

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

ORDER NO. R5-2003-0084

NPDES NO. CA0078794

WASTE DISCHARGE REQUIREMENTS  
FOR  
SACRAMENTO COUNTY SANITATION DISTRICT NO. 1  
WALNUT GROVE WASTEWATER TREATMENT PLANT  
SACRAMENTO COUNTY

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

1. The Sacramento County Sanitation District (hereafter Discharger) submitted a Report of Waste Discharge, dated 26 September 2000, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Walnut Grove Wastewater Treatment Plant (WGWTP). To complete filing of the application, supplemental information was also submitted on 17 September 2002 and 5 November 2002.
2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to Walnut Grove Community. The treatment and disposal facility is in the County of Sacramento, approximately ½ mile east of the City of Walnut Grove, in Section 19, T5N, R4E, MDB&M as shown in **Attachment A**, made a part of this Order. The facility layout and its point of discharge (R0), in relation to the Sacramento and San Joaquin Rivers, is shown on **Attachment B**, which is also incorporated herein and made a part of this Order.
3. Discharges from the facility were previously regulated by Waste Discharge Requirements (WDRs) Order No. 96-069, NPDES No. CA0078794, which was adopted by the Regional Board on 22 March 1996. This Order was issued for the discharge of secondary and disinfected effluent to surface waters during the winter months (1 November through 15 May) and to the evaporation/percolation ponds during the remainder of the year. The WGWTP's WDR expired in April 2001.
4. Based on the complexities of issues and associated costs involved to comply with the effluent, receiving water and ground water limitations contained in this NPDES renewal Order, the Discharger has requested sufficient time to consider alternative means of

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complying with this Order other than treatment plant upgrades and continued discharge at their existing location. These alternatives would include but not be limited to 1) discharge of treated effluent directly to the Sacramento River (one half mile west of the current discharge point, and 2) connecting the wastewater collection system to the Sacramento Regional Wastewater Treatment Plant (10 mile north of the City of Walnut Grove). Because these alternatives may provide better economic assurances of long-term treatment and disposal for the people of Walnut Grove, this Order provides up to one year to conduct feasibility studies to evaluate and select the most cost effective and environmental feasible alternatives. This Order is written based on the submitted report of waste discharge, described in Finding 1 above, requesting the continuance of waste discharge at the facility's current location. If after the feasibility study of alternative projects is conducted and alternative means of treatment and/or disposal is proposed, a new or revised report of waste discharge may be submitted and revisions to this Order will be considered.

5. The current treatment system consists of an influent splitter box, two stabilization ponds, three percolation/evaporation ponds, a chlorination/de-chlorination system with pH adjustment, and a chlorine contact basin to accommodate flows from the existing community and projected growth.
6. The existing facility's designed flow is reported to be 0.50 million gallons per day (mgd) monthly average dry weather flow and 0.86 daily peak wet weather flow (PWWF). The high winter flows are a result of a significant inflow/infiltration (I/I) problem of the collection system. The main I/I problems result from direct inflow into the wastewater collection system as well as the collection system in or near the groundwater table infiltrating groundwater into the collection system. Repairs and improvements to the collection system to reduce I/I have been provided in the past few years and additional corrections are planned for the future. The current summertime flow to the plant averages 0.112 mgd. The low flow summer time disposal method consists of percolation and evaporation ponds. The higher winter flow discharge consists of treated and disinfected domestic wastewater discharged from the stabilization pond system into an unnamed agricultural drainage ditch (Ditch). The wastewater flows in the Ditch, across agricultural fields and is pumped through a levee and into Snodgrass Slough (Slough), which is tributary to the Sacramento, Mokelumne, and San Joaquin Rivers, all waters of the State. Snodgrass Slough, Sacramento, Mokelumne, and San Joaquin Rivers are all waters of the United States. The discharge into Snodgrass Slough occurs at the point(s), latitude N38° 14' 12" and longitude W121° 29' 57". All these water bodies are located within the legal boundaries of the Sacramento-San Joaquin Delta (Delta).
7. Although the RWD describes the design flow of the facilities to be 0.5 mgd, the record indicates the flow estimate is based on calculations provided prior to the adoption of NPDES permits in the 1980s. Monitoring data from two of the past three years indicate when the flow of the facilities exceed 0.2 mgd for sustained periods of time the BOD percent removal falls below the Federal Secondary Treatment Standards of at least 65

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percent removal (40 CFR §133.105). Provision 3 of this Order requires a reevaluation of the design capacity and continued assessment of I/I reduction measures. If the plant treatment capacity is determined to be less than the 0.5 mgd design flow allowed by this Order, the Order may be reopened to establish new flow and mass effluent limitations.

8. The City of Locke, located a mile north of Walnut Grove is proposing to abandon their wastewater treatment facilities and pump its raw sewage to the WGWTP for treatment and disposal. The City of Locke has a total population of 85 with an estimated average dry weather flow of 17,000 gallons per day (0.017 mgd). Locke's existing sewer system including both treatment and disposal facilities have been in violation of their existing WDR, No. 5-00-062, due to its age and lack of proper operation and maintenance. The U.S. Department of Agriculture has approved an \$825,000 grant, and Sacramento Housing and Redevelopment Agency agreed to provide \$200,000 in matching funds to remove and/or replace the failing sewer system. Locke's sewer collection system and the main interceptor to the WGWTP are currently under construction and are scheduled to be completed by 1 July 2003.
9. The Report of Waste Discharge describes the wastewater discharge as follows:

Average Dry Weather flow	0.112 mgd million gallons per day (mgd)
Design Flow (Monthly Average):	0.50 mgd
Design Peak Wet Weather Flow:	0.86 mgd
Maximum Daily (1999-2000) Flow:	0.730 mgd
Annual Average Discharge to Ditch	0.226 mgd

<u>Constituent</u> <sup>1</sup>	<u>Max. Daily</u>	<u>Avg. Daily</u> <sup>2</sup>
BOD <sup>3</sup>	40 mg/l	<18 mg/l
Total Suspended Solids	93 mg/l	47 mg/l
COD	210 mg/l	111 mg/l
pH	8.1 mg/l	7.4 mg/l
Conductivity	1330 mM/CM	1160 mM/CM
Total Coliform	110 MPN/100 ml	<7 MPN/100 ml
Settleable Solids	0.0 ml/l	0.0 ml/l
Total Dissolved Solids	700 mg/l	
Hardness	115 mg/l	
Ammonia	9.9 mg/l	
Phosphorous	3.8 mg/l	
Arsenic	13.0 µg/l	
Cyanide	10.7 µg/l	
Mercury	29.4 ng/l	
Bis (2-ethylhexyl)Phthalate	3.40 µg/l	
Chloroform	23.0 µg/l	
Dichlorobromomethane	1.20 µg/l	
Diazinon	0.04 µg/l	
Malathion	0.07 µg/l	

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<sup>1)</sup> From RWD and the data collected during December 2000

<sup>2)</sup> Based on winter time daily discharge to the Ditch (1 Nov to 15 May).

<sup>3)</sup> 5-Day, 20°C biochemical oxygen demand.

10. The Regional Board adopted a *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (hereafter Basin Plan). The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. These requirements implement the Basin Plan.
11. The U.S. Environmental Protection Agency (USEPA) adopted the *National Toxics Rule* (NTR) on 5 February 1993 and the *California Toxics Rule* (CTR) on 18 May 2000. These Rules contain water quality standards applicable to this discharge. The State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan - SIP), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule*.

#### RECEIVING WATER BENEFICIAL USES

12. Previous Waste Discharge Requirements (WDRs), Order No. 96-069, for discharges from the facility to the Ditch, contained findings including the following, “The beneficial uses of the unnamed agricultural drains are agricultural supply, and preservation and enhancement of non-aquatic resources.” This Order has reevaluated the limited beneficial uses of the unnamed Ditch and determined the previous permit did not fully protect all beneficial uses identified in the Basin Plan. Because of the Regional Board’s reinterpretation of the beneficial uses applied to the Ditch in previous permitting, additional beneficial uses have been added in this Order. The application of new beneficial uses to the Ditch resulted in additional effluent and receiving water limitations for waste constituents having reasonable potential for causing an exceedance of a water quality objectives being added to this Order. Because of the changes in beneficial uses applied to the Ditch, this order allows time for the Discharger to obtain compliance with the new effluent limitations, through time schedules included in this order.

The designated beneficial uses of Sacramento-San Joaquin Delta, of which the Ditch, Snodgrass Slough, Mokelumne River, Sacramento River and San Joaquin River are a part, are identified in Table II-1 of the Basin Plan, as municipal and domestic supply (MUN); agricultural supply (AGR, both irrigation and stock watering); industrial process supply (PROC); industrial service supply (IND); water contact recreation (REC-1); non-contact water recreation (REC-2); warm freshwater habitat (WARM); cold freshwater habitat (COLD); migration of aquatic organisms (MIGR, for both WARM and COLD); spawning, reproduction, and early development (SPWN, WARM); wildlife habitat (WILD), and navigation (NAV).

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In reviewing whether the existing and/or potential uses of the Sacramento-San Joaquin Delta are applicable, the following facts were considered:

a. Domestic Supply and Agricultural Supply

In addition to the specific designation of MUN and AGR in the Basin Plan this Regional Board also applies the beneficial uses of municipal and domestic supply to the Ditch, Snodgrass Slough and other downstream receiving waters based on State Water Resources Control Board (State Board) Resolution No. 88-63 (“Sources of Drinking Water”) which was incorporated in the Basin Plan pursuant to Regional Board Resolution No. 89-056. The State Board has issued water rights to existing water users along the Snodgrass Slough downstream of the discharge for domestic and irrigation uses. Since the Ditch is an ephemeral water body, the Ditch and the treatment and evaporation/percolation ponds likely provides groundwater recharge during periods of low flow. The groundwater is a source of drinking water for the residents of Walnut Grove. In addition to the existing water uses, growth in the area due to open farm land downstream of the discharge is expected to continue, which presents a potential for increased domestic and agricultural uses of the water in the Ditch.

b. Water Contact and Non-contact Recreation and Esthetic Enjoyment

The discharge flows through active agricultural farm lands and close proximity to an elementary school. There is ready public access to the Ditch, exclusion of the public is unrealistic, and potential for contact recreational activities exists along the Ditch and in downstream waters and these uses are likely to increase as the population in the area grows.

c. Groundwater Recharge:

In areas and at times of the years where groundwater elevations are below the Ditch bottom, water from the Ditch will percolate to groundwater. Since the Ditch is at times dry, it is reasonable to assume that the Ditch water is lost by evaporation, flow downstream and percolation to groundwater providing a source of municipal and irrigation water supply to the residents of Walnut Grove.

d. Freshwater Replenishment

During the periods of pumping wastewater from the Ditch into the Snodgrass Slough, the Ditch adds to the water quantity and may impact the quality of water flowing down stream in the Sacramento-San Joaquin Delta.

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e. Preservation and Enhancement of Fish, Wildlife and Other Aquatic Resources

Wastewater is discharged to the Ditch and is thereafter pumped into the Snodgrass Slough, all waters within the Delta. The Basin Plan (Table II-1) designates the Delta as being both a cold and warm freshwater habitat. For the application of water quality objectives, Delta waters necessitates that the in-stream dissolved oxygen concentration be maintained at, or above, 5.0 mg/l. This approach recognizes that, if the naturally occurring in-stream dissolved oxygen concentration is below 5.0 mg/l, the Discharger is not required to improve the naturally occurring level.

13. The Regional Board also finds that based on the available information and on the Discharger's application, that Ditch, absent the discharge, is an ephemeral water body. The ephemeral nature of the Ditch means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within the Ditch help support the aquatic life. Both conditions may exist within a short time span, where the Ditch would be dry without the discharge. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, domestic water standards, agricultural water quality goals and aquatic life. Significant dilution may occur during and immediately following high rainfall events, but has not been quantified.
14. The State Board adopted Order WQ 2002-0015 (Vacaville Order) provided guidance on implementing Basin Plan beneficial use designations and resulting limitations to protect these uses. Some of the issues addressed by the Vacaville Order may be relevant to the Walnut Grove situation. To the extent that is the case, this Order reflects the direction provided by the Vacaville Order. Specifically, to the extent that there is information in the administrative record for Walnut Grove that indicates specific receiving water designated uses do not exist and are likely not to be attained in the future, this Order includes compliance schedules and interim limits to provide time for these uses to be fully evaluated and changed if appropriate. The Discharger should be aware that the Vacaville Order makes it clear that the discharger bears the responsibility for providing the information to support this evaluation. Consequently, this Order encourages an expeditious process of developing this information for any of the beneficial uses listed above that the Discharger believes to fit this situation. To the extent that beneficial use designation/designation issues are relevant in this case, the Discharger should begin evaluating available alternatives (increased treatment, relocating the outfall, studies to support redesignating uses, etc.) for the discharge to determine the most cost efficient course of action.

As noted in the findings of this Order some of the designated beneficial uses of the receiving water are existing uses or are probable future beneficial uses and therefore are unlikely to be eliminated through an evaluation process. Designated beneficial uses, such

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as COLD, MIGR and MUN may likely be determined to not exist in the receiving water Ditch and the Discharger may be successful in obtaining favorable amendments to the Basin Plan to exclude these uses of the Ditch. However, unless all or most of the remaining beneficial uses are successfully removed from the Ditch, the need to upgrade the treatment facilities to tertiary treatment to meet effluent limitations will not change.

15. Potential downstream agricultural use of the treated wastewater exists. The main crop grown in the area of the Ditch is alfalfa. Currently there are no crops for direct human consumption grown in the farmlands surrounding the Ditch. However, the Ditch is within the legal boundaries of the Delta, and therefore has the designated beneficial use of unrestricted irrigation. DHS recommends that in cases where treated wastewater discharges to agricultural drains or creeks identified to have beneficial uses of irrigation of vegetables or fruit crops that do not come in contact with the treated wastewater and dilution is <20:1, then the wastewater only needs to be adequately oxidized and disinfected. However, DHS also recommends that in cases where beneficial uses include contact recreation and unrestricted food crop irrigation and the receiving stream provides <20:1 dilution, then the wastewater should be oxidized, coagulated and filtered and the effluent be disinfected such that the median MPN of coliform organisms does not exceed 2.2/100ml. Currently, the Ditch provides little or no dilution at locations downstream of the discharge point. Hence, this Order includes **Provision G6** that provides the Discharger with a time schedule for the construction of tertiary or advanced treatment facilities. There are no bacteria/total coliform requirements in the Basin Plan for water designated to have agricultural use. The Basin Plan requires recreational contact use water to contain less than 200 MPN/100 ml fecal coliform for a 30-day average. However, this objective was established for natural stream systems not containing wastewater discharges with human pathogens. There are requirements for total coliform and more advanced pathogen removal as established for reclaimed wastewater under Title 22. However, the discharge is not part of a planned reclamation project.
16. Potential recreational use of waters within the Ditch exists. The Ditch flows adjacent to an elementary school, there is ready public access to the Ditch, exclusion of the public is unrealistic, and therefore, potential for contact recreational activities exist along the Ditch and in downstream waters.

The Regional Board requested the California Department of Health Services (DHS) on 24 February 1999, for guidance regarding the required levels of wastewater treatment for potential recreational and reclamation use of relatively undiluted wastewater. DHS responded to the Regional Board with letter dated 8 April 1999 recommending treatment levels to protect public health from both contact recreation and food crop irrigation. DHS recommends that, in cases where relatively undiluted wastewater discharges are permitted to agricultural drains and creeks that have been identified by the Regional Board to have beneficial uses of body contact recreation or irrigation of vegetables and food crops where the vegetables or fruit may come in contact with the treated wastewater, then the

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wastewater should be adequately oxidized, coagulated, filtered, and disinfected. The wastewater should be considered adequately disinfected if:

- a. The chlorine disinfection process provides a CT (residual chlorine concentration times modal contact time) value of not less than 450 milligram-minutes per liter at all times, with a modal contact time of at least 90 minutes, based on peak dry weather design flow; and
- b. The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 ml utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 ml in more than one sample in any 30 day period. No single sample should exceed an MPN of 240 per 100 ml for total coliform bacteria.
- c. In cases where relatively undiluted wastewater discharges are permitted to agricultural drains and creeks that have been identified to have beneficial uses of irrigation of vegetable or fruit crops where the vegetables or fruit does not come in contact with the treated wastewater, the Department recommends that the wastewater be adequately oxidized and disinfected. The wastewater shall be considered to be adequately disinfected if the median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 milliliters utilizing the bacteriological results of the last seven days of which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 milliliters in more than one sample in any 30 day period
- d. In cases where wastewater is discharged to agricultural drain and creeks that have been identified to have beneficial uses of irrigation of vegetable and fruit crops or body contact recreation and the wastewater receives dilution >20:1, the Department recommends that the wastewater be adequately oxidized and disinfected. The wastewater should be considered adequately disinfected if the disinfected effluent does not exceed an MPN of 23 per 100 milliliters utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 240 per 100 milliliters in more than one sample in any 30 day period.

To protect the body contact recreation and agricultural irrigation beneficial uses, a higher level of wastewater treatment for pathogen removal is required. Pathogen removal is considered adequate if the above treatment train is implemented, turbidity levels are low and bacteriological level of coliform, as an indicator parameter, are reduced as noted above. Alternatively, the Discharger may provide studies to demonstrate receiving water at times provides 20:1 minimum dilution for protection of human health and/or agricultural use. Based on this new information revised effluent limits may be established where additional



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treatment may not be required. This Order establishes final effluent limits for **total coliform** of 2.2 MPN/100ml for a 7-day median and 23 MPN/100 ml for a daily maximum and **turbidity** limits of 2 NTU for a daily average and 5 NTU for daily maximum in accordance with Title 22, Section 60304, requirements. Interim disinfection effluent limits, based on past treatment performance, of 23 MPN/100ml as a 30 day median and 500 MPN/100ml as the daily maximum are prescribed until additional treatment facilities are constructed. **Provision G6** of this Order provides a time schedule for the construction of the necessary treatment facilities.

17. Previous Board Order No. 96-069, required only a single receiving water sampling station (R-1) at a point at the Ditch immediately prior to pumping into Snodgrass Slough (1/2 mile down stream of the discharge). Monitoring at this location did not allow for assessment of any potential impacts to the Ditch at the point of discharge (R-0), nor whether the discharge had a potential impact on Snodgrass Slough. Therefore, to evaluate any potential impacts to the beneficial uses of the receiving water and to provide a better understanding of receiving water quality and its assimilative capacity for discharge of treated wastewater, four additional monitoring stations (R-1 through R-4) have been added for this Order. Also, the frequencies of sampling and required analyses have been modified from the previous requirements and are summarized in Monitoring and Reporting Program No. R5-2003-0084.

#### **EFFLUENT LIMITATIONS AND REASONABLE POTENTIAL ANALYSIS**

18. 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.
19. Federal regulations at 40 C.F.R Section 122.44 require NPDES permits to contain effluent limitations, including technology-based and water quality standards-based limitations and limitations based on toxicity. The federal regulations at 40 C.F.R. Section 122.44(d)(1) require effluent limitations for all pollutants that are or may be discharged at a level that will cause or have the reasonable potential to cause, or contribute to an in-stream excursion above a narrative or numerical water quality standard. Those regulations set forth a methodology for establishing effluent limitations based on narrative state water quality standards. (40 CFR Section 122.44(d)(1)(vi)(A-C).)

EPA, the State Board, and the Regional Board have adopted or published standards that are used to implement 40 CFR Section 122.44. U.S.EPA has promulgated the California Toxics Rule (CTR) and the National Toxics Rule (NTR) that establish water quality criteria. The State Water Resources Control Board (SWRCB) adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the *State Implementation Plan* or SIP), which contains guidance on implementation of the *National Toxics Rule* and the *California Toxics Rule*. U.S. EPA has published ambient water quality criteria. The Basin Plan contains numeric

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and narrative water quality objectives. The Basin Plan contains an Implementation Policy (“Policy for Application of Water Quality Objectives”) that, in part, sets forth a process for translating narrative water quality objectives into numeric effluent limitations. U.S. EPA’s ambient water quality criteria and the Basin Plan “Policy for Application of Water Quality Objectives” are used to implement 40 CFR Section 122.44(d)(1)(v).

The Ditch may not meet the definition of a “waters of the United States” as defined in 40 CFR Section 122.2. The Ditch is a part of the Delta, however, and has the designated beneficial uses of the Delta. The Effluent Limitations are necessary to protect the beneficial uses of the Ditch and other receiving waters. The Effluent Limitations to protect the beneficial uses of the Ditch are based on the numeric and narrative water quality objectives and the Policy for Implementation of Water Quality Objectives contained in the Basin Plan. With respect to the Ditch, the Policy for Implementation of Water Quality Objectives is applied through the use of the CTR and the SIP to implement narrative water quality objectives.

On 10 September 2001, the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger to prepare a technical report assessing water quality. A copy of that letter, including its attachments I through IV, is incorporated into this Order as **Attachment C**. This Order is intended to be consistent with the requirements of the technical report in requiring sampling for NTR, CTR, and additional constituents to determine the full water quality impacts of the discharge. The technical report requirements are intended to be more detailed, listing specific constituents, detection levels, and acceptable time frames and shall take precedence in resolving any conflicts.

Section 2.1 of the SIP provides that “*Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.*” Section 2.1 further states that compliance schedule may be included in NPDES permits provided that the following justification has been submitted: . . .”(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is short as practicable.” **Provision G11** of this Order requires the Discharger to provide this information. The new water quality based effluent limitations for CTR constituents; Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide, become effective on **1 September 2004** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality based effluent limitations for these CTR constituents become effective **1 June 2008**.

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20. California Water Code Section 13263.6(a) requires that “the regional board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Board or the Regional Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”. The Regional Board has not, at this time, identified any substance that requires an effluent limitation based on Section 13263.6(a) for the discharge regulated by this Order.
21. Based on information submitted on 14 February 2001 and 5 November 2002, as part of the application, in studies, and as directed by monitoring and reporting programs, the Regional Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective **for total dissolved solids, ammonia, arsenic, mercury, chloride, chlorine, manganese, cyanide, chloroform, bromodichloromethane, dibromochloromethane, and Bis (2-ethylhexyl) Phthalate - see Attachment D**. Final effluent limitations for these constituents, except mercury, are included in this Order. A discussion of each constituent’s water quality standard is found in the following Findings, and the attached Information Sheet.
22. **Ammonia** is present in untreated domestic wastewater. Nitrification is a biological process that converts ammonia to nitrate. Wastewater treatment plants commonly use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Because the WGWTP Plant is not designed for nitrification, the discharge from the Plant is likely to discharge ammonia to the receiving water. The Basin Plan contains a narrative water quality objective for toxicity that states in part that “[all] waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life”. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the narrative toxicity objective. U.S. EPA has developed Ambient Water Quality Criteria for ammonia. Applying 40 CFR section 122.44(d)(1)(vi)(B) and the Policy for Implementation of Water Quality Objectives, it is appropriate to use U.S. EPA’s Ambient National Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia, which was developed to be protective of aquatic organisms. Effluent limitations for ammonia are included in this Order, which will vary with pH and temperature, to assure the treatment process adequately nitrifies the waste stream to protect the beneficial uses of the receiving stream and to prevent aquatic toxicity. See **Attachment E** (chronic) and **Attachment F** (acute) for limitations.
23. **Chloride** concentrations in the effluent ranged from 240-470 mg/l based on the results from samples collected during January through May 2002, while the samples taken from the Snodgrass

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Slough show the chloride concentrations in these Delta waters ranged from 3 mg/l to 24 mg/l. The beneficial uses of the receiving water include MUN, WARM freshwater habitat and agricultural use. The Basin Plan contains a Chemical Constituent objective that requires that water not exceed California MCLs and shall not contain chemical constituents that adversely impact beneficial uses. The secondary MCL recommended range for chloride is 250 mg/l, the upper range is 500 mg/l, and the short-term range is 600 mg/l. USEPA's National Ambient Water Quality Criteria for chloride for the Protection of Freshwater Aquatic Life is 230 mg/l, as a 4-day average, and 860 mg/l as a 1-hour average. The *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1* (R.S. Ayers and D.W. Westcot, Rome, 1985), recommends that the chloride concentrations in waters used for agricultural irrigation (Agricultural Water Quality Goal) not exceed 106 mg/l, since levels above 106 mg/l will reduce crop yield for sensitive plants. Applying the Basin Plan "Policy for Implementation of Water Quality Objectives", the limiting numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 106 mg/l.

Based on this information, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Agricultural Water Quality objective and the secondary MCL. Therefore, an effluent limitation for chloride is included in this Order based on the Agricultural Water Quality goal and is established as 106 mg/l as a monthly average and the daily maximum of 250 mg/l, which will be protective of the secondary MCL for MUN. Both limits are also protective of aquatic life.

24. **Arsenic** was detected in the effluent with concentrations ranging from 14 µg/l to 26 µg/l in samples taken during January through May 2002. The Basin Plan contains a site-specific water quality objective of 10 µg/l for waters of the Delta. Arsenic is considered to be a "known human carcinogen". The Ditch has a designated MUN beneficial use. For waters with the beneficial use of MUN, applicable water quality objectives contained in the Basin Plan include both the Chemical Constituents objective and the narrative toxicity objective. The Chemical Constituents objective requires that water not exceed California MCLs. The Toxicity objective prohibits toxic substances in toxic amounts. Applying the Basin Plan "Policy for Implementation of Water Quality Objectives", it is appropriate to consider federal MCLs that are more stringent than state MCLs. On 22 January 2001, U.S. EPA adopted a new federal MCL for arsenic of 10 µg/l that becomes effective on 23 January 2006.

As noted previously, the agricultural Ditch, absent the discharge, is at times a seasonal and/or ephemeral water body. The effluent flow from the WGWTP to the Ditch may represent, at times, most of or all of the flow in the Ditch. Considering these flow conditions and the results of effluent monitoring, the Ditch at times likely contains concentrations of arsenic that exceed the Basin Plan objective and the USEPA primary MCL of 10 µg/l, potentially impacting the municipal and domestic supply beneficial uses of the Ditch and the Delta. Based on the above information the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the federal MCL and Basin

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Plan water quality objective of 10 µg/l. This Order establishes a final effluent limitation for arsenic at the current MCL and Basin Plan objective of 10 µg/l. The Discharger is not currently capable of meeting this limit with the current treatment facilities. Because of the Regional Board's reinterpretation of the Basin Plan to include appropriate uses of the Ditch, the Ditch's beneficial uses have been reclassified, from previous permits. Hence, a compliance schedule has been included in this Order. The full compliance date for arsenic is effective **1 June 2008**. **Provision G11** of this Order requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits.

Additional study of the flow quality and quantity characteristics of the Ditch could be provided to support an alternative final effluent limitation for arsenic as appropriate. Regarding compliance with water quality standards for arsenic, two options are available to the Discharger:

a. *Basin Plan Amendment Process*

The Discharger may provide information to the Regional Board to support a Basin Plan amendment to de-designate the municipal and domestic supply (MUN) beneficial use of the Ditch based on the exceptions to State Board Resolution 88-63.

b. *'End-of-Pipe' Compliance with new MCL*

Without a change to the Basin Plan objective and the Delta waters beneficial use designation, the Discharger must comply with the Basin Plan objective of 10 µg/l at the point of effluent discharge to the Ditch. Because the Basin Plan objective is a maximum value not to exceed, this Order includes a final effluent limitation for arsenic of 10 µg/l as a monthly average. Since the protection of MUN is based on long-term averages, no daily or weekly effluent limits are required by this Order.

25. **Cyanide** was detected in the effluent with a maximum concentration of 22 µg/l in a sample taken in March 2002. Cyanide in wastewater is usually associated with steel, petroleum, plastics, synthetic fibers, metal plating, mining and chemical industries. The Basin Plan water quality objective for dissolved cyanide is a maximum concentration of 10 µg/l for waters in the Delta. The CTR's water quality criteria for protection of freshwater aquatic life are 5.2 µg/l as a 4-day average (chronic) concentration, and 22 µg/l as a 1-hour average (acute) concentration. WGWTP effluent sampling and analysis detected cyanide in all 4 sampling events. The effluent has a reasonable potential to exceed both the CTR chronic criteria and the Delta Basin Plan limit. Therefore, applying the CTR and the Policy for Implementation of Water Quality Objectives, this permit contains an effluent limitation for cyanide of 4.2 µg/l as a monthly average and 8.4 µg/l as a daily maximum based on the calculations utilizing the SIP for the CTR and as shown in the attached Information Sheet.

Based on Section 2.1 of the SIP **Provision G11** of this Order requires the Discharger to submit this information for approval by the Regional Board's Executive Officer.

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Implementation of the new water quality based effluent limitations for Cyanide become effective on **1 September 2004** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality based effluent limitations for Cyanide become effective **1 June 2008**.

A compliance schedule has been included in this Order to allow time to bring the facility into compliance with final effluent limitations. **Provision G11** of this Order requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits. In the meantime, interim effluent limits are based on plant performance and accounts for statistical variations and are in effect through **31 May 2008** if the time schedule justification is submitted and approved. This Order also requires the Discharger to prepare and submit to the Regional Board a *Cyanide Pollution Prevention Plan* in compliance with CWC 13263.3(d)(3). Once submitted, the Regional Board will consider whether to require implementation of the *Plan* after making it available for public comment at a public proceeding with regard to the *Plan* (CWC 13263.3(e)).

26. **Manganese:** The concentrations of manganese in the effluent range between 160 µg/l and 220 µg/l. Municipal and domestic supply (MUN) is a beneficial use of the Ditch. The Basin Plan contains a Chemical Constituent water quality objective that requires that water not exceed California MCLs. The Secondary MCL-Consumer Acceptance Limit is 50 µg/l for manganese. The Basin Plan also includes narrative water quality objectives that water be free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Ditch. Manganese concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable discoloration and taste. Based on the observed effluent concentrations of manganese, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL and to violate the narrative color and taste and odor objectives. An Effluent Limitation for manganese is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the Secondary MCL. Because of the Regional Board's reinterpretation of the Basin Plan to include appropriate uses of the Ditch, the Ditch's beneficial uses have been reclassified, from previous permits. Hence, a compliance schedule has been included in this Order. **Provision G10** of this permit requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits.
27. **Mercury:** The effluent contains mercury. The maximum observed effluent mercury concentration was 0.027 µg/l. 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). The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/l for waters from which both water and aquatic organisms are consumed. In 40 CFR Part 131, U.S. EPA acknowledges that the human

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health criteria may not be protective of some aquatic or endangered species. Both values are controversial and subject to change. In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date. The Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. Because the Delta has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. The SIP, Section 1.3, requires the establishment of an effluent limitation for a constituent when the receiving stream background water quality exceeds an applicable criterion or objective. This Order contains an interim performance-based mass Effluent Limitation of 0.01 lbs/year for mercury for the effluent discharge to the Ditch. This limitation is based maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established and U.S. EPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration (0.027 µg/l) and the reported average daily surface water effluent flow rate (0.226 mgd) and using the maximum allowable 195 days of discharge. Compliance time schedules have not been included since the discharge currently meets the concentration based limitation and the mass limitation can be met through implementing best management practices for controlling mercury and limiting new sewer discharges containing mercury concentrations. If U.S. EPA develops new water quality criteria for mercury, this permit may be reopened and the Effluent Limitations adjusted.

28. **Chloroform**, one of several **Total Trihalomethanes**, was detected in the effluent in samples collected between January and May 2002 at concentrations ranging from 230 µg/l to 1060 µg/l. The receiving water has the designated beneficial use of MUN. The Basin Plan contains a Chemical Constituent objective that requires that water not exceed California MCLs. The primary MCL for total trihalomethanes is 80 µg/l. Based on information included in analytical laboratory results submitted by the Discharger, the discharge was found to have a reasonable potential to cause or contribute to an in-stream excursion above the water quality objective for MUN by causing exceedance of the primary MCL for trihalomethanes. This Order establishes an Effluent Limitation at the MCL for total trihalomethanes, the sum of bromoform, bromodichloromethane, chloroform and dibromochloromethane, of 80 µg/l. The final effluent limits are based on a long-term average for the protection of MUN supplies. Therefore, no daily or weekly effluent limitations are required by this Order. **Provision G11** of this permit requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits. If U.S. EPA or the State Board develop a water quality objective for chloroform and/or total trihalomethanes, this Order may be reopened and a new effluent limitation established.
29. **Bromodichloromethane and Dibromochloromethane** were detected in the effluent samples, taken during the winter of 2001. Bromodichloromethane concentration ranged between 50 µg/l and 68 µg/l, while Dibromochloromethane was measured between 6.9 µg/l and 10 µg/l. These concentrations exceeded the CTR's criteria for Human Health protection for

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consumption of water and aquatic organisms of 0.56 µg/l and 0.41 µg/l, respectively. A Federal Drinking Water Standard for total trihalomethane has been established at 100 µg/l and is scheduled to be reduced to 80 µg/l in 2003. The total trihalomethanes MCL and effluent limitation does not satisfy the requirements of the CTR criteria for bromodichloromethane and dibromochloromethane. Therefore, applying the CTR and the Policy for Implementation of Water Quality Objectives, this Order establishes final effluent limitations for bromodichloromethane and dibromochloromethane of 0.56 µg/l and 0.41 µg/l, respectively as the monthly averages and 1.2 µg/l and 0.82 µg/l, respectively as the daily maximums.

Based on Section 2.1 of the SIP **Provision G11** this Order requires the Discharger to provide this information. Implementation of the new water quality based effluent limitations for bromodichloromethane, dibromochloromethane, and total trihalomethanes become effective on **1 September 2004** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional Board. Otherwise, final water quality based effluent limitations for bromodichloromethane, dibromochloromethane, and total trihalomethanes become effective **1 June 2008**.

**Provision G11** of this permit requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits. In the meantime, interim effluent limits based on plant performance are established and are in effect through **31 May 2008** if the time schedule justification is submitted and approved. This Order also requires the Discharger to prepare and submit to the Regional Board a *bromodichloromethane, dibromochloromethane, and total trihalomethanes Pollution Prevention Plan* in compliance with CWC 13263.3(d)(3). Once submitted, the Regional Board will consider whether to require implementation of the *Plan* after making it available for public comment at a public proceeding with regard to the *Plan* (CWC 13263.3(e)).

30. **Bis (2-Ethylhexyl) Phthalate** was found in the effluent sampled during December 2000, and May 2002. The maximum observed effluent concentration was 3.4 µg/l. The CTR's criteria for Human Health protection for consumption of water and aquatic organisms for Bis (2-Ethylhexyl) Phthalate is 1.8 µg/l. Based on this information, it is determined that the effluent has a reasonable potential to cause or contribute to an in-stream excursion above the water quality objective. Therefore, applying the CTR and the Policy for Implementation of Water Quality Objectives, this Order contains effluent discharge limitation for Bis (2-Ethylhexyl) Phthalate of 1.8 µg/l as a 30-day average, and 3.6 µg/l as daily maximum. These limitations are based on human health and aquatic toxicity standards for Inland Surface Waters criteria to protect human and aquatic life (see attached Information Sheet for the calculations using the SIP).

Based on Section 2.1 of the SIP **Provision G11** of this Order requires the Discharger to provide this information. Implementation of the new water quality based effluent limitation for Bis (2-Ethylhexyl) Phthalate becomes effective on **1 September 2004** if a compliance schedule justification is not completed and submitted by the Discharger to the Regional



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Board. Otherwise, final water quality based effluent limitations for Bis (2-Ethylhexyl) Phthalate becomes effective **1 June 2008**.

**Provision G11** of this permit requires the discharger to submit a corrective action plan and implementation schedule to assure compliance with final effluent limits. In the meantime, interim effluent limits based on plant performance are established and are in effect through **31 May 2008** if the time schedule justification is submitted and approved. This Order also requires the Discharger to prepare and submit to the Regional Board a *Bis (2-Ethylhexyl) Phthalate Pollution Prevention Plan* in compliance with CWC 13263.3(d)(3). Once submitted, the Regional Board will consider whether to require implementation of the *Plan* after making it available for public comment at a public proceeding with regard to the *Plan* (CWC 13263.3(e)).

31. **Chlorine** is commonly used as a disinfection agent in the treatment of wastewater. The Discharger uses chlorine for disinfection at its WWTP. For dechlorination, the Discharger uses sulfur dioxide, which combines with chlorine, to render it relatively unreactive and thus remove it from the waste stream. Inadequate dechlorination may result in discharge of chlorine to the receiving stream and cause toxicity. Chlorine is extremely toxic to aquatic life. 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 (4-day) average is 0.011 mg/l. Rounded off, the limits are 0.02 mg/l and 0.01 mg/l. Based on 40 CFR Section 122.44(d)(1)(vi)(B), and the Policy for Implementation of Water Quality Objectives, concentration-based effluent limitations for chlorine, based on these criteria, are included in this permit. The compliance date implementing the new effluent chlorine residual is delayed until 1 November 2004, until the feasibility study of alternative long-term treatment and/or disposal is completed. The interim chlorine limits, prior to 1 November 2004, will continue to be the same as the previous permit that required a chlorine residual maximum of 0.02 mg/l at the pumps discharging to Snodgrass Slough. Because these are also technology based effluent limitations, the interim limits are also the final effluent limits. The mass-based effluent limitations are calculated using the Ambient Water Quality Criteria and multiplying by the design flow (0.5 mgd) and a factor of 8.345 to convert mg/l to lbs/day.
32. **Total Dissolved Solids (TDS)** concentrations in the effluent were found to range between 700 mg/l and 1200 mg/l in samples collected during the month of December 2000. The beneficial uses of the receiving water include MUN and agricultural use. The Basin Plan contains a Chemical Constituent objective that requires that water not exceed California MCLs. The Secondary MCL recommended range is 500 mg/l, the upper range is 1000 mg/l and the short-term range is 1500 mg/l. Applying the Basin Plan "Policy for Implementation of Water Quality Objectives, the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 450 mg/l. The Agricultural Water Quality Goal is found in the *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1* (R.S. Ayers and D.W.

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Westcot, Rome, 1985), that recommends that the TDS concentrations in waters used for agricultural irrigation not exceed 450 mg/l, since levels above 450 mg/l will reduce crop yield for sensitive plants. The effluent at times exceeds the water quality objectives. In order to protect potential irrigation uses, this Order requires salt reduction in the discharge.

It is the State Board's policy to reduce salt loading to the Sacramento-San Joaquin Delta and in accordance with Resolution 68-16 permits must require use of best practicable treatment or control of the discharge to achieve the highest water quality consistent with the maximum benefit to the people of the state. To ensure the highest degree of water quality is protected from degradation and since dissolved solids are not readily amenable to conventional treatment, the Discharger is required by this Order to identify and implement to the extent feasible source control measures, consisting of a public education program, evaluation of local ordinance development, and evaluate possible transition to an alternative City source water. **Provision G10** of this Order requires the discharger to develop a salinity source control study, implement corrective actions, provide annual progress reports, and submit a final effectiveness assessment report. Furthermore, the effluent concentration may also be a source of groundwater degradation. The infiltration into groundwater is available through percolation disposal ponds as well as the Ditch treated effluent is discharged.

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

The California Department of Health Services (DHS) has developed reclamation criteria, California Code of Regulations, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, school yards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. Title 22 is not directly applicable to surface waters; however, it is appropriate to apply DHS's reclamation criteria because the Sacramento-San Joaquin Delta is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens. The method of treatment is not prescribed by

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this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS and required by this Order.

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

The application of tertiary treatment processes results in the ability to achieve lower levels for BOD and TSS than the secondary standards currently prescribed; the 30-day average BOD and TSS limitations have been revised to 10 mg/l, which is technically based on the capability of a tertiary system. The establishment of tertiary limitations has not been previously required for this discharge; therefore, a schedule for compliance with the tertiary treatment requirement is included as **Provision G6** in this Order. Alternatives to tertiary treatment, such as total land disposal, discharge to a water body with assimilative capacity, or amending the Basin Plan to change the beneficial use of the Ditch may be acceptable but would require modification of this Order. The Discharger, by letter dated 13 January 2003, has indicated they intend to perform a use attainability analysis to de-designate the beneficial uses determined by this Order to be designed for the Ditch by the Basin Plan. The compliance time schedule in **Provision G6** allows time to pursue this de-designation process. However, if an alternative means of compliance with effluent limitations is proposed the time schedule is still limited to the 5-year life of this permit. The time limitation is reasonable given the degree of planning, budgeting, design and construction details necessary to upgrade the existing facilities, and in accordance with the Basin Plan. The time scheduled is based on the shortest practicable time required to achieve compliance (as determined by the Regional Board). Also, the EPA guidance specifies that compliance schedules extend no longer than the term of the permit.

34. It is possible that tertiary treatment will allow the Discharger to meet additional effluent limitations contained in this permit. However, the ability to meet this permit's effluent limitations will not be known until the new tertiary facilities are constructed and operational. Once data are obtained from the new facility, re-evaluation of reasonable potential will be provided based on the quality of the new effluent. If the quality of the tertiary effluent does not meet all permit limitations, additional treatment and disposal options will have to be considered. Provisions of this permit allow five years for the construction of tertiary treatment facilities and to achieve full compliance with effluent limitations regarding BOD, suspended solids, total coliform, and turbidity. Full compliance

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with effluent limitations for specific tri-halomethanes and metals are also required and expected to be met with the construction of the tertiary or advanced treatment facilities in five years which is the maximum time allowed by the California Toxics Rule. Effluent limitations for arsenic, TDS, THMs, nutrients, and interim mercury mass limits may be met sooner by source control and without additional treatment. However, the expansion to tertiary treatment will also further lower the mass of these constituents with the additional solids removal.

### **GROUNDWATER CONSIDERATIONS**

35. The treatment and land disposal system is on land surrounded by levees and surface waters, Sacramento River, Snodgrass Slough, Delta Cross Channel, and Georgiana Slough. This island effect results in a very high groundwater table probably near ground surface.
36. The beneficial uses of the underlying ground water, as identified in the Basin Plan, are municipal and domestic, industrial service, industrial process, and agricultural supply.
37. Basin Plan water quality objectives to protect the beneficial uses of groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity of groundwater, and taste and odor. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, or animals. The chemical constituent objective states, in part, groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that groundwater shall not contain taste or odor producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that groundwaters do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.
38. State Board Resolution No. 68-16 requires the discharge of waste maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in water quality plans and policies (e.g., quality that exceeds water quality objectives). Resolution 68-16 requires that the discharge be regulated to meet best practicable treatment or control to assure that pollution or nuisance will not occur and the highest water quality consistent with the maximum benefit to the people of the State be maintained.
39. Domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, metals and oxygen demanding substances

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(BOD). The discharge to land, with disposal by percolation, may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution 68-16. Any increase in constituent concentrations in groundwater must be consistent with maximum benefit to the people of the state of California. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

- a. the degradation is confined within a specified boundary;
  - b. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
  - c. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
  - d. the degradation does not result in water quality less than that prescribed in the Basin Plan.
40. Monitoring of the groundwater must be conducted to determine if the discharge has caused an increase in constituent concentrations, when compared to background. The monitoring must, 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, and 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 68-16. Economic analysis is only one of many factors considered in determining best practicable treatment and control. Until groundwater monitoring is sufficient, this Order contains Groundwater Limitations that allow groundwater quality to be degraded for certain constituents when compared to background groundwater quality, but not to exceed water quality objectives. If groundwater quality is found to have been degraded by the discharge for constituents where limitations reflect water quality objectives, the limitation is not intended as permission to increase the constituent concentration further during investigations. When investigations quantify what degradation, if any, may be consistent with Resolution 68-16, this Order may be reopened and limitations modified.
41. The discharge to groundwater authorized herein and the treatment and storage facilities associated with the discharge of treated municipal wastewater, except for discharges of residual sludge and solid waste, are exempt from the requirements of Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27). The exemption, pursuant to Title 27 CCR section 20090(a), is based on the following:

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- a. The waste consists primarily of domestic sewage and treated effluent;
  - b. The waste discharge requirements are consistent with water quality objectives; and
  - c. The treatment and storage facilities described herein are associated with a municipal wastewater treatment plant.
42. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the state to assure protection of beneficial uses and compliance with Regional Board plans and policies, including Resolution 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.
43. Section 13267 of the California Water Code states, in part, “(a) A regional board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the regional board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires.” The attached Monitoring and Reporting Program is issued pursuant to California Water Code Section 13267. The monitoring and reporting program to monitor groundwater required by this Order and the attached Monitoring and Reporting Program are necessary to assure compliance with this Order. The Discharger operates the facility that discharges waste subject to this Order.

**GENERAL**

44. In accordance with previous Regional Board Order No. 96-069, an improvement project was initiated by the Discharger in June 2000 and completed in March 2001. The primary purpose of this project was to improve the reliability of their chlorination and de-chlorination process, chemical handling, and chemical feed systems and to convert from a two-stage pond system to a single-stage pond system to better maintain compliance with requirements of their NPDES permit.
45. This Order contains Effluent Limitations and a tertiary level of treatment or equivalent, necessary to protect the beneficial uses of the receiving water. In accordance with California Water Code, Section 13241, the Regional Board has considered the following:
- The past, present and probable future beneficial uses for the receiving stream include: municipal and domestic water supply, irrigation and stock watering, industry process and service supply, contact and non-contact water recreation, freshwater habitat, and serves as wildlife habitat.

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The environmental characteristics of the hydrographic unit including the quality of water available will be improved by tertiary treatment for this wastewater discharge. Tertiary treatment will allow for the reuse of the undiluted wastewater for food crop irrigation and contact recreation activities, which would otherwise be unsafe according to recommendations from the California Department of Health Services (DHS).

Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area and the discharge is a major factor.

The economic impact of requiring an increased level of treatment has been carefully considered. The Regional Board staff has estimated that the increased level of treatment will cost approximately 2 million dollars, in capital costs, based on similar project upgrades. According to the County Sanitation District No.1, the current monthly domestic sewer user fee applicable to Walnut Grove is \$21.30. The economic impact from the capital improvement project would increase the monthly user fee by approximately \$55, based on a 20 year amortization at 6 percent interest rate to \$76 per month. However, the economic impact using low interest loan funds (3% for 20 yrs) provided in perpetuity by California State Revolving Fund Program (SRF), would increase the monthly user fee by approximately \$42 only. These economic analysis conclude that for the 264 households in the City of Walnut Grove a monthly rate increase would range (depending on the source of money) from \$42 to \$55 per household if none of the cost were passed onto to industrial, commercial and institutional users. If all industrial, commercial and institutional users are included, the monthly user charges possibly would drop appreciably. These analyses did not take into account the annual operation and maintenance costs, which would typically range between \$800 to \$850 per million gallons (for advanced treatment consisting of coagulation and filtration). If both annual operation and maintenance costs are taken into account, the total monthly user fee would increase to approximately \$86 per household. The Wastewater User Charge Survey Report dated May 2000, prepared by the State Board, Division of Clean Water Programs, lists the monthly user fee statewide average as \$19.71 and median as \$16.67. Although the proposed increase in user fee is on a higher side compared to statewide average, the estimated monthly user fee is still considered reasonable and necessary for the protection of beneficial uses. In addition, given the location of the existing discharge and the existing beneficial uses of the receiving waters that must be protected, this monthly rate is not out of line with other communities in similar circumstances. Therefore, the loss of beneficial uses within downstream waters, without this Order's tertiary or advanced treatment requirements, include prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes, would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary or advanced treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for additional treatment, although the extent of pollutant removal is unknown.

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Satisfying the need for housing in the area will be facilitated by improved water quality, which protects the contact recreation and irrigation uses of the receiving water. DHS recommends that, in order to protect the public health, undiluted wastewater effluent must be treated to a tertiary level, for contact recreational and food crop irrigation uses. Without tertiary or advanced treatment, the receiving waters could not be safely utilized for contact recreation or the irrigation of food crops.

The Basin Plan, page IV-15.00, encourages the reuse of wastewater, as does State Board Resolution 77-1. Dischargers must evaluate how reuse or land disposal of wastewater can be optimized. The need to supplement state water supplies through development and use of recycled water is facilitated by providing a tertiary effluent, which has fewer restrictions on potential uses.

46. The Regional Board has considered anti-degradation pursuant to 40 CFR 131.12 and State Board Resolution No. 68-16 and finds that the permitted discharge is consistent with those provisions. This Order provides for a temporary increase in the volume and mass of pollutants discharged, due to the incorporation of City of Locke (by an increase up to the existing design flow or effluent concentration limitations), until tertiary treatment is implemented in accordance with provisions in this Order. Compliance with this Order 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 Order will not cause a violation of water quality objectives and will result in the use of best practicable treatment or control of the discharge. The temporary impacts on water quality will either be localized or insignificant. The increase in the discharge allows wastewater utility service necessary to accommodate housing, economic expansion in the area, will provide regionalization of wastewater treatment in the area and is considered to be a benefit to the people of the State.
47. The Regional Board has considered the negative declaration for the incorporation of the City of Locke's wastewater into the WGWTP, approved by the Department of Environmental Review and Assessment, County of Sacramento on 24 February 2000, and concurs there are no significant impacts on water quality.
48. The action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code Section 21000, et seq.) requiring an environmental impact report or a negative declaration, in accordance with Section 13389 of the California Water Code.
49. The U.S. Environmental Protection Agency (USEPA) and the Regional Board have classified this discharge as a minor discharge.
50. Facts with supplemental analyses and reasoning, as set forth in the Information Sheet, were considered in establishing the regulatory basis for the Findings of this Order. The Information Sheet is attached, as a part of this Order, as supporting documentation.



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51. The attached Monitoring and Reporting Program No. R5-2003-0084, and Attachments A through F are a part of this Order.
52. The Regional Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
53. Recommendations of the State Department of Health Services regarding the public health aspects of domestic and irrigation use have been considered.
54. The Regional Board, in a public meeting, heard and considered all comments pertaining to the discharge.
55. This Order shall serve as an NPDES permit pursuant to Section 402 of the CWA, and amendments thereto, and shall take effect 50 days following permit adoption (**effective 25 July 2003**), provided EPA has no objections.

**IT IS HEREBY ORDERED** that Order No. 96-069 is rescinded and Sacramento County Sanitation District No.1, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with the following:

**A. Discharge Prohibitions:**

1. Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
2. The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Standard Provision A.13. [See attached “Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)”].
3. Neither the discharge nor its treatment shall create a nuisance as defined in Section 13050 of the California Water Code.
4. Any use of reclaimed WGWTP disinfected secondary effluent must meet the requirements of Title 22, California Code of Regulations, Section 60301, et seq. and the associated DHS guidelines as applicable. However, no runoff from such projects is allowed.

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5. The discharge of wastes to surface waters is prohibited during the calendar period  
**16 May through 31 October.**

**B. Effluent Limitations for Discharge to Ditch:**

1. Effluent shall not exceed the following limits (after **1 June 2008**):

<u>Constituents (Units)</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>	<u>4-day Average</u>	<u>1-hour Average</u>
BOD <sup>1</sup> (mg/l)	10	15	20		
(lbs/day) <sup>2</sup>	42	63	84		
Total Suspended Solids (mg/l)	10	15	20		
(lbs/day) <sup>2</sup>	42	63	84		
Chlorine Residual (mg/l)	--		--	0.01	0.02
(lbs/day) <sup>2</sup>	--		--	0.04	0.08
Settleable Matter (ml/l)	0.1		0.2		
Dissolved Oxygen (mg/l)			<5 <sup>5</sup>		
Turbidity <sup>3</sup> (NTU)	2.0		5.0		
Total Coliform <sup>4</sup> (MPN/100 ml)	2.2 (median)		23		
Total Dissolved Solids (mg/l)	450		1000		
(lbs/day) <sup>2</sup>	1876		4170		
Chloride (mg/l)	106		250		
(lbs/day) <sup>2</sup>	442		1042		
Oil & Grease (mg/l)	10		15		
Ammonia (mg N/l)		(see attached Table E & F)			
(lbs/day) <sup>2</sup>					
Arsenic (µg/l)	10				
(lbs/day) <sup>2</sup>	0.042				
Cyanide (µg/l)	4.2		8.4		
(lbs/day) <sup>2</sup>	0.018		0.036		
Manganese (µg/l)	50		--		
(lbs/day) <sup>2</sup>	0.21		--		
Total Trihalomethanes (µg/l)	80		--		
(lbs/day) <sup>2</sup>	0.0046		--		
Bromodichloromethane (µg/l)	0.56		1.1		
(lbs/day) <sup>2</sup>	0.0025		0.05		
Dibromochloromethane (µg/l)	0.41		0.82		
(lbs/day) <sup>2</sup>	0.0017		0.0034		

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Bis-2 ethylhexyl phthalate (µg/l)	1.8	3.6	--	--
(lbs/day) <sup>2</sup>	0.0075	0.015		

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- 1) 5-day, 20°C biochemical oxygen demand.
  - 2) Based upon a design monthly average flow capacity of 0.5 mgd,
  - 3) The daily max of 5NTU must not exceed 5% of the time within 24-hr period. The daily average must not exceed 2NTU.
  - 4) In a 30-day period, only a single sample may exceed 23 MPN/100ml and no sample should exceed 240 MPN/100ml.
  - 5) The dissolved oxygen content of the effluent shall at all times be greater than 5.0 mg/l.

2. The discharge of effluent in excess of the following interim limits is prohibited (in effect through **31 May 2008**):

<u>Constituents</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Weekly Average</u>	<u>Daily Maximum</u>
BOD <sup>1,2</sup>	mg/l	45	60	90
	lbs/day <sup>2</sup>	188	272	376
Total Suspended Solids	mg/l	95	--	--
	lbs/day <sup>2</sup>	188	--	--
Chlorine Residual <sup>5</sup>	mg/l		0.01 <sup>3</sup>	0.02 <sup>4</sup>
Total Settleable Solids	ml/l	0.1		0.3
Total Coliform	MPN/100ml	23 (median)		500
Bromodichloromethane	µg/l	147		215
Dibromochloromethane	µg/l	21		31
Bis 2-Ethylhexyl Phthalate	µg/l	7.25		11
Cyanide	µg/l	47		68

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- 1) 5-day, 20°C biochemical oxygen demand.
  - 2) Based upon a design monthly average flow capacity of 0.5 mgd,
  - 3) 4-day Average
  - 4) 1-hr Average
  - 5) Effective at the discharge pump prior to discharge to Snodgrass Slough until 1 November 2004, thereafter as an effluent limit.

3. The effluent mass mercury loading to the Ditch (R0) shall not exceed 0.01 pounds as a seven and one-half month average. This interim performance-based limitation shall be in effect until final TMDL is established for mercury.

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- a. In calculating for compliance, the Discharger shall count all non-detect results at one half of the method detection limit and shall apply the monthly average flow from the discharge. If compliance with the effluent limit is not attained due to detection levels of the analytical method used, the Discharger may be required to use alternative EPA approved analytical methods with lower detection levels to evaluate compliance.
  - b. Monthly mass loadings shall be calculated for each calendar month in which surface water discharge occurs. 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 seven and one-half months with each self-monitoring report. Compliance will be determined based on monitoring results from the previous seven and one-half calendar months.
  - c. If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation shall be modified (higher or lower) or an effluent concentration limitation imposed.
4. Beginning **1 June 2008**, wastewater shall be oxidized, coagulated and filtered, or equivalent treatment provided.
  5. Beginning **1 June 2008**, the arithmetic mean of 20°C BOD (5-day) and total suspended solids in effluent samples collected over a monthly period shall not exceed 15 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85 percent removal).
  6. Prior to **31 May 2008**, the arithmetic mean of 20°C BOD (5-day) in effluent samples collected over a monthly period shall not exceed 35 percent of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (65 percent removal).
  7. The discharge shall not have a pH less than 6.5 nor greater than 8.5.
  8. The 30-day average discharge flow shall not exceed 0.5 million gallons per day.
  9. Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay - - - - - 70%

Median for any three or more consecutive bioassays - - - - 90%

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**C. Effluent Limitations for Disposal to Ponds:**

1. The 30-day average discharge flow shall not exceed 0.5 mgd.
2. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas.
3. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
4. The discharge to the percolation/evaporation ponds shall not exceed the following limits:

<u>Constituent</u>	<u>Units</u>	<u>Monthly Average</u>	<u>Daily Maximum</u>
BOD <sub>5</sub> <sup>1</sup>	mg/l	45	90
Settleable Solids	ml/l	0.2	0.5

<sup>1</sup> Five-day, 20° Celsius biochemical oxygen demand.

5. Percolation/Evaporation ponds shall not have a pH less than 6.5 or greater than 9.0 averaged over 24-hr period.
6. All ponds shall be managed to prevent breeding of mosquitoes. In particular,
  - a. An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.
  - b. Weeds shall be minimized.
  - c. Dead algae, vegetation, and debris shall not accumulate on the water surface.
  - d. As a means of discerning compliance with Discharge Specification C2 above, the dissolved oxygen content in the upper zone (1 foot) of wastewater in ponds shall not be less than 1.0 mg/l.
  - e. Ponds shall have sufficient capacity to accommodate allowable wastewater flow and design seasonal precipitation and ancillary inflow and infiltration during the nonirrigation season. Design seasonal precipitation shall be based on total annual precipitation using a return period of 100 years, distributed monthly in accordance with historical rainfall patterns. Freeboard shall never be less than two feet (measured vertically to the lowest point of overflow).

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- f. On or about 15 May of each year, available pond storage capacity shall at least equal the volume necessary to comply with Discharge Specification and prohibitions.

**D. Sludge Disposal:**

1. Collected screenings, sludges, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with *Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste*, as set forth in Title 27, CCR, Division 2, Subdivision 1, Section 20005, et seq.
2. Any proposed change in sludge use or disposal practice from a previously approved practice shall be reported to the Executive Officer and EPA Regional Administrator at least **90 days** in advance of the change.
3. Use and disposal of sewage sludge shall comply with existing Federal and State laws and regulations, including permitting requirements and technical standards included in 40 CFR 503.

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

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

**E. Receiving Water Limitations:**

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

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

1. Beginning **1 June 2004**, concentrations of dissolved oxygen to fall below 5 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.

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3. Oils, greases, waxes, floating material (liquids, solids, foams, and scum) or suspended material to create a nuisance or adversely affect beneficial uses.
4. Esthetically undesirable discoloration.
5. Fungi, slimes, or other objectionable growths.
6. The turbidity to increase as follows:
  - a. More than 1 Nephelometric Turbidity Units (NTUs) where natural turbidity is between 0 and 5 NTUs.
  - b. More than 20 percent where natural turbidity is between 5 and 50 NTUs.
  - c. More than 10 NTUs where natural turbidity is between 50 and 100 NTUs.
  - d. More than 10 percent where natural turbidity is greater than 100 NTUs.
7. The ambient pH to fall below 6.5, exceed 8.5, or the 30-day average pH to 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 Regional Board or the State Water Resources Control Board pursuant to the CWA and regulations adopted thereunder.

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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.

**F. Groundwater Limitations:**

Effective **1 January 2006**, after groundwater quality has been established through studies required by Provision 9 of this Order, release of waste constituents from any portion of the WWTF and reclamation area shall not cause groundwater to:

- a. Contain any of the following constituents in concentrations greater than listed or greater than natural background quality, whichever is greater:

<u>Constituent</u>	<u>Units</u>	<u>Limitation</u>
Boron	mg/L	0.7
Chloride	mg/L	106
Iron	mg/L	0.3
Manganese	mg/L	0.05
Sodium	mg/L	69
Fecal Coliform	MPN/100ml	<2.2
Total Dissolved Solids <sup>1</sup>	mg/L	450
<u>Total Nitrogen</u>	mg/L	10

<sup>1</sup> A cumulative impact limit that accounts for several dissolved constituents in addition to those listed here separately [e.g., alkalinity (carbonate and bicarbonate), calcium, hardness, phosphate, and potassium].

- b. Contain any constituent, not identified in the list above, in concentrations greater than natural background quality or the limiting water quality goals, which ever is greater.
- c. Exhibit a pH of less than 6.5 or greater than 8.5 pH units.
- d. Impart taste, odor, toxicity, or color that creates nuisance or impairs any beneficial use.

**G. Provisions:**

1. In accordance with Finding 4 of this Order, the Discharger has requested time to evaluate alternatives to upgrading the degree of treatment required by this Order and/or



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maintaining the current discharge location. The Discharger shall submit an engineering feasibility report and select a project to comply with this Order in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
Submit Workplan and Time Schedule of Selected Project Alternatives	<b>15 October 2003</b>
Complete and Submit Feasibility Study	<b>15 February 2004</b>
Select Project Alternative	<b>1 April 2004</b>
Submit Implementation Time Schedule	<b>1 May 2004</b>
Submit New Report of Waste Discharge*	<b>1 June 2004</b>

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\* If necessary to implement an alternative project not prescribed by this Order.

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

1. The treatment and disposal facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
  
3. Following the completion of City of Locke's sewer system installation, as described in Finding No. 8, a separate sampling of Locke's contribution into GWWTP is required to demonstrate compliance with the CTR. A single sample of the combined Locke and Walnut Grove effluent shall be sampled for constituents in Attachment C through C4 excluding Dioxins. The sample shall be collected in the first two weeks of discharge in November or December 2004. Results of the effluent sampling shall be submitted with the first quarterly monitoring report on **1 May 2005**. If based on this data or other information available at a later date, Locke's discharge is found to result in the GWWTP effluent having additional reasonable potential to cause an adverse impact on beneficial uses of the receiving water, this permit may be reopened. .
  
4. By **1 June 2004**, the Discharger, shall submit a **technical report** providing documentation of the existing treatment plant organic and hydraulic design capacity. The facility design shall be certified, by a Registered Civil Engineer with experience in the design and operation of wastewater treatment plants, that the facility is capable of providing a minimum of secondary treatment for the entire projected peak flows by

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achieving continuous compliance with the interim BOD, suspended solids, and total coliform limits established in the permit. If the plant treatment capacity is determined to be less than the 0.5 mgd design flow allowed by this Order, the Order may be reopened to establish new flow and mass effluent limitations.

5. This permit, and the **Monitoring and Reporting Program** which is a part of this permit, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger is required to establish an electronic system for operator notification for continuous recording devise alarms. For existing continuous monitoring systems, the electronic notification system shall be installed by **1 October 2004**. For systems installed following permit adoption, the notification system shall be installed simultaneously. The Discharger shall notify the Regional Board by letter when the electronic notification system is installed and successfully operating.
  
6. Findings No. 14, 15, 16 and 34 of this Order conclude that in order to protect the beneficial uses of municipal and domestic water supply, body contact recreation and agricultural irrigation, and comply with final effluent limits for total coliform, turbidity, BOD, DO, and TSS, the Discharger shall provide **tertiary or advanced treatment, equivalent treatment** capabilities, or studies necessary to change the designated beneficial uses of the receiving waters, in accordance with the following time schedule. Alternative means of compliance may be proposed as discussed in Finding 33.

<u>Task</u>	<u>Compliance Date</u>
Use Attainability Analyses workplan submittal <sup>1</sup>	<b>1 July 2004</b>
Evaluate existing data and propose additional data needs and conduct approved studies	<b>60 days</b> upon Executive officer approval to proceed with time schedule per approved work-plan
Begin Preparation of Plans & Specs <sup>1</sup>	<b>1 Sept 2004</b>
Complete Plans & Specs <sup>2</sup>	<b>1 Sept. 2005</b>
Commence Construction	<b>1 Sept 2006</b>
Complete Construction	<b>1 March 2008</b>
Full Compliance	<b>1 June 2008</b>

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1. Alternatively, other methods of compliance with effluent limitations may be proposed substituting for additional studies and plans and specifications (in accordance with Provision G1). If an alternative is proposed a detailed workplan and time schedule will be submitted in accordance with the time schedule contained in Provision G1).

2. Submittal shall indicate what additional facilities will be required to comply with tertiary requirements and under what wet weather flows the receiving water provides 20:1 dilution in order to protect beneficial uses.

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The Discharger shall submit to the Regional Board on or before each compliance report due date, the specified document or, if appropriate, a written report detailing compliance or noncompliance with the specific schedule data and task. Regional Board staff shall review and approve all plans and specifications of the proposed tertiary treatment facilities prior to construction activities. If noncompliance is being reported, the reasons for such noncompliance shall be stated, plus an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule.

7. The Discharger shall continue to minimize pollutant-free wastewater to be discharged into the collection, treatment, and disposal system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

Findings and information contained in this Order indicate that the Discharger does not provide secondary treatment to all its wastewater during peak wet weather flows. Excess flows do not have sufficient treatment detention time to adequately treat the high peak flows. The Discharger is required to increase treatment capacity and provide full treatment of all its wastewater and if needed provide wastewater storage or additional secondary treatment units to treat entire projected peak flows, or reduce the amount of peaking **inflow/infiltration (I/I)** flows to increase treatment detention time capacity in accordance with the following time schedule. The Discharger shall continue to reduce its I/I to the extent possible and submit the current work plan, if available, or a proposed workplan, a budget, progress reports, and corrective action taken in accordance with a time schedule. The current and/or proposed work plan and time schedule and budget shall be submitted by **1 December** each year of work proposed in the proceeding 12 months for the first two years in order to determine if additional treatment/storage units will be required.

<u>Task</u>	<u>Compliance Due</u>
Summary report of I/I work done to date	<b>1 December 2003</b>
Submit I/I Work plan and Time Schedule	<b>1 June 2004</b>
Submit Report of 1 <sup>st</sup> year I/I study	<b>1 December 2005</b>
Submit final Report of success of I/I reduction	<b>1 December 2006</b>
Begin Plans/specs for additional treatment units <sup>1</sup>	<b>1 January 2006</b>
Complete Plans & Specs <sup>1</sup>	<b>1 January 2007</b>
Commence Construction <sup>1</sup>	<b>1 May 2007</b>
Complete Construction <sup>1</sup>	<b>1 May 2008</b>
<u>Full compliance</u>	<b>1 June 2008</b>

<sup>1</sup> If necessary to treat entire projected peak flows

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8. Due to the listing of **mercury** on the California 303 (d) list as a pollutant causing impairment of the Sacramento-San Joaquin Delta, the discharge must not cause or contribute to increased mercury levels in fish tissue to meet the requirements of the anti-degradation policy described in SWRCB Resolution No. 68-16 and the anti degradation provision in 40 CFR 131.12 (a) (1). Therefore, the Discharger shall develop and submit a mercury source reduction workplan acceptable to the Executive Officer by 1 December 2003. To the extent, the Discharger already has an existing mercury source control workplan adopted for their Sacramento Regional Wastewater Treatment Plant, it is recommended that the efforts under this workplan be expanded to include Walnut Grove. The purpose of the workplan is to investigate the causes of, and identify corrective control actions to control mercury loadings. The workplan shall include, at a minimum: source reduction activities under the pretreatment program; a public outreach program to eliminate or minimize the use of mercury thermometers, discharge of amalgam from dental offices, and regarding proper collection and disposal of fluorescent bulbs; and reductions in discharges to surface water through reclamation of treated wastewater; preventative measures to minimize mercury discharges from new industry, commercial establishments and residential developments. The workplan will include a time schedule by which source control efforts identified in the approved workplan shall be implemented. Pretreatment related activities shall commence immediately upon approval of the workplan. The workplan shall become an enforceable part of the permit upon approval of the Executive Officer.
  
9. **Hydrogeologic Evaluation and Groundwater Monitoring Tasks.** By **1 January 2006**, after the long term wastewater disposal project is implemented, the Discharger shall complete a hydrogeologic investigation within the area affected and potentially affected by the WGWTP and its discharge(s) to evaporation ponds and submit a technical report. If in accordance with **Provision G1** of this Order the Discharger commits to the abandonment of the existing facility (by connection to the Sacramento Regional Treatment Plant) this Provision (and this Order's associated Monitoring and Reporting Program) requiring groundwater monitoring is waived.

The technical report documenting the hydrogeologic investigation shall describe the underlying geology, existing wells (active and otherwise), local well construction practices and standards, well restrictions, hydrogeology and assess all impacts of the wastewater discharge on water quality. The groundwater quality must be monitored at least quarterly for a minimum of four quarters for U.S. EPA priority pollutants, nutrients, coliform organisms, pH, TDS and EC. The technical report must present, for each monitoring event, determinations for the direction and gradient of groundwater flow.

The groundwater monitoring network shall include one or more background

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monitoring wells and sufficient number of designated monitoring wells to evaluate performance of BPTC measures and determine groundwater gradient if the discharge has degraded groundwater. These include monitoring wells immediately down gradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater. All wells shall comply with appropriate standards as described in *California Well Standards Bulletin 74-90* (June 1991) and *Water Well Standards: State of California Bulletin 94-81* (December 1981), and any more stringent standards adopted by the Discharger or county pursuant to CWC section 13801. The existing well network will be evaluated, and the proposed network should include existing monitoring wells where they will serve to measure compliance or provide other relevant information (e.g., depth to groundwater). By **1 November 2005**, the Discharger shall install required and approved monitoring wells, properly destroy ineffective wells, and commence groundwater monitoring in accordance with this Order's Monitoring and Reporting Program. After the first sampling event, the Discharger shall report on its sampling protocol as specified in this Order's Monitoring and Reporting Program (MRP).

By **15 December 2005**, the Discharger shall characterize natural background quality of monitored constituents in a technical report. If the monitoring shows that any constituent concentrations are increased above background water quality, the Discharger shall submit a technical report describing the evaluation's results and critiquing each evaluated component with respect to BPTC and minimizing the discharge's impact on groundwater quality. In no case shall the discharge be allowed to exceed a water quality objective. Where treatment system deficiencies are documented, the technical report shall provide recommendations for necessary modifications (e.g., new or revised salinity source control measures, WGWTP component upgrade and retrofit) to achieve BPTC and identify the source of funding and proposed schedule for modifications for achieving full compliance prior to expiration of this Order. This Order may be reopened and additional groundwater limitations added.

10. If the selected long term solution to the effluent discharge is determined to cause or have the reasonable potential to cause, or contribute to an in-stream excursion for salinity, the Discharger shall develop a **Salinity Source Control Study** including **magnesium and chloride**, which evaluates sources of salts in the Wastewater Treatment Plant effluent, and which addresses salt reduction and/or source control alternatives. In the event, the Discharger selects an alternative long term project, in accordance with Provision 1, which would provide an alternative means of compliance with all applicable Basin Plan and the CTR criteria, a corrective action plan required by this Provision will not be required. The Discharger shall select and implement salt reduction and/or source control alternatives in accordance with a schedule developed as part of the study. The time schedule accounts for the evaluation of alternatives to upgrading the degree of treatment required by this Order

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and /or maintaining the current discharge location as described in Provision 1. This Salinity Source Control Study shall be accomplished in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Due</u>
Submit Workplan, Time Schedule and Begin Study	<b>1 September 2004</b>
Complete Study	<b>1 July 2005</b>
Submit Study Report	<b>1 September 2005</b>
Implement Corrective Action measures	<b>1 December 2005</b>
Submit Annual Progress Reports	<b>1 June of each year</b>
Submit Effectiveness Assessment Report	<b>1 June 2007</b>
Full compliance with effluent limits	<b>1 June 2008</b>

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

11. **Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide** have been detected in the effluent at concentrations that exceed water quality objectives contained in the Basin Plan and the CTR criteria. Sampling indicates the existing wastewater treatment plant will not be capable of consistently meeting the effluent limitations for these constituents. Hence, a corrective action plan is necessary to address the reduction and/or source control alternatives. In the event, the Discharger selects an alternative long term project, in accordance with Provision 1, which would provide an alternative means of compliance with all applicable Basin Plan and the CTR criteria, a corrective action plan required by this Provision will not be required. However, if the existing point of discharge continues or is anticipated to continue after 1 June 2008, the Discharger shall develop a corrective action plan which evaluates measures to achieve full compliance with final limitations in accordance with the following time schedule:

<u>Task</u>	<u>Compliance Date</u>
Submit Corrective Action Plan, implementation schedule and pollution prevention plans	<b>1 September 2004</b>
Progress Report*	<b>semi-annually 1 June of each year</b>
Full Compliance	<b>1 June 2008</b>

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\* The Progress reports shall detail what steps have been implemented towards achieving compliance with waste discharge requirements, evaluate the effectiveness of the implemented measures and assess whether additional measures are necessary to meet the time schedule..

**By 1 September 2004**, the Discharger shall complete and submit a compliance schedule justification for Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide. The compliance schedule justification shall include all items specified by the SIP Section 2.1, Paragraph 3 (items (a) through (d)). Implementation of the new water quality based effluent limitations for Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide become effective on **1 September 2004** if a compliance schedule justification meeting the requirements of Section 2.1 of the SIP is not completed and submitted by the Discharger. Otherwise, the new final water quality based effluent limitations for Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide required by this Order shall become effective on **1 June 2008**. As these schedules are greater than one year, the Discharger shall submit semi-annual progress reports on **15 January** and **15 July** each year until the Discharger achieves compliance with the final water quality based effluent limitations for Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide.

Furthermore, and in addition to a corrective action plan, and in the event the long term solution is not implemented, the Discharger shall prepare and submit to the Regional Board pollution prevention plans (PPP's) in compliance with the CWC 13263.3(d)(3) for Arsenic, Bis (2-Ethylhexyl) Phthalate, Chloroform, Bromodichloromethane, Dibromochloromethane, and Cyanide. The Discharger shall submit the completed PPP's by **1 September 2004**. Once submitted, the Regional Board will consider whether to require implementation of each PPP after making it available for public comment at a public proceeding with regard to that PPP. (CWC 13263.3(e).) As this schedule is greater than one year, the Discharger shall submit a PPP progress reports on **1 June 2004**.

12. Summary Pollutant Data and Receiving Water Characterization Report: There are indications that the discharge may contain constituents that have a reasonable potential to cause or contribute to an exceedance of water quality objectives. The constituents are specifically listed in a technical report requirement issued by the Executive Officer on 10 September 2001 and include **NTR**, **CTR**, and additional constituents that could exceed Basin Plan numeric or narrative water quality objectives. The Discharger shall comply with the following time schedule in conducting a study of the potential effect(s) of these constituents in surface waters:

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<u>Task</u>	<u>Compliance Date</u>
Submit Study Report for Dioxins	<b>30 March 2004</b>

This Order is intended to be consistent with the requirements of the 10 September 2001 technical report. The technical report requirements shall take precedence in resolving any conflicts. The Discharger shall submit to the Regional Board on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Regional Board by letter when it returns to compliance with the time schedule. . If, after review of the study results, it is determined that the discharge has reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened and effluent limitations added for the subject constituents.

13. The Discharger shall conduct the **chronic toxicity testing** specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. The Discharger shall submit a work plan and time schedule for the TRE to the Executive Officer by **1 June 2004**. Following approval by the Executive Officer, the Discharger shall implement the work plan. The purpose of the TRE is to investigate the causes of, and to identify corrective control actions in response to effluent toxicity incidents. The objective of the TRE is to narrow the search for effective control measures for effluent toxicity. The TRE needs to be site specific but should follow EPA guidance (USEPA 821-R-02-012 & USEPA 821-R-02-013). This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.
14. The Discharger shall report to the Regional Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act of 1986".
15. The Discharger shall comply with all the items of the "Standard Provisions and Reporting Requirements for Waste Discharge Requirements (NPDES)", dated



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1 March 1991, which are part of this Order. This attachment and its individual paragraphs are referred to as "Standard Provisions."

16. The Discharger shall comply with Monitoring and Reporting Program No. R5-2003-0084 which is part of this Order, and any revisions thereto as ordered by the Executive Officer.
17. The Discharger must submit and utilize EPA test methods and detection limits to achieve detection levels below applicable water quality criteria. At a minimum the Discharger shall comply with the Monitoring Requirements for these constituents as outlined in Section 2.3 and 2.4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, adopted 2 March 2000 by the State Water Resources Control Board. Sample results less than the reporting limits (RL), but greater than the laboratory's MDL, shall be reported as Detected but Not Quantified (DNQ).
18. When requested by USEPA, the Discharger shall complete and submit Discharge Monitoring Reports. The submittal date shall be no later than the submittal date specified in the Monitoring and Reporting Program for Discharger Self Monitoring Reports.
19. This Order expires on **1 June 2008** 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.
20. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
  - a. Wastes which create a fire or explosion hazard in the treatment works;
  - b. Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
  - c. Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
  - d. Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment

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- works, and subsequent treatment process upset and loss of treatment efficiency;
- e. Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Regional Board approves alternate temperature limits;
  - f. Petroleum oil, non-biodegradable 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 pre-designated by the Discharger.
21. 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).
22. The interim limitations in this Order are based on the current treatment plant performance and established at the maximum observed concentration. Interim limitation has been established since compliance with NTR and CTR based effluent limitation cannot be achieved by the existing discharge. The Interim Limitation, B.2, establish enforceable mass and concentration ceilings until compliance with the Effluent Limitation, B.1, can be achieved, which is effective 1 June 2008.
23. 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.
24. To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the State of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Regional Board and a statement. The statement shall comply with the signatory paragraph of Standard Provision D.6 and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the California Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

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I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on 6 June 2003.

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THOMAS R. PINKOS, Executive Officer

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
CENTRAL VALLEY REGION

MONITORING AND REPORTING PROGRAM NO. R5-2003-0084

NPDES NO. CA0078794

FOR  
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Monitoring and Reporting Program is issued pursuant to Water Code Section 13383 and 13267. This program to monitor groundwater and the surface water are necessary to assure compliance with the waste discharge requirements of this Order. The Discharger shall not implement any changes to this Program unless and until the Regional Board or Executive Officer issues a revised Monitoring and Reporting Program. Specific sample station locations shall be established under direction of the Board's staff, and a description of the stations shall be attached to this Order.

Section 13267 of the California Water Code states, in part, *“(a) A regional board, in establishing...waste discharge requirements...may investigate the quality of any waters of the state within its region”* and *“(b)(1) In conducting an investigation..., the regional board may require that any person who... discharges... waste... that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires.”* This Monitoring and Reporting Program to monitor groundwater required by Order No. R5-2003-0084 are necessary to assure compliance with Order No. R5-2003-0084. The Discharger operates the facility that discharges waste subject to Order No. R5-2003-0084

The proposed Order includes monitoring requirements for influent, effluent, evaporation ponds, surface water, and groundwater monitoring requirements.

**INFLUENT MONITORING<sup>1</sup>**

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:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	mgd	Meter	Continuous <sup>2</sup>
20°C BOD <sub>5</sub>	mg/l, lbs/day	24 hr. Composite	Weekly <sup>3</sup>
Suspended Solids	mg/l, lbs/day	24 hr. Composite	Weekly <sup>3</sup>
pH	pH Units	Grab	Weekly <sup>3</sup>

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<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Temperature	°F	Grab	Weekly <sup>3</sup>
Total Dissolved Solids	mg/l	Grab	Monthly <sup>3</sup>
Electrical Conductivity @25°C	µmhos/cm	Grab	Weekly <sup>3</sup>
Arsenic	µg/l	Grab	Monthly <sup>4</sup>

<sup>1</sup> City of Locke's influent grab sampling shall be collected at the same time as GWTP for two consecutive months for the first 12 months and reported separately.

<sup>2</sup> Continuous when discharging to the drainage ditch and monthly when discharging to the evaporation ponds.

<sup>3</sup> Weekly when discharging to the drainage ditch and monthly when discharging to the evaporation ponds.

<sup>4</sup> Sampling to be done only when discharging to the drainage Ditch.

**EFFLUENT MONITORING  
 (For Discharge to Percolation Ponds)**

Effluent samples shall be collected downstream from the last connection through which wastes can be admitted into the ponds. Effluent samples should be representative of the total volume and quality of the discharge. Date and time of collection of samples shall be recorded and reported and should be representative of the influent. Effluent monitoring shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Pond Volume	million gallons	Staff Gauge	Weekly
20°C BOD <sub>5</sub>	mg/l	Grab	Monthly
Suspended Solids	mg/l	Grab	Monthly
pH	Number	Grab	Monthly
Dissolved Oxygen	mg/l	Grab	Monthly
Standard Minerals <sup>1</sup>	mg/l	Grab	Annually

<sup>1</sup> Standard minerals shall include all major cations and anions and include a verification that the analysis is complete (i.e., cation/anion balance).

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**EFFLUENT MONITORING  
 (For Discharge to Drainage Ditch)**

Effluent samples representing discharge location R0 may be collected anywhere between the first receiving water (Ditch) and final disinfection provided the effluent samples are representative of the effluent discharged to the Ditch. Date and time of collection of samples shall be recorded and reported and should be representative of the influent. Effluent monitoring shall include at least the following:

<u>Constituents</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Flow	MGD	Meter	Continuous
20°C BOD <sub>5</sub>	mg/l, lbs/day	Grab	Weekly
Suspended Solids	mg/l, lbs/day	Grab	Weekly
Chlorine Residual <sup>10</sup>	mg/l, lbs/day	Grab	Weekly
Total Coliform	MPN/100ml	Grab	Weekly
Dissolved Oxygen	mg/l	Grab	Weekly
Settleable Solids	ml/l	Grab	Weekly
Temperature	°C/°F	Grab	Weekly
pH	Number	Grab	Weekly
Electrical Conductivity @25°C	µmhos/cm	Grab	Weekly
Ammonia <sup>1,2</sup>	mg/l, lbs/day	Grab	Weekly
Total Dissolved Solids	mg/l, lbs/day	Grab	Monthly
Mercury <sup>4,5</sup>	µg/l, lbs/day	Grab	Monthly
Manganese	µg/l, lbs/day	Grab	Monthly
Bromodichloromethane <sup>3</sup>	µg/l, lbs/day	Grab	Monthly
Dibromochlormethane <sup>3</sup>	µg/l, lbs/day	Grab	Monthly
Chloroform <sup>3</sup>	µg/l, lbs/day	Grab	Monthly
Bis (2-Ethylhexyl) phthalate	µg/l, lbs/day	Grab	Monthly
Arsenic	µg/l	Grab	Monthly
Cyanide	µg/l	Grab	Monthly
Acute Toxicity <sup>9</sup>	µg/l	Grab	Twice/Year
Priority Pollutants <sup>6</sup>	µg/l	As appropriate <sup>7</sup>	Once <sup>8</sup>

<sup>1</sup>. Concurrent with biotoxicity monitoring.

<sup>2</sup>. Report as both total and Un-ionized ammonia with corresponding pH and temperature measurements. If an ammonia value exceeds the chronic criteria, the Discharger shall conduct additional sampling on a daily

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- basis for 4 consecutive days and will continue until no longer ammonia concentrations exceed the chronic criteria.
3. Sample results less than the reporting limits (RL), but greater than the laboratory's MDL, shall be reported as Detected but Not Quantified (DNQ).
  4. To be collected concurrently with influent monthly monitoring.
  5. Requires use of "clean technique" (EPA Method 1631) for sampling, handling and analysis, or later amendment.
  6. Priority pollutants are defined as U.S. EPA Priority Pollutants and consist of the constituents listed in the most recent National Toxics Rule and California Toxics Rule.
  7. Priority pollutants shall be grab samples, due to natural compositing by pond treatment
  8. Hardness, pH and temperature shall be collected at the same time as priority pollutant sample, which shall be sampled once during the permit and collected in winter/spring 2007.
  9. The bioassay shall be 96-hour acute toxicity test in accordance with EPA 821-R-02-012, Fifth Edition or later amendment approved by Board staff. Species shall be fathead minnows (*Pimephales promelas*). Temperature and pH shall be recorded each day of the test. No pH adjustment
  10. Samples shall be collected immediately prior to pumping Ditch water to Snodgrass Slough until 1 November 2004. Thereafter, samples shall be collected with the other effluent samples representative of the discharge to the Ditch.

### **CHRONIC TOXICITY MONITORING**

Chronic toxicity monitoring shall be conducted to determine whether the effluent from the treatment ponds is contributing toxicity to the Ditch, and the assimilative capacity characteristics of the Sacramento and San Joaquin Delta. The testing shall be conducted as specified in EPA 821-R-02-013, Fourth Edition, or later amendment. The proposed monitoring will be conducted twice during the term of this Order, once from a sample collected during the period of December 2004 and February 2005 and a second sample between December 2007 and February 2008. The monitoring program will be conducted as follows:

- a) All testing shall be conducted as specified in EPA 821-R-02-013, Fourth Edition or latest approved edition. The permit may be reopened if later amendments promulgated in Section 136 of the Code of Federal Regulation or elsewhere would lead to significant changes in the procedure.
- b) Effluent chronic toxicity samples shall be collected anywhere between the first receiving water (Ditch) and final disinfection provided the effluent samples are representative of the effluent discharged to the Ditch. Twenty-four hour flow proportional composite samples, representative of the volume and quality of the discharge shall be used for the test. Time and date of collection of the samples shall be recorded and maintained by the Discharger. Monitoring events will coincide whenever possible with effluent and receiving water monitoring.

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- c) As required by the SIP, all chronic toxicity tests will be conducted with concurrent reference toxicant tests and reported with the test results.
- d) All tests must meet acceptability criteria as specified in the approved chronic toxicity methods manual. If test acceptability criteria are not met, the Discharger shall re-sample and re-test within 14 days of the onset of the failed test.
- e) Test organisms that will be used for the chronic toxicity testing shall consist of the following:
  - i) Fathead minnow (*Pimephales promelas*) representing a vertebrate species.
  - ii) Water flea (*Ceriodaphnia dubia*) representing an invertebrate species.
  - iii) Algae (*Selenastrum capricornutum*) representing a plant species.
- f) Dilution water used for the effluent chronic toxicity monitoring shall be a grab sample of the Ditch collected at R-1 of the Receiving Water Monitoring Program station, which is upstream of the point of discharge.
- g) In addition to chronic toxicity testing on the effluent, the Discharger shall also conduct concurrent toxicity tests on grab samples collected and representative of 100% upstream waters from the point of discharge at the Discharger's R-1 Receiving Water Monitoring station. If significant toxicity is noted on the 100% R-1 test sample, within 9 days of the onset of the receiving water tests, chronic toxicity using a standard five dilution series on the affected test species will be conducted. Dilution water, for the R-1 follow-up chronic toxicity test, will be laboratory control water.
- h) The Discharger shall conduct chronic toxicity testing using 100% effluent and 2 controls. If toxicity is found in any of the effluent tests, the Discharger must immediately retest according to the following test matrix:

Dilution Series:

	<u>Dilutions (%)</u>					<u>Controls</u>	
	<u>100</u>	<u>75</u>	<u>50</u>	<u>25</u>	<u>5.0</u>	<u>Stream Water</u>	<u>Lab Water</u>
% Plant Effluent	100	75	50	25	12.5	0	0
% Dilution Water <sup>1</sup>	0	25	50	75	87.5	100	0
% Lab Water	0	0	0	0	0	0	100

1. Dilution water shall be receiving water from the ditch taken upstream (north) from the discharge point. The dilution series may be altered upon approval of Board staff.



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- i) The Discharger will notify the Board within 5-days during the course of any biotoxicity monitoring event if it is discovered that an expected reportable effluent chronic toxicity result has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective of the Ditch.
- j) Routine whole effluent toxicity test results will be reported with the monthly submittal of monitoring reports following the completion of the test.

**RECEIVING WATER MONITORING**

All receiving water samples shall be grab samples. Receiving water monitoring stations shall be at the following locations or at a location, proposed by the Discharger and approved by the Board’s Executive Officer. Access to all monitoring stations shall be safely and reasonably achieved. Receiving water monitoring is only required during the period of discharge to the Ditch (1 November to 15 May):

<u>Station</u>	<u>Description</u>
R1	100 feet upstream of the Agricultural Drainage Ditch (Upstream of discharge point) or as close as possible with Executive Officer approval
R2	100 feet downstream of the Agricultural Drainage Ditch (Downstream of discharge point) or as close as possible with Executive Officer approval
R3	100 feet north of discharge point (In Snodgrass Slough)
R4	100 feet south of discharge point (In Snodgrass Slough)

<u>Constituents</u>	<u>Units</u>	<u>Sampling Stations</u>	<u>Sampling Frequency</u>
Flow <sup>1</sup>	mgd	R1, R2, R3, R4	Weekly
Dissolved Oxygen	mg/l	R1, R2, R3, R4	Weekly
pH	Number	R1, R2, R3, R4	Weekly
Electrical Conductivity @25°C	µmhos/cm	R1, R2, R3, R4	Weekly
Temperature	°F	R1, R2, R3, R4	Weekly

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1. Ditch flows sampling shall be measured during periods when flows are less than 1 cfs and estimated when Ditch flows are greater than 1 cfs. Snodgrass Slough flows shall be estimated based on Sacramento River flows from gauging station or other means when flow controlling locks are open from the Sacramento River. Snodgrass Slough flows may be reported as locks closed when flow is anticipated to be minimal.

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, R-3, and R-4. Attention shall be given to the presence or absence of:

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

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

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

**GROUND WATER MONITORING PROGRAM<sup>1</sup>**

<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Groundwater Elev.	Ft.	Measurement	Quarterly
TDS	mg/l	Grab	Quarterly
Total Nitrogen	mg/l	Grab	Quarterly
pH	number	Grab	Quarterly
Phosphorous	mg/l	Grab	Quarterly
Boron	mg/l	Grab	Quarterly
Chloride	mg/l	Grab	Quarterly
Manganese	mg/l	Grab	Quarterly
Iron	mg/l	Grab	Quarterly

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<u>Constituent</u>	<u>Units</u>	<u>Type of Sample</u>	<u>Sampling Frequency</u>
Sodium	mg/l	Grab	Quarterly
Arsenic	mg/l	Grab	Semi-annually
Cyanide	mg/l	Grab	Semi-annually
Fecal Coliform	MPN/100 ml	Grab	Semi-annually
Total Trihalomethanes	ug/l	Grab	Semi-annually
Standard Minerals <sup>2</sup>	mg/l	Grab	Annually

- 
1. The ground water monitoring report must present, for each monitoring event, determinations for the direction and gradient of groundwater flow. The groundwater monitoring network shall include one or more background monitoring wells and sufficient number of designated monitoring wells to evaluate performance of BPTC measures and determine if the discharge has degraded groundwater. These include monitoring wells immediately down gradient of every treatment, storage, and disposal unit that does or may release waste constituents to groundwater.
  2. Standard minerals shall include all major cations and anions and includes a verification that the analysis is complete (i.e., cation/anion balance).

### REPORTING

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

In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible. The data shall be summarized in such a manner to illustrate clearly whether the discharge complies with waste discharge requirements. The highest daily maximum for the month, monthly and weekly averages, and medians, should be determined and recorded. In accordance with Section 2.4.1 of the SIP, the Discharger shall also report the applicable Minimum Level (ML) and the laboratory's current Method Detection Limit (MDL) for all priority pollutants. 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.

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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 Provisions D.6.

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

Ordered by:

\_\_\_\_\_  
THOMAS R. PINKOS, Executive Officer

\_\_\_\_\_  
6 June 2003

(Date)

MONITORING AND REPORTING PROGRAM NO. R5-2003-0084  
SACRAMENTO COUNTY SANITATION DISTRICT NO. 1  
WALNUT GROVE WASTEWATER TREATMENT PLANT  
SACRAMENTO COUNTY

Amended

**ATTACHMENT - A**  
**(Map of Walnut Grove WWTP Vicinity)**

**ATTACHMENT - B**  
**(Walnut Grove WWTP Layout)**

## ATTACHMENT - C

10 September 2001

### REQUIREMENT TO SUBMIT MONITORING DATA (Water Code Section 1327)

The Regional Water Quality Control Board (Board) is required to protect and enhance the beneficial uses of surface and ground waters in the Region. As part of that effort, National Pollutant Discharge Elimination System (NPDES) Permits are adopted which prescribe effluent limits for the types and concentrations of chemical and physical constituents which can be safely discharged. In order to prepare appropriate NPDES Permits, it is necessary to have adequate characterization of the discharged effluent and the receiving water.

The following is a requirement that you collect effluent and receiving water samples and have them analyzed for a variety of potential waste constituents. In most cases this monitoring will be in addition to monitoring required in your NPDES Permit. To the extent that there is overlap between this request and monitoring already being done under your Permit, the monitoring need not be duplicated. This requirement is brought on by a number of factors:

1. On 2 March 2000, the State Water Resources Control Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California*, also known as the State Implementation Policy (SIP). The SIP established methods of evaluating receiving water criteria and developing effluent limitation in NPDES Permits for the priority pollutants contained in the US Environmental Protection Agency's (USEPA) *California Toxics Rule* and portions of USEPA's *National Toxics Rule*. Section 1.2 of the SIP directs the Board to issue Water Code Section 13267 letters to all NPDES dischargers requiring submittal of data sufficient to (1) determine if priority pollutants require effluent limitations (Reasonable Potential Analysis) and (2) calculate water quality-based effluent limitations. Further, Section 2.4 of the SIP requires that each discharger submit to the Regional Boards reports necessary to determine compliance with effluent limitations for priority pollutants in permits. Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.swrcb.ca.gov/iswp/final.pdf>.) To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such a heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners.
2. In addition to the specific requirements of the SIP, the Board is requiring the following monitoring needed for permit development:
  - a. Organophosphorous pesticides, principally diazinon and chlorpyrifos, are commonly-used insecticides found in many domestic wastewater discharges at concentrations which can cause toxicity both in effluent and in receiving water. These pesticides are not "priority



pollutants” and so are not part of the analytical methods routinely performed for NPDES discharges. **This monitoring is required of domestic wastewater dischargers only.**

- b. Drinking water constituents. Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
- c. Effluent and receiving water temperature. This is both a concern for application of certain temperature sensitive constituents, such as fluoride, and for compliance with the Basin Plan’s thermal discharge requirements.
- d. Effluent and receiving water hardness and pH. These are necessary because several of the CTR constituents are hardness or pH dependent.
- e. Receiving water flow is needed to determine possible dilution available in the receiving water. The receiving water flows, in combination with the receiving water pollutant concentrations, will be used to determine if there is assimilative capacity in the receiving water for each pollutant, and whether dilution credits can be granted. Dilution credits can increase the concentrations of pollutants allowed in your effluent discharge if assimilative capacity is available in the receiving water.

***Pursuant to Section 13267 of the California Water Code, you are required*** to submit monitoring data for your effluent and receiving water as described in Attachments I through IV.

Attachment I – Sampling frequency and number of samples.

Attachment II – Constituents to be monitored. This list identifies the constituents to be monitored. It is organized into groupings (Volatile Organics, Semi-Volatile Organics, Inorganics, Pesticides/Polychlorinated Biphenyls (PCBs), Other Constituents, and Discharge & Receiving Water Flows), which correspond to groupings in Attachment I. Also listed are the Controlling Water Quality Criteria and their concentrations. The criteria concentrations are compiled in the Central Valley Regional Water Board’s staff report, *A Compilation of Water Quality Goals.*<sup>1</sup> Minimum quantitation levels for the analysis of the listed constituents will be equal to or less than the Minimum Levels (ML) listed in Appendix 4 of the SIP or the Detection Limits for Reporting Purposes (DLRs) published by the Department of Health Services which are below the controlling water quality criteria concentrations listed in Attachment II of this letter. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Also listed are suggested analytical procedures. You are not required to use these specific procedures as

long as the procedure you select achieves the desired minimum detection level. All analyses must be performed by a California certified environmental analytical laboratory.

Attachment III – Dioxin and furan sampling. Section 3 of the SIP has specific requirements for the collection of samples for analysis of dioxin and furan congeners, which are detailed in Attachment III. Briefly, dischargers classified as major must collect and analyze two samples per year (one collected in the wet season and one collected in the dry season) for congeners in each of the next three years. For dischargers classified as minor, one wet season and one dry season sample must be collected and analyzed at some time during the next three years.

Attachment IV – Reporting Requirements. This attachment provides laboratory and reporting requirements including a recommended data reporting format.

With the exception of dioxin and furan congener sampling which is due by **1 November 2004** (see Attachment III), all samples shall be collected, analyses completed, and monitoring data shall be submitted to the Regional Board by **1 March 2003**. Any NPDES permit application submitted after **1 March 2002** shall include with the application at least one set of data for the constituents listed in Attachment II.

In the interest of generating and submitting data by the required dates, a schedule for compliance with this data request shall be prepared and submitted to the Executive Officer by **16 November 2001**. This schedule shall include the requirements of Attachment I and Attachment III. The schedule will also include the data submission requirements for applications submitted after **1 March 2002**.

Failure or refusal to submit technical or monitoring data as required by Section 13267, California Water Code, or falsifying any information provided is guilty of a misdemeanor and is subject to an administrative civil liability of up to \$1,000 per day of violation, in accordance with Section 13268, California Water Code.<sup>1</sup>

If you have any questions, please contact your Regional Board staff representative.

Attachments (4)

GARY M. CARLTON  
Executive Officer

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<sup>1</sup> Available on the internet at [http://www.swrcb.ca.gov/rwqcb5/wq\\_goals](http://www.swrcb.ca.gov/rwqcb5/wq_goals).

## Attachment I – Sampling Frequency and Number of Samples (Minor Municipal)

Samples shall be collected from the effluent and upstream receiving water and analyzed for the constituents listed in Attachment II to provide the indicated number of valid sample results by the submittal due date. Sampling frequency shall be adjusted so that the appropriate number of samples is collected by the due date and so that the sampling is representative of the wastewater discharge.

<b>Constituent/Sample /Type<sup>1</sup></b>	<b>Frequency</b>	<b>Timeframe (years)</b>	<b>Total Number of Samples</b>
Volatile Organics/grab	Quarterly	1	4
Semi-Volatile Organics/grab or composite	Quarterly	1	4
Inorganics/grab or composite	Quarterly	1	4
Pesticides & PCBs/grab or composite	Quarterly	1	4
Other Constituents <sup>2</sup> /grab or composite	Quarterly	1	4
Discharge & Receiving Water Flow <sup>3</sup>	Monthly	1	12
Dioxins/grab or composite	Semi-annual	1	2

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1 The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used.

2 See list in Attachment II.

3 Discharge and Receiving Water Flow. Discharge flow should be recorded and reported for each day of sample collection. All NPDES dischargers should have a means of measuring the volume of discharge as part of their monitoring already required by the NPDES Permit Monitoring and Reporting Program. Receiving Water Flow, however, is not generally required by NPDES Permit Monitoring Programs. For facilities that already conduct receiving water flow monitoring, the receiving water flow should be recorded and reported for each day in which sampling occurs. For facilities that do not routinely conduct receiving water flow monitoring, provide the best estimate of flow reasonably obtainable. It may be possible to obtain flow data from an existing nearby gauging station.

## Attachment III -Dioxin and Furan Sampling

Section 3 of the State Implementation Plan requires that each NPDES discharger conduct sampling and analysis of dioxin and dibenzofuran congeners. The required number and frequency of sampling are as follows:

- o Major NPDES Dischargers – once during dry weather and once during wet weather for each of three years, for a total of six samples.
- o **Minor NPDES Dischargers** – once during dry weather and once during wet weather for one year during the three-year period, for a total of two samples.

Each sample shall be analyzed for the seventeen congeners listed in the table below. High Resolution GCMS Method 8290, or another method capable of individually quantifying the congeners to an equivalent detection level, shall be used for the analyses.

Sampling shall start during winter 2001/2002 and all analyses shall be completed and submitted by 1 November 2004. Sample results shall be submitted along with routine monitoring reports as soon as the laboratory results are available.

For each sample the discharger shall report:

- o The measured or estimated concentration of each of the seventeen congeners
- o The quantifiable limit of the test (as determined by procedures in Section 2.4.3, No. 5 of the SIP)
- o The Method Detection Level (MDL) for the test
- o The TCDD equivalent concentration for each analysis calculated by multiplying the concentration of each congener by the Toxicity Equivalency Factor (TEF) in the following table, and summing the resultant products to determine the equivalent toxicity of the sample expressed as 2,3,7,8-TCDD.

Congener	TEF
2,3,7,8TetraCDD	1
1,2,3,7,8-PentaCDD	1.0
1,2,3,4,7,8-HexaCDD	0.1
1,2,3,6,7,8-HexaCDD	0.1
1,2,3,7,8,9-HexaCDD	0.1
1,2,3,4,6,7,8-HeptaCDD	0.01
OctaCDD	0.0001
2,3,7,8-TetraCDF	0.1
1,2,3,7,8-PentaCDF	0.05
2,3,4,7,8-PentaCDF	0.5
1,2,3,4,7,8-HexaCDF	0.1
1,2,3,6,7,8-HexaCDF	0.1
1,2,3,7,8,9-HexaCDF	0.1
2,3,4,6,7,8-HexaCDF	0.1
1,2,3,4,6,7,8-HeptaCDF	0.01
1,2,3,4,7,8,9-HeptaCDF	0.01
OctaCDF	0.0001

## Attachment IV – Reporting Requirements

1. **Laboratory Requirements.** The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code Section 13176 and must include quality assurance/quality control data with their reports.
2. **Criterion Quantitation Limit (CQL).** The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.swrcb.ca.gov/iswp/final.pdf>) or the detection limits for purposes of reporting (DLRs) published by the Department of Health Services (<http://www.dhs.ca.gov/ps/ddwem/chemicals/DLR/dlrindex.htm>) which is below the controlling water quality criterion concentrations summarized in attachment II of this letter.
3. **Method Detection Limit (MDL).** The method detection limit for the laboratory shall be determined by the procedure found in 40 Code of Federal Regulations (CFR) Part 136, Appendix B (revised as of May 14, 1999).
4. **Reporting Limit (RL).** The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.
5. **Reporting Protocols.** The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:
  - a. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
  - b. Sample results less than the report RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
  - c. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy ( $\pm$  a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.
  - d. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.
6. **Data Format.** The monitoring report shall contain the following information for each pollutant:
  - a. The name of the constituent.
  - b. Sampling location.
  - c. The date the sample was collected.
  - d. The time the sample was collected.
  - e. The date the sample was analyzed. For organic analyses, the extraction date will also be indicated to assure that hold times are not exceeded for prepared samples.
  - f. The analytical method utilized.

- g. The measured or estimated concentration.
- h. The required Criterion Quantitation Limit (CQL).
- i. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).
- j. The laboratory's lowest reporting limit (RL).
- k. Any additional comments.

6. **Example of Data Format.**

Discharger: \_\_\_\_\_  
 Contact Name: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

Name of Laboratory: \_\_\_\_\_  
 Laboratory Contact: \_\_\_\_\_  
 Phone Number: \_\_\_\_\_

Name of Constituent and CTR #	Sampling Location*	Date Sample Collected	Time Sample Collected	Date Sample Analyzed	USEPA Method Used	Analytical Results (ug/L)	CQL (ug/L)	MDL (ug/L)	RL (ug/L)
(See Attach II)									

*\*The effluent sampling station and the upstream receiving water station specified in the NPDES Permit Monitoring and Reporting Program should be used. Other sampling locations must be approved by Regional Board staff. Include longitude and latitude coordinates for the receiving water sampling stations.*

**ATTACHMENT - D**  
**SUMMARY EFFLUENT DATA AND CRITERIA, PRIORITY POLLUTANTS**

Constituent CTR # (Jan-May '02)	Sb µg/L #1	As µg/L #2	Be µg/L #3	Cd* µg/L #4	Cr Total µg/l	Cr (III) µg/L # 5a	Cr (VI) µg/L # 5b	Cu µg/L #6	Pb µg/L #7	Hg µg/L #8	Ni µg/L #9	Se µg/L #10	Silver µg/L #11	Thallium µg/L #12	Zinc µg/L #13	Cyanide µg/L #14	Asb MF/l #15
<b>Effl. Con. (min.) (ug/L)</b>	0.21	14	N/A	0.083	0.51	N/A	0.3	3.9	0.13	0.011	4.2	1.0	ND	N/A	9.8	6.8	ND
<b>Effl. Con. (Max.) (ug/L)</b>	0.3	26	N/A	0.13	1.3	N/A	N/A	5.0	0.26	0.027	7.3	4.2	0.02	N/A	19.6	22	0.22
CMC (µg/l)Freshwater Diss. @ 43 mg/l Hardness		340 i,m,w		1.7 e,i,m,w, x		275 e,i,m,o	16 i,m,w	6 e,i,m,w, x	25 e,i,m		229 e,i,m,w	p	<b>0.81</b> e,i,m		<b>57</b> e,i,m,w, x	22 o	
CMC (µg/l)Freshwater <b>Total @ 43 mg/l</b> Hardness				1.7		870		6.3	28		230	20	0.95		59		
CCC (µg/l) Freshwater Diss. @ 43 mg/l Hardness		150 i,m,w		1.2 e,i,m,w		<b>89</b> e,i,m,o	<b>11</b> i,m,w	<b>4.3</b> e,i,m,w	<b>1.0</b> e,i,m		<b>25</b> e,i,m,w				58 e,i,m,w	<b>5.2</b> o	
CCC (µg/l)Freshwater <b>Total @ 43 mg/l</b> Hardness				1.3		104		4.5	1.1		26	<b>5</b>			59		
HHealth (µg/l) Water+Org	14 a,s		N	N		N	n	1300	n	0.050 a	610 a	n		<b>1.7</b> a,s		700 a	<b>7Mil</b> f/l k,s
HHealth (µg/l) Org Only	4300 a,t		N	N		N	n		n	0.051 a	4600 a	n		6.3 a,t		220,000 a,j	
Numeric Basin Plan Objective (µg/l) (MCL, site specific)	MCL <b>6</b>	Site Sp <b>10</b>	MCL <b>4</b>	USEPA <b>0.14</b> CCC <b>0.93</b> CMC	MCL <b>50</b>			Site Sp 10	AL 15	303d <b>0</b>	MCL 100	MCL 50	Site Sp 10	MCL 2	Site Sp 100	Site Sp 10	MCL 7 Mil f/l
Narrative Basin Plan Objective (µg/l) (Toxicity=Prop65,etc)		MCL 50							AL 15								
Reasonable Potential	I		I	N	N	I	I		N	<b>Y</b>	N	N	N	N	N	Y	N

Notes: Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California, 40 CFR Part 131, FR/Vol. 65, No. 97/Thursday, May 18, 2000/Rules and Regulations, \* Data from Dec 2000 effluent sampling,

I = Inconclusive, 303d Listed Constituent, Sac-SJ Delta

**EFFLUENT DATA, PRIORITY POLLUTANTS (CONTINUED)**

Constituent/CTR (Jan-May '02)	2, 3, 7, 8-TCDD (Dioxin) # 16	Acrolein # 17	Acrylonitrile # 18	Benzene* # 19	Bromoform # 20	Carbon Tetrachloride # 21	Chlorobenzene # 22	Chlorodibromo- methane # 23	Chloroethane # 24	2-Chloro- ethylvinyl Ether # 25
Effl. Con. (Min) ug/L	ND	ND	N/A	0.3	ND	0.9	ND	6.9	2.4	ND
Effl. Conc. (Max) ug/L	ND	ND	N/A	0.37	ND	1.6	ND	10	3.2	1
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Only	0.00000013 c	320 s	0.059 a,c,s	1.2 a,c	4.3 a,c	0.25 a,c,s	680 a,s	0.41 a,c		
HHealth (µg/l) Org Only	0.00000014 c	780 t	0.66 a,c,t	71 a,c	360 a,c	4.4 a,c,t	21,000 a,j,t	34 a,c		
Reasonable Potential	I	N	I	I	N	Y	N	Y	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR (Jan-May '02)	Chloroform # 26 Not a CTR Constituent	Dichloro- bromomethane # 27	1,1-Dichloro- ethane # 28	1,2-Dichloro- ethane # 29	1,1-Dichloro- ethylene # 30	1,2- Dichloro- propane # 31	1,3-Dichloro- propylene # 32	Ethylbenzene # 33	Methyl Bromide # 34	Methyl Chloride # 35
Effl. Con. (Min) ug/L	230	50	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	1060	69	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)	P65 10			MCL 5			MCL 0.5	MCL 700		
CMC (ug/L)										
CCC (ug/L)										
HHealth (ug/L) Water +Org Only	USEPA 5.7	0.56 a,c		0.38 a,c,s	0.057 a,c,s	0.52 a	10 a,s	3,100 a,s	48 a	n
HHealth (µg/l) Org Only	USEPA 470	46 a,c		99 a,c,t	3.2 a,c,t	39 a	1,700 a,t	29,000 a,t	4,000 a	n
Reasonable Potential	N	Y	N	I	I	I	I	N	N	N

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling





**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	2, 4, 6 Trichloro-phenol # 55	Acenaphthene # 56	Acenaphthylene # 57	Anthracene # 58	Benzidine # 59	Benzo(a)anthracene # 60	Benzo(a)Pyrene # 61	Benzo(b)fluoranthene # 62	Benzo (ghi) perylene # 63
Effl. Conc (Min) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)	P65 5								
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	2.1 a,c	1,200 a		9,600 a	0.00012 a,c,s	0.0044 a,c	0.0044 a,c	0.0044 a,c	
HHealth (µg/l) Org Only	6.5 a,c	2,700 a		110,000 a	0.00054 a,c,t	0.049 a,c	0.049 a,c	0.049 a,c	
Reasonable Potential	I	I	I	I	I	I	I	I	I

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	Benzo(k)fluoranthene # 64	Bis (2-Chloro-ethoxy) Methane # 65	Bis (2-Chloro-ethyl) Ether # 66	Bis (2-Chloroisopropyl) Ether # 67	Bis (2-Ethyl-hexyl) Phthalate* # 68	4-Bromo-phenyl Phenyl Ether # 69	Butyl-benzyl Phthalate # 70	2-Chloro-naphthalene # 71	4-Chloro- phenyl Phenyl Ether # 72
Effl. Conc (Min) ug/L	ND	ND	ND	ND	<1.0	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	3.4	ND	ND	ND	ND
BP Obj, (ug/L)			P65 0.15		MCL 4				
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c		0.031 a,c,s	1,400 a	1.8 a,c,s		3,000 a	1,700 a	
HHealth (µg/l) Org Only	0.049 a,c		1.4 a,c,t	170,000 a,t	5.9 a,c,t		5,200 a	4,300 a	
Reasonable Potential	I	I	I	I	Y	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	Chrysene # 73	Dibenzo (ah) anthracene # 74	1,2 Dichloro- benzene # 75	1, 3 Dichloro- benzene* # 76	1, 4 Dichloro- benzene # 77	3,3-Dichloro- benzidine # 78	Diethyl Phthalate # 79	Dimethyl Phthalate # 80	Di-n-Butyl Phthalate # 81
Effl. Conc (Min) ug/L	ND	ND	ND	ND	<0.3	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	0.63	ND	ND	ND	ND
BP Obj, (ug/L)	P65 0.1	P65 0.1	MCL 600		MCL 5	P65 0.3			
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.0044 a,c	0.0044 a,c	2,700 a	400	400	0.04 a,c,s	23,000 a,s	313,000 s	2,700 a,s
HHealth (µg/l) Org Only	0.049 a,c	0.049 a,c	17,000 a	2,600	2,600	0.077 a,c,t	120,000 a,t	2,900,000 t	12,000 a,t
Reasonable Potential	I	I	I	I	N	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/ CTR # (Jan-May '02)	2,4-Dinitro – toluene # 82	2,6-Dinito- toluene # 83	Di-n-Octyl Phthalate # 84	1,2-Diphenyl – hydrazine # 85	Fluoranthene # 86	Fluorene # 87	Hexachloro- benzene # 88	Hexachloro – butadiene # 89	Hexachloro - cyclopentadiene # 90
Effl. Conc (Min) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)	P65 1.0			P65 0.4			P65 0.2		MCL 50
CMC (ug/L)									
CCC (ug/L)									
HHealth (ug/L) Water +Org Only	0.11 c,s			0.040 a,c,s	300 a	1,300 a	0.00075 a,c	0.44 a,c,s	240 a,s
HHealth (µg/l) Org Only	9.1 c,t			0.54 a,c,t	370 a	14,000 a	0.00077 a,c	50 a,c,t	17,000 a,j,t
Reasonable Potential	I	I	I	I	I	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	Hexachloro – ethane # 91	Indeno (1,2,3-cd) pyrene # 92	Isophorone # 93	Naphthalene # 94	Nitrobenzene # 95	N-Nitrosodimethyl- Amine # 96	N-Nitrosodi-n- Propyl-amine # 97	N-Nitrosodiphenyl amine # 98
Effl. Conc (Min) ug/L	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)	P65 10					P65 0.02	P65 0.05	P65 40
CMC (ug/L)								
CCC (ug/L)								
HHealth (ug/L) Water +Org Only	1.9 a,c,s	0.0044 a,c	8.4 c,s		17 a,s	0.00069 a,c,s	0.005 a	5.0 a,c,s
HHealth (µg/l) Org Only	8.9 a,c,t	0.049 a,c	600 c,t		1,900 a,j,t	8.1 a,c,t	1.4 a	16 a,c,t
Reasonable Potential	I	I	I	I	I	I	I	I

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	Phenanthrene # 99	Pyrene # 100	1,2,4-Trichloro- benzene # 101	Aldrin # 102	α-BHC # 103	β-BHC # 104	γ-BHC (Lindane) # 105	δ-BHC # 106	Chlordane # 107	4,4' DDT # 108
Effl. Conc (Min) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)			MCL 70	303d/OCPEst <0.005	303d/OCPEst <0.01	303d/OCPEst <0.01	303d/OCPEst <0.019	303d/OCPEst <0.005	303d/OCPEst <0.1	303d/OCPEst <0.01
CMC (ug/L)				3 g			0.95 w		2.4 g	1.1 g
CCC (ug/L)									0.0043 g	0.001 g
HHealth (ug/L) Water +Org Only		960 a		0.00013 a,c	0.0039 a,c	0.014 a,c	0.019 c		0.00057 a,c	0.00059 a,c
HHealth (µg/l) Org Only		11,000 a		0.00014 a,c	0.013 a,c	0.046 a,c	0.063 c		0.00059 a,c	0.00059 a,c
Reasonable Potential	I	I	I	I	I	I	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

MC  
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**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	4, 4'- DDE # 109	4,4'-DDD # 110	Dieldrin # 111	alpha-Endo- sulfan # 112	beta- Endo- sulfan # 113	Endosulfan Sulfate # 114	Endrin # 115	Endrin Aldehyde # 116	Heptachlor # 117	Heptachlor Epoxide # 118
Effl. Conc (Min) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
Effl. Conc. (Max) ug/L	ND	ND	ND	ND	ND	ND	ND	ND	ND	ND
BP Obj, (ug/L)	OCPEst <0.05	OCPEst <0.05	303d/OCPEst <0.01	303d/OCPEst <0.02	303d/OCPEst <0.01	303d/OCPEst <0.05	303d/OCPEst <0.01	303d/OCPEst <0.01	303d/OCPEst <0.01	303d/OCPEst <0.01
CMC (ug/L)			0.24 w	0.22 g	0.22 g		0.086 w		0.52 g	0.52 g
CCC (ug/L)			0.056 w	0.056 g	0.056 g		0.036 w		0.0038 g	0.0038 g
HHealth (ug/L) Water +Org Only	0.00059 a,c	0.00083 a,c	0.00014 a,c	110 a	110 a	110 a	0.76 a	0.76 a	0.00021 a,c	0.00010 a,c
HHealth (ug/l) Org Only	0.00059 a,c	0.00084 a,c	0.00014 a,c	240 a	240 a	240 a	0.81 a,j	0.81 a,j	0.00021 a,c	0.00011 a,c
Reasonable Potential	I	I	I	I	I	I	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

**EFFLUENT DATA, PRIORITY POLLUTANTS (cont'd)**

Constituent/CTR # (Jan-May '02)	PCBs# 119	PCBs 120	PCBs# 121 -125	Toxaphene # 126
Effl. Conc (Min) ug/L	ND	ND	ND	ND
ffl. Conc. (Max) ug/L	ND	ND	ND	ND
Basin Plan Objective (ug/L)	P65 0.045	P65 0.045	P65 0.045	303d/OCPEst <0.5
CMC (ug/L)				0.73
CCC (ug/L)	0.014u	0.014u	0.014u	0.0002
HHealth (ug/L)Water +Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00073a,c
HHealth (ug/l)Org Only	0.00017c,v	0.00017c,v	0.00017c,v	0.00075a,c
Reasonable Potential	I	I	I	I

Footnotes from Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California

\* Data from Dec 2000 effluent sampling

# ATTACHMENT E

## AMBIENT WATER QUALITY CRITERIA FOR AMMONIA

### Total Ammonia Temperature and pH-Dependent Values of the CCC (Chronic Criterion) For Fish Early Stages Present

Continuous Concentration Criteria for Fish Early Life Stages Present, 30-day Avg (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	2.8	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	2.00	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	<b>1.00</b>	0.879	0.773
8.2	1.79	1.79	1.63	1.43	1.26	1.11	0.973	0.855	0.752	0.661
8.3	1.52	1.52	1.39	1.22	1.07	0.941	0.827	0.727	0.639	0.562
8.4	1.29	1.29	1.17	1.03	0.906	0.796	0.700	0.615	0.541	0.475
8.5	1.09	1.09	0.990	0.870	0.765	0.672	0.591	0.520	0.457	0.401
8.6	0.920	0.920	0.836	0.735	0.646	0.568	0.499	0.439	0.386	0.339
8.7	0.778	0.778	0.707	0.622	0.547	0.480	0.422	0.371	0.326	0.287
8.8	0.661	0.661	0.601	0.528	0.464	0.408	0.359	0.315	0.277	0.244
8.9	0.565	0.565	0.513	0.451	0.397	0.349	0.306	0.269	0.237	0.208
9.0	0.486	0.486	0.442	0.389	0.342	0.300	0.264	0.232	0.204	0.179

\* Criteria Continuous Concentration

**NOTE:** Chronic Criterion includes a restriction that the highest 4-day average within the 30-day averaging period cannot be greater than twice the Chronic Criterion.

# ATTACHMENT F

## AMBIENT WATER QUALITY CRITERIA RECOMMENDED TO PROTECT FRESHWATER AQUATIC LIFE

### TOTAL AMMONIA NITROGEN pH-Dependent Values of the CMC (Acute Criterion)

Maximum Concentration Criteria 1-hr Avg (mg N/l)*		
pH	Salmonids Present	Salmonids Absent
6.5	32.6	48.8
6.6	31.3	46.8
6.7	29.8	44.6
6.8	28.0	42.0
6.9	26.2	39.2
7.0	24.1	36.1
7.1	21.9	32.9
7.2	19.7	29.5
7.3	17.5	26.2
7.4	15.3	23.0
7.5	13.3	19.9
7.6	11.4	17.0
7.7	9.64	14.4
7.8	8.11	12.1
7.9	6.77	10.1
8.0	5.62	8.41
8.1	<b>4.64</b>	6.95
8.2	3.83	5.73
8.3	3.15	4.71
8.4	2.59	3.88
8.5	2.14	3.20
8.6	1.77	2.65
8.7	1.47	2.20
8.8	1.23	1.84
8.9	1.04	1.56
9.0	0.885	1.32

\* Criteria Maximum Concentration (CMC) with Salmonids Present

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

# INFORMATION SHEET

SACRAMENTO COUNTY SANITATION DISTRICT NO. 1  
WALNUT GROVE WASTEWATER TREATMENT PLANT  
SACRAMENTO COUNTY  
ORDER NO. R5-2003-0084

## I. OVERVIEW OF FACILITIES

The Sacramento County Sanitation District No.1 owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the City of Walnut Grove. The treatment and disposal facility is in the County of Sacramento, approximately ½ mile east of the City of Walnut Grove, in Section 19, T5N, R4E, MDB&M as shown in Attachment A, made a part of this Order. The City of Walnut Grove and Sacramento County Sanitation District No.1 are hereafter jointly referred to as Discharger.

The Walnut Grove Wastewater Treatment Plant (WGWTP) is reported in the report of waste discharge to have a design treatment capacity of 0.5 million gallons per day (mgd) monthly average dry weather flow and 0.86 mgd daily peak wet weather flow (PWWF). The current summertime flow to the plant is 0.03 mgd. The high winter flows are a result of a significant inflow/infiltration (I/I) problem of the collection system. The process units at the Walnut Grove facility consist of influent splitter box, stabilization ponds, effluent splitter box, and 14.5 acres of evaporation/percolation ponds for summer disposal. The wintertime treatment includes chlorination disinfection and de-chlorination of the treated wastewater from the stabilization pond system prior to discharge into an unnamed agricultural drainage ditch (Ditch). The 14.5 acres of evaporation/percolation ponds are not used in the winter months for disposal due to high groundwater conditions. The Ditch gravity flows about ½ mile to the levee of Snodgrass Slough where the wastewater is pumped into the Slough, tributary to the Sacramento, Mokelumne and San Joaquin Rivers, all waters of the State. Snodgrass Slough, Sacramento, Mokelumne, and San Joaquin Rivers are all waters of the United States. The discharge into Snodgrass Slough is located at the point(s), latitude N38° 14' 12" and longitude W121° 29' 57". All these water bodies, including the Ditch, are located within the legal boundaries of the Sacramento-San Joaquin Delta (Delta). Solids collected in the process are stored and stabilized in the ponds and are taken to the Sacramento Regional Wastewater Treatment Plant for final disposal, as needed. A certified Grade II operator staffs the WGWTP facility during the day.

The City of Locke, located a mile north of Walnut Grove is proposing to abandon their wastewater treatment facilities and pump its raw sewage to the WGWTP for treatment and disposal. Locke's existing sewer system including both its treatment and disposal facilities have been in violation of WDR No. 5-00-062, due to its age and lack of proper operation and maintenance. Locke's sewer collection system and the main interceptor for transport to the WGWTP are currently under construction by the grants from U.S. Department of Agriculture and the Sacramento Housing and Redevelopment Agency. The construction is scheduled to be completed by July 2003. The Lock wastewater contribution to the WGWTP will be approximately 0.017 mgd.



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**II. EXISTING PERMIT**

Discharges from the facility were previously regulated by Waste Discharge Requirements (WDRs) Order No. 96-069, NPDES No. CA0078794, which was adopted by the Board on 22 March 1996. This Order was issued for the discharge of secondary and disinfected effluent to surface waters during winter months (1 November through 15 May) and to the evaporation/percolation ponds during the remainder of the year. The City's WDR expired in April 2001. Consequently, new WDRs are being drafted which will require compliance with the California Toxic Rule and other permitting changes since the last permit renewal in 1996. In addition, the City of Locke is proposing to abandon their wastewater treatment facilities and pump its raw sewage to the Walnut Grove Plant for treatment and disposal. Though there is an additional estimated average dry weather flow of 0.017 mgd generated by the City of Locke, the permitted discharge flow remains the same as in the previous Order.

Surface water drainage in the area is to the Ditch, which eventually is discharged to the Sacramento-San Joaquin Delta.

**III. NEW APPLICATION FOR PERMIT RENEWAL**

In September 2000, the Discharger submitted an application for renewal of the NPDES permit. Previous Order No. 96-069 expired on 1 April 2001. Consequently, the Discharger submitted a Report of Waste Discharge (RWD), and requested for a permit renewal on 26 September 2000. Supplemental information to complete filing of the application was submitted on 14 February 2001, 17 September 2002, and 4 November 2002. Included in their supplemental information was chemical analysis of the priority pollutants in the plant effluent.

This renewal permit will reflect minor revisions to update the effluent limitations for discharge to both surface water and to the land. Also, due to the complexities of issues and associated costs involved to comply with the new effluent limitations contained in this permit, additional time has been granted to consider alternative means of complying with this Order other than treatment plant upgrades and continued discharge at their existing location. Accordingly, this Order provides up to one year to conduct feasibility studies to evaluate and select the most cost effective and environmentally feasible alternative. The selected alternative may provide better economic assurances of long-term treatment and disposal for the people of Walnut Grove. If after the feasibility study of alternative projects is conducted and alternative means of treatment and/or disposal is proposed, a new or revised report of waste discharge would be submitted and revisions to this Order will be considered.

The revisions to the previous permit include guidelines and the regulatory requirements for the protection of groundwater, monitoring and reporting of priority pollutants, sampling for

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National Toxic Rule (NTR), California Toxic Rule (CTR) and additional constituents in both the discharge and the receiving waters.

#### **IV. TREATMENT PLANT CONSIDERATIONS**

##### **For Discharge to Existing Ditch**

Federal regulations, 40 CFR, Part 133, provide technology based effluent limitations for BOD and TSS, as well as means of adjusting these limits where waste stabilization ponds are the principal processes used for secondary treatment. Pursuant to the regulations at 40 CFR Sections 133.105(a), (b) and 133.103, absent any adjustment, the BOD and TSS 30-day average discharge limit shall not exceed 45 mg/l, the 7-day average shall not exceed 65 mg/l, and the 30-day BOD percent removal shall not be less than 65 percent. Order No. 96-069 adjusted the effluent limitation for BOD to 45 mg/l as a 30-day average discharge limitation, which has been continued in this permit as an interim limitation, based on past treatment performance. With respect to TSS, the regulations at 40 CFR Section 133.103(c) provide that effluent quality levels set forth in Section 133.105(b)(1), (b)(2) and (b)(3) may be adjusted to conform to the TSS concentrations achievable with waste stabilization ponds, provided that: (1) waste stabilization ponds are the principal process used for secondary treatment; and (2) operation and maintenance data indicate that the TSS values specified in Section 133.105(b)(1), (b)(2) and (b)(3) cannot be achieved. The regulations also provide that the term TSS concentrations "achievable with waste stabilization ponds" means a TSS value, determined by U.S. EPA or the state which is equal to the effluent concentration achieved 90 percent of the time within a State or other area by waste stabilization ponds that are achieving a BOD effluent quality of 45 mg/l as a 30-day average. U.S. EPA has issued a maximum TSS limitation for each state based on these regulations. The maximum limitation for California was 95 mg/l as a 30-day average (43 Federal Register 53161). Based on this determination, previous Order No. 96-069, specified that the TSS 30-day average discharge limit shall not exceed 95 mg/l and there were no weekly or daily maximum limits. The present plant performance at times when the plant was properly operated and maintained meets these effluent quality limitations. However, the ability to meet these effluent limitations may be a function of a diluted influent quality from very high inflow/infiltrations rather than a function of adequate secondary treatment. In the past two years, the inflow to the plant has decreased dramatically due to the elimination of the major sources of inflow. Data from the year 2001-02 discharge period indicates, the plant is presently operating at a reduced percentage of the plants' design capacity and the data presently indicate that the effluent limit for TSS included in this permit can be met through proper operation and maintenance of the treatment works when the plant is operating at this lower capacity level. However, Monitoring data from two of the past three years indicate that the BOD percent removal, during the wet weather, fell below the Federal Secondary Treatment Standards of at least 65 percent removal (40 CFR §133.105). Consequently, the Discharger does not appear to provide secondary treatment to all its wastewater consistently

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during peak wet weather flows. Even though the 65% removal is an interim limit until the facility is upgraded to meet final effluent limitations, there is still a need to meet the Federal minimum requirements in the interim. Therefore, provisions of this Order require a minimum of secondary treatment for the entire projected peak flows be provided in accordance with a time schedule, if it is determined minimum secondary treatment is not currently achieved during high peak flow periods

The current design flow is reported at 0.5 mgd. Flows of this magnitude are roughly 10 times the average dry weather flows. The high flows are due to excessive I/I flowing into the collection system. Based on data from the past 3 discharge periods (as shown in the table below), at times when wet weather flows approach 0.2 mgd the plant has failed to meet the federal minimum treatment standard of 65% removal of the diluted influent BOD. It is questionable if the existing treatment pond system has adequate detention capacity to adequately treat wastes under high flow conditions. Hence, provisions in this Order require certification from a registered Civil Engineer, with experience in sanitary engineering and wastewater treatment plant design, that the system is capable of meeting the requirements and limitations contained in this Order. This Order requires the design flow of the current system be reevaluated and the actual design flow, if different, be resubmitted to the Board. If the design flow is lower than the actual flows, then either the plant must increase in treatment capacity or additional I/I corrective measures must be taken to lower peak flows to treatment capabilities.

Data From Monitoring Reports (1999-2002)

Date	Effl. Flow MGD	Influent BOD mg/L	Effluent BOD mg/L	% Removal BOD
17 Nov '99	0.063	350	<30	91
25 Jan '00	0.286	32	23	28**
07 Feb '00	0.136	67	14	79*
06 Mar '00	0.430	52	6	88
03 Apr '00	0.119	150	<3	98
01 May '00	0.208	110	40	63**
08 Jan '01	0.213	41	36	12**
06 Feb '01	0.042	210	70	66*
06 Mar '01	0.189	85	23	73*
20 Mar '01	0.064	370	21	94
27 Mar '01	0.056	270	50	81*
03 Apr '01	0.027	140	36	74*
10 Jan '02	0.187	70	11	84*
05 Feb '02	0.078	110	11	90
05 Mar '02	0.062	160	16	90
02 Apr '02	0.055	130	25	81*

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- \* Represents less than secondary level treatment standards (>85% removal)
- \*\* Violation of WDR Order No. 96-069 and federal treatment standards (>65% BOD removal)

Based on the above data, the current ponds at WGWTP do not appear to have adequate capacity to provide reliable treatment consistently to comply with Federal Regulation, 40 CFR Part 133. These regulations, at the current design flow, require that the minimum levels of effluent quality be achieved from secondary treatment and/or meet at least secondary treatment standards, specifically for BOD with a minimum of 65% removal. Therefore, to minimize the incomplete treatment of wastewater at the highest flows and possibly avoid the expense of future plant upgrades to accommodate high peak flows, the discharger shall continue to aggressively reduce the peak I/I to the extent possible. Provisions of this Order require the discharger to submit to the Board a work plan, a budget, progress reports, and proposed corrective action to be taken to reduce the I/I in accordance with a time schedule.

#### **For Discharge to Evaporation/Percolation Pond**

The City's wastewater system principally consists of stabilization ponds. Experience with wastewater ponds systems shows they may experience problems with odors, flooding and overflows, toxicity from base or acid conditions, mosquitoes and levee damage. Pond Disposal Limitations have been included in this Order to avoid the problems commonly observed at this type of system and to assure compliance with Waste Discharge Requirements. The Order requires: (1) that odors not be perceivable beyond the treatment and disposal area; (2) that dissolved oxygen content be maintained above 1 mg/l (to assure the absence of offensive odors); (3) the facility be designed and operated to prevent washout or inundation from 100-year storm events; (4) mosquito control; (5) prohibition of public contact with wastewater; (6) pH to be maintained between 6.5 and 9.0; and (7) a minimum freeboard of 2 feet.

#### **V. TERTIARY TREATMENT REQUIREMENTS**

As defined in the findings of the NPDES Order, the point of discharge (Ditch) is a water of the United States, are waters in the defined Delta, and have prescribed beneficial uses which have not been fully protected by prior permits. Beneficial uses of Delta include contact recreation uses and irrigation. Because of the lack of assimilative capacity in the receiving waters, at the point of discharge, a higher degree of wastewater treatment is necessary for continuous protection of all present and future beneficial uses of the receiving water. That higher degree of treatment is defined as tertiary treatment and for the purposes of the WGWTP NPDES Order it is described as wastewater that is adequately oxidized, coagulated and filtered as defined by the DHS for the protection of public health. As a result, final effluent limitations are required by this Order in

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accordance with a time schedule. Effluent limitations are based on technology-based standards for tertiary treatment and will meet all human health criteria as recommended by DHS .

The agricultural drainage ditch that Walnut Grove discharges to is part of the Sacramento-San Joaquin Delta and as indicated in Table II-1 of the Basin Plan has the designated beneficial use of MUN as an existing use. Because these receiving waters naturally provide no dilution water, this Order includes a provision that requires the Discharger to construct tertiary or advanced treatment facilities in accordance with a 5-year compliance time schedule.

The existing Walnut Grove discharge to the Ditch is also accessible to the general public. The Ditch originates in the community of Walnut Grove, near the Sacramento River, and flows immediately adjacent to a local elementary school, past the wastewater treatment plant, and continues to the levee of Snodgrass Slough where it is pumped through the levee and into the Slough. Whether actual human contact with the treated wastes in the Ditch takes place is deemed irrelevant since the Ditch is within the legal boundaries of the Delta, and therefore have the designated beneficial uses of REC-1 and REC-2 as existing uses. The Basin Plan requires protection of past, present and probable future beneficial uses. Since the discharge to the Ditch will result, at times, in minimal dilution flows entering streams within the defined Delta, recreation types 1 and 2 as defined in the Basin Plan must be protected. This Order includes a provision that requires the Discharger to construct tertiary or advanced treatment facilities in accordance with a 5-year compliance time schedule.

The existing discharge to the Ditch is also accessible to the general public for agricultural irrigation. Agricultural supply waters in the local area of the Ditch are either from the Sacramento River or from Snodgrass Slough. The main crop grown in the area of the Ditch is alfalfa. However, the Ditch is within the legal boundaries of the Delta, and therefore has the designated beneficial use of unrestricted irrigation. DHS recommends that in cases where treated wastewater discharges to agricultural ditches or creeks identified to have beneficial uses of irrigation of vegetables or fruit crops that do not come in contact with the treated wastewater and dilution is <20:1, then the wastewater only needs to be adequately oxidized and disinfected. DHS also recommends that in cases where beneficial uses include contact recreation and food crop irrigation and the receiving stream provides <20: 1 dilution, then the wastewater should be oxidized, coagulated and filtered and the effluent be disinfected such that the median MPN of coliform organisms does not exceed 2.2/100ml. The Ditch has no available dilution and in accordance with the Basin Plan must be protected for irrigated agriculture. Therefore, this Order includes a Provision that requires the Discharger to construct tertiary or advanced treatment facilities in accordance within 5-years after adoption of the renewed NPDES Order.

There are no bacteria/total coliform requirements in the Basin Plan for water designated to have agricultural use. The Basin Plan requires recreational contact use water to contain less than 200MPN/100 ml fecal coliform for a 30-day average. However, this objective was

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established for natural stream systems not containing wastewater discharges with human pathogens. There are requirements for total coliform and more advanced pathogen removal as established for reclaimed wastewater under Title 22. However, the discharge is not part of a planned reclamation project. The Regional Board requested the California Department of Health Services (DHS) for guidance regarding the use of relatively undiluted wastewater. DHS responded to the Regional Board with recommending treatment levels to protect public health from both contact recreation and food crop irrigation. DHS recommends that, in cases where relatively undiluted wastewater discharges are permitted to agricultural ditches and creeks that have been identified by the Regional Board to have beneficial uses of body contact recreation or irrigation of vegetables and food crops where the vegetables or fruit may come in contact with the treated wastewater, then the wastewater should be adequately oxidized, coagulated, filtered, and disinfected. The wastewater should be considered adequately disinfected if:

- 1) The chlorine disinfection process provides a CT (residual chlorine concentration times modal contact time) value of not less than 450 milligram-minutes per liter at all times, with a modal contact time of at least 90 minutes, based on peak dry weather design flow; and
- 2) The median concentration of total coliform bacteria measured in the disinfected effluent does not exceed an MPN of 2.2 per 100 ml utilizing the bacteriological results of the last seven days for which analyses have been completed and the number of total coliform bacteria does not exceed an MPN of 23 per 100 ml in more that one sample in any 30 day period. No single sample should exceed an MPN of 240 per 100 ml for total coliform bacteria.

To protect the body contact recreation and agricultural irrigation beneficial uses, a tertiary level of treatment for pathogen removal is required. Final effluent limits for **total coliform** of 2.2 MPN/100ml for a 7-day median and 23 MPN/100 ml for a daily maximum and **turbidity** limits of 2 NTU for a daily average and 5 NTU for daily maximum are prescribed. The effluent limitation for total coliform is intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing pathogens. The turbidity effluent limitation is intended as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. Interim disinfection effluent limits are based on secondary treatment capabilities at 23 MPN as a 30-day median and 240 MPN as the daily maximum.

The Discharger has not estimated the addition of tertiary treatment with coagulation (using the projected design flow of 0.5 mgd). However, based on similar project upgrades, the capital costs would be about 2.0 million dollars. The economic impact from the capital improvement project, using outside money, would increase the monthly user fee by

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approximately \$55. The economic analysis for implementation of tertiary or advanced treatment is calculated as follows:

$$\begin{aligned} & \$2 \times 10^6 \text{ (Capital Cost)} / 264 \text{ (households yr 2000)} = \$7575/\text{household} \\ & A = P \times (A/P)^{n=20 \text{ yrs} \ \& \ i=6\%} = 7575 (0.0872) = \$660/\text{yr} = \$55/\text{month} \end{aligned}$$

The total cost for the proposed improvements would add up to \$62.90/month (\$7.90 + \$55)

Alternatively, the economic impact from the capital improvement project, using low interest (3%) loan funds provided in perpetuity by California State Revolving Fund Program (SRF), for the construction of wastewater treatment and water recycling facilities, would only increase the monthly user fee by approximately \$42. The economic analysis using SRF monies for implementation of advanced treatment is calculated as follows:

$$\begin{aligned} & \$2 \times 10^6 \text{ (Capital Cost)} / 264 \text{ (household yr 2000)} = \$7575/\text{household} \\ & A = P \times (A/P)^{n=20 \text{ yrs} \ \& \ i=3\%} = 7575 (0.0672) = \$ 509/\text{yr} = \$42/\text{month} \end{aligned}$$

These economic analysis conclude that for the 264 households in the City of Walnut Grove a 20 year monthly rate increase would range (depending on the source of money) from \$42 to \$55 per household if none of the cost were passed onto to industrial, commercial and institutional users. The increase in monthly rate does not include annual operation and maintenance costs. The Board considers \$2 million dollars a significant amount of money to the 669 residential users and their monthly rates will increase appreciably as a result of building tertiary or advanced treatment facilities. However, given the location of the existing discharge and the existing beneficial uses of the receiving waters that must be protected, this monthly rate is not out of line with other communities in similar circumstances.

It is also possible that tertiary or advanced treatment will allow the Discharger to meet additional effluent limitations contained in this permit. However, the ability to meet this permit's effluent limitations will not be known until the new tertiary or advanced treatment facilities are constructed and operational. Once data are obtained from the new facility, re-evaluation of reasonable potential will be provided based on the quality of the new effluent. If the quality of the tertiary effluent does not meet all permit limitations, additional treatment and disposal options will have to be considered. Provisions of this permit allow five years for the construction of tertiary treatment facilities and to achieve full compliance with effluent limitations regarding BOD, suspended solids, total coliform, and turbidity. Full compliance with effluent limitations for specific tri-halomethanes, volatile organics and metals are also required and expected to be met with the construction of the tertiary facilities in five years which is the maximum time allowed by the California Toxics Rule. One benefit of the expansion to tertiary is the expected lowering of the mass of these metals with further treatment.

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If feasible, the Discharger may consider alternatives to tertiary treatment to comply with final effluent limitations. Alternatives include: (1) relocation of effluent point of discharge where assimilative capacity exists to the pollutants of concern, and (2) elimination of surface water discharge through total land disposal or by land reclamation of treated effluent.

Additionally, if the Discharger believes any of the above mentioned beneficial uses like; agricultural irrigation, MUN, and contact recreation (REC-1) is not a present and probable future beneficial use of the Ditch then the discharger may seek a site-specific amendment to the Basin Plan. Currently, Basin Plan amendment is the only method of deleting the beneficial uses for these Delta waters.

## **VI. SUMMARY OF NEW ORDER**

This Order includes the proposed incorporation of the City of Locke into WGWTP for treatment and disposal. Based on the new Report of Waste Discharge, permitted discharge flow remains the same as in the previous Order. However, this Order broadens certain effluent limitation guidelines of previous Order representing the degree of effluent treatment attainable by the technology based currently available for wastewater treatment plants.

Because of the complexities of issues and associated costs involved to comply with the new effluent limitations, the Discharger's request for additional time to evaluate alternatives means of complying with this Order has been granted. This Order requires Discharger to submit an engineering feasibility report and select a cost effective project to comply with this Order in accordance with the time schedule.

This Order also requires the Discharger to provide information on whether pollutants in the discharge have a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective. This Order requires the Discharger to develop and submit: 1) *salinity source control work plan*, 2) *chronic toxicity testing results*, 3) *hydro-geologic evaluation and groundwater monitoring report*, 4) *CTR constituents corrective action plan*, 5) *reduction of I/I work plan*, and 6) a *Summary Pollutant Data and Receiving Water Characterization Report*. This Order may be reopened to establish water quality based effluent limitations, if required supplemental data, required by provisions in this Order, indicates a pollutant has a reasonable potential.

In addition, this Order also requires the Discharger to include tertiary or advanced treatment capabilities in order to protect the beneficial uses of the Ditch for municipal and domestic water supply, body contact recreation and agricultural irrigation, and to comply with final effluent limits for total coliform.

## **VII. RECEIVING WATER BENEFICAL USES**



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The Sacramento River and San Joaquin River Basins cover about one fourth of the total area of the State and over 30 percent of the State's irrigable land. The Sacramento and San Joaquin Rivers furnish roughly 51 percent of the State's water supply. Surface water from the two drainage basins meet and form the Delta, which ultimately drains to San Francisco Bay. Most of the basin is agricultural land, with an agricultural history dating to the 1870's. The Sacramento River is the largest tributary to the San Joaquin River. The basins are bound by the crests of the Sierra Nevada on the east and the Coast Range and Klamath Mountains on the west. They extend some 400 miles from the California-Oregon border southward to the headwaters of the San Joaquin River.

The Regional Board adopted a Water Quality Control Plan; Fourth Edition, for the Sacramento River and San Joaquin River Basins (Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve water quality objectives for all waters of the Basin. The requirements in this Order implement the Basin Plan.

The Basin Plan at page II-2.00 states that: "Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning. Existing and potential beneficial uses which currently apply to surface waters of the basins are presented in Figure II-1 and Table II-1. The beneficial uses of any specifically identified water body apply to its tributary streams. The Basin Plan does not identify any beneficial uses specifically for the Ditch, but the Basin Plan does identify present and potential uses for the Sacramento and San Joaquin Rivers, to which the Ditch is tributary. The Basin Plan identifies the following beneficial uses for the Sacramento – San Joaquin River Delta: municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, body contact water recreation, other non-body contact water recreation, warm freshwater aquatic habitat, cold freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat, wildlife habitat, and navigation. The Basin Plan defines the beneficial uses and with respect to disposal of wastewaters states that "... disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses." Upon review of the flow conditions, habitat values, and beneficial uses of the Ditch, the Regional Board finds that the beneficial uses identified in the Basin Plan for the Sacramento and San Joaquin Delta are all applicable to the Ditch.

## **VIII. WATER QUALITY OBJECTIVES**

The Porter Cologne Water Quality Control Act defines water quality objectives as "*...the limits or levels of water quality constituents or characteristics which are established for the reasonable protection of beneficial uses of water or the prevention of nuisance within a specific area*".

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Water quality objectives designed to protect beneficial uses and prevent nuisances are found in the Basin Plan, and may be stated in either numerical or narrative form.

**A. BASIN PLAN OBJECTIVES**

Specific water quality objectives, which apply to surface waters in the Sacramento and San Joaquin Delta, are provided in Chapter III of the Basin Plan.

**1. Receiving Water Objectives:**

**a. Dissolved Oxygen (DO)**

*At page III-5.00 the Basin Plan states; for surface water bodies within the legal boundaries of the Delta, the dissolved oxygen (DO) concentration shall not be reduced below 5.0 mg/l all the time.*

The new Order allows discharge to the Ditch only during the winter months (1 November to 15 May). In winter months the flow in the Ditch, if any, is mostly from the storm water run-offs, which generally is rich in dissolved oxygen. The treated plant effluent, therefore, should not contribute to a decrease in DO in the River. However, a minimum level of 5 mg/l as an effluent limitation is set for this criteria to protect warm water body species in the Ditch.

**b. Oil and Grease**

*The Basin Plan states “Waters shall not contain oils, greases, waxes, or other materials in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.”*

The current wastewater treatment activity is not anticipated to generate any oils, greases, waxes, or other materials that can cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses. Therefore, there is no reasonable potential to exceed the criteria established by the Basin Plan.

**c. pH**

The Basin Plan provides that the pH (of surface waters) shall not be depressed below 6.5 nor raised above 8.5 pH Units. The Basin Plan further provides that changes in normal ambient pH levels shall not exceed 0.5 pH Units in fresh waters with designated COLD or WARM beneficial uses. The wastewater

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analysis submitted by the discharger indicates the lowest and highest monthly average pH values of 6.3 and 7.5 in the effluent, respectively. These readings indicate that the current wastewater treatment activity has a reasonable potential to generate effluent with a pH concentrations that could adversely affect beneficial uses. Hence, an effluent limitation for this criterion is set at 6.5 (daily minimum) and 8.5 (daily maximum), which are protective of receiving waters. An effluent and receiving water limitations have been established in the Order.

d. **BOD**

40 Code of Federal Regulations (CFR), Section 133.102 contains regulations describing the minimum level of effluent quality—for biochemical oxygen demand (BOD) and total suspended solids (TSS)—attainable by secondary treatment. These standards continue to be applied in this Order.

In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. Therefore, this Order contains a limitation requiring an average of 85 percent removal of BOD and TSS over each calendar month

e. **Settleable Matter**

The Basin Plan states, “*the water shall not contain substances in concentrations that result in the deposition of material that causes nuisances or adversely affects beneficial uses.*” The current wastewater treatment activity has a reasonable potential to generate settleable matter in concentrations that could adversely affect beneficial uses. There are occasions where it is necessary to drain process for cleaning and maintenance. This practice could result in process unit sediments being discharged directly to the Ditch. Hence, an effluent limitation for this criterion is set at 0.1 ml/l (monthly average) and 0.2 ml/l (daily maximum), which are protective of receiving waters.

f. **Temperature**

At page III-8.00, the Basin Plan states; “*The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the Regional Water Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of COLD or WARM intrastate waters be increased more than 5°F above natural receiving water temperature... In determining compliance with the*

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*water quality objectives for temperature, appropriate averaging periods may be applied provided that beneficial uses will be fully protected.”*

The current practice of effluent discharge is not expected to cause variation in receiving water temperature by more than 5° F. This is due to the influent wastewater, which is circulated through several process units for several hours within the plant before it is discharged into the Ditch. Consequently, no effluent limitation has been included in this Order.

**g. Suspended Matter**

Regarding suspended material, the Basin Plan states: *“Waters shall not contain suspended material in concentrations that cause nuisance or adversely affect beneficial uses.”* The Basin Plan further states for biostimulatory substances: *“Water shall not contain biostimulatory substances, which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.”*

The current wastewater treatment process has a reasonable potential to generate suspended matter. Municipal wastewater contains numerous suspended matter, which tend to escape the treatment and/or removal process. Because at times, any of the secondary or tertiary treatment process units could malfunction causing solids to stay suspended. This practice could result in suspended matter being discharged directly to the Ditch. Hence, an effluent limitation for this criterion is set at 10 mg/l (monthly average) and 20 mg/l (daily maximum). The rationale for establishing these limits are based on the following requirements: Regulations promulgated under 40 CFR 122.44 (a) require technology based effluent limitations to be placed in NPDES permits based on national effluent limitations guidelines and standards. Furthermore, Section 301 of CWA requires that all POTWs wastewater discharges receive at least secondary level treatment prior to discharge to protect the beneficial uses of the receiving waters. Therefore, in view of these requirements, and the need to protect the beneficial uses of the Ditch, an effluent limitation of 10 mg/l (monthly average) and 20 mg/l (daily maximum) have been established. These limits are considered fair and reasonable for protecting the beneficial uses of receiving waters.

**h. Toxicity**

At page III-8.00 the Basin Plan provides that relative to toxicity: *“All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This objective applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances”.*

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Under the CWA Section 304(a), EPA has developed methodologies and specific criteria guidance to protect aquatic life and human health. These methodologies are intended to provide protection for all surface waters on a national basis. The methodologies have been subject to public review, as have the individual criteria guidance documents. Water quality criteria developed under Section 304(a) of the CWA are based solely on data and scientific judgments on the relationship between pollutant concentrations and environmental and human health effects. Section 304(a) criteria do not reflect consideration of economic impacts or the technological feasibility of meeting the chemical concentrations in ambient water. Section 304(a) criteria provide guidance to States in adopting water quality standards that ultimately provide a basis for controlling discharges or releases of pollutants. USEPA's ambient water quality criteria have been used as a means of supplementing the integrated approach to toxics control, and in some cases deriving numeric limitations to protect receiving waters from toxicity as required in the Basin Plan's narrative standard prohibiting the discharge of toxic constituents in toxic amounts.

This Order contains provisions that require complete characterization of the discharge. The characterization will include analysis for toxic constituents. Provisions also require direct effluent testing for chronic toxicity.

i. **Turbidity**

The Basin Plan states: "*Waters shall be free of changes in turbidity that cause nuisance or adversely affect beneficial uses. Increases in turbidity attributable to controllable water quality factors shall not exceed the following limits:*

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

There is a reasonable potential to exceed the receiving water turbidity criteria due to discharges from the stabilization ponds, when a little to no dilution is available

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in the Ditch. Although, some discharges may occur during the period when a reasonable amount of dilution in the Ditch is expected to take place, a larger amount of discharges also occur during low or no flows in the Ditch. Therefore, receiving water limitations have been incorporated into this Order in conformance with Basin Plan objectives.

j. **Ammonia**

The Basin Plan prohibits the discharge of toxic constituents in toxic concentrations. The Basin Plan prohibition against the discharge of toxic constituents protects the beneficial use of preservation and enhancement of fish, wildlife and other aquatic resources. The receiving unnamed agricultural Ditch, most of the time, has no dilution at the point of discharge and therefore, the discharge has a reasonable potential to exceed Ambient Water Quality Criteria for ammonia. An effluent limitation for ammonia has been included in this permit, which will vary with pH and temperature for fish early life stages present as shown on Attachments E (chronic-30-day averages) and Attachment F (acute-1-hour-averages).

k. **Arsenic**

The Basin Plan includes water quality objectives that “*waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life*” and that “*waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses*”. Municipal and domestic supply is a beneficial use of the receiving stream. Based on effluent sampling results submitted by the Discharger, arsenic in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the U.S. EPA Primary Maximum Contaminant Level (MCL) of 10 µg/l for arsenic. For example, USEPA's  $10^{-6}$  incremental cancer risk estimate for drinking water is 0.02 µg/l. OEHHA's  $10^{-6}$  risk level is 0.023 µg/l. USEPA's recommended ambient water quality criterion for protection of human health in waters considered to be potential sources of drinking water is 0.018 µg/l at the  $10^{-6}$  risk level. Since naturally occurring arsenic exists in the area, it is more appropriate to use the regulatory level of 10 µg/l in this situation than the cancer risk levels. Therefore, this permit sets an effluent limitation for Arsenic of 10 µg/l as a monthly annual average and is based on protection of the beneficial use of municipal and domestic water supply, the Basin Plan water quality objective for chemical constituents and toxicity, and the U.S. EPA Primary MCL. However, this Order includes a provision that requires the Discharger to perform a study, which will include sampling for arsenic in the influent and effluent on a monthly basis at a lower detection limit, and allow the Board to reopen this Order and establish an effluent limitation for

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arsenic if deemed necessary. Analytical results for arsenic are from samples collected between January and May 2002 at concentrations ranging from 14  $\mu\text{g/l}$  to 26  $\mu\text{g/l}$ . The measured effluent concentrations are greater than the primary maximum contaminant level of 10 mg/l water quality criteria. Therefore, final effluent limitation for arsenic are included in this Order.

1. **Bis (2-ethylhexyl) phthalate**

Based on effluent sampling results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for bis (2-ethylhexyl) phthalate. The CTR includes a standard for the protection of human health based on a one-in-a-million cancer risk for Bis (2-ethylhexyl) phthalate at 1.8  $\mu\text{g/l}$ . Municipal and domestic supply is a beneficial use of the receiving water.

Bis (2-ethylhexyl) phthalate was detected in effluent samples collected in December 2000 and winter of 2002 at concentrations of 3.4  $\mu\text{g/l}$ . The CTR criterion for waters from which both water and aquatic organisms are consumed is 1.8 $\mu\text{g/l}$  for Bis (2-ethylhexyl) phthalate. The measured effluent concentration is greater than the water quality criteria; therefore, Effluent Limitation for Bis (2-ethylhexyl) phthalate is included in this Order.

The SIP requires that CTR human health and aquatic life objectives be set equal to the average monthly limitation. A daily limitation was then calculated as shown below:

Final Effluent Limit For Bis (2-ethylhexyl) phthalate:

The ECA (effluent concentration allowance) = C (criterion) = 1.8  $\mu\text{g/l}$

Due to lack of adequate data, the default coefficient of variation ( $CV = \frac{\sigma}{\mu}$ ) is 0.60

From SIP Table 2, the MDEL/AMEL Multiplier by extrapolation ( $n=4$ ,  $CV = 0.60$ ) is 2.01

The AMEL (average monthly effluent limit) = ECA = 1.8  $\mu\text{g/l}$

The MDEL (maximum daily effluent limit) = ECA x MDEL/AMEL multiplier = 1.8 x 2.01 = 3.6  $\mu\text{g/l}$

Interim Effluent Limit For Bis (2-ethylhexyl) phthalate:

Based on plant performance, the interim effluent limit is calculated statistically by multiplying the maximum observed concentration of 3.4  $\mu\text{g/l}$  by a factor of 3.11 (obtained from EPA's Technical Support Document Table 6C-6 for 99<sup>th</sup> percentile occurrence probability and using a default coefficient of variation of 0.6 due to minimal sampling data with the required sampling

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frequency at 4 per year), the MDEL for Bis (2-ethylhexyl) phthalate =  $3.4 \mu\text{g/l} \times 3.11 = 11 \mu\text{g/l}$  as a daily maximum..

**m. Chlorine, Total Residual**

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

The resulting average monthly effluent total residual chlorine concentration limitation is 0.011 mg/l. Because chlorine is a toxic constituent that can be and will be monitored continuously, an average one-hour limitation is considered more appropriate than an average daily limitation. Average one-hour, four-day, and one-month effluent limitations for chlorine, based on these criteria, are included in this Order.

**n. Chloroform**

Chloroform, one of several Total Tri-halomethanes, was detected in effluent samples collected between January and May 2002 at concentrations ranging from 230  $\mu\text{g/l}$  to 1060  $\mu\text{g/l}$ . Municipal and domestic supply is a beneficial use of the receiving stream. The narrative toxicity objective and this beneficial use designation comprise a water quality standard applicable to pollutants in the receiving stream. The Basin Plan contains the *Policy for Application of Water Quality Objectives*, which provides that narrative objectives may be translated using numerical limits published by other agencies and organizations. The Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) has published the Toxicity Criteria Database, which contains cancer potency factors for chemicals, including chloroform, that have been used as a basis for regulatory actions by the boards, departments and offices within Cal/EPA. The OEHHA cancer potency value for oral exposure to chloroform is 0.031 milligrams per kilogram body weight per day (mg/kg-day). By applying standard toxicological assumptions used by OEHHA and U.S. EPA in evaluating health risks via drinking water exposure of 70 kg body weight and 2 liters per day water



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consumption, this cancer potency factor is equivalent to a concentration in drinking water of 1.1 µg/l at the one-in-a-million cancer risk level. This risk level is consistent with that used by the Department of Health Services (DHS) to set *de minimis* risks from involuntary exposure to carcinogens in drinking water in developing MCLs and Action Levels and by OEHHA to set negligible cancer risks in developing Public Health Goals for drinking water. The one-in-a-million cancer risk level is also mandated by U.S. EPA in applying human health protective criteria contained in the *National Toxics Rule* and the *California Toxics Rule* to priority toxic pollutants in California surface waters. A recent decision by the State Water Resources Control Board, Order No. WQ2002-0015, found that application of a chloroform limitation for a discharge to an ephemeral stream based on a cancer risk analysis was not appropriate since the U.S. EPA is evaluating the science used to develop the CTR and has reserved application of a water quality standard. This Order establishes an Effluent Limitation at the maximum contaminate level (MCL) for total tri-halomethanes, the sum of bromoform, bromodichloromethane, chloroform and dibromochloromethane, based on protection of the municipal beneficial use of 80 µg/l. Based on information included in analytical laboratory results submitted by the Discharger, the discharge was found to have a reasonable potential to cause or contribute to an in-stream excursion above the water quality objective for municipal uses by causing exceedance of the primary MCL for tri-halolmethanes. Therefore, a final effluent limitation for total tri-halomethanes (which includes chloroform) are included in this Order and are based on the Basin Plan objective for municipal use.

**o. Cyanide**

Based on effluent sampling results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for cyanide. The CTR includes maximum 1-hour average and 4-day average cyanide concentrations of 22 µg/l and 5.2 µg/l, respectively, for the protection of freshwater aquatic life. Freshwater aquatic habitat is a beneficial use of the Ditch.

Cyanide was detected in effluent samples collected between January and May 2002 at concentrations ranging from 7 µg/l to 22 µg/l. The measured effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for cyanide are required. Effluent Limitations for cyanide are included in this Order and are based on CTR standards for the protection of freshwater aquatic life.

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

Final Effluent Limit

$$\text{ECA (Effluent Concentration Allowance)} = 5.2 \mu\text{g/l (acute) \& } 22 \mu\text{g /l (chronic)}$$

$$\text{LTA (Long-Term Average) Chronic} = \text{ECA} \times \text{ECA}_{\text{multiplier, chronic}}$$

$$= 5.2 \times 0.527 \text{ (from SIP Table 1 at CV=0.6)}$$

$$\text{LTA (Chronic)} = 2.7 \mu\text{g /l}$$

$$\text{LTA (Long-term Average) Acute} = \text{ECA} \times \text{ECA}_{\text{multiplier, acute}}$$

$$= 22 \times 0.321 \text{ (from SIP Table 1 at CV=0.6)}$$

$$= 7.06 \mu\text{g /l}$$

$$\text{AMEL (Average Monthly Effluent Limitation)} = \text{LTA Chronic} \times \text{AMEL}_{\text{multiplier}}$$

$$= 2.7 \times 1.55 \text{ (from SIP Table 2)}$$

$$\text{AMEL} = \mathbf{4.2 \mu\text{g /l}}$$

$$\text{MDEL (Maximum Daily Effluent Limitation)} = \text{ECA} \times \text{MDEL}_{\text{multiplier}}$$

$$= 2.7 \times 3.11 \text{ (from SIP Table 2)}$$

$$\text{MDEL} = \mathbf{8.4 \mu\text{g /l}}$$

Interim Effluent Limit:

Based on plant performance, the interim effluent limit is calculated statistically by multiplying the maximum observed concentration of 22 µg/l by a factor of 3.11 (obtained from EPA's Technical Support Document Table 6C-6 for 99<sup>th</sup> percentile occurrence probability, and using a default coefficient of variation of 0.6 due to minimal sampling data with the required sampling frequency at 4 per year), the MDEL for Cyanide = 22 µg/l x 3.11 = 68 µg/l as a daily maximum.

**p. Dibromochloromethane**

Based on effluent sampling results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for dibromochloromethane. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for dibromochloromethane. Municipal and domestic supply is a beneficial use of the receiving stream. The standard for waters from which both water and organisms

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are consumed is 0.41 µg /l. The maximum observed effluent dibromochloromethane concentration was 10 µg /l.

Dibromochloromethane was detected in an effluent sample collected between January and May 2002 at concentrations ranging from 6.9 µg/l to 10 µg/l. The CTR criterion for waters from which both water and aquatic organisms are consumed is 0.41 µg/l. The measured effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for dibromochloromethane are required. Effluent Limitations for dibromochloromethane are included in this Order and are based on the CTR standard for the protection of human health.

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

Final Effluent Limit:

The ECA (effluent concentration allowance) = C (criterion) = 0.41 µg/l

Due to lack of adequate data, the default coefficient of variation ( $CV = \frac{\sigma}{\mu}$ ) is 0.60

From SIP Table 2, the MDEL/AMEL Multiplier by extrapolation (n=4, CV = 0.60) is 2.01

The AMEL (average monthly effluent limit) = ECA = **0.41** µg/l.

The MDEL (maximum daily effluent limit) = ECA x MDEL/AMEL multiplier = 0.41 x 2.01 = **0.82** µg/l

Interim Effluent Limit:

Based on plant performance, the interim effluent limit is calculated statistically by multiplying the maximum observed concentration of 10 µg/l by a factor of 3.11 (obtained from EPA's Technical Support Document Table 6C-6 for 99<sup>th</sup> percentile occurrence probability, and using a default coefficient of variation of 0.6 due to minimal sampling data with the required sampling frequency at 4 per year), the MDEL for Dibromochloromethane = 10 µg/l x 3.11 = 31 µg/l as a daily maximum.

**q. Bromodichloromethane**

Based on effluent sampling results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR standards for bromodichloromethane. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for bromodichloromethane. Municipal and domestic supply is a beneficial use of the receiving water. The standard for waters from which both water and organisms are

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consumed is 0.56 µg/l. The maximum observed effluent bromodichloromethane concentration was 69 µg/l. Bromodichloromethane was detected in an effluent sample collected between January and May 2002 at concentrations of 55 µg/l and 69 µg/l. The CTR criterion for waters from which both water and aquatic organisms are consumed is 0.56 µg/l. The measured effluent concentrations are greater than the water quality criteria; therefore, Effluent Limitations for dibromochloromethane are required. Effluent Limitations for bromodichloromethane are included in this Order and are based on the CTR standard for the protection of human health.

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

Final Effluent Limit:

The ECA (effluent concentration allowance) = C (criterion) = 0.56 µg/l

Due to lack of adequate data, the default coefficient of variation ( $CV = \frac{\sigma}{\mu}$ ) is 0.60

From SIP Table 2, the MDEL/AMEL Multiplier by extrapolation (n=4, CV = 0.60) is 2.01

The AMEL (average monthly effluent limit) = ECA = **0.56 µg/l**.

The MDEL (maximum daily effluent limit) = ECA x MDEL/AMEL multiplier = 0.56 x 2.01 = **1.1 µg/l**

Interim Effluent Limit:

Based on plant performance, the interim effluent limit is calculated statistically by multiplying the maximum observed concentration of 69 µg/l by a factor of 3.11 (obtained from EPA's Technical Support Document Table 6C-6 for 99<sup>th</sup> percentile occurrence probability, and using a default coefficient of variation of 0.6 due to minimal sampling data with the required sampling frequency at 4 per year), the MDEL for Bromodichloromethane = 69 µg/l x 3.11 = 215 µg/l as a daily maximum.

r. **Manganese**

The Basin Plan includes a water quality objective that "...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the provisions of Title 22 of the California Code of Regulations."

Municipal and domestic supply is a beneficial use of the Ditch. Based on effluent sampling results submitted by the Discharger, manganese in the discharge has a reasonable potential to cause or contribute to an in-stream

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excursion above the Secondary Maximum Contaminant Level (MCL) of 50 µg/l for manganese. The Basin Plan also includes water quality objectives that water is free of discoloration and taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the Ditch. Manganese concentrations in excess of the Secondary MCL produces aesthetically undesirable discoloration and taste. An Effluent Limitation for manganese is included in this Order and is based on protection of the Basin Plan water quality objectives for chemical constituents, color, and tastes and odors and the DHS Secondary MCL.

Manganese was detected in an effluent sample collected between January and May 2002 at concentrations ranging from 160 µg/l to 220 µg/l. The measured effluent concentrations are greater than the secondary maximum contaminant level of 50 µg/l water quality criteria; therefore, Final Effluent Limitation for manganese is included in this Order.

**s. Mercury**

Municipal and domestic supply is a beneficial use of the Ditch. The CTR contains a human health criterion (based on a one-in-a-million cancer risk) of 0.050 µg/l for waters from which both water and aquatic organisms are consumed. 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). In 40 CFR Part 131, U.S. EPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species. Both values are controversial and subject to change. In the CTR, U.S. EPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date. The maximum observed effluent mercury concentration was 0.027 µg/l. The Delta has been listed as an impaired water body pursuant to Section 303(d) of the Clean Water Act because of mercury. Because the Delta has been listed as an impaired water body for mercury, the discharge must not cause or contribute to increased mercury levels. The SIP, Section 1.3, requires the establishment of an effluent limitation for a constituent when the receiving stream background water quality exceeds an applicable criterion or objective. This Order contains an interim performance-based mass Effluent Limitation of 0.01 lbs/year for mercury for the effluent discharge to the Ditch. This limitation is based maintaining the mercury loading at the current level until a total maximum daily load (TMDL) can be established and EPA develops mercury standards that are protective of human health. The mass limitation was derived using the maximum observed effluent mercury concentration (0.027 µg/l) and the reported average daily surface water effluent

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flow rate (0.226 mgd) and using the maximum allowable 195 days of discharge. Compliance time schedules have not been included since the discharge currently meets the concentration based limitation and the mass limitation can be met through implementation measures and/or by implementing best management practices for controlling mercury and limiting new sewer discharges containing mercury concentrations

t. **Pathogens**

Municipal and domestic supply, agricultural irrigation, and body contact water recreation are beneficial uses of the receiving stream. Coliform limits are imposed to protect the beneficial uses of the receiving water, including public health through contact recreation and drinking water pathways. The Ditch is within the legal boundaries of the Delta, and therefore has the designated beneficial use of unrestricted irrigation. DHS recommends that in cases where treated wastewater discharges to agricultural ditches or creeks identified to have beneficial uses of irrigation of vegetables or fruit crops that do not come in contact with the treated wastewater and dilution is <20:1, then the wastewater only needs to be adequately oxidized and disinfected. DHS also recommends that in cases where beneficial uses include contact recreation and food crop irrigation and the receiving stream provides <20: 1 dilution, then the wastewater should be oxidized, coagulated and filtered and the effluent be disinfected such that the median MPN of coliform organisms does not exceed 2.2/100ml. The Ditch has no available dilution and in accordance with the Basin Plan must be protected for irrigated agriculture. Based on a review of the effluent monitoring, the Discharger will not be able to meet the new limitations; therefore, a time schedule for compliance is included in this Order. This Order includes a Provision that requires the Discharger to construct tertiary treatment in accordance with a 5-year compliance time schedule.

The current effluent total coliform organisms limitations for the Discharger include a monthly median of 2.2 MPN/100 ml and a daily maximum of 23 MPN/100 ml.

u. **303 (d) pesticides**

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: (1) diazinon and chlorpyrifos (organophosphate pesticides), (2) aldrin, chlordane, dieldrin, endosulfan, endrin, 4,4' DDT, heptachlor, heptachlor epoxide, hexachlorocyclohexane (including lindane), and toxaphene (chlorinated hydrocarbon pesticides), and (3) unknown toxicity. The Basin Plan requires that;

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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 Discharger has previously been required to complete effluent analyses for both organochlorine pesticide and organophosphate pesticide. However, none of these pesticides were detected at levels above the CTR criteria established in Appendix 4 of the SIP, and hence, these constituents do not appear to have a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective for organochlorine pesticides listed in Attachment D. Hence, no effluent limits are included in this Order.

**v. Salts**

Total Dissolved Solids (TDS) concentrations in the effluent were found to range between 700 mg/l and 1200 mg/l in samples collected between January and May 2002. The Secondary MCL recommended range is 500 mg/l, the upper range is 1000 mg/l and the short-term range is 1500 mg/l. The Agricultural Water Quality Goal is 450 mg/l, and this value represents a guideline for interpreting water quality for irrigation. In order to protect potential irrigation uses, this permit requires salt reduction in the discharge.

It is the State Water Resource Control Board's policy to reduce salt loading to the Sacramento-San Joaquin Delta and in accordance with Resolution 68-16 permits must require use of best practicable treatment or control of the discharge to achieve the highest water quality consistent with the maximum benefit to the people of the state

To ensure the highest degree of water quality is protected from degradation and since dissolved solids are not readily amendable to conventional treatment, the Discharger is required by this Order to identify and implement to the extent feasible source control measures, consisting of a public education program, evaluation of local ordinance development, and evaluate possible transition to an alternative City source water. This Order requires the discharger to develop a salinity source control study, implement corrective actions, provide annual progress reports, and submit a final effectiveness assessment report.

Furthermore, the effluent concentration may also be a source of groundwater degradation. The infiltration into groundwater is available through

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percolation/evaporation disposal ponds as well as the treated effluent discharge to the Ditch.

There were several other constituents, which were detected in the effluent, that do not pose a reasonable potential to cause an exceedance of a water quality standard and therefore, effluent limits for these constituents were not included in the proposed permit:

**B. WATER QUALITY OBJECTIVES & CALIFORNIA TOXIC RULE (CTR)**

**1. Effluent Limitations:**

**a. Technology Based**

Technology-based treatment requirements under section 301(b) of the CWA represent the minimum level of control that must be imposed in a permit issued under section 402 of the CWA. Regulations promulgated at 40 CFR 122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on national effluent limitations guidelines and standards, best professional judgment (BPJ), or a combination of the two.

40CFR436.32 provides effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the Best Practicable Control Technology (BPCT) currently available for Water Treatment Facilities.

**b. Water Quality Based**

Where technology-based effluent limitations are inadequate to ensure compliance with water quality standards applicable to the receiving water, more stringent effluent limits based upon applicable water quality protection standards are imposed.

**California Toxics Rule (CTR)/National Toxics Rule (NTR)**

On 18 May 2000 the U.S. Environmental Protection Agency (USEPA) published a Final Rule, Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (Federal Register/Vol. 65, No. 97). This final rule promulgated; numeric aquatic life criteria for 23 priority toxic pollutants; numeric human health criteria for 57 priority toxic pollutants; and compliance schedule provisions. The criteria in this final rule, commonly referred to as the California Toxics Rule (CTR), supplement the water quality criteria promulgated for California in the National Toxics Rule (NTR) codified at 40 CFR 131.36, as amended.



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On 2 March 2000, the California State Water Resources Control Board (SWRCB) adopted the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (Phase 1 of the Inland Surface Waters Plan and the Enclosed Bays and Estuaries Plan). This Policy, commonly referred to as the State Implementation Plan (SIP), establishes implementation provisions for priority pollutant criteria promulgated by the USEPA through the NTR and CTR.

**Pollutant Data and Receiving Water Characterization**

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

- a. Require the Discharger to conduct a study to provide information as to whether the levels of National Toxics Rule, California Toxics Rule or other pollutants in the discharge cause or contribute to an in-stream excursion above a water quality or Basin Plan numeric or narrative objective;
- b. If the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality objective, requires the Discharger to submit information to calculate effluent limitations for those constituents; and
- c. Allows the Board to reopen this Order and include effluent limitations for those constituents.

On 10 September 2001 the Executive Officer issued a letter, in conformance with State Water Code, Section 13267, requiring the Discharger prepare a technical report assessing effluent and receiving water quality. A copy of that letter, including its attachments I through IV, is incorporated into this Order as Attachment C. A provision contained in this Order is intended to be consistent with the requirements of Attachment C in requiring sampling for National Toxics Rule (NTR), California Toxics Rule (CTR) and additional constituents to determine if the discharge has a reasonable potential to cause or contribute to water quality impacts. The requirements contained in Attachment C list specific constituents, detection levels, acceptable time frames and report requirements. The provision contained in this Order is intended to duplicate the requirements of the technical report request.

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In addition to CTR/NTR compliance for individual constituents, the Discharger is required to conduct the Chronic Toxicity Testing as 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, this Order requires the Discharger will initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger will submit a work plan to conduct a Toxicity Reduction Evaluation (TRE) and, after Board evaluation, conduct the TRE. The purpose of the TRE is to investigate the causes of, and to identify corrective control actions in response to effluent toxicity incidents. The objective of the TRE is to narrow the search for effective control measures for effluent toxicity. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if a chronic toxicity water quality objective is adopted by the State Water Resources Control Board, this Order may be reopened and a limitation based on that objective included.

### **C. GROUNDWATER CONSIDERATIONS**

In allowing a discharge, the Regional Board must comply with CWC Section 13263 in setting appropriate conditions. The Regional Board is required, relative to the groundwater that may be affected by the discharge, to implement the Basin Plan and consider the beneficial uses to be protected along with the water quality objectives essential for that purpose. The Regional Board need not authorize the full utilization of the waste assimilation capacity of the groundwater (CWC Section 13263(b)) but must consider other waste discharges and factors that affect that capacity. The Basin Plan establishes the beneficial uses for area groundwater as municipal and domestic supply, agricultural supply, industrial service supply, and industrial process supply. Procedures for application of water quality objectives to protect these uses, and the process for and factors to consider in allocating waste assimilation capacity, are set forth in the Basin Plan.

The anti-degradation directives of CWC Section 13000 require that waters of the State that are better in quality than established water quality objectives be maintained “consistent with the maximum benefit to the people of the State.” Waters can be of high quality for some constituents or beneficial uses and not others. Policies and procedures for complying with this directive are set forth in the Basin Plan (including by reference State Water Board Resolution No. 68-16, “Statement of Policy With Respect to Maintaining High Quality Waters in California,” commonly referred to for convenience by Resolution 68-16 or as the “Anti-degradation” Policy).

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Resolution 68-16 establishes essentially a two-step process to comply with the policy. The first step is if a discharge will degrade high quality water, the discharge may be allowed if any change in water quality (a) will be consistent with maximum benefit to the people of the State, (b) will not unreasonably affect present and anticipated beneficial uses of such water, and (c) will not result in water quality less than that prescribed in State policies (*e.g.*, water quality objectives in the Basin Plan). The second step is that any activities that result in discharges to such high quality waters are required to use the best practicable treatment or control (BPTC) of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality consistent with the maximum benefit to the people of the State.

In authorizing waste discharges, the Regional Board evaluates each case to determine whether degradation should be allowed and then either proscribes or limits the degradation on a constituent-by-constituent basis to that which complies with Resolution 68-16. If allowing water quality degradation, the Regional Board must first find that the degradation is at least balanced by the benefit to the public of the activity creating the discharge and that the discharge undergoes BPTC. To facilitate this process and protect their interests, dischargers must provide material and relevant technical information that fully characterizes:

- site-specific hydrogeologic conditions
- background quality of the receiving water
- background quality of other waters that may be affected by the discharge
- all waste constituents to be discharged
- waste treatment and control measures
- how treatment and control measures qualify as BPTC
- the extent that each waste constituent after BPTC will degrade the quality of the groundwater
- how the expected degradation compares to water quality objectives
- how the expected degradation is consistent with maximum public benefit

Water quality objectives (objectives) define the least stringent criteria that could apply as water quality limitations for groundwater at this location, except where natural background quality already exceeds the objective. When the Regional Board adopts objectives in the Basin Plan, it is required to comply with CWC Section 13241, including consideration of economics. Section 13241 does not indicate how the Regional Board is to consider economics in its decisions or emphasize any one of the Section 13241 factors over another. Regardless, Section 13241 applies to the imposition of requirements only when the Regional

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Board is considering whether to impose groundwater limitations more stringent than an objective (see SWRCB Order WQ 95-4, slip op. page 5). Even where a Basin Plan narrative objective exists, and the Regional Board adopts a numeric effluent limitation in waste discharge requirements to implement the narrative objective, the Regional Board is not required to consider the factors in CWC Section 13241.

The objectives in the Basin Plan occur in numeric and narrative form. In issuing waste discharge requirements, the Regional Board must implement the Basin Plan, including all its objectives, but need not allow degradation to the objectives (California Water Code Section 13263). Narrative objectives generally specify that groundwater shall not contain constituents (e.g., chemicals, pesticides, toxic substances, taste- and odor-producing substances) in concentrations that adversely affect beneficial uses. For some narrative objectives, the Basin Plan establishes minimum numerical objectives. Basin Plan numerical objectives are the concentration thresholds necessary for the reasonable protection of beneficial uses of the water. For example, the narrative objective for chemical constituents specifies that, as a minimum, groundwaters designated for municipal supply shall not exceed maximum contaminant levels (MCLs). Similar objectives exist for radioactivity and pesticides. Numeric objectives based on these MCLs are in Title 22. Numeric objectives in the Basin Plan are intended to assure protection of municipal supply also include total coliform of less than 2.2/100 ml. Hence, groundwater limitations are included in this Order.

**D. FREEBOARD**

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

**E. STORM WATER**

Stormwater provisions are a part of this new Order. Therefore, it is not necessary for the Discharger to obtain a separate coverage under the Statewide General Permit for Discharges of Stormwater Associated with Industrial Activities.

**IX. TITLE 27**

Title 27, CCR, Section 20380 et seq. ("Title 27"), contains regulations to address certain discharges to land. Title 27 establishes a waste classification system, specifies siting and construction standards for full containment of classified waste, requires extensive

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monitoring of groundwater and the unsaturated zone for any indication of failure of containment, and specifies closure and post-closure maintenance requirements. Generally, no degradation of groundwater quality by any waste constituent is acceptable.

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

Groundwater monitoring at the site to date has not been sufficient to establish the most appropriate groundwater limits. Reasonable time is necessary to gather specific information about the WGWTP and the site's hydro-geologic conditions to make informed, appropriate, long-term decisions. This proposed Order, therefore, establishes provisions to assure protection of the beneficial uses of groundwater by requiring the Discharger to install sufficient number of monitoring wells and to submit a report showing that degradation of the ground water complies with SWRCB Resolution No. 68-16.

## MAILING LIST

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#### Regional Board Members

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Mr. Mark Bradley, CVRWQCB

USEPA, Region IX, M-5, San Francisco

Corps of Engineers, Sacramento

US Fish & Wildlife Services, Sacramento

Natl. Marine Fisheries Service, Sacramento

Ms. Frances McChesney, State Water Resources Control Board, OCC, Sacramento

Mr. Phil Isorena, State Water Resources Control Board, DWQ, Sacramento

Department of Health Services, Office of Drinking Water, Sacramento

Mr. Cliff Bowen, Department of Health Services, Office of Drinking Water, Berkeley

Department of Health Services, Environmental Management Branch, Sacramento

Department of Fish and Game, Region III, Yountville

Department of Water Resources, Central District, Sacramento

Department of Environmental Management, Sacramento County

Department of Planning, Sacramento County

Mr. Dante Nomellini, Jr., Central Delta Water Agency, Stockton

Mr. John Herrick, South Delta Water Agency, Stockton

Mr. Bill Jennings, Delta Keeper, Stockton

Ms. Marjit Aramburu, Delta Protection Commission, Walnut Grove

Mr. Wendell Kido, District Manager, Sacramento CSD – 1,

Mr. Mike Steve Nebozuk, Sacramento CSD – 1,

Mayor Ping Lee, 1 Main St., Town of Locke, Sacramento County, CA 95690

Mr. Byron M. Buck, California Urban Water Agencies