Responses to

CEC Staff Data Requests

Data Requests 83-85: Soil & Water Resources

Application for Certification

for the

Roseville Energy Park

Roseville, California

03-AFC-01

Submitted by

Roseville Electric

April 2004

Technical Area: Soil and Water Resources (83-85)

PGWWTP schedule and permit

83. Please provide the schedule for completion of the PGWWTP, a copy of the June 2000 operating permit, and verification of EPA approval and licensing of the PGWWTP.

Response: The Waste Discharge Requirements Order for the PGWWTP is found in Attachment SW-1. This Order was issued by the Central Valley Regional Water Quality Control Board (delegated water quality permitting authority by the EPA). The first phase of PGWWTP testing is complete. The second and final phase of testing is scheduled to take place in February and March 2004. The plant is scheduled to be in commercial operation by August 2004.

Water quality data

84. Please provide a table of water quality parameters similar to Table 8.15-3 of the AFC for PGWWTP recycled water that is to be delivered to the REP.

Response: AFC Table 8.15-3 lists water quality parameters for the Dry Creek Waste Water Treatment Plant. Water quality parameters representative of normal PGWWTP operating conditions are not available since the plant is not yet fully operational. Because the source water for the PGWWTP is the same as for the Dry Creek plant, the water quality data for the Dry Creek plant is the most accurate available to estimate PGWWTP parameters.

Permit information

85. Please provide all data normally required by the City of Roseville when approving:

a) A Municipal Industrial Wastewater Discharge Permit discharge to the sanitary sewer system and the PGWWTP.

Response: Attachment SW-2 is the permit application required by the City of Roseville for an Industrial Wastewater Discharge Permit.

b) A Recycle Water Permit that complies with all Title 22 and Title 17, California Code of Regulations for dual plumbed facilities and any other information normally required when the City approves a Recycle Water Permit.

Response: The City does not use a recycled water permit application form, but implements individual agreements with users. Attachment SW-3 is a draft agreement between the City's Environmental Utilities Department and Roseville Electric for the REP.

c) Please provide the results of the Hydraulic Engineering Center II (HEC II) water modeling analysis for the REP that has been identified as part of the grading permit or provide a statement why the analysis was not conducted.

Response: Section 16.20.050 of the Roseville Municipal Code references HEC II analyses as information that the Community Development/Planning Director may require to be included in a preliminary grading plan. The City of Roseville now uses the HEC RAS program for water analysis. This program is the more current version of the HEC II program referenced in the Municipal Code. The HEC RAS program is used to identify impacts to water courses from developing projects within the City of Roseville, and the

South Placer Area. The City of Roseville Engineering Department has completed a Regional Study, utilizing HEC RAS. Based on this analysis, the City has determined that on-site detention/retention of storm drainage from the REP site is not necessary. The City will therefore not require a project-specific HEC II (or HEC RAS) analyses as part of the preliminary grading plan for the Roseville Energy Park.

ATTACHMENT SW-1

PGWWTP Waste Discharge Requirements Order

ATTACHMENT SW-2

Industrial Wastewater Discharge Permit Application

California Regional Water Quality Control Board

Central Valley Region

Steven T. Butler, Chair

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27 March 2000

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TRANSMITTAL OF ADOPTED WASTE DISHCARGE REQUIREMENTS FOR THE CITY OF ROSEVILLE, PLEASANT GROVE WASTEWATER TREATMENT PLANT, PLACER COUNTY

Enclosed is an official copy of Order No. 5-00-075 as adopted by the California Regional Water Quality Control Board, Central Valley Region, at its 17 March 2000 meeting.

Kenneth D. Landau

KENNETH D. LANDAU
Supervising Engineer

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Enclosures (Adopted Order and Standard Provisions)

CALFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. 5-00-075

NPDES NO. CA0084573

WASTE DISCHARGE REQUIREMENTS FOR CITY OF ROSEVILLE PLEASANT GROVE WASTEWATER TREATMENT PLANT PLACER COUNTY

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

1. The City of Roseville (hereafter Discharger) submitted a Report of Waste Discharge, dated 19 February 1999, and applied for authorization to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the City of Roseville, Pleasant Grove Wastewater Treatment Plant (hereafter Pleasant Grove Plant). Supplemental information to complete the application was submitted 19 March, 16 June, 27 September, 19 and 27 October, and 2 November 1999. The Discharger has proposed that construction of the Pleasant Grove Plant will be completed and wastewater treatment and discharge will begin in the year 2002.

2. The Discharger provides sewerage for the City of Roseville, portions of southeast Placer County, and South Placer Municipal Utility District. Previously, all wastewater from the entire service area was treated at the existing Dry Creek Wastewater Treatment Plant (formerly the Roseville Regional Wastewater Treatment Plant). Upon completion, wastewater from the northwestern portion of the service area will flow to the Pleasant Grove Plant for treatment. The Dry Creek Wastewater Treatment Plant, which is approximately 7.5 miles southeast of the new Pleasant Grove Plant, serves the remainder of the service area and is operated under a separate NPDES Permit.

3. Upon completion, the Discharger will own and operate the wastewater conveyance, treatment, and disposal systems, and the Pleasant Grove Plant. The Discharger owns and operates portions of the wastewater collection system. Placer County and South Placer Municipal Utility District own and operate the remaining portions of the wastewater collection system. The Pleasant Grove Plant is in Section 23, T11N, R5E, MDB&M, as shown on Attachment A. The discharge point (001) coordinates are latitude 38° 47' 44" and longitude 121° 22' 46". Treated municipal wastewater is discharged to Pleasant Grove Creek, a water of the State, and tributary to Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River, south of the confluence with the Feather River. Pleasant Grove Creek is ephemeral and during periods of low flow, may not have hydraulic continuity with downstream waters.

4. The wastewater treatment system includes mechanically cleaned bar racks, aerated grit basins, and secondary treatment using activated sludge oxidation ditches with nitrification-denitrification, and secondary clarification. Tertiary treatment is provided by chemical coagulation with alum or organic polymers, using rapid mix flocculation, followed by continuous backwash filtration, disinfection with hypochlorite, dechlorination using sodium bisulfate, and final polishing over a cascade, to

increase dissolved oxygen. Current design practices, for an oxidation ditch process followed by tertiary treatment, may not include primary clarification. The proposed Pleasant Grove Plant does not include primary clarification. However, the Discharger has set aside space within the facility for primary clarifiers, if primary clarification is shown to be necessary. Under the California Environmental Quality Act (CEQA) process, effluent storage was required as a mitigation measure to reduce the potential of downstream flooding of Pleasant Grove Creek due to effluent discharge from the Pleasant Grove Plant. Three effluent storage basins (approximately 31.5 acres) will provide effluent storage capacity and 100-year flood protection by storing only tertiary treated effluent. An additional emergency storage basin (approximately 10 acres), with a compacted clay bottom and concrete sidewalls, will be used in the event of plant upsets to prevent discharge of effluent that does not meet discharge requirements. Together, the four ponds have an approximate storage capacity of 240 acre-feet. Biosolid treatment consists of an aerated waste activated sludge holding tank and centrifuges for dewatering. Biosolids will be disposed at a landfill. Sludge digesters were not included in the design shown in the Report of Waste Discharge.

5. The Discharger has submitted, as a part of the Report of Waste Discharge, monitoring data from the Dry Creek Wastewater Treatment Plant. This monitoring data has been used to project the effluent quality from the Pleasant Grove Plant. This method was accepted because both treatment plants provide tertiary treatment and the current influent to the Dry Creek Wastewater Treatment Plant will be split between the Dry Creek and Pleasant Grove Plants, upon completion of the Pleasant Grove Plant. The Report of Waste Discharge describes the Pleasant Grove Plant as follows:

Phase I Design Average Dry Weather Flow (ADWF)	12 million gallons per day (mgd)
Phase I Design Peak Wet Weather Flow	30 mgd
Phase II Design Average Dry Weather Flow (ADWF)	20.7 mgd
Expected First Year ADWF	5 - 6 mgd
Influent BOD[1]	160 mg/l
Influent Ammonia	40 mg/l
Influent Total Suspended Solids	220 mg/l
Influent COD	470 mg/l
Design BOD Removal	93 %
Design Nitrogen Removal	85%
Design Total Suspended Solids Removal	96%

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

6. The U.S. Environmental Protection Agency (U.S. EPA) has classified this as a major discharge (> 1 mgd).

7. The Board adopted a Water Quality Control Plan, Fourth Edition, for the Sacramento River and San Joaquin River Basins (hereafter Basin Plan), which designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters of the Basin. These requirements implement the Basin Plan.

8. Pleasant Grove Creek is in the Pleasant Grove Hydrologic Subarea (519.22) of the Valley-American Hydrologic Unit (519.00), in the Sacramento River Hydrologic Basin. The beneficial uses of Pleasant Grove Creek are not specifically identified in Table II-1 of the Basin Plan. However, the Basin Plan states, "The beneficial uses of any specifically identified water body generally apply to its tributary streams." Pleasant Grove Creek is tributary to a section of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge in Sacramento (Colusa Basin Drain Hydrologic Unit 520.00). The Basin Plan, on page IV-24, prohibits the direct discharge of municipal and industrial wastewater into the Sacramento River from the confluence with the Feather River to the Freeport Bridge. When sufficient water is present, the discharged effluent flows through western Placer County and Sutter County where it commingles with water in Pleasant Grove Creek Canal and Natomas Cross Canal before entering the Sacramento River. The discharge to the Sacramento River is not a direct discharge. Upon review of the flow conditions, habitat values, and beneficial uses of Pleasant Grove Creek, the 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 Pleasant Grove Creek. The beneficial uses are municipal and domestic supply, agricultural irrigation, water contact recreation, canoeing and rafting, non-contact water recreation, warm freshwater aquatic habitat, warm fish migration habitat, and warm spawning habitat, cold freshwater aquatic habitat, cold fish migration habitat, and cold spawning habitat, wildlife habitat, and navigation. Some of the beneficial uses, including navigation, and cold freshwater habitat, cold fish migration habitat, and cold spawning habitat, may be reviewed in the future at the request of the Discharger.

9. Discharging only tertiary wastewater in conformance with the Department of Health Services recommendations protects the beneficial uses of water contact recreation and agricultural irrigation.

10. The permitted discharge to Pleasant Grove Creek is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board Resolution 68-16. This Order provides for a new discharge of wastewater, which will supply a volume and mass of pollutants to Pleasant Grove Creek, which were not present before. The new discharge will not have significant impacts on aquatic life, which is the beneficial use most likely affected by the pollutants discharged (BOD, suspended solids, chlorine residual, temperature, and metals). Compliance with this permit will ensure that the new discharge will not cause a violation of water quality objectives. The new discharge allows wastewater utility service necessary to accommodate housing and economic expansion in the area, and is considered to be a benefit to the people of the State. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge.

11. The Discharger's Environmental Impact Report (EIR), Report of Waste Discharge (RWD), and additional information submitted as part of the RWD, indicated that Pleasant Grove Creek is an ephemeral stream and has very low or no flow during the dry seasons and in months with little agricultural irrigation. At times, effluent discharge from the two treatment plants may be the sole source of stream flow, with no dilution from natural flow. Based on the available information, the worst-case dilution in Pleasant Grove Creek is assumed to be zero to provide protection for the receiving water beneficial uses. The impact, of assuming zero dilution within the receiving water, is that discharge limits based on acute and chronic toxicity are end-of-pipe limits instead of allowing for dilution within the receiving water.

WASTEWATER REUSE

12. Pleasant Grove Creek is an ephemeral stream, at times providing little or no dilution to wastewater effluent discharged from the proposed wastewater treatment plant. The California Code of Regulations, Title 22, contains criteria for the reuse or reclamation of wastewater as an alternative to discharging to a receiving stream. The criteria are not directly applicable to streams that receive wastewater and the subsequent use of the combined stream/wastewater. 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 proposed 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 Pleasant Grove Creek, 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 it is necessary for wastewater to receive tertiary treatment with a coliform count of 2.2 MPN/100 ml, as a 7-day median for reuse as irrigation water for food crops and to protect for unrestricted contact recreation. Pleasant Grove Creek, an ephemeral stream, is essentially the same as any other conveyance system (pipe or canal) when upstream flows are not present for dilution. If the Department of Health Services (DHS) has determined that a specific level of treatment is required for water delivered in a dedicated pipe or canal, then that same level of treatment would be necessary to protect the public if the water is delivered in a dry streambed for these same uses. Therefore, this permit includes tertiary effluent limitations based on protecting the beneficial uses of contact recreation and irrigation.

13. The Discharger proposes to use wastewater from the Pleasant Grove Plant for reclamation and must submit a report and apply for a permit for reclamation. All reclaimed wastewater must comply with Title 22 (California Code of Regulations) requirements established by the Department of Health Services. Title 22 requires that wastewater treated for unrestricted reclamation use must be oxidized, coagulated, filtered, and disinfected, or receive equivalent treatment. The Discharger proposes to distribute wastewater for reclamation use, through a system of pipelines and pump stations, to parks, golf courses, and agricultural users, for irrigation during dry months. Potentially, demand exists for reclamation of all the wastewater. However, the cost of infrastructure to convey the reclaimed water may prohibit some uses. The major projected demand for reclaimed water is agricultural irrigation of rice farms and turf irrigation. Master Water Reclamation Permit Order No. 97-147 (for Roseville Regional Wastewater Treatment Plant) regulates reclamation use of wastewater only from the Dry Creek Wastewater Treatment Plant (formerly Roseville Regional Wastewater Treatment Plant).

14. The Board finds that tertiary treatment (filtration) is required to protect the beneficial uses of contact recreation and agriculture downstream of the discharge in Pleasant Grove Creek. The effluent limitation for coliform organisms is intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing pathogens. The method of treatment is not prescribed in this Order, but must meet the level of treatment or equivalent as specified in Title 22 and other recommendations by the California Department of Health Services. 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 reduced turbidity limitation of 2 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. Effluent limitations for both BOD and TSS have been established at 10 mg/l, as a monthly average, which is technically based on the capability of the designed tertiary system.

REASONABLE POTENTIAL

15. 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.

16. 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 numeric water quality standard. Based on information submitted as part of the application, in studies, and projections from the Dry Creek Wastewater Treatment Plant monitoring and reporting program, the Board finds that the proposed discharge has a reasonable potential to exceed standards and objectives for the constituents discussed below. Effluent limitations have been included in this Order. The Pleasant Grove Plant will be designed, constructed, and operated to meet the effluent limitations.

    a. U.S. EPA adopted the National Toxics Rule (NTR) on 5 February 1993. The NTR contains water quality standards applicable to this discharge. Based on information submitted as part of the application, in studies, and in monitoring reports, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the NTR Standards for Bis (2-ethylhexyl) phthalate and acrolein. Laboratory data provided by the Discharger for wastewater treatment plant effluent samples exceeded NTR Standards for Bis (2-ethylhexyl) phthalate and acrolein. Effluent limitations for Bis (2-ethylhexyl) phthalate, based on the NTR Standards, are included in this Order. Effluent limitations for acrolein, included in Finding 13.b. below, are based on the U.S. EPA Ambient Water Quality Criteria, which contains toxicity information at lower concentrations than the NTR Standards.

    b. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application, in studies, and in monitoring reports, acrolein in the discharge has a reasonable potential to cause or contribute to a violation of the Basin Plan narrative prohibition of the discharge of toxic substances in toxic concentrations. U.S. EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, including Acute and Chronic Toxicity Information. U.S. EPA showed that acrolein, at various concentrations, was observed to create acute and chronic toxicity effects on aquatic life. The NTR Standards for acrolein do not incorporate the toxicity effects on aquatic life, but only include the impacts to humans from fish tissue consumption. The acute and chronic toxicity information includes concentrations that are protective of the aquatic life beneficial use of Pleasant Grove Creek, and the NTR Standards will also be met at this limit. Effluent limitations for acrolein, based on U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, Acute and Chronic Toxicity Information, are included in this Order.

c. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application, in studies, and in monitoring reports, cadmium, copper, and cyanide in the discharge, each have a reasonable potential to cause or contribute to a violation of the Basin Plan narrative prohibition of the discharge of toxic substances in toxic concentrations. U.S. EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life as recommended limitations to protect against aquatic toxicity. The Ambient Water Quality Criteria for metals are presented in dissolved concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors generally range from 0.94 to 1.0. We reviewed the available data and assumed all conversion factors, for the included metals below, were 1.0. Effluent limitations for cadmium, copper, and cyanide, presented in total concentrations and based on U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, are included in this Order.

d. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Chlorine is used at the wastewater treatment plant as a disinfectant and, based on experience, has a reasonable potential to cause or contribute to a violation of the Basin Plan narrative prohibition of the discharge of toxic substances in toxic concentrations. U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life. Effluent limitations for chlorine based on U.S. EPA's Ambient Water Quality Criteria recommended for the Protection of Freshwater Aquatic Life, are included in this Order.

e. Untreated wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia or nitrate to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. U.S. EPA has developed Drinking Water Standards and Ambient Water Quality Criteria for protection of human health for nitrate. The Pleasant Grove Plant uses nitrification and denitrification processes to convert ammonia to nitrogen gas. The discharge from the Pleasant Grove Plant has a reasonable potential to cause or contribute to an in-stream excursion above water quality standards for ammonia and nitrate.

   i. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application, in monitoring reports, and in studies, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan narrative prohibition against the discharge of toxic constituents in toxic concentrations for ammonia. The U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, recommending acute criteria for ammonia that are pH-dependent and chronic criteria that are pH- and temperature-dependent. Effluent limitations for ammonia, based on U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, are included in this Order.

ii. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. This Order contains provisions that require the Discharger to provide information as to whether levels of nitrate in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if nitrate does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information to calculate effluent limitations for nitrate. This Order also contains provisions that require a study and allow the Board to reopen this Order and include an effluent limitation for nitrate.

f. Tertiary wastewater treatment, which conforms to Title 22 (California Code of Regulations) reclamation requirements for contact recreation and unlimited irrigation use, includes disinfection, oxidation, coagulation, clarification, and filtration processes. The purpose of coagulation is to enhance particulate removal during the filtration process. Chemicals commonly used as coagulants include a variety of organic polymers, ferric chloride, ferric sulfate, and alum (aluminum sulfate). The Pleasant Grove Plant uses polymers and alum as coagulants. The use of alum may result in the discharge of aluminum to the receiving stream. The U.S. EPA has developed Drinking Water Standards and Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. This Order contains provisions that require the Discharger to provide information as to whether levels of aluminum in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if aluminum does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information to calculate effluent limitations for aluminum. This Order also contains provisions that require a study and allow the Board to reopen this Order and include an effluent limitation for aluminum.

g. The accuracy of mercury analyses is questionable without implementing 'clean technique' for sample collection, handling, and analyses. The Discharger has not used the 'clean technique'. The current U.S. EPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 µg/l (30-day average, chronic criteria), and the proposed California Toxics Rule, 30-day average for Protection of Human Health, is 0.050 µg/l (chronic criteria). Both values are controversial and subject to change. U.S. EPA is currently reviewing the Ambient Water Quality Criteria for mercury and may recommend concentrations for Protection of Aquatic Life that are different from the current recommended criteria. The Sacramento-San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. This listing is based on elevated levels of mercury in fish tissue. Because the Delta has been listed as an impaired water body for mercury based on fish tissue concentrations, the discharge must not cause or contribute to increased mercury levels in fish tissue.

This Order contains an interim performance-based effluent limit of 1.71 lbs/year for mercury for the combined effluent discharges to surface waters from the existing Dry Creek and proposed Pleasant Grove Wastewater Treatment Plants. There is no current discharge from the proposed treatment facility. For purposes of calculation of the mercury mass loading, the City of Roseville and the satellite collection systems are looked at as a single source of domestic wastewater, with the baseline mercury discharge coming solely from the existing Dry Creek Plant. This interim

mass limit was developed taking either the measured mercury concentration or one-half of the detection level (for samples with non-detectable mercury concentrations) from the quarterly mercury sampling from January 1996 through September 1999 at the Dry Creek WWTP, and the average quarterly flows associated with each mercury sample, and including a 20% allowance in mass loading to account for unforeseen variability in concentrations. The limit will not become effective until 1 January 2004, or one year after establishment and approval of a watershed mercury loading offset program.

This Order requires monitoring for mercury using 'ultra-clean technique' and allows the Board to reopen the permit to modify the interim effluent limitations for mercury or establish final effluent limitations, if it is determined to be necessary. In addition, the Discharger is required to conduct a study to identify and control mercury discharged within the collection system. This Order also contains provisions that require a study and allow the Board to reopen this Order and modify interim effluent limitations or establish final effluent limitations for mercury.

h. Domestic and industrial use of water results in an increase in the mineral content of the wastewater. The minerals include calcium, sodium, sulfate, and other dissolved salts. The salinity of wastewater is determined by measuring electrical conductivity (EC), an important parameter in determining the suitability of wastewater for irrigation. When water evaporates, salts accumulate in soil. With increasing salinity in the soil of the root zone, plants expend more energy on adjusting the salt concentration in plant tissues to obtain needed water from the soil, and less energy is available for growth. In the Basin Plan, Numeric Water Quality Objectives for the protection of beneficial uses have been established for EC in the Sacramento River, between the Colusa Basin Drain and the "I" Street Bridge. However, sampling shows there is assimilative capacity in the Sacramento River section for the dissolved salts discharged from the Pleasant Grove Plant. To protect the beneficial use of water for agricultural use, studies have recommended an Agricultural Water Quality Goal of 700 µmhos/cm, for EC. Pleasant Grove Creek is ephemeral; therefore, water drawn from the receiving stream for irrigation may be undiluted effluent. To reduce concentrations of dissolved salts in the effluent, the Discharger is required to conduct a study to identify sources of and control dissolved salts discharged within the collection system. Once the study has been completed, the Board may determine that effluent limitations for EC are necessary. This Order contains provisions that require a study and allow the Board to reopen this Order and add effluent limitations for EC.

i. In April 1999, as part of statewide study to determine the presence of gasoline constituents in waters of the state, the Board required that the Discharger sample and test for the presence of methyl tertiary-butyl ether (MTBE) and other oxygenated compounds. In a letter dated 20 July 1999, the Discharger submitted the results of sampling and testing. The laboratory reported that MTBE was detected in all four samples collected. None of the other oxygenates were detected. The U.S. EPA has developed Drinking Water Health Advisories and Taste and Odor Thresholds and the California Department of Health Services has recommended toxicity criteria for MTBE. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. This Order contains provisions that require the Discharger to provide information as to whether levels of MTBE in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if MTBE does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information

to calculate effluent limitations for MTBE. This Order also contains provisions that require a study and allow the Board to reopen this Order and include an effluent limitation for MTBE.

j. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application, in studies, and in monitoring reports, lindane (gamma BHC), an Organochlorine Pesticide, in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective for Organochlorine 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 detection of lindane in the treatment plant effluent presents a reasonable potential to exceed the Basin Plan limitations for Organochlorine Pesticides. Effluent limitations for Organochlorine Pesticides are included in this Order.

k. Surfactants, or surface-active agents, cause foaming in wastewater treatment plants and in surface waters where the wastewater is discharged. Surfactants are also known as methylene blue active substances (MBAS), named for the laboratory method used to determine the presence of surfactants in water. The U.S. EPA has developed Drinking Water Standards for MBAS. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts. Based on information submitted as part of the application, in studies, and in monitoring reports, MBAS has a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective. Effluent limitations for MBAS, based on U.S. EPA's Drinking Water Standards, are included in this Order.

STORM WATER

17. U.S. EPA promulgated Federal Regulations for storm water on 16 November 1990 (40 CFR Parts 122, 123, and 124). Storm water discharges from municipal sanitary sewer systems are included in the NPDES Industrial Storm Water Program. However, facilities that discharge storm water to municipal sanitary sewer systems are not required by Federal Regulations to apply for the Industrial Activities Storm Water General Permit (General Permit). All of the storm water from the Pleasant Grove Plant will be retained on-site and transported back to the headworks, to be treated by the Pleasant Grove Plant. The City of Roseville submitted a Notice of Non-Applicability, dated 4 November 1999, indicating that the Pleasant Grove Plant was excluded from the Storm Water Program.

EFFLUENT AND EMERGENCY STORAGE BASINS

18. Discharge Specifications, for storage of wastewater in the Effluent and Emergency Storage Basins, have been included in this Order to ensure compliance with the designated Beneficial Uses in the Basin Plan. The Specifications are designed to prevent overflow, levee failure, and nuisance conditions.

GROUNDWATER

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

20. Domestic wastewater discharged to land, into effluent and emergency storage basins, may percolate through the soil and increase the concentrations of nitrates, dissolved salts, metals, and other constituents in groundwater. Drinking water and agricultural supply are the beneficial uses most likely affected by the constituents discharged. Constituent concentrations and indicator parameters, including total dissolved solids (TDS), electrical conductivity (EC), and biological oxygen demand, provide an indication of the level of pollution of the groundwater. The increase in the concentrations of these constituents in groundwater must be consistent with the antidegradation provisions of State Water Resources Control Board Resolution 68-16. To remain consistent with Resolution No. 68-16, wastewater discharged to land shall not exceed groundwater quality objectives, unreasonably affect beneficial uses, or cause pollution or nuisance, and the increase in EC and TDS concentrations shall not exceed the increase typically caused by the discharge of domestic wastewater, within the points of compliance, and shall not degrade groundwater at or beyond the points of compliance. The increase in EC and TDS concentrations in groundwater, within the points of compliance, allows wastewater utility service necessary to accommodate housing and economic expansion in the area and is consistent with maximum benefit to the people of the state of California. Points of compliance will be established as near to the percolation (effluent and emergency storage basins) area as possible, but shall not extend beyond the property owned by the Discharger.

21. Resolution No. 68-16 requires that the Discharger provide best practicable treatment or control discharge to groundwater. This Order contains provisions that require the Discharger to install a groundwater monitoring system, determine background groundwater quality, and establish points of compliance. With the approval of Board staff, a groundwater monitoring system and points of compliance will be established as near to the effluent and emergency storage basins as possible, within the property owned by the Discharger. A minimum of three groundwater monitoring wells is necessary to determine the direction of groundwater flow. Initial samples from the groundwater monitoring wells will establish background groundwater quality.

22. A regular schedule of groundwater monitoring is included in the attached Monitoring and Reporting Program No. 5-00-075. If monitoring of the groundwater indicates that the discharge has caused an increase in constituent concentrations, when compared to background, the Discharger will be required to conduct a study of the extent of groundwater degradation. The study will, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment. If the study indicates that the discharge has incrementally increased constituent concentrations in groundwater, enforcement actions may be pursued and/or this permit may be reopened and modified. This Order contains provisions that allow the Board to reopen and modify the permit.

GENERAL INFORMATION

23. Monitoring and Reporting Program No. 5-00-075, Attachments A, B, C, D, and E, and Fact Sheet, are part of this Order.

24. 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 21100, et seq.), requiring preparation of an environmental impact report in accordance with Section 13389 of the California Water Code.

25. The City of Roseville has certified a final environmental impact report (EIR) in accordance with CEQA (Public Resources Code Section 21100, et seq.) and the State CEQA Guidelines. The City of Roseville, Roseville Regional Wastewater Treatment Service Area Master Plan Final EIR, adopted October 1996, discussed the proposed new wastewater treatment plant. The Board has considered the EIR, and with adoption of this Order, concurs that there are no significant impacts on water quality.

26. The 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.

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

28. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect upon the date of hearing, provided U.S. EPA has no objections.

IT IS HEREBY ORDERED that the City of Roseville, 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 over flow 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. The direct discharge of storm water to surface waters is prohibited.

4. The reclamation use of wastewater that has not received treatment in conformance with Title 22 of the California Code of Regulations is prohibited.

B. Effluent Limitations:

1. Effluent shall not exceed the following limits:

Constituent	Units	Daily Maximum	Daily Average	Weekly Average	Monthly Average
BOD [1]	mg/l	20 [2]	--	15 [2]	10 [2]
	lbs/day [3]	2000	--	1500	1000
Total Suspended Solids (TSS)	mg/l	20 [2]	--	15 [2]	10 [2]
	lbs/day [3]	2000	--	1500	1000
Oil and Grease	mg/l	15	--	--	10
	lbs/day [3]	1500	--	--	1000
MBAS	mg/l	0.5	--	--	--
	lbs/day [3]	50	--	--	--
Turbidity	NTU	5	2	--	--
Settleable Solids	ml/l	0.2	--	--	0.1

[1] 5-day, 20° C biochemical oxygen demand (BOD)
[2] To be ascertained by a flow proportional 24-hour composite sample
[3] Based upon a design treatment capacity of 12 mgd (x mg/l x 8.345 x 12 mgd = y lbs/day)

Constituent	Units	1-Hour Average [1]	4-Day Average [2]	30-Day Average	Daily Maximum
Chlorine Residual	mg/l	0.02	0.01	--	--
	lbs/day [3]	2	1	--	--
Ammonia	mg N/l	Attachment B	--	Attachment C [2]	--
	lbs/day [3]	[5]	--	[5]	--
Acrolein	µg/l	--	--	21	68
	lbs/day [3]	--	--	2	7
Bis(2-ethylhexyl)phthalate	µg/l	--	--	1.8	--
	lbs/day [3]	--	--	0.2	--
Organochlorine Pesticides	µg/l	--	--	--	ND [4]
	lbs/day [3]	--	--	--	0.0
Cadmium	µg/l	Attachment D	Attachment D	--	--
	lbs/day [3]	[5]	[5]	--	--
Copper	µg/l	Attachment E	Attachment E	--	--
	lbs/day [3]	[5]	[5]	--	--
Cyanide	µg/l	22	5.2	--	--
	lbs/day [3]	2	0.5	--	--

[1] Maximum Concentration
[2] Continuous Concentration
[3] Based upon a design treatment capacity of 12 mgd (x mg/l x 8.345 x 12 mgd = y lbs/day)
[4] 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.
[5] Using the value, in mg/l, determined from Attachment B, C, D, or E (as appropriate), calculate the lbs per day using the formula: x mg/l x 8.345 x 12 mgd = y lbs/day

Constituent	Units	7-Day Median [1]	Single Sample, 30-Day Maximum [2]
Total Coliform Organisms	MPN/100 ml	2.2	23 to 240

[1] 7-Day Median based on previous seven daily sample results
[2] In a 30-day period, only a single sample may exceed 23 MPN/100 ml and no sample should exceed 240 MPN/100 ml.

2. The interim mass effluent limit for mercury shall not exceed 1.71 lbs per twelve months on a running average for the combined discharges to surface waters from the Pleasant Grove and Dry Creek Wastewater Treatment Facilities, subject to the conditions stated below:

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

   b. Twelve month mass loadings should 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 the previous 12-month moving averages over the previous twelve months of monitoring.

   c. The effluent limit will not become effective until 1 January 2004, or one year after establishment of a watershed mercury loading offset program has been approved by the Regional Board as a Basin Plan amendment and accepted by US EPA, whichever occurs last.

3. Reclaimed wastewater shall be oxidized, coagulated, filtered, and disinfected, or equivalent treatment provided. Reclaimed water will meet the requirements of Title 22 for unrestricted reclamation use and be regulated under separate Waste Discharge Requirements.

4. 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).

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

6. The 30-day average dry weather discharge flow shall not exceed 12 mgd.

7. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

   (a) Minimum for any one bioassay---------- 70%
   (b) Median for any three or more consecutive bioassays--------- 90%

C. 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. However, a receiving water condition not in conformance with the limitation is not necessarily a violation of this Order. The Board may require an investigation to determine cause and culpability prior to asserting a violation has occurred. The discharge shall not cause the following in the receiving water:

1. Concentrations of dissolved oxygen to fall below 7 mg/l.

2. Oils, greases, waxes, or other materials to form a visible film or coating on the water surface or on the stream bottom.

3. Oils, greases, waxes, floating material (liquids, solids, foams, and scums), or suspended material to create a nuisance or adversely affect beneficial uses.

4. Aesthetically undesirable discoloration.

5. Fungi, slimes, or other objectionable growths.

6. The turbidity to increase as follows:

   a. More than 1 Nephelometric Turbidity Units (NTU) where natural turbidity is between 0 and 5 NTU.

   b. More than 20 percent where natural turbidity is between 5 and 50 NTU.

   c. More than 10 NTU where natural turbidity is between 50 and 100 NTU.

   d. More than 10 percent where natural turbidity is greater than 100 NTU.

7. The normal ambient pH to fall below 6.5, exceed 8.5, or change by more than 0.5 units.

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

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

10. Radionuclides to be present in concentrations that exceed maximum contaminant levels specified in the California Code of Regulations, Title 22; 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.

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

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. Violation of any applicable water quality standard for receiving waters adopted by the Board, the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

14. 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.

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

D. Discharge Specifications (Effluent and Emergency Storage Basins)

1. The effluent storage basins shall be used only for storage of tertiary-treated wastewater.

2. The emergency storage basin shall be used for emergency storage during plant upsets, to prevent discharge of wastewater that does not meet effluent limits, and for flood prevention.

3. Objectionable odors originating from the effluent and emergency storage basins shall not be perceivable beyond the limits of the property owned by the Discharger.

4. As a means of discerning compliance with Discharge Specification No. 3, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the effluent and emergency storage basins shall not be less than 1.0 mg/l.

5. The effluent storage basins shall not have a pH less than 6.5 or greater than 8.5.

6. The effluent and emergency storage basins 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; and

   c. Vegetation, debris, and dead algae shall not accumulate on the water surface.

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

8. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow). In no case shall wind/wave action cause overtopping of levees (freeboard of more than two feet may be necessary).

9. Discharge from the effluent and emergency storage basins to Pleasant Grove Creek shall meet all Effluent Limitations and a tertiary level of treatment.

E. Groundwater Limitations

1. The discharge to the effluent and emergency storage basins, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background water quality.

2. Any incremental increase in Total Dissolved Solids (TDS) and Electrical Conductivity (EC) concentrations within the points of compliance, when compared to background, shall not exceed the increase typically caused by the percolation discharge of domestic wastewater. For purposes of this limitation, the points of compliance will be established upon installation of groundwater monitoring wells near the infiltration area, within property owned or controlled by the Discharger, and with approval by Board staff.

F. Solids Disposal

1. Collected screenings, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner that is consistent with Title 23, California Code of Regulations, Division 3, Chapter 15, and approved by the Executive Officer.

2. Any proposed change in biosolids 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 biosolids 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 Education Association (CWEA).

G. Provisions:

1. 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 shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and after Board evaluation, conduct the TRE. This Order will be reopened with a chronic toxicity limitation and/or a limitation for each specific toxicant identified in the TRE. Additionally, if the State Water Resources Control Board adopts a chronic toxicity water quality objective, this Order may be reopened and a limitation based on that objective included.

2. Limited portions of the wastewater collection system are outside the service area of the Discharger. In order to assure compliance with Discharge Prohibitions against overflows and bypasses, and to assure protection of the entire collection system and treatment works from industrial discharges, it is necessary that the Discharger control discharges into the system. To control discharges into the entire collection system, the Discharger shall establish interagency agreements with the collection system users. The interagency agreements shall contain, at a minimum, requirements for reporting of unauthorized releases of wastewater, maintenance of the collection system, backup power or adequate wet well capacity at all pump stations to prevent overflows during power outages and pump failures, and pump station high water alarm notification systems. The agreements shall also require implementation of an industrial pretreatment program that meets the minimum pretreatment requirements of this NPDES Permit. The Discharger shall comply with the following time schedule to assure compliance with the Discharge Prohibitions and Pretreatment Requirements of this Order.

Task	Compliance Date
Submit interagency agreements	1 December 2000

The Discharger shall submit to the Board on or before the compliance date, the specified documents or a written report detailing compliance or noncompliance with the compliance 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 Board by letter when it returns to compliance with the time schedule.

3. Wastewater discharged to land, into effluent and emergency storage basins, may percolate through soil and increase the concentrations of pollutants in groundwater. For purposes of this Provision, groundwater points of compliance will be established as near to the percolation area as practical, but shall not extend beyond the property owned by the Discharger. In order to determine background groundwater quality, and establish a groundwater monitoring system and points of compliance, the Discharger shall submit a work plan, containing specifications for installation of a minimum of three groundwater monitoring wells near the effluent and emergency storage basins. The work plan must include a site map (north at the top of the page) showing the proposed location of the monitoring wells. Prior to construction of the wells, Board

staff must approve the work plan. Drilling, construction, and development of the groundwater monitoring wells shall comply with requirements of the Department of Water Resources. The monitoring wells must be installed by qualified and experienced drillers, accompanied by a qualified, experienced, and registered geologist or certified engineering geologist.

After construction and development of the wells, the Discharger shall submit a report describing the wells, including the elevation of the top of each well, the geologic logs, well construction logs, well development details, a site map showing the actual location of the wells, depth to groundwater, groundwater elevation, the direction of ground water flow. Prior to sampling, the wells should be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples. Grab groundwater samples shall be collected from the monitoring wells. All constituents listed in the groundwater monitoring section of Monitoring and Reporting Program No. 5-00-075, shall be analyzed and the results will also be included in the report.

The Discharger shall comply with the following compliance schedule to determine background groundwater quality, and establish a groundwater monitoring system and points of compliance:

Task	Compliance Date
Submit Work Plan	10 Months prior to the date discharge is to begin
Install and Sample Monitoring Wells	6 Months prior to the date discharge is to begin
Submit Technical Report	3 Months after well installation and sampling

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

After installation of the groundwater monitoring wells, the Discharger shall institute the groundwater monitoring program in Monitoring and Reporting Program No. 5-00-075. If monitoring of the groundwater indicates that the discharge has caused an increase in constituent concentrations, when compared to background, the Discharger will be required to conduct a study of the extent of groundwater degradation. If the study indicates that the discharge has incrementally increased constituent concentrations in groundwater, enforcement actions may be pursued and/or this permit may be reopened and modified.

4. The discharge may contain nitrate, aluminum, dissolved salts (expressed as EC), and MTBE. The Discharger shall conduct a study of the potential effects of nitrate, aluminum, dissolved salts (expressed as EC), and MTBE. The study shall also include an assessment of dissolved salts discharged into the wastewater system. The salt assessment shall be sufficient to determine the source of salt (industry, water supply, water softener, etc.) and recommend necessary control measures. It is the intent of this Provision that the study begin, and continue for one full year, once the Pleasant Grove Plant is on line and discharging effluent to Pleasant Grove Creek. The clock for the compliance schedule shall begin on the date that the Pleasant Grove Plant begins the discharge to Pleasant Grove Creek and all compliance dates are tied to that date. The Discharger shall comply with the following compliance schedule in conducting the study:

Task	Compliance Date
Submit Work Plan and Time Schedule	180 Days from the date that discharge begins
Begin Study	240 Days from the date that discharge begins
Complete Study	365 Days from the beginning of the study
Submit Study Report	90 Days from completion of the study

The Discharger shall submit to the Board on or before each compliance date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the 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 will be reopened and effluent limitations added for nitrate, aluminum, EC, and MTBE.

5. The discharge may contain mercury. The applicable water quality standards for mercury are uncertain and in state of flux. The Discharger did not use "clean techniques" in the past for the mercury sample collection and analytical practices. However, in the absence of other data, the current water quality standards for mercury and the Discharger's mercury data from the Dry Creek Plant were used to establish the interim effluent limit. In order to collect more accurate mercury data, the Discharger shall conduct a monitoring program at the Dry Creek Plant, so that the interim mercury limit may be modified or a final effluent limit may be established, to more accurately reflect the mass of mercury discharged from the City of Roseville and the satellite collection systems. "Ultra clean techniques" shall be used in the mercury sampling, handling, and analytical procedures. In addition, the Discharger shall conduct a study to identify and control mercury discharged within the collection systems for the Dry Creek Plant. The Discharger shall comply with the following compliance schedule to conduct the monitoring program and study:

Task	Compliance Date
Submit Work Plan and Time Schedule	60 Days from the date of NPDES Permit adoption
Begin Monitoring Program and Study	120 Days from the date of NPDES Permit adoption
Complete Monitoring Program and Study	365 Days from the beginning of the study
Submit Monitoring Program and Study Report	90 Days from completion of the study
Implement Controls Identified in Study	150 Days from submittal of the report

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

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

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

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

8. The Discharger shall comply with all 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".

9. Monitoring and Reporting Program No. 5-00-075, Attachments A, B, C, D, and E, and Fact Sheet, are part of this Order.

10. The Discharger shall comply with Monitoring and Reporting Program Order No. 5-00-075, 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.

11. This Order expires on 31 March 2005 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.

12. The Discharger shall enforce the Pretreatment Standards promulgated under Sections 307(b), 307(c), and 307(d) of the Clean Water Act. The Discharger shall perform the pretreatment functions required by 40 CFR Part 403, including but not limited to:

    a. Adopting the legal authority required by 40 CFR 403.8(f)(1);

    b. Enforcing the Pretreatment Standards of 40 CFR 403.5 and 403.6;

    c. Implementing procedures to ensure compliance as required by 40 CFR 403.8(f)(2); and

    d. Providing funding and personnel for implementation and enforcement of the pretreatment program as required by 40 CFR 403.8(f)(3).

13. The Discharger shall implement its approved pretreatment program, and the program shall be an enforceable condition of this permit. If the Discharger fails to perform the pretreatment functions, the Regional Water Quality Control Board (RWQCB), the State Water Resources Control Board (SWRCB), or the U.S. EPA may take enforcement actions against the Discharger as authorized by the Clean Water act.

14. 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 will 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 inhibits or disrupts biological activity in the treatment works, or that raises 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 predesigned by the Discharger.

15. 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 biosolids processes, use, or disposal, and either cause a violation of this Order or prevent biosolids use or disposal in accordance with this Order.

16. 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).

17. 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, the address and telephone number of the persons responsible for contact with the 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, GARY M. CARLTON, 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 2000.

GARY M. CARLTON, Executive Officer

EAT/eat 27 March 2000

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. 5-00-075

NPDES NO. CA0084573

FOR
CITY OF ROSEVILLE
PLEASANT GROVE WASTEWATER TREATMENT PLANT
PLACER COUNTY

Specific sample stations shall be established such that the samples are representative of the volume and nature of the discharge and under direction of the Board's staff. A description of the stations shall be attached to this Order.

INFLUENT MONITORING

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

Constituent	Units	Sample Type	Sampling Frequency
Flow	mgd	Meter	Continuous
Hardness	mg/l	Grab	Monthly
Electrical Conductivity (EC) at 25 °C	µmhos/cm	Grab	Daily
pH	--	Grab	Daily
BOD [1]	mg/l, lbs/day	24 hr. Composite [2]	Daily
Total Suspended Solids (TSS)	mg/l, lbs/day	24 hr. Composite [2]	Daily
Ammonia	mg N/l	Grab	Daily
Priority Pollutants	µg/l	As Appropriate [2, 3]	Quarterly

[1] 5-day, 20° C biochemical oxygen demand (BOD)
[2] Volatile samples shall be grab samples, the remainder shall be 24-hour composite samples
[3] Composite samples shall be flow proportional

EFFLUENT MONITORING

1. Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the outfall. When discharging from effluent ponds, total coliform and total suspended solids samples may be collected just before the effluent enters the ponds. Effluent samples should be representative of the volume and quality of the discharge. Samples collected from the outlet structure of ponds will be considered adequately composited. Date and 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
Chlorine Residual (after dechlorination)	mg/l	Meter	Continuous
Turbidity	NTU	Meter	Continuous
pH	--	Meter	Continuous
Temperature	°F and °C	Grab [13]	Daily
Electrical Conductivity (EC) at 25 °C	µmhos/cm	Grab [13]	Daily
Total Coliform Organisms	MPN/100 ml	Grab [13]	Daily
Ammonia [1]	mg N/l	Grab [13]	Daily
BOD [2]	mg/l, lbs/day	24 hr. Composite [3]	Daily
Total Suspended Solids (TSS)	mg/l, lbs/day	24 hr. Composite [3]	Daily
Settleable Solids (SS)	ml/l	24 hr. Composite [3]	Daily
Total Dissolved Solids (TDS)	mg/l	Grab [13]	Monthly
Hardness	mg/l	Grab [13]	Monthly
MBAS [4]	mg/l, lbs/day	Grab [13]	Two Times Monthly
Oil and Grease	mg/l, lbs/day	Grab [13]	Two Times Monthly
Acute Bioassay [5]	% Survival	Flow-through	Three Times Monthly
Organochlorine Pesticides [6]	µg/l	Grab [13]	Quarterly
Tributyltin	µg/l	Grab [13]	Quarterly
Diazinon and Chlorpyrifos	µg/l	Grab [13]	Quarterly
Priority Pollutants [7, 8, 9, 10]	µg/l	As Appropriate [11, 12]	Quarterly

1 pH and temperature data shall be collected on the same date and at the same time as the ammonia sample.
2 5-day, 20 °C biochemical oxygen demand (BOD)
3 The BOD, TSS, and SS samples shall be flow proportional composite samples.
4 Methylene Blue Activated Substances
5 Bioassays shall be conducted in accordance with EPA/600/4-90/027, or later amendment, with Board staff approval, using rainbow trout, *Oncorhynchus mykiss*, as the test species. Temperature and pH shall be recorded at the time of bioassay collection.
6 Organochlorine pesticides are included in U.S. EPA Standard Method 608.
7 Hardness, pH, and temperature data shall be collected at the same time and on the same date as the Priority Pollutant samples.
8 All peaks are to be reported with any explanation by the laboratory.
9 If any single sample of cadmium, copper, or cyanide exceeds the 4-Day Average Effluent Limit, the Discharger shall conduct additional sampling for 4 consecutive days for those constituents that exceeded the 4-Day Average.
10 Priority Pollutants is defined as U.S. EPA Priority Pollutants and consists of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.
11 Volatile samples shall be grab samples; the remainder shall be 24-hour composite samples.
12 Composite samples shall be flow proportional.
13 Grab samples shall not be collected at the same time each day.

2. 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, 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

1. Receiving water monitoring stations are located as follows:

Station	Description
R-1	200 feet upstream from the point of discharge
R-2	200 feet downstream from the point of discharge

2. All receiving water samples shall be grab samples. Date and time of sample collection shall be recorded. Receiving water monitoring shall include at least the following:

Constituents	Units	Sampling Stations	Frequency
Dissolved Oxygen (DO)	mg/l	R-1, R-2	Weekly
pH	--	R-1, R-2	Weekly
Temperature	°F and °C	R-1, R-2	Weekly
Electrical Conductivity (EC) at 25 °C	µmhos/cm	R-1, R-2	Weekly
Turbidity	NTU	R-1, R-2	Monthly
Fecal Coliform Organisms	MPN/100ml	R-1, R-2	Quarterly
Ammonia*	mg N/l	R-1, R-2	Monthly
Radionuclides	PCi/l	R-1, R-2	Annually

* pH and temperature shall be determined at the time of sample collection for ammonia

3. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Stations R-1 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
h. Flow

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

THREE SPECIES CHRONIC TOXICITY MONITORING

Chronic toxicity monitoring shall be conducted to determine whether the effluent is contributing toxicity to Pleasant Grove Creek. The testing shall be conducted as specified in U.S. EPA 600/4-91/002. Chronic toxicity samples shall be collected from the discharge of the Pleasant Grove Plant before the discharge enters Pleasant Grove Creek. Twenty-four-hour composite samples shall be representative of the volume and quality of the discharge. Time of collection of samples shall be recorded. The effluent tests must be conducted with concurrent reference toxicant tests. Monthly laboratory reference toxicant tests may be substituted upon approval. 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: Once per quarter, four quarters per year

Dilution Series:

	Dilutions (%)					Controls	
	100	75	50	25	12.5	Creek Water	Lab Water
% WWTP Effluent	100	75	50	25	12.5	0	0
% Dilution Water*	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

* Dilution water shall be taken from Pleasant Grove Creek upstream from the discharge point. When stream flow is absent, the analyses may be conducted with undiluted effluent. The dilution series may be altered upon approval of Board staff.

STORAGE BASIN MONITORING

When they contain wastewater, storage basins shall be monitored for at least the following:

Constituents	Units	Sampling Frequency
Freeboard	Feet	Daily
pH	pH units	Weekly
Electrical Conductivity	µmhos/cm	Weekly
Odors	Observation	Weekly
Levee Condition	Observation	Weekly
Dissolved Oxygen (DO)	mg/l	Monthly

GROUNDWATER MONITORING

1. Groundwater grab samples shall be collected from all groundwater monitoring wells. Prior to sampling, the wells should be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples.

2. The following shall constitute the groundwater monitoring program and the list of constituents to be sampled and analyzed to establish background groundwater quality and:

Constituents	Units	Sampling Frequency
Depth to Groundwater	feet	Monthly
Groundwater Elevation	feet	Monthly
pH	--	Monthly
Electrical Conductivity (EC) at 25 °C	µmhos/cm	Monthly
Nitrates	mg/l	Quarterly *
Total Coliform Organisms	MPN/100ml	Quarterly *
Heavy Metals (Title 22)	mg/l	Yearly *
Volatile Organics (U.S. EPA 601)	µg/l	Yearly *
Semi-Volatile Organics (U.S. EPA 602)	µg/l	Yearly *
Oxygenate Compounds (U.S. EPA 8260)	µg/l	Yearly *

* For the groundwater monitoring program, these constituents shall be sampled only when wastewater is present in the storage basins.

3. Prior to construction of groundwater monitoring wells, the Discharger shall submit a work plan, for Board staff review and approval. The work plan shall contain monitoring well specifications and a site map (north at the top of the page) showing the proposed location of monitoring wells. Board staff must approve the work plan before construction may begin. Drilling, construction, and development of the groundwater monitoring wells shall comply with requirements of the Department of Water Resources. Monitoring wells must be installed by qualified and experienced drillers, accompanied by a qualified, experienced, and registered geologist or certified engineering geologist. After construction and development of the wells, the Discharger shall submit a report describing the wells, including the elevation of the top of each well, the geologic logs, well construction logs, well development details, a site map showing the actual location of the wells, depth to groundwater, groundwater elevation, the direction of ground water flow, and the laboratory results from the first round of groundwater sampling. Prior to sampling, the wells should be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples. Grab groundwater samples shall be collected from the monitoring wells. To establish background and initial water quality, all constituents shall be sampled from all new groundwater monitoring wells in the first round of sampling, after installation of the wells.

4. Subsequent groundwater sampling and reporting shall comply with the schedule above.

BIOSOLIDS MONITORING

1. A composite sample of biosolids shall be collected annually in accordance with U.S. EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, (or most recent edition) and tested for the following constituents:

Cadmium	Mercury
Chromium	Molybdenum
Copper	Nickel
Cyanide	Silver
Lead	Zinc

2. Sampling records shall be retained for a minimum of five years. A log shall be kept of the quantity of biosolids generated and of the 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.

3. Within **90 days of the effective date of this Order**, and annually by **30 January thereafter**, the Discharger shall submit:

   a. Annual production of biosolids in dry tons and percent solids.

   b. A schematic diagram showing biosolids handling facilities and a solids flow diagram.

   c. Depth of application and drying time for biosolids drying beds.

   d. A description of disposal methods, including the following information related to the disposal methods used at the facility. If more than one method is used, include the percentage of annual biosolids production disposed by each method.

4. Within 90 days of the effective date of this Order, the Discharger shall submit characterization of biosolids quality, including percent solids and quantitative results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). All biosolids samples shall be a composite of a minimum of twelve (12) discrete samples taken at equal time intervals over 24 hours. Suggested methods for analysis of biosolids 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 biosolids samples should reflect those specified in 40 CFR 136.6.3(e). Other guidance is available in EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989 (or most recent edition).

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
Total Dissolved Solids (TDS)	mg/l	Yearly
Electrical Conductivity (EC) at 25°C*	µmhos/cm	Yearly

* If the source water is from more than one well, the EC shall be reported as a weighted average and include copies of supporting calculations.

REPORTING

1. Monitoring results shall be submitted to the Regional Board by the **1st day of the second month following sample collection**. Quarterly and annual monitoring results shall be submitted by the **1st day of the second month following each calendar quarter and year**, respectively.

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

3. 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.

4. By **30 January 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 Pleasant Grove Plant (Standard Provision A.5).

   b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.

   c. A statement certifying when the flow meter and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration (Standard Provision C.6).

d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.

The Discharger may also be requested to submit an annual report to the 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.

GARY M. CARLTON, Executive Officer

17 March 2000
DATE

EAT/eat 27 March 2000

FACT SHEET

CITY OF ROSEVILLE
WASTE DISCHARGE REQUIREMENTS ORDER NO. 5-00-075
NPDES NO. CA0084573
PLEASANT GROVE WASTEWATER TREATMENT PLANT
PLACER COUNTY

SCOPE OF PERMIT

This Order regulates the discharge of up to 12 million gallons per day (mgd) of effluent from the proposed new wastewater treatment facility (Phase I) for the City of Roseville. In the future, the facility will be expanded to an ultimate capacity of 21 mgd. This Order includes effluent and ground and surface water limits, monitoring and reporting requirements, additional study requirements, and reopener provisions for several effluent constituents.

BACKGROUND INFORMATION

The City of Roseville (Discharger) provides sewerage service for the City of Roseville, portions of southeast Placer County, and South Placer Municipal Utility District. Previously, all wastewater from the entire service area was treated at the existing Dry Creek Wastewater Treatment Plant (formerly the Roseville Regional Wastewater Treatment Plant). The Discharger is constructing a new treatment facility, the Pleasant Grove Wastewater Treatment Plant, to treat wastewater from the northwestern portion of the service area to accommodate growth. The Dry Creek Wastewater Treatment Plant, which is approximately 7.5 miles southeast of the new Pleasant Grove Plant, will continue to serve the remainder of the service area and is operated under a separate NPDES Permit.

FACILITY DESCRIPTION

The wastewater treatment system for the Pleasant Grove Plant includes mechanically cleaned bar racks, aerated grit basins, and secondary treatment using activated sludge oxidation ditches with nitrification-denitrification, and secondary clarification. Tertiary treatment is provided by chemical coagulation with alum or organic polymers, using rapid mix flocculation, followed by continuous backwash filtration, disinfection with hypochlorite, dechlorination using sodium bisulfate, and final polishing over a cascade, to increase the dissolved oxygen content. Current design practices, for an oxidation ditch process followed by tertiary treatment, may not include primary clarification. The proposed Pleasant Grove Plant does not include primary clarification. However, the Discharger has set aside space within the facility for primary clarifiers, if primary clarification is shown to be necessary. Under the California Environmental Quality Act (CEQA) process, effluent storage was required as a mitigation measure to reduce the potential of downstream flooding of Pleasant Grove Creek due to effluent discharge from the Pleasant Grove Plant. Three effluent storage basins (approximately 31.5 acres) will provide 100-year flood protection by storing tertiary treated wastewater, which can subsequently be discharged to the receiving stream. An additional emergency storage basin (approximately 10 acres), with clay bottom and concrete sidewalls, will be used in the event of plant upsets to prevent discharge of effluent that does not meet discharge requirements. Wastewater from the emergency storage basin cannot be discharged to the receiving stream, it must be returned to the treatment facility. Together, the four ponds have an approximate storage capacity of 240 acre-feet. Biosolid treatment consists of an aerated waste

activated sludge holding tank and centrifuges for dewatering. Biosolids will be disposed at a landfill. Sludge digesters were not included in the design shown in the Report of Waste Discharge.

COLLECTION SYSTEM REQUIREMENTS

Portions of the wastewater collection system are outside the service area of the Discharger. In order to assure compliance with Discharge Prohibitions against overflows and bypasses, and to assure protection of the entire collection system and treatment works from industrial discharges, the Discharger must control discharges into the system. To control discharges into the entire collection system, the Discharger has been directed to establish interagency agreements with the collection system users. The interagency agreements shall contain, at a minimum, requirements for reporting of unauthorized releases of wastewater, maintenance of the collection system, backup power or adequate wet well capacity at all pump stations to prevent overflows during power outages and pump failures, and pump station high water alarm notification systems. The agreements shall also require implementation of an industrial pretreatment program that meets the minimum pretreatment requirements of this NPDES Permit. A time schedule was established for submittal of the interagency agreements.

DISINFECTION STANDARDS FOR CREEK DISCHARGE

Pleasant Grove Creek is an ephemeral stream, at times providing little or no dilution to wastewater effluent discharged from the proposed wastewater treatment plant. The California Code of Regulations, Title 22, contains criteria for the reuse or reclamation of wastewater as an alternative to discharging to a receiving stream. The criteria are not directly applicable to streams that receive wastewater and the subsequent use of the combined stream/wastewater. 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 proposed 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 Pleasant Grove Creek, 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 it is necessary for wastewater to receive tertiary treatment with a coliform count of 2.2 MPN/100 ml, as a 7-day median for reuse as irrigation water for food crops and to protect for unrestricted contact recreation. Pleasant Grove Creek, an ephemeral stream, is essentially the same as any other conveyance system (pipe or canal) when upstream flows are not present for dilution. If the Department of Health Services (DHS) has determined that a specific level of treatment is required for reclaimed water delivered in a dedicated pipe or canal, then that same level of treatment would be necessary to protect the public if the water is delivered in a dry streambed for these same uses. In a letter to Board staff, dated 8 April 1999, the 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, this permit includes tertiary effluent limitations based on protecting the beneficial uses of contact recreation and irrigation.

WASTEWATER REUSE

The Discharger proposes to use wastewater from the Pleasant Grove Plant for reclamation and must submit a report and apply for a permit for reclamation. All reclaimed wastewater must comply with Title 22 (California Code of Regulations) requirements established by the Department of Health Services. Title 22 requires that wastewater treated for unrestricted reclamation use must be oxidized, coagulated, filtered, and disinfected, or receive equivalent treatment. The Discharger proposes to

distribute wastewater for reclamation use, through a system of pipelines and pump stations, to parks, golf courses, and agricultural users, for irrigation during dry months. The major projected demand for reclaimed water is agricultural irrigation of rice farms and turf irrigation. Master Water Reclamation Permit Order No. 97-147 (for Roseville Regional Wastewater Treatment Plant) regulates reclamation use of wastewater only from the Dry Creek Wastewater Treatment Plant (formerly Roseville Regional Wastewater Treatment Plant).

GROUNDWATER

Domestic wastewater discharged to land, into effluent and emergency storage basins, may percolate through the soil and increase the concentrations of nitrates, metals, and other constituents in groundwater. The beneficial uses of the underlying groundwater are municipal and domestic, industrial service, industrial process, and agricultural supply. Drinking water and agricultural supply are the beneficial uses most likely affected by the constituents discharged. Constituent concentrations and indicator parameters, including total dissolved solids (TDS), electrical conductivity (EC), and biological oxygen demand, provide an indication of the level of pollution of the groundwater. The increase in the concentrations of these constituents in groundwater must be consistent with the antidegradation provisions of State Water Resources Control Board Resolution 68-16. To remain consistent with Resolution No. 68-16, wastewater discharged to land shall not exceed water quality objectives, unreasonably affect beneficial uses, or cause pollution or nuisance, and the increase in EC and TDS concentrations must not exceed the increase typically caused by the discharge of domestic wastewater, within the points of compliance, and shall not degrade groundwater at or beyond the points of compliance. The increase in EC and TDS concentrations in groundwater allows wastewater utility service necessary to accommodate housing and economic expansion in the area and is consistent with maximum benefit to the people of the state of California. Points of compliance, a minimum of three groundwater monitoring wells, will be established as near to the percolation (effluent and emergency storage basins) area as possible, but shall not extend beyond the property owned by the Discharger.

Resolution No. 68-16 requires that the Discharger provide best practicable treatment or control discharge to groundwater. This Order requires that the Discharger install a groundwater monitoring system, establish points of compliance, and determine background groundwater quality. A minimum of three groundwater monitoring wells is necessary to determine the direction of groundwater flow. Initial samples from the groundwater monitoring wells will establish background groundwater quality.

If regular monitoring of the groundwater indicates that the discharge has caused an increase in constituent concentrations, when compared to background, the Discharger will be required to conduct a study of the extent of groundwater degradation. The study will, at a minimum, require a complete assessment of groundwater impacts including the vertical and lateral extent of degradation, an assessment of all wastewater-related constituents which may have migrated to groundwater, an analysis of whether additional or different methods of treatment or control of the discharge are necessary to provide best practicable treatment or control to comply with Resolution No. 68-16. If the study indicates that the discharge has incrementally increased constituent concentrations in groundwater, enforcement actions may be pursued and/or this permit may be reopened and modified.

RECEIVING WATER BENEFICIAL USES

Treated municipal wastewater will be discharged to Pleasant Grove Creek, which is tributary to Pleasant Grove Creek Canal, Natomas Cross Canal, and the Sacramento River, south of the confluence with the Feather River. Pleasant Grove Creek is ephemeral and during periods of low flow, may not have hydraulic continuity with downstream waters. The beneficial uses of Pleasant Grove Creek are not specifically identified in Table II-1 of the Basin Plan. However, the Basin Plan states, "The beneficial uses of any specifically identified water body generally apply to its tributary streams. In some cases a beneficial use may not be applicable to the entire body of water. In these cases the Regional Water Board's judgment will be applied...For unidentified water bodies, the beneficial uses will be evaluated on a case-by-case basis."

Pleasant Grove Creek is tributary to a section of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge in Sacramento (Colusa Basin Drain Hydrologic Unit 520.00). Upon review of the flow conditions, habitat values, and beneficial uses of Pleasant Grove Creek, the 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 Pleasant Grove Creek. The beneficial uses are municipal and domestic supply, agricultural irrigation, water contact recreation, canoeing and rafting, non-contact water recreation, warm freshwater aquatic habitat, warm fish migration habitat, warm spawning habitat, cold freshwater aquatic habitat, cold fish migration habitat, cold spawning habitat, wildlife habitat, and navigation. Some of the beneficial uses, including navigation, and cold freshwater aquatic habitat, cold fish migration habitat, cold spawning habitat, may be reviewed in the future at the request of the Discharger. The Discharger has expressed the intention to develop site-specific beneficial uses and seek corresponding site-specific amendments to the Basin Plan.

NO AVAILABLE DILUTION IN EFFLUENT LIMIT DETERMINATIONS

The Discharger's other treatment plant, the Dry Creek Wastewater Treatment Plant, currently discharges effluent, not reclaimed for irrigation, to one location on Dry Creek. However, to eliminate the expense of pumping unused effluent back to the Dry Creek Plant, the Discharger now proposes additional discharge points at a second location on Dry Creek and two points on Pleasant Grove Creek. The proposed Pleasant Grove Plant discharge to Pleasant Grove Creek is downstream of the two proposed Dry Creek Plant discharge points. In total, the Discharger has proposed five discharge points, two on Dry Creek and three on Pleasant Grove Creek. Therefore, in addition to effluent from the Pleasant Grove Plant (up to 12 mgd in Phase I, ultimately expanding to 21 mgd), Pleasant Grove Creek may also receive effluent from the Dry Creek Plant, up to 14 mgd dry weather flow. The Discharger has stated that the discharge to Pleasant Grove Creek from the Dry Creek Plant will occur primarily during the irrigation season.

The Discharger's Environmental Impact Report (EIR), Report of Waste Discharge (RWD), and additional information submitted as part of the RWD, indicated that, upstream of the proposed Dry Creek Plant discharge points, Pleasant Grove Creek is an ephemeral stream and has very low or no flow during the dry seasons and in months with little agricultural irrigation. At times, effluent discharge from the two treatment plants may be the sole source of stream flow, with no dilution from natural flow. The proposed discharges to Pleasant Grove Creek from the Dry Creek Wastewater Treatment Plant would be regulated under the NPDES Permit for that facility and would be subject to public review and consideration by the Board.

Based on the available information, the worst-case dilution in Pleasant Grove Creek is assumed to be zero to provide protection for the receiving water beneficial uses. The impact, of assuming zero dilution within the receiving water, is that effluent limitations based on acute and chronic toxicity are end-of-pipe limits instead of allowing for dilution within the receiving water.

EFFLUENT LIMIT DETERMINATIONS/REASONABLE POTENTIAL ANALYSIS

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 numeric water quality standard. Once beneficial uses and applicable water quality criteria have been established for a water body, the Board must ensure that dischargers do not cause exceedances of those criteria. If the Board determines that the discharge causes or has the reasonable potential to cause or contribute to an excursion of numeric or narrative water quality criteria, then Water Quality-Based Effluent Limits must be imposed.

On 5 February 1993, U.S. EPA adopted the National Toxics Rule (NTR), which established numeric criteria for priority toxic pollutants that interfere with beneficial uses of state waters. U.S. EPA also developed the National Ambient Water Quality Criteria to protect aquatic life, at considerable time and expense under public and scientific review. Effluent limitations are based, in part, on the August 1998 and December 1999 Updates of Ambient Water Quality Criteria for Ammonia and on the April 1999 *National Recommended Water Quality Criteria – Correction*, the most recent update of the National Ambient Water Quality Criteria. This Order and the Basin Plan prohibit the discharge of toxic constituents in toxic amounts.

Monthly and quarterly monitoring reports, provided by the Discharger for the Dry Creek Plant from January 1994 through June 1999, were a primary source of data for effluent limit determinations. The data from the Dry Creek Plant were used to project the water quality at the Pleasant Grove Plant. Assuming zero dilution, and based on information submitted as part of the application, in studies, and projections from the Dry Creek Wastewater Treatment Plant monitoring and reporting program, the Board finds that the proposed discharge has a reasonable potential to exceed standards and objectives for several constituents.

A. Priority Pollutants

Table 1 shows hardness data and all constituents that were detected in the quarterly Priority Pollutant analyses, from first quarter 1996, through second quarter 1999. The positive detections are shown in the shaded areas. Table 2 shows the applicable water quality criteria that were used to develop effluent limits.

TABLE 1: Dry Creek Wastewater Treatment Plant - Quarterly Effluent Hardness (in mg/l) and Priority Pollutant Sampling Results (all constituents in μg/l)

Constituent	Quarters														
	1st - 96	2nd - 96	3rd - 96	4th - 96	1st - 97	2nd - 97	3rd - 97	4th - 97	1st - 98	2nd - 98	3rd - 98	4th - 98	1st - 99	2nd - 99	3rd - 99
Hardness	103	105	96	100	100	100	106	116	113	126	124	109	105	124	NR [1]
Priority Pollutants															
Antimony	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1	<1.0
Arsenic	1.4	<1.0	1.6	1.4	1.5	<1.0	<1.0	<1.0	1.4	1.5	1	<1.0	<1.0	1	<1.0
Beryllium	<0.2	<0.2	1.1	<0.2	<0.2	<0.2	0.58	1.1	<0.2	<0.2	0.26	<0.2	1.9	2.9	3.2
Cadmium	0.6	0.3	<0.2	1.7	1.2	<0.2	2.1	0.59	0.34	0.45	4.2	<0.2	<0.2	<0.2	<0.2
Chromium	1.3	1	4.4	2.1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	1.2	1.1	1.2
Copper	3.2	2.3	3.1	1.5	1.5	1.5	2.1	1	<2.0	1.4	2.5	2	3.9	6.9	3.8
Cyanide	NR [1]	NR [1]	NR [1]	5.6	6.1	6.3	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0	<5.0
Lead	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	1.2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Mercury	0.04	0.12	0.007	<0.013	<0.02	<0.02	<0.02	0.1	<0.02	<0.02	0.041	<0.02	<0.02	<0.25	0.041
Nickel	2.7	5.9	6.4	2.8	3.2	1.8	5.9	2.8	2.1	6.0	3.5	3.7	3	2.8	<1.0
Selenium	0.29	<0.25	<0.25	0.64	0.70	0.68	1.6	<0.5	<0.25	<3.0	0.94	<0.25	<0.25	<0.25	<0.25
Silver	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.17	0.14	<0.1
Zinc	27	40	44	31	31	23	30	30	36	20	43	31	38	60	50
Acrolein	<10000	<10000	<5	<5000	<10	<5000	<0.5	<20	<5.0	1800	<10	<50	<50	92	<2.0
Bis (2-ethylhexyl) phthalate	<30	<0.2	<1.7	22	<1.4	<0.2	1	<0.2	0.36	<0.81 [2]	<0.63 [2]	<10	<10	<0.49 [2]	0.24
Butyl-benzyl phthalate	<0.1	<0.1	0.22	<0.1	<0.1	<0.1	<0.1	0.15	<0.1	<0.1	<0.1	<10	<10	<0.1	0.11
2-Chloroethyl vinyl ether	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0	<5.0	<1.0	<1.0	1.3
4-Chloro-m-cresol	<0.1	<0.1	<0.1	<0.1	0.16	<0.1	<0.1	<0.1	<10	<10	<0.1	<10	<10	<0.1	<0.1
Dibutyl phthalate	1.5	0.47	1	0.44	0.41	<0.2	<0.2	<0.2	<0.2	0.54	0.26	<10	<10	0.22	<0.27
1,2-Dichlorobenzene	0.13	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.19	<0.1	<0.1	<0.1	<10	<0.5	<0.1	<0.5
1,4-Dichlorobenzene	0.43	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.28	<0.1	0.14	0.18	<10	<0.5	0.17	<0.5
Diethyl phthalate	0.23	0.2	0.31	0.39	0.16	<0.1	<0.1	<0.1	<0.1	<0.1	0.7	<10	<10	0.36	<0.2
Lindane (gamma BHC)	NR [1]	NR [1]	NR [1]	0.18	<0.25	<0.25	<0.007	<0.007	<0.05	NR [1]	NR [1]	<0.05	<0.05	<0.05	<0.05
Methylene chloride	NR [1]	NR [1]	NR [1]	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	0.6	<1.0	<1.0
Phenol	0.39	<0.2	0.82	0.28	0.82	<0.2	0.24	0.34	<0.2	0.2	<0.2	<10	<10	0.24	0.74
Tetrachloroethylene (PCE)	<0.2	0.42	<0.2	<0.2	<0.2	<0.2	<0.5	<0.5	<0.5	<0.5	<5.0	<5.0	<0.5	<1.0	<0.5
Toluene	<0.5	<0.5	5	<0.5	<0.5	2.3	<0.5	<5.0	<0.5	<0.5	<5.0	<5.0	<0.5	<1.0	<0.5
2,4,6-Trichlorophenol	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.16	<0.1	<0.1	<0.1	<10	<10	<0.1	<0.1
Trihalomethanes (THM)															
Bromodichloromethane	<10	22	29	14	9.8	22	13	9.5	6.1	7.4	<5.0	<5.0	4.1	11	8.9
Bromoform	<0.5	<0.5	1.6	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<1.0	<5.0	<5.0	<1.0	<1.0	<0.5
Chloroform	18	20	47	23	17	15	25	18	11	17	30	17	8.3	34	14
Dibromochloromethane	<0.5	<0.5	18	5.5	5.4	1.1	3.8	2.8	1.3	4.4	<5.0	<5.0	0.8	2.5	3.4
Total THM	18	42	53.3	42.5	32.2	48	41.8	30.3	18.4	28.8	30	17	13.2	47.5	26.3

1 Not Reported by the Discharger

2 Typically, the sample reporting limit is elevated to the concentration found in the sample, for any semivolatile compound, including Bis (2-ethylhexyl) phthalate, which was also detected in any associated laboratory quality control blank, if the sample concentration is less than five times (5x) the blank concentration.

TABLE 2: Regulatory and Water Quality Criteria

Constituent	NTR [1]	DWS [2]	U.S. EPA's Ambient Water Quality Criteria for Freshwater Aquatic Life (μg/l)			
			Toxicity Information		Recommended Criteria	
			Acute	Chronic	4-Day Ave.	1-Hour Ave.
Antimony	14	2.8	--	--	--	--
Arsenic	--	50	--	--	150	340
Beryllium	--	4	130	5.3	--	--
Cadmium	--	3.5	--	--	Attachment D [3]	Attachment D [3]
Chromium (III)	190 [4]	--	--	--	(e{0.8190[ln(90)]+0.6848})x(0.860) = 68 [5]	(e{0.8190[ln(90)]+3.7256})x(0.316) = 520 [5]
Chromium (VI)	--	35	--	--	11	16
Chromium (Total)	--	50	--	--	--	--
Copper	--	170	--	--	Attachment E [3]	Attachment E [3]
Cyanide	--	140	--	--	5.2	22
Lead	--	15	--	--	(e{1.273[ln(90)]-4.705})x(1.46203-{[ln(90)]x[0.145712]}) = 2.2 [3]	(e{1.273[ln(90)]-1.460})x(1.46203-{[ln(90)]x[0.145712]}) = 58 [3]
Mercury	--	2	--	--	0.77	1.4
Nickel	--	100	--	--	(e{0.8460[ln(90)]+0.0584})x(0.997) = 48 [3]	(e{0.8460[ln(90)]+2.255})x(0.998) = 430 [3]
Selenium	--	35	--	--	5	--
Silver	--	35	--	--	--	(e{1.72[ln(90)]-6.52})x(0.85) = 2.9 [3]
Zinc	--	2000	--	--	(e{0.8473[ln(90)]+0.884})x(0.986) = 110 [3]	(e{0.8473[ln(90)]+0.884})x(0.978) = 110 [3]
Acrolein	320	110	68	21	--	--
Bis (2-ethylhexyl) phthalate	1.8	4	2000	160	--	--
Butyl-benzyl phthalate	--	140	940	3	--	--
Chloroethyl vinyl ether	--	--	--	--	--	--
4-Chloro-m-cresol	--	--	30	--	--	--
Dibutyl phthalate	2700	700	940	3	--	--
1,2-Dichlorobenzene	--	24	1120	763	--	--
1,4-Dichlorobenzene	--	5	1120	763	--	--
Diethyl phthalate	23000	5000	940	3	--	--
Lindane (gamma BHC) [6]	--	0.2	--	--	--	0.95
Methylene chloride	--	5	11000	--	--	--
Phenol	4600	4000	10200	2560	--	--
Tetrachloroethylene (PCE)	0.8	5	5280	840	--	--
Toluene	--	40	17500	--	--	--
2,4,6-Trichlorophenol	--	2500	--	970	--	--
Trihalomethanes (THM) [7]	--	100	--	--	--	--

[1] National Toxics Rule standards
[2] Drinking Water Standards
[3] Criteria are dependent on hardness
[4] Calculated using lowest reported hardness (90 mg/l) and the equation from NTR: Four Day Average = e{0.8190[ln(hardness)] + 1.561}
[5] Calculated using lowest reported hardness (90 mg/l)
[6] Basin Plan Water Quality Objective requires that persistent organochlorine pesticides not be present in receiving water at detectable concentrations
[7] Total Trihalomethanes (sum of bromoform, bromodichloromethane, chloroform, dibromochloromethane)

1. **Priority Pollutants Without Effluent Limits**

   a. **Antimony, Arsenic, Beryllium, Chromium, Lead, Nickel, Selenium, and Silver**
   The inorganic constituents, antimony, arsenic, beryllium, chromium, lead, nickel, selenium, and silver, were all detected at concentrations well below the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for each constituent. Therefore, effluent limits were not established.

   b. **Zinc**
   Zinc was detected in each quarterly sample at concentrations ranging from 20 to 60 µg/l. The Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, established by U.S. EPA for zinc, are hardness dependent. The relative toxicity of zinc increases with decreasing hardness. The hardness data provided by the Discharger, was collected between February 1993 and May 1999, and ranged from 90 to 130 mg/l. In the table created by U.S. EPA that shows the relationship between zinc and hardness, at the worst-case or lowest hardness concentration detected at the Dry Creek Plant, 90 mg/l, the toxic concentration of zinc would be 110 µg/l. While the highest concentration of zinc detected was 60 µg/l, a reasonable potential analysis was conducted to determine what the highest concentration of zinc in effluent would be statistically. Statistical analysis was conducted assuming no dilution, using zinc data between August 1994 and May 1999, and with a 99% confidence limit. Calculations showed that the highest expected concentration for zinc would be 90 µg/l, which is below the toxic concentration of zinc (110 µg/) with the worst-case hardness condition (90 mg/l). Therefore, effluent limits for zinc were not established.

   c. **Butyl-benzyl phthalate, 4-Chloro-m-cresol, Dibutyl phthalate, 1,2-Dichlorobenzene, 1,4-Dichlorobenzene, Diethyl phthalate, Methylene chloride, Phenol, Tetrachloroethylene (PCE), Toluene, and 2,4,6-Trichlorophenol**
   The organic constituents, butyl-benzyl phthalate, 4-chloro-m-cresol, dibutyl phthalate, 1,2-dichlorobenzene, 1,4-dichlorobenzene, diethyl phthalate, methylene chloride, phenol, tetrachloroethylene (PCE), toluene, and 2,4,6-trichlorophenol, were all detected at concentrations well below the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for each constituent. Therefore, effluent limits were not established.

   d. **Chlorophenyl vinyl ether**
   No water quality objectives, standards, or criteria have been established for chlorophenyl vinyl ether; therefore effluent limits were not established.

   e. **Total Trihalomethanes (Bromoform, Bromodichloromethane, Chloroform, and Dibromochloromethane)**
   From Table 1, in the fifteen quarters between January 1996 and September 1999, bromoform was detected only once at 1.6 µg/l, which is less than the Ambient Water Quality Criteria for Human Health Protection of 4.3 µg/l. In the same time period, bromodichloromethane was detected twelve times at concentrations ranging from 4.1 µg/l to 29 µg/l, exceeding the Ambient Water Quality Criteria for Human Health Protection of 0.27 µg/l. Chloroform was

also detected fifteen times at concentrations ranging from 4.7 µg/l to 34 µg/l, exceeding the Ambient Water Quality Criteria for Human Health Protection of 5.7 µg/l, fourteen times. Dibromochloromethane was also detected eleven times at concentrations ranging from 0.8 µg/l to 18 µg/l, exceeding the Ambient Water Quality Criteria for Human Health Protection of 0.41 µg/l.

The four constituents, bromoform, bromodichloromethane, chloroform, and dibromochloromethane, are commonly known as Total Trihalomethanes (THM). A Federal Drinking Water Standard for THM has been established at 100 µg/l. This concentration is higher than the Ambient Water Quality Criteria for the individual constituents. However, the Drinking Water Standard is sufficiently protective of water quality. Table 1 also shows totals of the concentrations of the four constituents. The maximum Total THM in the table is 53.3 µg/l, which is lower than the Drinking Water Standard; therefore, effluent limits for THM were not established.

2. Priority Pollutants with Effluent Limits and Studies

Mercury

The accuracy of mercury analyses is questionable without implementing 'clean technique' for sample collection, handling, and analyses. The Discharger has not used the 'clean technique'. The current EPA Ambient Water Quality Criteria for Protection of Freshwater Aquatic Life, continuous concentration, for mercury is 0.77 µg/l (30-day average, chronic criteria), and the proposed California Toxics Rule, 30-day average for Protection of Human Health, is 0.050 µg/l (chronic criteria). Both values are controversial and subject to change. The Sacramento-San Joaquin Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. This listing is based on elevated levels of mercury in fish tissue. Because the Delta has been listed as an impaired water body for mercury based on fish tissue concentrations, the discharge must not cause or contribute to increased mercury levels in fish tissue.

This Order contains an interim performance-based effluent limit of 1.71 lbs/year for mercury for the combined effluent discharges to surface waters from the existing Dry Creek and proposed Pleasant Grove Wastewater Treatment Plants. There is no current discharge from the proposed treatment facility. For purposes of calculation of the mercury mass loading, the City of Roseville and the satellite collection systems are looked at as a single source of domestic wastewater, with the baseline mercury discharge coming solely from the existing Dry Creek Plant. This interim mass limit was developed using the average quarterly mercury concentrations and quarterly average flows calculated from quarterly mercury sampling and monthly flow data from January 1996 through September 1999 at the Dry Creek Plant. The average quarterly mercury concentration was calculated by adding either the quarterly measured mercury concentrations or one-half of the reported detection levels (for samples with non-detectable mercury concentrations). From the average quarterly mercury concentration and average quarterly flow, a quarterly mercury mass discharge was calculated. A total mass for the 15 quarters was then totaled. An average annual mass discharge was calculated and a 20% allowance was added to account for unforeseen variability in mercury concentrations. Table 3 shows the data used in the

mercury mass limit calculations. The limit will not become effective until 1 January 2004, or one year after establishment and approval of a watershed mercury loading offset program.

The mass of mercury discharged shall not exceed the interim mercury mass limit of 1.71 lbs per twelve months on a running average for the combined discharges to surface waters from the Pleasant Grove and Dry Creek Plants. In calculating for compliance, the Discharger shall count all non-detect measures at one-half of the detection level and apply the monthly average flow from the sampled discharge. If compliance with the effluent limit is not attained due to the non-detect contribution, the Discharger has been directed to improve and implement available analytical capabilities and compliance will be evaluated with consideration of the detection limits.

For each calendar month, the Discharger should calculate twelve-month mass loadings. For monthly measures, monthly loadings shall be calculated using the 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 the previous 12-month moving averages over the previous twelve months of monitoring.

The applicable water quality standards for mercury are uncertain and in state of flux. The Discharger did not use "clean techniques" in the past for the mercury sample collection and analytical practices. However, in the absence of other data, the current water quality standards for mercury and the Discharger's mercury data from the Dry Creek Plant were used to establish the interim effluent limit. In order to collect more accurate mercury data, the Discharger has been directed to conduct a monitoring program at the Dry Creek Plant, so that the interim mercury limit may be modified or a final effluent limit may be established, to more accurately reflect the mass of mercury discharged from the City of Roseville and the satellite collection systems. "Ultra clean techniques" will be used in the mercury sampling, handling, and analytical procedures. In addition, the Discharger will conduct a study to identify and control mercury discharged within the collection systems for the Dry Creek Plant.

Table 3: Calculation of Effluent Mercury Mass Loading Limitation

Calendar Quarter	Mercury Concentrations (µg/l)			Monthly Average Flows (mgd)			Quarterly Ave. Flows (mgd)	Quarterly Mercury Mass Discharge (lbs) [3]
	Measured	Non-Detect Limit	Calculated [1]					
1Q1996	0.04		0.04	12.67	16.79	14.20	14.55	0.442
2Q1996	0.12		0.12	13.33	12.48	12.19	12.67	1.154
3Q1996	0.007		0.007	12.33	12.27	11.56	12.05	0.064
4Q1996		0.013	0.0065	11.49	11.98	12.75	12.07	0.060
1Q1997		0.02	0.01	19.28	13.83	12.43	15.18	0.115
2Q1997		0.02	0.01	12.09	11.79	11.69	11.86	0.090
3Q1997		0.02	0.01	11.74	11.44	12.30	11.83	0.090
4Q1997	0.1		0.1	13.00 [2]	13.00	13.00 [2]	13.00	0.987
1Q1998		0.02	0.01	16.98	20.71	14.65	17.45	0.132
2Q1998		0.02	0.01	13.71	11.57	10.05	11.78	0.089
3Q1998	0.041		0.041	11.10	11.41	12.46	11.66	0.363
4Q1998		0.02	0.01	13.00	13.74	13.91	13.55	0.103
1Q1999		0.02	0.01	14.16	16.61	14.82	15.20	0.115
2Q1999		0.25	0.125	13.74	13.25	11.04	12.68	1.203
3Q1999	0.041		0.041	10.36	10.88	11.63	10.96	0.341
		Average [4]	0.0367					Total [5] 5.347 Per Year [6] 1.426 Plus 20% [7] 1.711

1 Calculated concentration is either the measured concentration of mercury or one-half the detection limit when mercury was "non-detect
2 October and December 1997 flows were missing. Estimated from November 1997 data
3 Pounds = 8.345 x Quarterly Average Flow, mgd x 91 days/quarter x Calculated Mercury Concentration, µg/l x 1000 µg/mg
4 Average = Average Mercury Concentration over 15 Quarters = 0.0367 µg/l
5 Total = Total Mass Discharged in 15 Quarters = 5.347 lbs
6 Annual Mass Discharge = 1.426 lbs/year
7 Annual Mass Discharge + 20% = 1.711 lbs/year

Priority Pollutants with Effluent Limits

a. **Lindane (Organochlorine Pesticides)**
Based on information submitted in quarterly monitoring reports for priority pollutants, lindane (gamma BHC), an Organochlorine Pesticide, was detected in one sample at 0.18 µg/l. There are several water quality criteria and a Drinking Water Standard listed in Table 2 for Lindane. 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 affects beneficial uses; total chlorinated hydrocarbon pesticide concentrations 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 Lindane in the treatment plant effluent presents a reasonable potential to exceed the Basin Plan limitations for Organochlorine Pesticides. Based on the Basin Plan requirements, the concentration based effluent limitation for Organochlorine Pesticides included in this Order is Non-Detectable (ND). No individual pesticide may be present in the discharge at detectable concentrations, therefore the mass based effluent limit is 0.0 lbs/day.

b. **Bis (2-ethylhexyl) Phthalate**
Bis (2-ethylhexyl) phthalate is a plasticizer that has a relatively low solubility in water and relatively low volatility. Bis (2-ethylhexyl) phthalate is commonly found in plasticized products and containers, hospital and laundry discharges, and adhesives, paper, pesticides, and flexible plastic pipes and tubing. Laboratory analysis for this constituent has been the subject of frequent error and, in some cases may be the source of the constituent. However, clean sampling techniques indicate it is present in effluent samples. Its use in common products and industry indicate that it is a possible contaminant of wastewater.

The National Toxics Rule (NTR) receiving water limit for Bis (2-ethylhexyl) phthalate is 1.8 µg/l for surface waters where the designated beneficial use is drinking water and 5.9 µg/l where drinking water is not a designated beneficial use. Drinking water is a beneficial use of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge. By the tributary rule, drinking water is a beneficial use of Pleasant Grove Creek.

As shown in Table 1, Quarterly Priority Pollutant analyses provided by the Discharger, showed that Bis (2-ethylhexyl) phthalate was detected in ten of the fifteen samples. However, six of the samples showed some possible laboratory contamination. When any semivolatile compound, including Bis (2-ethylhexyl) phthalate, is detected in a laboratory quality control blank, then the sample reporting limit is elevated to the concentration found in the sample, if the concentration of the sample is less than five times (5x) the concentration in the blank. In the six samples, it is not possible to be certain that the effluent samples contained Bis (2-ethylhexyl) phthalate, or if the source of the contamination was the laboratory. Of the four samples, for which possible laboratory contamination was not noted, Bis (2-ethylhexyl) phthalate was detected at 0.24, 0.36, 1, and 22 µg/l. The sample that contained 22 µg/l exceeded the NTR Standard of 1.8 µg/l. The concentration based effluent limitation for Bis (2-ethylhexyl) phthalate in the Order is based on the NTR Standard. The

mass based effluent limitation, 0.2 lbs/day, was calculated using the NTR Standard and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

c. Constituents with Ambient Water Quality Criteria Limits

U.S. EPA's Ambient Water Quality Criteria were used to develop effluent limits to prevent the discharge of toxic constituents in toxic concentrations, as required by the Basin Plan, and to protect the beneficial uses of the receiving stream. The Ambient Water Quality Criteria for metals are presented in dissolved concentrations. All effluent limits are presented in total concentrations. U.S. EPA recommends conversion factors to translate dissolved concentrations to total concentrations. The conversion factors generally range from 0.94 to 1.0. We reviewed the available data and assumed all conversion factors, for the included metals below, were 1.0.

(1) Acrolein

Acrolein is soluble in water with a relatively low volatility. Acrolein is used directly as a biocide for aquatic weed control; for algae, weed, and mollusk control in recirculating process water systems; for slime control in the paper industry; and to protect liquid fuels against microorganisms. It is also used in leather tanning, for fixing histological samples, in the chemical industry, in photography, for textile treatment, in the manufacture of laundry and dishwasher detergents, and in coatings for aluminum and steel panels.

The National Toxics Rule (NTR) receiving water limit for acrolein is 320 μg/l for surface waters where the designated beneficial use is drinking water and 780 μg/l where drinking water is not a designated beneficial use. Drinking water is a beneficial use of the Sacramento River between the Colusa Basin Drain and the "I" Street Bridge. By the tributary rule, drinking water is a beneficial use of Pleasant Grove Creek. U.S. EPA also developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life. Toxicity information collected to establish Ambient Water Quality Criteria indicated that acute toxicity for acrolein occurred at 68 μg/l and chronic toxicity occurred at 21 μg/l.

Quarterly Priority Pollutant analyses provided by the Discharger, showed that acrolein was detected in effluent samples on two occasions, at 92 μg/l and 1300 μg/l. Nothing in the laboratory sheets for these two samples, provided by the Discharger, indicates that there was any contamination caused by the laboratory. Because of the many possible uses of acrolein, it is possible for it to be in the effluent. Concentration based effluent limitations for acrolein, based on the acute and chronic toxicity information concentrations collected to establish U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, are included in this Order. The acute and chronic toxicity information concentrations were used to be protective of aquatic life and also comply with the NTR standards. The mass based effluent limitations, 2 lbs/day and 7 lbs/day, were calculated using the acute and chronic toxicity information concentrations and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

(2) Cadmium

As shown in Table 1, cadmium was detected in eight of fifteen samples at concentrations ranging between 0.3 and 4.2 µg/l. U.S. EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for cadmium. The acute (1-hour average) and chronic (4-day average) criteria are hardness dependent. U.S. EPA represents the criteria in a table, equations, and a graph. The relative toxicity of cadmium increases with decreasing hardness. The hardness data provided by the Discharger, was collected between February 1993 and May 1999, and ranged from 90 to 130 mg/l. In the table created by U.S. EPA that shows the relationship between cadmium and hardness, at the worst-case or lowest hardness concentration detected at the Dry Creek Plant, 90 mg/l, the 4-day average toxic concentration of cadmium would be 2.1 µg/l and the 1-hour average concentration of cadmium would be 3.8 µg/l. One cadmium sample reported by the Discharger equaled the 2.1 µg/l chronic toxicity concentration and the sample with 4.2 µg/l cadmium exceeded both the chronic and acute toxicity concentrations. Because cadmium was detected at concentrations equal to and exceeding the acute and chronic toxicity criteria, concentration based effluent limits, based on hardness, were established using the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life and are shown in Attachment D. The mass based effluent limitations, must be calculated using the values obtained from Attachment D and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

(3) Copper

As shown in Table 1, copper was detected in fourteen of fifteen samples at concentrations ranging between 1 and 6.9 µg/l. U.S. EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for copper. The acute (1-hour average) and chronic (4-day average) criteria are hardness dependent. U.S. EPA represents the criteria in a table, equations, and a graph. The relative toxicity of copper increases with decreasing hardness. The hardness data provided by the Discharger, was collected between February 1993 and May 1999, and ranged from 90 to 130 mg/l. In the table created by U.S. EPA that shows the relationship between copper and hardness, at the worst-case or lowest hardness concentration detected at the Dry Creek Plant, 90 mg/l, the 4-day average toxic concentration of copper would be 8.2 µg/l and the 1-hour average concentration of copper would be 12 µg/l. While the copper sample at 6.9 µg/l did not exceed 8.2 µg/l, a reasonable potential analysis was conducted using statistical methods to determine what the highest concentration of copper in effluent would be statistically. Statistical analysis was conducted assuming no dilution, using copper data between January 199 and September 1999, and with a 99% confidence limit. Calculations showed that the highest expected concentration for copper would be 16.91 µg/l, which is higher than both the acute (8.2 µg/l) and chronic (12 µg/l) toxic concentrations of copper, using the worst-case hardness condition (90 mg/l). Therefore, concentration based effluent limits for copper, based on the hardness dependent criteria (Attachment E) of the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, are included in this Order. The mass based effluent limitations, must be calculated using the values obtained from Attachment E and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

(4) Cyanide

As shown in Table 1, cyanide was detected in three of twelve samples at concentrations of 5.6, 6.1, and 6.3 µg/l. U.S. EPA developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for cyanide. The 4-day average or chronic criterion for cyanide is 5.2 µg/l and the 1-hour average or acute criterion is 22 µg l. All three cyanide samples reported by the Discharger exceeded the chronic toxicity concentration. Because cyanide was detected at concentrations exceeding the chronic toxicity criteria, concentration based effluent limits were established using the Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life as shown in Table 2. The mass based effluent limitations, 2 lbs/day and 0.5 lbs/day, were calculated using the acute and chronic toxicity concentrations and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

B. Non-Priority Pollutants

1. Non-Priority Pollutants without Effluent Limits

Temperature

The Basin Plan provides that the temperature of surface waters shall not be altered more than 5 °F. Generally, at the Dry Creek Plant in fall and early winter, on occasion, the effluent is warm enough to alter the receiving water more than 5 °F. The effluent from the Pleasant Grove Plant is not expected to create the same temperature changes in Pleasant Grove Creek, due to the ephemeral nature of Pleasant Grove Creek. Therefore, effluent limits for temperature have not been established. A receiving water limitation, that the ambient temperature of the receiving water shall not be altered more than 5 °F, has been included in the Order. The Discharger has stated the intention to seek site-specific amendments to the Basin Plan for Pleasant Grove Creek for temperature.

2. Non-Priority Pollutants with Studies

a. Nitrate

Untreated wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. The proposed activated sludge oxidation ditches at the Pleasant Grove Plant will provide both nitrification and denitrification processes to convert ammonia to nitrogen gas. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia and nitrate to the receiving stream.

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). Recent toxicity studies have indicated a

possibility that nitrate is toxic to aquatic organisms. In the past, the Discharger has not collected effluent samples for nitrate analysis and the toxic effects, if any, of nitrate in the Dry Creek Plant effluent is not known.

This Order contains provisions that require the Discharger to provide information as to whether levels of nitrate in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if nitrate does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information to calculate effluent limitations for nitrate. This Order also contains provisions that allow the Board to reopen this Order and include an effluent limitation for nitrate.

b. Aluminum

Tertiary wastewater treatment, which conforms to Title 22 (California Code of Regulations) reclamation requirements for contact recreation and unlimited irrigation use, includes disinfection, oxidation, coagulation, clarification, and filtration processes. The purpose of coagulation is to enhance particulate removal during the filtration process. Chemicals commonly used as coagulants include a variety of organic polymers, ferric chloride, ferric sulfate, and alum (aluminum sulfate). The Pleasant Grove Plant uses polymers and alum as coagulants. The use of alum as a coagulant may result in the discharge of aluminum to the receiving stream.

The U.S. EPA has developed Drinking Water Standards and Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for aluminum. The California primary and secondary drinking water standards for aluminum are 1,000 and 200 μg/l, respectively. The U.S. EPA secondary drinking water standard is a range from 50 to 100 μg/l. The Ambient Water Quality Criteria recommended for protection of Freshwater Aquatic Life are a 750 μg/l maximum concentration for acute toxicity and 87 μg/l for chronic toxicity.

In the past, the Discharger has not collected effluent samples for aluminum analysis and the toxic effects, if any, of aluminum in the Dry Creek Plant effluent is not known. This Order contains provisions that require the Discharger to provide information as to whether levels of aluminum in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if aluminum does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information to calculate effluent limitations for aluminum. This Order also contains provisions that allow the Board to reopen this Order and include an effluent limitation for aluminum.

c. Methyl Tertiary-Butyl Ether (MTBE)

In April 1999, as part of statewide study to determine the presence of gasoline constituents in waters of the state, the Board required that the Discharger sample and test for the presence of methyl tertiary-butyl ether (MTBE) and other oxygenated compounds at the Dry Creek Plant. In a letter dated 20 July 1999, the Discharger submitted the results of sampling and testing. The laboratory reported that MTBE was detected in all four samples collected in May and

June 1999. The MTBE concentrations ranged from 1.1 to 9.3 µg/l. None of the other oxygenates were detected.

The U.S. EPA has developed a Drinking Water Health Advisory of 20 to 40 µg/l and a Taste and Odor Threshold of 15 to 95 µg/l. The California Department of Health Services has recommended a California State Action Level for MTBE of 35 µg/l.

The detected concentrations were below the water quality criteria. However, due to the concern of the State of California regarding MTBE and its presence in surface and drinking waters, this Order contains provisions that require the Discharger to provide information as to whether levels of MTBE in the discharge cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, and, if MTBE does cause or contribute to an in-stream excursion above a narrative or numeric water quality standard, require the Discharger to submit information to calculate effluent limitations for MTBE. This Order also contains provisions that allow the Board to reopen this Order and include an effluent limitation for MTBE.

d. Electrical Conductivity (EC)

Domestic and industrial use of water results in an increase in the mineral content of the wastewater. The minerals include calcium, sodium, sulfate, and other dissolved salts. The salinity of wastewater is determined by measuring electrical conductivity (EC), an important parameter in determining the suitability of wastewater for irrigation. When water evaporates, salts accumulate in soil. With increasing salinity in the soil of the root zone, plants expend more energy on adjusting the salt concentration in plant tissues to obtain needed water from the soil, and less energy is available for growth.

In the Basin Plan, a Numeric Water Quality Objective for the protection of beneficial uses has been established for EC (240 µmhos/cm) in the Sacramento River, between the Colusa Basin Drain and the "I" Street Bridge. However, sampling shows there is assimilative capacity in the Sacramento River section for the dissolved salts discharged from the Pleasant Grove Plant. To protect the beneficial use of water for agricultural use, studies have recommended an Agricultural Water Quality Goal of 700 µmhos/cm, for and average value of EC.

EC data from the monthly monitoring reports from the Dry Creek Plant, between January 1994 and September 1999, have shown that the average value of EC has ranged between 556 µmhos/cm and 865 µmhos/cm, which exceeds the average value recommended to protect agricultural uses. The maximum reported value of EC was 1000 µmhos/cm. Pleasant Grove Creek is ephemeral; therefore, water drawn from the receiving stream for irrigation may be undiluted effluent. To reduce concentrations of dissolved salts in the effluent, the Discharger is required to conduct a study to identify sources of and control dissolved salts discharged within the collection system. Once the study has been completed, the Board may determine that effluent limitations for EC are necessary. This Order contains provisions that require a study and allow the Board to reopen this Order and add effluent limitations for EC.

3. Non-Priority Pollutants with Effluent Limits

a. pH

The Basin Plan provides that the pH of surface waters shall not be depressed below 6.5 nor raised above 8.5 nor shall the discharge alter the ambient pH of the receiving water more than 0.5 units. In monthly reports from the Discharger, the pH in the Dry Creek Plant effluent has ranged from a low of 5.7 to a high of 9.0 and on occasion, has increased the pH of the receiving water more than 0.5 units. However, Dry Creek has year-round flow, while at times, especially in dry months, Pleasant Grove Creek may have no flow. In months when effluent is the only flow in Pleasant Grove Creek and there is no receiving water, then the only measurable pH is that of the effluent. The Pleasant Grove Treatment Plant uses a treatment process different from that used at the Dry Creek Plant and pH violations are not anticipated. It is relatively easy to incorporate pH adjustments at the wastewater treatment plant, if violations do occur. An effluent limit in the Order specifies that effluent may not be discharged with a pH below 6.5 nor above 8.5. A receiving water limit for pH, stating that the pH of surface waters shall not be depressed below 6.5 nor raised above 8.5, is included in the Order. Another receiving water limit stating that the effluent shall not alter the ambient pH of the receiving water more than 0.5 units, has also been included in the Order. Pleasant Grove Creek is an ephemeral stream; therefore, the effluent limits for pH are the same as the receiving water limits. The Discharger has stated the intention to seek site-specific amendments to the Basin Plan for Pleasant Grove Creek for pH.

b. Coliform Organisms, Turbidity, BOD, and TSS

Tertiary treatment (filtration) is required to protect the beneficial uses of contact recreation and agriculture downstream of the discharge in Pleasant Grove Creek. The effluent limitation for coliform organisms is intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing pathogens. The method of treatment is not prescribed in this Order, but must meet the level of treatment or equivalent as specified in Title 22 and other recommendations by the California Department of Health Services. 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 reduced turbidity limitation of 2 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 and 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. Effluent limitations for both BOD and TSS have been established at 10 mg/l, as a monthly average, which is technically based on the capability of the designed tertiary system.

c. Methylene Blue Active Substances (MBAS)

Surfactants, or surface-active agents, commonly in detergents, cause foaming in wastewater treatment plants and in surface waters where the wastewater is discharged. Surfactants are also known as methylene blue active substances (MBAS), named for the laboratory method

used to determine the presence of surfactants in water. The U.S. EPA has developed a Drinking Water Standard, Secondary Maximum Contaminant Level, of 500 μg/l for MBAS. Concentration based effluent limitation for MBAS, based on U.S. EPA's Drinking Water Standards, is included in this Order. The mass based effluent limitation, 50 lbs/day, was calculated using the Drinking Water Standard and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

d. Constituents with Ambient Water Quality Criteria Limits

U.S. EPA's Ambient Water Quality Criteria were used to develop effluent limits to prevent the discharge of toxic constituents in toxic concentrations, as required by the Basin Plan, and to protect the beneficial uses of the receiving stream.

(1) Ammonia

Untreated wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and denitrification processes to remove ammonia from the waste stream. The proposed activated sludge oxidation ditches at the Pleasant Grove Plant will provide both nitrification and denitrification processes to convert ammonia to nitrogen gas. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia and nitrate to the receiving stream.

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 form being relatively less toxic. Total ammonia refers to the sum of these two forms in aqueous solutions. Analytical methods are used to directly determine the total ammonia concentration, which is then used to calculate the un-ionized ammonia (toxic) concentration in water.

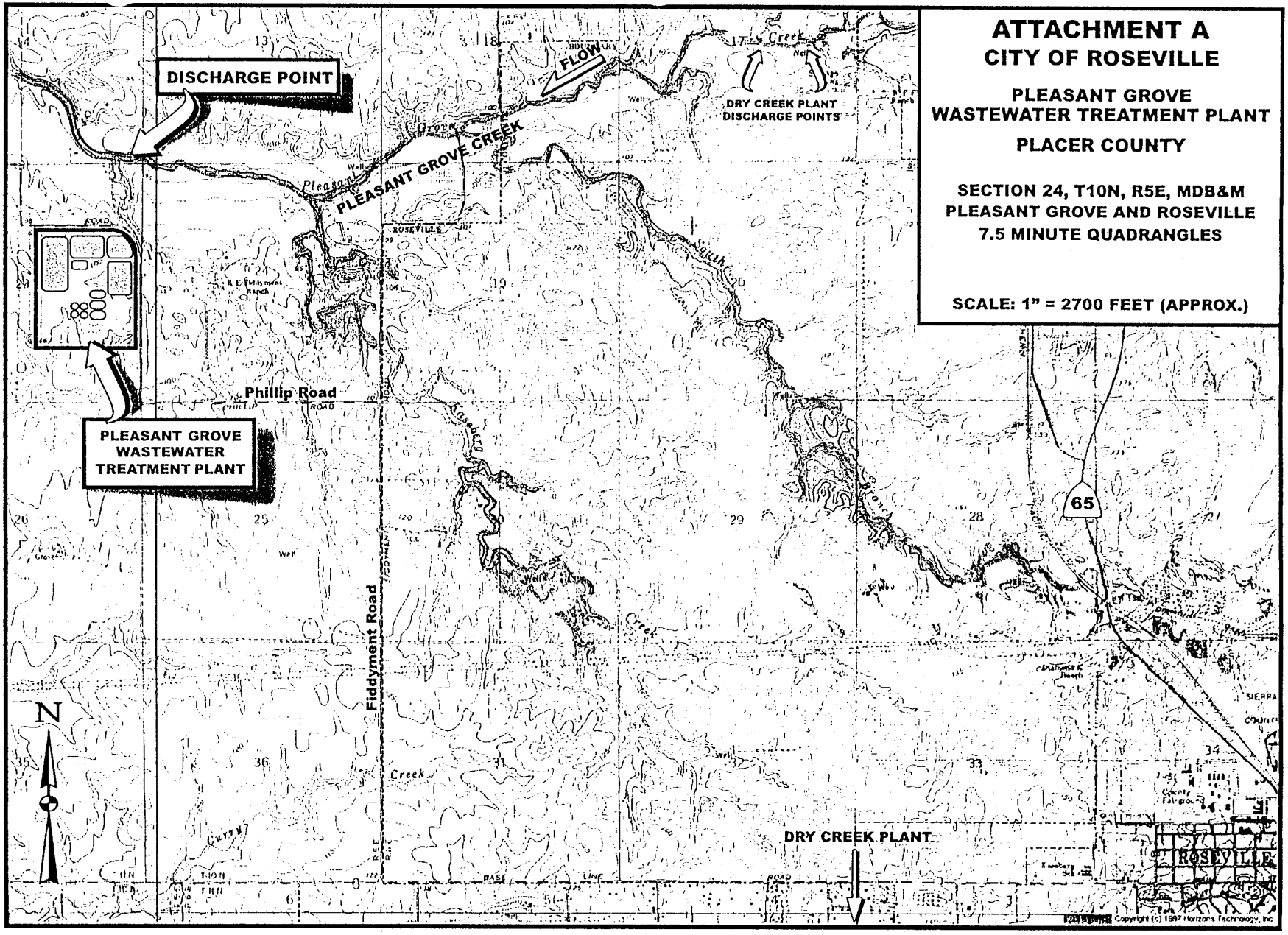
U.S. EPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, for total ammonia, include acute (1-hour average) standards based on pH and chronic (30-day average) standards based on pH and temperature. U.S. EPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity affects 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 affects with increasing temperature. 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 when salmonids are present. The chronic criteria have been presented in a table shown in Attachment C.

The pH in the Dry Creek Plant effluent has ranged from a low of 5.7 to a high of 9.0. The Basin Plan provides that the pH of surface waters shall not be depressed below 6.5 nor raised above 8.5 nor altered more than 0.5 units. The total ammonia concentration in the effluent from the Dry Creek Plant has ranged from 0.0 to 12 mg N/l. The Ambient

Water Quality Criteria maximum concentration for ammonia (see Attachment B) shows that the acute criteria would be 2.14 mg N/l. Should a high pH occur at the same time that ammonia concentrations exceed the acute concentration for that pH, the effluent would be acutely toxic. The effluent temperature data from the Dry Creek Plant has not been reported to the Board. However, the chronic criteria in Attachment C show that toxicity increases with increasing temperature and pH. The highest ammonia concentration reported (12 mg N/l) would cause chronic toxicity at any temperature in the table if that concentration were present over an extended period. The proposed discharge has a reasonable potential to exceed Ambient Water Quality Criteria for ammonia. In the Order, the concentration based effluent limitations for ammonia are copies of the tables and equations for ammonia presented in the U.S. EPA Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, and are shown in Attachment B (acute criteria) and Attachment C (chronic criteria). The mass based effluent limitations, must be calculated using the values obtained from Attachments B and C and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.

(2) Chlorine Residual

Chlorine is a toxic constituent of wastewater. The Discharger uses chlorine as a disinfectant in the waste stream and uses sodium bisulfate, which combines with chlorine, to render it relatively unreactive and thus remove it from the waste stream. Based on experience, inadequate dechlorination may result in discharge of chlorine to the receiving stream. For chlorine, U.S. EPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life. The maximum concentration for chlorine is 0.019 mg/l and the chronic or 4-day average is 0.011 mg/l. Rounded off, the limits are 0.02 mg/l and 0.01 mg/l. Concentration based effluent limitations for chlorine based on these criteria are included in this Order. The mass based effluent limitations, 2 lbs/day and 1 lb/day, were calculated using the Ambient Water Quality Criteria and multiplying by the maximum dry weather flow (12 mgd) and a factor of 8.345 to convert mg/l to lbs/day.



ATTACHMENT A
CITY OF ROSEVILLE

PLEASANT GROVE
WASTEWATER TREATMENT PLANT

PLACER COUNTY

SECTION 24, T10N, R5E, MDB&M
PLEASANT GROVE AND ROSEVILLE
7.5 MINUTE QUADRANGLES

SCALE: 1" = 2700 FEET (APPROX.)

ATTACHMENT B

U.S. EPA NATIONAL AMBIENT WATER QUALITY CRITERIA
RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

TOTAL AMMONIA NITROGEN
pH-DEPENDENT VALUES (ACUTE CRITERIA)

pH	Maximum Concentration 1-hour Average (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

* Criteria Maximum Concentration (CMC) with Salmonids Present

$$CMC = \frac{0.275}{1 + 10^{(7.204 - pH)}} + \frac{39.0}{1 + 10^{(pH - 7.204)}}$$

ATTACHMENT C
U.S. EPA NATIONAL AMBIENT WATER QUALITY CRITERIA
RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

TOTAL AMMONIA
pH- AND TEMPERATURE-DEPENDENT VALUES (CHRONIC CRITERIA)

CCC* for Fish Early Life Stages Present, mg N/l										
pH	Temperature, °C									
	0	14	16	18	20	22	24	26	28	30
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	0.778	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

* Criteria Continuous Concentration

ATTACHMENT D
U.S. EPA NATIONAL AMBIENT WATER QUALITY CRITERIA
RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

CADMIUM (Expressed as dissolved metal)

Hardness (mg/l as $CaCO_3$)	Continuous Conc. 4-Day Avg. (µg/l) [1]	Maximum Conc. 1-hour Avg. (µg/l) [2]
<25	Must Calculate	Must Calculate
25	0.80	0.95
30	0.92	1.2
35	1.0	1.4
40	1.1	1.6
45	1.2	1.8
50	1.3	2.0
55	1.4	2.2
60	1.5	2.5
65	1.6	2.7
70	1.7	2.9
75	1.8	3.1
80	1.9	3.3
85	2.0	3.6
90	2.1	3.8
95	2.2	4.0
100	2.2	4.3
110	2.4	4.7
120	2.6	5.2
130	2.7	5.7
140	2.9	6.1
150	3.0	6.6
160	3.2	7.1
170	3.3	7.6
180	3.5	8.1
190	3.6	8.5
200	3.7	9.0
210	3.9	9.5
220	4.0	10
230	4.1	11
240	4.3	11
250	4.4	12
260	4.5	12
270	4.7	12
280	4.8	13
290	4.9	14
300	5.0	14
310	5.2	15
320	5.3	15
330	5.4	16
340	5.5	16
350	5.6	17
360	5.8	17
370	5.9	18
380	6.0	18
390	6.1	19
400	6.2	19
>400	6.2	19

[1] Criteria Continuous Concentration (4-day Average) =
(e{0.7852[ln(hardness)] – 2.715} x (1.101672 – {[ln(hardness)] x [0.041838]})

[2] Criteria Maximum Concentration (1-hour Average =
(e{1.128[ln(hardness)] – 3.6867} x (1.136672 – {[ln(hardness)] x [0.041838]})

ATTACHMENT E
U.S. EPA NATIONAL AMBIENT WATER QUALITY CRITERIA
RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

COPPER (Expressed as dissolved metal)

Hardness (mg/l as $CaCO_3$)	Continuous Conc. 4-Day Avg. (µg/l) [1]	Maximum Conc. 1-hour Avg. (µg/l) [2]
<25	Must Calculate	Must Calculate
25	2.7	3.6
30	3.2	4.3
35	3.7	5.0
40	4.1	5.7
45	4.5	6.3
50	5.0	7.0
55	5.4	7.7
60	5.8	8.3
65	6.2	9.0
70	6.6	9.6
75	7.0	10
80	7.4	11
85	7.8	12
90	8.2	12
95	8.6	13
100	9.0	13
110	9.7	15
120	11	16
130	11	17
140	12	19
150	13	20
160	13	21
170	14	22
180	15	23
190	16	25
200	16	26
210	17	27
220	18	28
230	18	30
240	19	31
250	20	32
260	20	33
270	21	34
280	22	36
290	22	37
300	23	38
310	24	39
320	24	40
330	25	41
340	26	43
350	26	44
360	27	45
370	27	46
380	28	47
390	29	48
400	29	50
>400	29	50

[1] Criteria Continuous Concentration (4-day Average) =
(e{0.8545[ln(hardness)] - 1.702}) x (0.960)

[2] Criteria Maximum Concentration (1-hour Average =
(e{0.9422[ln(hardness)] - 1.700}) x (0.960)

ATTACHMENT SW-2

Industrial Wastewater Discharge Permit Application

LABORATORY/INDUSTRIAL WASTE

CITY OF ROSEVILLE

1800 BOOTH ROAD ROSEVILLE, CA. 95747

TRADITION · PRIDE · PROGRESS

APPLICATION FOR NON-DOMESTIC WASTEWATER DISCHARGE

SECTION A – GENERAL INFORMATION

1. Company: Name _____
   Address _____
   _____
   Telephone _____

2. Facility: Name _____
   Address _____
   _____
   Telephone _____

3. Person authorized to represent this firm in official dealings with the City of Roseville:
   Name _____
   Title _____
   Telephone _____

4. Alternative contact person:
   Name _____
   Title _____
   Telephone _____

5. Identify the type of business (auto repair, machine shop, painting, printing, etc.):
   _____

KIM SPEAR
Laboratory/Industrial Waste Supervisor
Environmental Utilities
1800 Booth Road
Roseville, California 95747
916.746.1876
Fax 916.746.1832
kspear@roseville.ca.us

CITY OF ROSEVILLE
TRADITION · PRIDE · PROGRESS

Note to signing official: In accordance with Title 40 of the Code of Federal Regulations Part 403 Section 403.14, information and data provided in this questionnaire which identifies the nature and frequency of discharge shall be available to the public without restriction. Requests for confidential treatment of other information shall be governed by procedures specified in 40 CFR Part 2. The information in this questionnaire will be used to issue the permit.

This is to be signed by an authorized official of your firm after adequate completion of this form and review of the information by the signing official.

I have personally examined and am familiar with the information submitted in this document and attachments. Based upon my inquiry of those individuals immediately responsible for obtaining the information reported herein, I believe that the submitted information is true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and/or imprisonment.

_____ _____

Signature of Official/ Title Date

SECTION A – GENERAL INFORMATION

6. Describe the manufacturing, production, or service activities your firm conducts:

_____
_____
_____
_____

7. Standard Industrial Classification Number (s) (SIC) for your facility:

_____ _____ _____ _____

8. This facility generates the following types of wastes (check all that apply):

	Average gallons/day	
☐ Domestic wastes (restrooms, etc.)	☐ estimate	☐ measured
☐ Cooling water, non-contact	☐ estimate	☐ measured
☐ Cooling water, contact	☐ estimate	☐ measured
☐ Boiler/Tower blow down	☐ estimate	☐ measured
☐ Process	☐ estimate	☐ measured
☐ Equipment/ Facility Wash down	☐ estimate	☐ measured
☐ Air Pollution Control Unit	☐ estimate	☐ measured
☐ Stormwater runoff to sewer	☐ estimate	☐ measured
☐ Other (specify) _____	☐ estimate	☐ measured
Total		

9. Wastes are discharged to (check all that apply):

	Average gallons/day	
☐ Sanitary sewer	☐ estimate	☐ measured
☐ Storm sewer	☐ estimate	☐ measured
☐ Surface water	☐ estimate	☐ measured
☐ Ground waters	☐ estimate	☐ measured
☐ Waste haulers	☐ estimate	☐ measured
☐ Evaporation	☐ estimate	☐ measured
☐ Other (specify) _____ _____	☐ estimate	☐ measured

Provide name and address of waste hauler (s):

_____
_____

10. Is a Spill Prevention Control and Countermeasure Plan prepared for facility?

☐ Yes ☐ No

SECTION B – FACILITY OPERATION CHARACTERISTICS

Number of employee shifts worked per 24-hour day
Average number of employees per shift
Starting times of shift (s) 1st _____am/pm 2nd _____am/pm 3rd _____am/pm

SECTION B – FACILITY OPERATION CHARACTERISTICS

Note: The following information in this section must be completed for each product line.

2. Principal product produced: _____
3. Raw materials and process additives used:

   _____

   _____

4. Production process is: ☐Batch ☐Continuous ☐Both: _% Batch _% Continuous
   Average number of batches per 24-hour day: _____

5. Hours of Operation: _am to _____pm ☐continuous

6. Is production subject to seasonal variation? ☐yes ☐no
   If yes, briefly describe the seasonal production cycle: _____

   _____

   Are any process changes or expansions planned during the next three years? ☐yes ☐no
   If yes, attach a separate sheet to this form describing the nature of the planned changes and or expansion.

SECTION C – WASTEWATER INFORMATION

1. If your facility employs processes in any of the 34 industrial categories or business activities listed below and any of these processes generate wastewater or waste sludge, place a check mark beside the category or business activity (check all that apply):
   a. 34 Industrial Categories:

1. ☐Adhesives	18. ☐Ore Mining
2. ☐Aluminum Forming	19. ☐Organic Chemicals
3. ☐Auto/Other Laundries	20. ☐Paint & Ink
4. ☐Battery Manufacturing	21. ☐Pesticides
5. ☐Coal Mining	22. ☐Petroleum Refining
6. ☐Coil Coating	23. ☐Pharmaceuticals
7. ☐Copper Forming	24. ☐Photographic Supplies
8. ☐Electric/Electronic Components	25. ☐Plastic/Synthetic Materials
9. ☐Electroplating	26. ☐Plastics Processing
10. ☐Explosives Manufacturing	27. ☐Porcelain Enamel
11. ☐Foundries	28. ☐Printing & Publishing
12. ☐Gum & Wood Chemicals	29. ☐Pump & Paper
13. ☐Inorganic Chemicals	30. ☐Rubber
14. ☐Iron & Steel	31. ☐Soaps & Detergents
15. ☐Leather Tanning & Finishing	32. ☐Steam Electric
16. ☐Mechanical Products	33. ☐Textile Mills
17. ☐Nonferrous Metals	34. ☐Timber

   b. Other Business Activity
   ☐Dairy Products
   ☐Slaughter/Meat Packing/ Rendering
   ☐Food/Edible Products Processor
   ☐Beverage Bottler

SECTION C – WASTEWATER INFORMATION

2. Pretreatment devices or processes used for treating wastewater or sludge (check all that apply):

- ☐ Air Flotation
- ☐ Centrifuge
- ☐ Chemical Precipitation
- ☐ Chlorination
- ☐ Cyclone
- ☐ Filtration
- ☐ Flow Equalization
- ☐ Grease Interceptor
- ☐ Ion Exchange
- ☐ Neutralization, pH correction
- ☐ Ozonation
- ☐ Reverse Osmosis
- ☐ Screen
- ☐ Sedimentation
- ☐ Septic Tank
- ☐ Solvent Separation
- ☐ Spill Protection
- ☐ Sump
- ☐ Grease or oil separation, type _____
- ☐ Biological Treatment, type _____
- ☐ Rainwater diversion or storage _____
- ☐ Other chemical treatment, type _____
- ☐ Other physical treatment, type _____
- ☐ Other, type _____
- ☐ No pretreatment provided

3. If any wastewater analyses have been performed on the wastewater discharge (s) from your facilities, attach a copy of the most recent data to this questionnaire. Be sure to include the data of the analysis, name of laboratory performing the analysis, and location(s) from which sample(s) were taken. (Attach sketches, plans, etc. as necessary).

SECTION D – OTHER WASTES

Are any liquid wastes or sludges from this firm disposed of by means other than discharge to the sewer system?

☐ Yes ☐ No

If "no" skip remainder of Section D.
If "yes", complete items 2 and 3.

2. These wastes may best be described as:

Estimated gallons or pounds per year

- ☐ Acids and Alkalies
- ☐ Heavy Metal Sludges
- ☐ Inks/Dyes
- ☐ Oil and/or Grease
- ☐ Organic Compounds
- ☐ Paints
- ☐ Pesticides
- ☐ Plating Wastes
- ☐ Pretreatment Sludges
- ☐ Solvents/Thinners
- ☐ Other Hazardous Wastes (specify)

_____

- ☐ Other Wastes (specify)

_____

SECTION D – OTHER WASTES

3. For the above checked wastes, does your company practice:
   - ☐ on-site storage
   - ☐ off-site storage
   - ☐ on-site disposal
   - ☐ off-site disposal

   Briefly describe the methods of storage or disposal utilized:

If you have any questions concerning this application, please contact the City of Roseville Industrial Waste Division at 774-5518.

PRIORITY POLLUTANT INFORMANTION

Mark all the chemicals that are "knowr ispected to be present" or "known or suspected to be absent" in your manufacturing or service activity, or generated as a by-product:

Chemical Compound	Known Present	Suspect Present	Known Absent	Suspect Absent	Known/Suspected Concentration/day
I. METAL AND INORGANICS					
1. Antimony					
2. Arsenic					
3. Asbestos					
4. Beryllium					
5. Cadmium					
6. Chromium					
7. Copper					
8. Cyanide					
9. Lead					
10. Mercury					
11. Nickel					
12. Selenium					
13. Silver					
14. Thallium					
15. Zinc					
PHENOLS & CRESOLS					
16. Phenol (s)					
17. Phenol, 2-chloro					
18. Phenol, 2,4-dichloro					
19. Phenol, 2,4,6-trichloro					
20. Phenol, pentachloro					
21. Phenol, 2-nitro					
22. Phenol, 4-nitro					
23. Phenol, 2,4-dinitro					
24. Phenol, 2,4-dimethyl					
25. m-Cresol, p-chloro					
26. O-Cresol, 4,6-dinitro					
III. MONOCYCLIC AROMATICS (EXCLUDING PHENOLS, CRESOL, PHTHALATES)					
27. Benzene					
28. Benzene, chloro					
29. Benzene, 1,2-dichloro					
30. Benzene, 1,3-dichloro					
31. Benzene, 1,4-dichloro					
32. Benzene, 1,2,4-trichlor					
33. Benzene, hexachloro					
34. Benzene, ethyl					
35. Benzene, nitro					
36. Toluene					
37. Toluene, 2,4-dinitro					
38. Toluene, 2,6-dinitro					
IV. PCB's & RELATED COMPOUNDS					
39. PCB - 1016					
40. PCB - 1221					
41. PCB - 1232					
42. PCB - 1242					
43. PCB - 1248					
44. PCB - 1254					
45. PCB - 1260					
46. 2 - Chloronaphthalene					
V. ETHERS					
47. Ether, bis(chloromethyl)					
48. Ether, bis(2-chloroethyl)					
49. Ether, bis(2-chloroisopropyl)					
50. Ehter, 2-chloroethyl vinyl					
51. Ether, 4-bromophenyl phenyl					
52. Ether, 4-chlorophenyl phenyl					
53. Bis (2-chlorethoxy) methane					
VI. NITROSAMINES & OTHER NITROGEN-CONTAINING COMPOUNDS					
54. Nitrosamine, dimethyl					
55. Nitrosamine, diphenyl					
56. Nitrosamine, di-n-propyl					
57. Benzidine					
58. Benzidine, 3,3'-dichloro					
59. Hydrazine, 1,2-diphenyl					
60. Acrylonitrile					

PRIORITY POLLUTANT INFORMANTION

Mark all the chemicals that are "known or suspected to be present" or "known or suspected to be absent" in your manufacturing or service activity, or generated as a by-product:

Chemical Compound	Known Present	Suspect Present	Known Absent	Suspect Absent	Known/Suspected Concentration/day
VII. HALOGENATED ALIPHATICS					
61. Methane, bromo-					
62. Methane, Chloro-					
63. Methane, dichloro					
64. Methane, chlorodibromo					
65. Methane, dichlorobromo					
66. Methane, tribromo					
67. Methane, trichloro					
68. Methane, tetrachloro					
69. Methane, trichlorofluoro					
70. Mtethane, dichlorodifluoro					
71. Ethane, 1,1-dichloro					
72. Ethane, 1,2-dichloro					
73. Ethane, 1,1,1-trichloro					
74. Ethane, 1,1,2-trichloro					
75. Ethane, 1,1,2,1-tetrachloro					
76. Ethane, hexacloro					
77. Ethene, chloro					
78. Ethene, 1,1-dichloro					
79. Ethene, trans-dichloro					
80. Ethene, trichloro					
81. Ethene, tetrachloro					
82. Propane, 1,2-dichloro					
83. Propene, 2,4-dichloro					
84. Butadiene, hexachloro					
85. Cyclopentadiene, hexachloro					
VIII. PHTHALATE					
86. Phthalate, di-c-methyl					
87. Phthalate, di-n-ethyl					
88. Phthalate, di-n-butyl					
89. Phthalate, di-n-octyl					
90. Phthalate, bis(2-ethylhexyl)					
91. Phthalate, butyl benzyl					
IX. POLYCYCLIC AROMATIC HYDROCARBONS					
92. Acenaphthene					
93. Acenaphthylene					
94. Anthracene					
95. Benzo (a) anthracene					
96. Benzo (b) fluoranthene					
97. Benzo (k) fluoranthene					
100. Chrysene					
101. Dibenzo (a,n) anthracene					
102. Fluoranthene					
103. fluorene					
104. Indeno (1,2,3-cd) pyrene					
105. Naphthalene					
106. Phenanthrene					
107. Pyrene					
X. PESTICIDES					
108. Acrolein					
109. Aldrin					
110. BHC (Alpha)					
111. BHC (Beta)					
112. BHC (Gamma) or Lindane					
113. BHC (Delta)					
114. Chlordane					
115. DDD					
116. DDE					
117. DDT					
118. Dieldrin					
119. Endosulfan (Alpha)					
120. Endosulfan (Beta)					
121. Endosulfan Sulfate					
122. Endrin					
123. Endrin aldehyde					
124. Heptachlor					
125. Heptachlor epoxide					
126. Isophorone					
127. TCDD (or Dioxin)					
128. Toxaphene					

ATTACHMENT SW-3

Draft Recycled Water Agreement

CITY OF ROSEVILLE
TRADITION • PRIDE • PROGRESS

ENVIRONMENTAL UTILITIES DEPARTMENT
2005 Hilltop Circle, Roseville, CA 95747 (916) 774-5770

AGREEMENT BY AND BETWEEN THE ENVIRONMENTAL UTILITIES DEPARTMENT AND THE ROSEVILLE ENERGY PARK TO SUPPLY RECYCLED WATER TO THE PARK

The City of Roseville Environmental Utilities Department (EUD) hereby agrees to supply Roseville Energy Park (REP) recycled water at the maximum daily rate of 1.45 million gallons per day (mgd) for the operation of the REP. For its part, REP hereby agrees to fully comply with all the requirements of the City of Roseville Recycle Water Policy as outlined in Section 14.17 of the Roseville Municipal Code. Additionally, both parties agree that the REP shall comply with California Code of Regulations, Title 17 and Title 22 and shall construct all recycled water pipelines, storage tanks, and ancillary facilities in accordance with these regulations. Title 17 addresses the requirements for backflow prevention and cross-connection, while Title 22 addresses other health-related issues.
Prior to the delivery of recycled water to the REP, the REP shall submit a Title 22 Engineer's Report and obtain approval of such report by the State Department of Health Services, CVRWQCB and the City.

Approved this _____day of _____ 2004, by the Environmental Utilities and the Roseville Energy Park.

ENVIRONMENTAL UTILITIES DEPARTMENT

By: _____
Art O'Brien
Wastewater Utility Manager

ROSEVILLE ENERGY PARK

By: _____
Bob Hren
REP Project Manager