

Regulatory Benchmarking Study Comparison of Discharge Permits in California

Prepared for the
City of Santa Rosa

October 2004



**Policy for Implementation of Toxics
Standards for Inland Surface Waters,
Enclosed Bays, and Estuaries of California**

(Phase I of the Inland Surface Waters Plan
and the Enclosed Bays and Estuaries Plan)

2000

STATE WATER RESOURCES CONTROL BOARD
California Environmental Protection Agency

Prepared by



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SUMMARY

Water quality policies, regulations, compliance strategies and compliance status were evaluated for nine public agencies discharging wastewater to California surface waters. Particular emphasis was placed on how each discharger was complying with the California Toxics Rule under the State Implementation Policy (CTR/SIP). The purpose of the evaluation is to provide a measure of the water quality policies and regulations to which the Santa Rosa Subregional Water Reclamation System is subject and compare the Subregional System's compliance strategies and status to similar agencies in California.

Dischargers were selected for participation in the evaluation based on the following criteria:

- Discharge more than 1 mgd to an inland surface water in California
- Agree to cooperate in the evaluation

A total of eleven discharges operated by nine agencies participated in the benchmarking study, as summarized in Table 1. Information was collected by interviewing appropriate agency staff and review of relevant documents (e.g., discharge permits, monitoring reports, basin plans, etc). Some interviews were conducted on site, and the remainder were conducted by telephone. Agency representatives were provided with a list of evaluation parameters several weeks prior to the scheduled interview. All interviews were conducted between July and September 2004.

Key results and conclusions of the evaluation are as follows:

- Nine of the eleven discharge tertiary-treated water, as is the case for the Subregional System.
- Ten dischargers have no discharge rate restriction and nine have no discharge season restriction. The Subregional System has both a discharge rate and a seasonal restriction.
- Seven permits contain final and/or interim effluent quality limits issued under the CTR/SIP. Five of these seven permits contain a limit for at least one constituent that the discharger is uncertain if or how it can comply. These dischargers employed approaches during the permit application phase ranging from very active involvement to very passive. Qualitative evaluation of interview results suggests that dischargers actively involved tend to have limits that can be attained and dischargers not actively involved tend to lack an attainment strategy. The Subregional System is very actively involved in the permitting process and has not yet been issued a permit under the CTR/SIP.
- Ten dischargers have conducted or are conducting studies to utilize provisions of the CTR/SIP that allow for consideration of mixing zones, metal translators and water-

effect ratios. The Subregional System is supporting development of a mixing zone policy in Region 1 and is evaluating metal translators and water-effect ratios.

- Three permits contain effluent limits for 30 or more toxic substances. The majority of these effluent limits are imposed based on water quality objectives given in the Basin Plan rather than CTR/SIP. The Subregional System's permit currently contains an effluent limit for one toxic substance (copper). The Subregional System recently submitted a permit application in which CTR/SIP application is projected to result in effluent limits for copper, lead, nickel, mercury, cyanide and endosulfan II.
- Two agencies have capital programs in which more than \$100 million has been spent to comply with recent water quality regulations. This does not include expenditures to comply with CTR/SIP limits, for which capital programs have not yet been developed by any of the nine agencies.
- Four dischargers are currently preparing applications for permits to be issued under the CTR/SIP. All four dischargers expect new effluent limits under the CTR/SIP, as is the case for the Subregional System. Each of these dischargers is expecting limits to be imposed for which it is uncertain how to comply. The Subregional System is expecting new limits for six constituents and a compliance plan will be prepared, and such a plan could include in a finding that compliance cannot be assured for one or more constituents. Each of these dischargers is very actively involved in the permitting process, as is the case for the Subregional System.
- Ten dischargers have at least one federally-protected species inhabiting their respective receiving water. Three federally-protected salmonid species inhabit the Subregional System's receiving waters.
- Two dischargers have chilling plants to cool effluent for compliance with their effluent temperature limit for discharge to a salmonid stream. Both are yearround discharges where summer temperature compliance requires cooling. One chiller (constructed in 2004) has a capacity of 16.5 mgd and cost \$3 million to construct.
- Eleven dischargers have a similar record of compliance with permit requirements to that of the Subregional System.
- Zero dischargers are required to use continuous-recording receiving water monitoring equipment. The Subregional System is required to use continuous-recording receiving water monitoring equipment.
- Zero dischargers have been the subject of litigation related to discharge impacts or CEQA documentation of wastewater project, which is not consistent with the Subregional System's experience.
- Six discharge permitting processes have been affected by water rights issues, which is not consistent with the Subregional System's experience.

- Seven discharge to surface waters recharging aquifers actively used as domestic potable supply. Qualitative evaluation indicates permits for such discharges do not contain more limits or more stringent limits than the group as a whole.
- Seven permits don't have a flow limit. The Subregional System's permit has a flow limit (21.3 mgd average dry weather flow).
- One discharger has a monthly sewer fee greater than the City of Santa Rosa. The City of Santa Rosa's connection fee is higher than those of other dischargers, although definitive information about connection fees could not be obtained for all dischargers.
- One other region (San Francisco Bay) has a seasonal discharge restriction in its Basin Plan. Region 1, in which the Subregional System is located, also has such a restriction.
- One other region (San Francisco Bay) has a discharge rate restriction in its Basin Plan. Region 1, in which the Subregional System is located, also has such a restriction.
- Three regions had Basin Plan provisions for mixing zones prior to 2000 when the CTR/SIP was promulgated. The SIP established statewide policy recognizing mixing zones. The remaining six basin plans have no mixing zone provisions that conflict with the SIP.
- Zero other regions have Basin Plans that specify a particular level of treatment. Region 1, in which the Subregional System is located, requires tertiary treatment for surface water discharges.

Table 1. Agencies Evaluated in Benchmarking Study			
Discharger¹	SWRCB Region²	ADWF (mgd)	Level of Treatment
City of Petaluma	2	5	Secondary, wetland system planned for discharge polishing and tertiary planned for reuse.
City of San Luis Obispo	3	4.5	Tertiary: Nitrification, Filtration with Effluent Cooling
<u>City of Thousand Oaks</u>	4	10.4	Conventional activated sludge with filtration and chlorine disinfection. Upgrade underway to provide ammonia removal and denitrification
<u>Las Vergenes Municipal Water District</u>	4	9.5	Tertiary partial nitrogen removal
<u>City of Roseville</u>	5	15	Tertiary with effluent cooling.
<u>City of Victorville</u>	6	10.7	Tertiary
<u>City of El Centro</u>	7	3.5	Conventional secondary with chlorination and dechlorination
<u>Inland Empire Utilities Agency³</u>	8	CC: 10.9 RP-1: 39.4 RP-5: 7.8	Tertiary chlorination and dechlorination Tertiary with UV, chlorination and dechlorination Tertiary with chlorination and dechlorination
<u>City of Riverside</u>	8	38	Tertiary, with 14 mgd routed through a wetlands for nitrogen removal
<p>¹ Underlined names represent dischargers that were visited as part of this evaluation. Representatives of non-underlined dischargers were interviewed by telephone.</p> <p>² Nine regional water boards regulate surface water discharges in California. However, Region 9 (San Diego) has no dischargers to inland surface waters, so no Region 9 dischargers were evaluated in this study. The Subregional System is located in Region 1.</p> <p>³ IEUA operates three plants that discharge to an inland surface water. The permit for each plant (CC=Carbon Canyon, RP-1 = Regional Plants No. 1 and 4, and RP-5 = Regional Plant No. 5) was evaluated.</p>			

INTRODUCTION

The City of Santa Rosa owns and operates the Santa Rosa Subregional Water Reclamation System (Subregional System). The Subregional System consists of a 21.3 mgd tertiary treatment facility and a reuse/disposal system. The reuse/disposal system consists of three components: irrigation, Geysers steamfield injection and discharge.

Although only about 25 percent of the recycled water produced in an average year is discharged, the discharge component is essential because

- The amount of recycled water produced each year can vary by about 3 billion gallons from 9.5 to 12.6 billion gallons per year;
- The capacity of the discharge is variable to accommodate this year-to-year variation; and
- The capacity of the Geysers and irrigation components is relatively inflexible.

The Subregional System's discharge is subject to increasingly stringent regulation. In 2000, the federal California Toxics Rule established water quality objectives and the State followed with its State Implementation Plan (SIP) for the CTR.

The Santa Rosa Board of Public Utilities (BPU) operates the Subregional System. The BPU approved the *Incremental Recycled Water Program Master Plan* (Master Plan) in March 2004. Master Plan implementation is estimated to cost \$196 million. The Master Plan describes options for managing the discharge component of the existing system and options for managing increased future flows. The Master Plan describes the potential that implementation of the CTR/SIP, beginning with the reissuance of the NPDES permit in March 2005, will result in effluent limits for constituents not currently regulated and for which attainment is uncertain. Despite this uncertainty, the BPU selected a Master Plan alternative that involves continued discharge because the cost of eliminating the discharge (and thus avoiding the need to meet any effluent limits driven by receiving water policies and regulation such as the CTR/SIP) is \$86 million more than the \$196 million Master Plan cost, and this increment is considered unaffordable. However, the BPU directed that a wide range of CTR/SIP compliance strategies be developed and that an evaluation of statewide regulation of discharge be conducted to provide the BPU with a broader perspective on regulatory fairness and consistency, and the compliance strategies employed by similar dischargers (i.e., a regulatory benchmarking evaluation). This report is intended to address the BPU's request for a benchmarking evaluation.

STUDY APPROACH

DISCHARGER SELECTION

Dischargers were selected for participation in the evaluation based on the following criteria:

- Discharge more than 1 mgd to an inland surface water in California
- Agree to cooperate in the evaluation

A total of eleven discharges operated by nine agencies participated in the benchmarking study, as summarized in Table 1.

EVALUATION PARAMETERS

Dischargers were assessed according to the following parameters:

Water Quality Regulations and Policy

- Basin Plan provisions such as seasonal and discharge rate limitations, compliance schedule provisions, interpretation of narrative water quality objectives, and Basin Plan provisions regarding dilution.
- Discharger augmentation of funding to RWQCB or DFG to expedite policy or permitting decisions (number of projects, funding amount)
- Status of TMDL development for receiving water of POTW effluent
- Receiving water 303d listed (constituents, effect on permit process)

Discharge Permit

- Date of issuance, expiration
- Permitted plant flow (adwf and peak day)
- Permitted discharge flow (minimum and maximum flow and dilution)
- Effluent limits (TSS, TDS, turbidity, pathogens, pH, toxics, toxicity, nutrients)
- Receiving water monitoring program (number of receiving water monitoring stations, parameters, frequency of monitoring). Is continuous-recording monitoring equipment required?
- Reasonable potential evaluation approach, infeasibility standard, effluent limit setting approach
- Approach to hardness calculation in reasonable potential analysis.
- Enforcement Order (Cease and Desist or Time Schedule Order) in effect?
- Permit appeals
- Allowance or reliance on “interim” permit limits and scope of such interim limits
- Re-openers/Special Studies

Wastewater Facility

- Current flow (adwf and peak day)
- Discharge flow (minimum and maximum flow and dilution)
- Type of treatment—existing and planned
- Effluent quality (TSS, TDS, turbidity, pathogens, pH, toxics, toxicity, nutrients)
- Discharge method (direct, indirect, outfall type)

- Annual reuse volume (million gallons) and percentage of treatment flow
- Summary of reuse options (*e.g.*, agriculture, urban, etc.), including volume and percentage of flow
- Effluent and receiving water limit compliance history (number of violations 1998-2003, constituents)
- Monthly rates and one-time connection fee—current and projected
- RWQCB approach to enforcement (violations effluent and receiving water limit)
- Litigation history (any compliance- or CEQA-related lawsuits in past 10 years)
- CTR/SIP compliance strategy (regulatory strategy, capital projects).

Local Environment

- Discharge to drinking water source?
- Sensitive species in receiving water environment
- Median household income

DATA GATHERING APPROACH

Information was collected using the following methods:

- **Document Review.** Reviewing public documents such as basin plans, discharge permits, and monitoring reports;
- **Interview of Responsible Personnel.** At least one telephone or on-site interview of at least one representative of each and every agency was conducted as described in Table 1. Agency representatives were provided with a list of evaluation parameters several weeks prior to the scheduled interview. All interviews were conducted between July and September 2004; and
- **Site Visit.** The treatment plant, discharge outfall and other pertinent facilities were visited as described in Table 1. All site visits were conducted in July 2004.

RESULTS

This section elaborates on the results of the evaluation presented in the *Summary*. Table 2 describes the results of the evaluation. Figures 1 through 17 (at end of report) show the discharge environments and other aspects of dischargers visited as part of this evaluation.

DISCHARGER SELECTION PROCESS

Several dischargers in Colorado River region (Region 7) declined to participate in the benchmarking study. The stated reason for not participating was they consider their discharge permit to be favorable in light of CTR/SIP implementation approaches to

which other dischargers were subject and they did not want their permit compared to others’.

EFFLUENT LIMITS

Table 3 summarizes effluent limits in each permit of the dischargers evaluated in this study.

Seven permits contain final and/or interim effluent quality limits issued under the CTR/SIP. Five of these seven permits contain a limit for at least one constituent that the discharger is uncertain if or how it can comply. These dischargers employed approaches during the permit application phase ranging from very active involvement to very passive. Qualitative evaluation of interview results suggests that dischargers actively involved tend to have limits that can be attained and dischargers not actively involved tend to lack an attainment strategy. The Subregional System is very actively involved in the permitting process and has not yet been issued a permit under the CTR/SIP.

Three permits contain effluent limits for 30 or more toxic substances. The majority of these effluent limits are imposed based on water quality objectives given in the Basin Plan rather than CTR/SIP. The Subregional System’s permit currently contains an effluent limit for one toxic substance (copper). The Subregional System recently submitted a permit application in which CTR/SIP application is projected to result in effluent limits for copper, lead, nickel, mercury, cyanide and endosulfan II.

CAPITAL EXPENDITURES TO COMPLY WITH EFFLUENT LIMITS

Several dischargers have established capital programs to comply with recently imposed regulations as follows:

- Inland Empire Utilities Agency – Salt and nitrogen control regulations have been established in the Santa Ana River basin. IEUA has expended more than \$100 million to comply with the regulations. One of the projects includes an innovative salt and nitrogen control program. IEUA has constructed a manure cogeneration facility and a desalting plant. Manure (135 wet tons/day) is trucked to the cogen plant from nearby dairies, thus reducing nitrogen loads to groundwater. The manure produces sufficient electricity to power a 4 mgd plant that extracts and desalts groundwater prior to delivery as potable supply to customers (and eventual discharge to the Santa Ana River from IEUA treatment plants). Residual manure solids are incorporated into fertilizer products and brine from the desalting plant is conveyed to the ocean in a brine pipeline operated by several agencies in the watershed.
- City of Thousand Oaks – Ammonia toxicity and nitrate control requirements were key factors have resulted in a \$100 million program to upgrade the Hill Canyon treatment plant.

UNCERTAIN FUTURE COMPLIANCE WITH CTR/SIP LIMITS

Seven plants have had limits imposed under the CTR/SIP as follows:

- City of San Luis Obispo.
- City of Thousand Oaks
- City of El Centro
- IEUA Carbon Canyon Plant
- IEUA Regional Plant Nos. 1 and 4
- IEUA Regional Plant No. 5
- City of Riverside

Of these seven plants, five have had limits imposed that are not routinely attained, and the discharger is uncertain if it can comply with the limits as follows:

- City of San Luis Obispo – The City of San Luis Obispo currently uses chlorine disinfection, which creates by-products (DBPs) for which interim and final effluent limits have been established. The City does not consider attainment of the final DBP limits feasible with chlorine disinfection. The permit requires a study be conducted by December 1, 2004, to determine feasibility of alternative disinfection methods that would attain the final DBP limits. The City’s preliminary conclusion is that alternative disinfection methods that would attain the final DBP limits are not economically feasible. The permit requires the Regional Water Board to consider final DBP limits by June 1, 2005. The Subregional System uses ultra-violet disinfection and does not have problematic DBP concentrations.
- City of El Centro – The City of El Centro’s discharge permit contains interim limits for copper, nickel and selenium, and a final effluent for each that goes into effect in 2009. The concentration of these constituents in the City’s effluent routinely exceeds the respective final limit. The City is evaluating industrial pretreatment as an option for compliance but is uncertain how it will comply with the final limits.
- City of Thousand Oaks – Data collected by the City of Thousand Oaks during the permit application phase indicated, according to CTR/SIP procedures, that copper, mercury, cyanide, dibromochloromethane, dichlorobromomethane, 4,4-DDD, and 4,4-DDE would cause water quality criteria to be exceeded, so effluent limits were imposed. The data collected prior to the permit also indicated the effluent limits would be exceeded. Subsequently, however, the City has not detected these constituents at concentrations above the effluent limits and believes the prior data to be unrepresentative. The City has evaluated its local pretreatment limits and does not consider more stringent limits to be necessary to comply with the effluent limits. The City does currently anticipates compliance with the limits and does not plan to take any action to reduce the concentration of the these constituents in effluent.
- IEUA Regional Plant No. 5 and Carbon Canyon Plant – Both plants have permits with a cyanide limit. The No. 5 has a final limit of 4.3 µg/L and the Carbon Canyon Plant has an interim limit of 8 µg/L and a final limit of 4.3 µg/L, which goes into

effect January 1, 2006. Both plants produce effluent with a cyanide concentration that sometimes exceeds 4.3 µg/L. IEUA does not currently know how to comply with the limit but is, along with numerous other California dischargers with a cyanide limit, are developing analytical techniques to identify and hopefully eventually control cyanide sources to comply with the limit. Cyanide is a constituent the City of Santa Rosa expects to have an effluent imposed.

BASIN PLANS

Tables 4 summarizes Basin Plan provisions of particular relevance to inland surface water discharges. The Region 9 Basin Plan is not evaluated because Region 9 has no inland surface water dischargers.

Table 4. Summary of Basin Plan Provisions By Region

Region	Last Update (RWQCB approval date)²	Discharger Evaluated in This Study	Discharge Season Limits	Discharge Rate Limits	Treatment Requirement	Compliance Schedule Provisions¹	Dilution Provisions For Effluent Limit Calculation	Notable WQ Objectives	Groundwater Recharge Provisions
1	1994	--	Discharge prohibited May 15 – Sept 30.	Max 1% of receiving stream	Advanced treatment	Under development	None		None
2	1995	Petaluma	Dry season prohibition for particular sensitive waters	Minimum 10:1 dilution with exception criteria	None	Allowed. Ten-year limit (p. 4-14)	Allows consideration of up to 10:1 dilution	Site-specific Cu and Ni objectives developed for south SF Bay	None
3	1994	San Luis Obispo	None	None	None	Allowed. No time limit specified. (Ch. 5)	None		Narrative. No unusual restrictions
4	1994	Thousand Oaks, Las Virgenes	None	None	None	Allowed. No time limit specified. (p 4-32)	Mixing zones specifically recognized (p 4-30).	Exotic vegetation narrative objective (p 3-9)	None
5	1994	Roseville	None	None	None	Allowed. No time limit specified. (p IV-16)	Mixing zones specifically recognized (p IV-16).		None
6		Victorville	None	None	None	Allowed. No time limit specified. (p 4-3)	None		

7	2002	El Centro	None	None	None	Not mentioned	None		
8	1994	Inland Empire Utilities Agency, Riverside	None	None	None	Allowed. No time limit specified. (Ch. 5)	None	Ammonia, TIN (for algae control), SSOs for Cu, Cd, and Pb,	Recharge of salty water and recharge in the vicinity of mountain streams is prohibited. (Ch. 5D)

¹ As defined and allowed under California Porter-Cologne Water Quality Control Act Section 13300. No specific Basin Plan provision is needed for a Water Board to impose a time schedule.

² All regions except Region 7 have amended their Basin Plan since the date given. The date given represents the date of the Basin Plan document available to the public. Subsequent amendments have not been incorporated in the Basin Plan document but are available separately. Such separate amendments were also reviewed. The Region 7 Basin Plan document includes all amendments.



Figure 1. The City of Thousand Oaks treatment plant discharges to Arroyo Conejo



Figure 2. City of Thousand Oaks constructed this wetland to provide habitat for the protected southwestern pond turtle



Figure 3. North Fork of Arroyo Conejo downstream of discharge. Flow comprised almost entirely of recycled water used downstream as a water supply



Figure 4. This aquarium, located at the Las Virgenes Municipal Water District Plant, is supplied solely with recycled water.



Figure 5. Las Virgenes discharges seasonally to Malibu Creek



Figure 6. Malibu Creek flows into Malibu Lagoon



Figure 7. Dry Creek is City of Roseville's receiving water



Figure 8. City of Victorville's outfall weir into the Mojave River



Figure 9. One of Victorville's infiltration basins adjacent to Mojave River



Figure 10. City of El Centro treatment plant



Figure 11. Ag drain to which City of El Centro discharges consists primarily of ag drainage and is not used as a drinking water supply .



Figure 12. Alamo River, to which ag drain discharges



Figure 13. IEUA cogen desalting plant. Manure generated on dairies (a) is transported to digester (b & c) where power is produced to operate a groundwater desalting plant (d).



Figure 14. IEUA is required to discharge 17,000 acre feet per year to Prado Wetland



Figure 15. Recycled water feature located at IEUA headquarters



Figure 16. City of Riverside's 30 mgd flow leaving the treatment plant via a discharge channel connecting to the Santa Ana River



Figure 17. The Santa Ana River is comprised almost exclusively of recycled water. The River is habitat for the protected Santa Ana sucker and provides drinking water to Orange County residents.



Figure 18. The City of Riverside constructed this 14 mgd wetland to remove nitrogen prior to discharge to the Santa Ana River.

Table 3. Effluent Limits (monthly average limits unless otherwise noted)												
	Petaluma	HEUA Carbon Canyon Water Reclamation Facility	HEUA RP-5	HEUA RP 1 & RP 4	El Centro	Riverside	Thousand Oaks	Las Virgenes	Victor Valley	SLO	Roseville	Santa Rosa
Routine:												
BOD 20°C	30 mg/L											
Total Suspended Solids	45 mg/L	20 mg/L	20 mg/L	20 mg/L	30 mg/L	20 mg/L	20 mg/L	10 mg/L	10 mg/L	10 mg/L	10 mg/L	10 mg/L
Total Dissolved Solids - 12 month average		550 mg/L	550 mg/L	515 mg/L	4000 mg/L	650 mg/L	850 mg/L	daily: 2000 mg/L	460 mg/L	850 mg/L		
Total Inorganic Nitrogen - 12 month average		8 mg/L	8 mg/L	10 mg/L		13 mg/L	10 mg/L					
Settleable Solids							0.1 mL	0.1 mL		0.1 mL	0.1 mL	
Turbidity - 24 hour period unless noted		2 NTU	2 NTU	2 NTU		2 NTU	2 NTU	2 NTU	2 NTU		2 NTU	2 NTU
Coliform - 7 day median	23 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	126 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL	2.2 mpn/100mL
Oil & Grease	10 mg/L					no visible	10 mg/L	5.0 mg/L		5 mg/L	10 mg/L	
Sulfate							250 mg/L	daily: 500 mg/L				
Metals:												
Aluminum							1000 µg/L			1000 µg/L		
Antimony							6 µg/L	daily: 6 µg/L				
Arsenic							50 µg/L	daily: 50 µg/L				
Barium							1000 µg/L			1000 µg/L		
Beryllium								daily: 4 µg/L				
Cadmium	2 µg/L						5 µg/L	daily: 5 µg/L				
Chromium VI	11.0 µg/L	8.2 µg/L					50 µg/L	11 µg/L				
Copper - interim	14 µg/L		26 µg/L		8.2 µg/L	41.2 µg/L	27 µg/L	12 µg/L				
Copper - final	4.9 µg/L				2.39 µg/L							hardness- dependant
Iron							300 µg/L					
Lead	5.6 µg/L						50 µg/L	3.2 µg/L				
Manganese							50 µg/L					
Mercury - interim	0.07 µg/L						2 µg/L	daily: 2 µg/L				
Mercury - final	0.012 µg/L						0.051 µg/L					
Nickel - interim					7 µg/L		100 µg/L	daily: 100 µg/L				
Nickel - final	7.1 µg/L				6.71 µg/L							
Selenium - interim		4.1 µg/L	4.1 µg/L		8 µg/L		50 µg/L	5 µg/L				
Selenium - final					4.09 µg/L							
Silver							50 µg/L	daily: 4.1 µg/L				
Thallium							2 µg/L	daily: 2 µg/L				
Zinc							5000 µg/L	110 µg/L				
Inorganics:												
Boron							1000 µg/L					
Cyanide - interim	14 µg/L						5.2 µg/L					
Cyanide - final	0.07 µg/L						4.2 µg/L					
Free Cyanide		4.3 µg/L	4.3 µg/L					5.2 µg/L				
Organics:												
Benzene							1 µg/L	1 µg/L				
Dibromochloromethane - Interim limits							80 µg/L	34 µg/L		41 µg/L		
Dichlorobromomethane - Interim limits							80 µg/L	22 µg/L		95 µg/L		
Dibromochloromethane CTR Limit							34 µg/L			0.56 µg/L		
Dichlorobromomethane CTR Limit							46 µg/L			0.41 µg/L		
Methylene chloride (Dichloromethane)							5 µg/L					
Tetrachloroethylene			8.9 µg/L	8.85 µg/L			5 µg/L	5 µg/L				
Toluene							150 µg/L					
2,4-Dichlorophenol							93 µg/L					
3-Methyl-4-chlorophenol (P-chloro-m-cresol)							300 µg/L					
Pentachlorophenol							1 µg/L	1 µg/L				
Phenol							300 µg/L					
2,4,6-Trichlorophenol							2.1 µg/L	6.5 µg/L				
Bis(2-Ethylhexyl)phthalate		5.9 µg/L	5.9 µg/L				4 µg/L	5.9 µg/L			1.8 µg/L	
1,2-Dichlorobenzene							600 µg/L					
1,3-Dichlorobenzene							600 µg/L					
1,4-Dichlorobenzene							5 µg/L	5 µg/L				
cis-1,2-Dichloroethylene										6 µg/L		
Fluoranthene							300 µg/L					
Total PAHs	0.049 µg/L											
Aldrin							3 µg/L	3 µg/L				
Alpha-BHC							0.7 µg/L					
Beta-BHC							0.3 µg/L					
Lindane (gamma-BHC)	0.16 µg/L		0.06 µg/L	0.063 µg/L			0.2 µg/L	0.2 µg/L				
Chlordane							0.1 µg/L	2.4 µg/L				
4,4-DDE - interim							0.05 µg/L					
4,4-DDE - final							0.00059 µg/L					
4,4-DDD - interim							0.05 µg/L					
4,4-DDD - final							0.00084 µg/L					
4,4-DDT								1.1 µg/L				
Dieldrin							2.5 µg/L	2.5 µg/L				
Endrin							2 µg/L	2 µg/L				
Heptachlor							0.01 µg/L					
Heptachlor epoxide							0.01 µg/L					
Toxaphene							3 µg/L	3 µg/L				
Methoxychlor							40 µg/L					
2,4-D							70 µg/L					
2,4,5-TP (Silvex)							50 µg/L			50 µg/L		
Halomethanes							80 µg/L					
Trutyltin							0.026 µg/L					
Polynuclear Aromatic Hydrocarbons (PAHs)							0.0028 µg/L					
Fluoride							1600 µg/L			2000 µg/L		
Methyl-tert-butyl ether										13 µg/L		
Styrene										100 µg/L		
Tetrachloroethane										150 µg/L		
1,1,2-Trichloro-1,2,2-Trifluoroethane										1200 µg/L		
Tetrachloroethylene			8.9 µg/L	8.85 µg/L								
Xylenes										1750 µg/L		
Alachlor										2 µg/L		
Atrazine										3 µg/L		
Bentazon										18 µg/L		
Carbofuran										18 µg/L		
2,4-D										70 µg/L		
Dalapon										200 µg/L		
Dibromochloropropane (DBCP)										0.2 µg/L		
Di(2-ethylhexyl)adipate										400 µg/L		
Di(2-ethylhexyl)phthalate										4 µg/L		
Dinoseb										7 µg/L		
Diquat										20 µg/L		
Endothal										100 µg/L		
Ethylene Dibromide (EDB)										0.05 µg/L		
Glyphosate										700 µg/L		
Methoxychlor										40 µg/L		
Molinate										20 µg/L		
Osanyl										200 µg/L		
Picloram										500 µg/L		
Simsone										4 µg/L		
Thiocarb										70 µg/L		
Bromoform								43 µg/L				
Carbon Tetrachloride								0.5 µg/L				
Ethylbenzene								70 µg/L				
Trichloroethylene								5 µg/L				
Vinyl Chloride								0.5 µg/L				
1,1-Dichloroethane								5 µg/L				
1,1-Dichloroethylene								6 µg/L				
1,1,2-Trichloroethane								5 µg/L				
1,1,2,2-Tetrachloroethane								1 µg/L				
1,2-Dichloroethane								5 µg/L				
1,2-Dichloropropane								5 µg/L				
1,2-Trans-dichloroethylene								10 µg/L				
Bis(2-Chloroethyl)ether								1.4 µg/L				
Hexachlorobutadiene								50 µg/L				
Hexachlorocyclopentadiene								50 µg/L				
Hexachloroethane								8.9 µg/L				
N-Nitrosodimethylamine								8.1 µg/L				
N-Nitrosodiphenylamine								16 µg/L				
1,2,4-Trichlorobenzene								70 µg/L				
2,4-Dinitrotoluene								9.1 µg/L				
Total PCBs								0.014 µg/L				
Diazinon								0.009 µg/L				
Acrolein											21 µg/L	

