certain crops irrigated via sprinklers[4]
		142	AGR[3]	Chloride sensitivity on certain crops[4]
		250	MUN[1]	Recommended Secondary MCL[5]
		500	MUN[1]	Upper Secondary MCL[5]
Nitrate as N	mg/*l*	10	MUN [1]	Primary MCL [7]
Nitrite as N	mg/*l*	1	MUN [1]	Primary MCL [7]
Total Dissolved Solids	mg/*l*	450[8]	AGR [3]	Salt sensitivity [4]
		500	MUN [1]	Recommended Secondary MCL [5]
		1,000	MUN [1]	Recommended Upper MCL [5]
Total Coliform Organisms	MPN/100 m*l*	<2.2	MUN [1]	Basin Plan
pH	pH Units	6.5 to 8.5	MUN [1]	Secondary MCL [10]

1 Municipal and domestic supply
2 J.E. Amoore and E. Hautala, *Odor as an Aid to Chemical Safety: Odor Thresholds Compared with Threshold Limit Values and Volatilities for 214 Industrial Chemicals in Air and Water Dilution*, Journal of Applied Toxicology, Vol. 3, No. 6 (1983).
3 Agricultural supply
4 Ayers, R. S. and D. W. Westcot, Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1, Rome (1985)
5 Title 22, California Code of Regulations (CCR), Section 64449, Table 64449-B
6 Title 22, CCR, Section 64449, Table 64449-A
7 Title 22, CCR, Section 64431, Table 64431-A
8 Title 22, CCR, Section 64439
9 Title 22, CCR, Section 64439
10 Title 40, Code of Federal Regulations, Section 143.3
11 California Department of Health Services, Division of Drinking Water and Environmental Management, Drinking Water Action Levels, http://www.dhs.cahwnet.gov/ps/ddwem.

Municipal wastewater contains numerous dissolved inorganic waste constituents (*i.e.*, salts, minerals) that together comprise total dissolved solids (TDS). Each component constituent is not individually critical to beneficial use protection unless they are individually listed. The cumulative impact from these other constituents, along with the cumulative affect of the constituents that are individually listed can be effectively controlled using TDS as a generic indicator parameter.

This Order assigns numeric groundwater limitations only for constituents anticipated to be present in the wastewater, known potential breakdown products of domestic wastewater, or known to potentially leach from soil as a result of domestic wastewater discharge to land.

Title 27—Title 27 California Code of Regulations (CCR) Section 20005 *et seq*. ("Title 27"), contains regulations to address certain waste discharges to land for treatment, storage, processing, or disposal. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of designated and non-hazardous wastes, requires extensive monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable.

Discharges of domestic sewage and treated effluent can be treated and controlled to a degree that will not result in unreasonable degradation of groundwater. For this reason, they have been conditionally exempted from Title 27, except for the discharge to land of residual sludge and solid waste generated as part of the treatment process [Title 27 Section 20090(a)]. The conditions require that Waste Discharge Requirements (WDRs) have been issued or waived and that the discharge not result in violation of any water quality objective in groundwater.

Treatment and storage facilities for sludge that are part of the WWTP are considered exempt from Title 27 under Section 20090(a), under the condition that the facilities not result in a violation of any water quality objective. However, residual sludge (for the purposes of the proposed order, sludge that will not be subjected to further treatment by the WWTP is not exempt from Title 27. Solid waste (*e.g.*, grit and screenings) that results from treatment of domestic sewage and industrial waste also is not exempt from Title 27. This residual sludge and solid waste are subject to the provisions of Title 27.

Accordingly, the municipal discharge of effluent and the operation of treatment or storage facilities associated with a municipal wastewater treatment plant can be allowed without requiring compliance with Title 27, but only if resulting degradation of groundwater is in accordance with all water quality objectives. The conditions for sludge, solid waste, and biosolids management proposed in this Order are intended to assure this be evaluated along with other aspects of BPTC, pursuant to Resolution No. 68-16.

Monitoring Requirements—CWC Section 13267 authorizes the Regional Board to require monitoring and technical reports as necessary to investigate the impact of a waste discharge on waters of the state. In recent years there has been increased emphasis on obtaining all necessary information, assuring the information is timely as well as representative and accurate, thereby improving accountability of any discharger for meeting the conditions of discharge. CWC Section 13268 authorizes assessment of administrative civil liability where appropriate. The required reports are consistent with CWC Section 13267 because the Discharger is responsible for the discharge subject to the proposed Order and the reports are necessary to assure compliance with the proposed Order.

Title 27 regulations pertaining to groundwater monitoring and the detection and characterization of waste constituents in groundwater have been in effect and successfully implemented for many years. No regulation currently specifies similar criteria more suitable for a situation where extensive

infiltration into groundwater occurs. However, where, as here, such infiltration occurs, it is appropriate that the Title 27 groundwater monitoring procedures be extended and applied on a case-by-case basis under Water Code Section 13267.

Reopener—The conditions of discharge in the proposed Order were developed based on currently available technical information and applicable water quality laws, regulations, policies, and plans, and are intended to assure conformance with them. However, information is presently insufficient to develop final groundwater limitations, so the proposed Order contains interim limitations. Additional information must be developed and documented by the Discharger as required by schedules set forth in the proposed Order. The requirements that apply to this facility may be modified in the future based on new information.

MRH