

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION
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FACT SHEET for

AMENDMENT TO WASTE DISCHARGE REQUIREMENTS, ORDER NO. R2-2003-0114,
FOR

DELTA DIABLO SANITATION DISTRICT

ANTIOCH, CONTRA COSTA COUNTY
NPDES Permit No. CA0038547
ORDER NO. R2-2004-XXXX

PUBLIC NOTICE:

Written Comments

- Interested persons are invited to submit written comments concerning this draft permit amendment. The comments should be sent to 1515 Clay Street, Suite 1400, Oakland, CA 94612. Attention, Gayleen Perreira.
- Comments must be received by the California Regional Water Quality Control Board, San Francisco Region (the Regional Board) no later than 5:00 p.m. on April 12, 2004.

Public Hearing

- The Amendment will be considered for adoption by the Regional Board at a public hearing during the Regional Board's regular monthly meeting at: Elihu Harris State Office Building, 1515 Clay Street, Oakland, CA; 1st floor Auditorium.
- This meeting will be held on May 19, 2004, starting at 9:00 am.

Additional Information

- For additional information about this matter, interested persons should contact Regional Board staff member Ms. Gayleen Perreira, Phone: (510) 622-2407; email: gp@rb2.swrcb.ca.gov

I. INTRODUCTION

This Fact Sheet contains information regarding an amendment to the Waste Discharge Requirements and National Pollutant Discharge Elimination System (NPDES) permit for Delta Diablo Sanitation District (DDSD, the Discharger) for discharges from its wastewater treatment plant. This Fact Sheet describes the factual, legal, and methodological basis for the proposed permit amendment and provides supporting documentation to explain the rationale and assumptions used in deriving the limits contained in the permit amendment.

The water quality based effluent limits in Board Order No. R2-2003-0114 did not consider the potential human health impact from consuming water. As the beneficial uses of the receiving water

include municipal and domestic supply, the purpose of this Order is to amend the Board's Order No. R2-2003-0114 (hereinafter referred to as Amendment) by applying the correct water quality criteria (WQC) for the protection of human health based on consumption of water and organisms, consistent with SIP Section 1.4. This amendment revises 1) WQBELs for bis(2-ethylhexyl)phthalate and aldrin, and 2) adds WQBELs for bromoform, chlorodibromomethane, and dichlorobromomethane.

A. Discharge Description

The Discharger owns and operates a wastewater treatment plant (WWTP) that provides secondary treatment of wastewater from domestic and industrial sources from the cities of Antioch, Pittsburg, and Bay Point. The Discharger's service area has a present population of approximately 180,000. The treatment plant has an average dry weather design capacity of 16.5 million gallons per day (MGD). The annual average daily flow rate is approximately 14.2 MGD, and the maximum daily flow rate average has been 20.7 MGD. To address peak flows, the plant has a 2.2 million gallon (MG) flow equalization tank, 11 MG emergency retention pond, 1 MG of equalization storage capacity, and approximately 4 MG of storage at the pump stations.

B. Discharge Point

The treated, disinfected and dechlorinated effluent from the WWTP is discharged into New York Slough. The effluent is discharged through a deep water outfall equipped with a diffuser at latitude 38 degrees 01 minutes 40 seconds North and longitude 121 degrees 50 minutes 14 seconds West. The outfall is 400 feet from shore at approximately 46 feet below mean low level.

C. Receiving Water Beneficial Uses

Beneficial uses for the Sacramento-San Joaquin Delta (hereinafter referred to as the Delta), as identified in the Board's June 21, 1995, *Water Quality Control Plan San Francisco Bay Basin (Region 2)* (the Basin Plan) (Table 2-7) and based on known uses of the receiving waters in the vicinity of the discharges, are:

- Agricultural Supply
- Groundwater Recharge
- Industrial Service Supply
- Municipal and Domestic Supply
- Navigation
- Industrial Process Supply
- Water Contact Recreation
- Non-contact Water Recreation
- Ocean Commercial and Sport Fishing
- Wildlife Habitat
- Preservation of Rare and Endangered Species
- Fish Migration
- Fish Spawning

- Estuarine Habitat

Contiguous water bodies of the Delta in the vicinity of the discharge include freshwater, brackish, and saltwater sloughs such as New York Slough. Beneficial uses specific to these areas are not identified in the Basin Plan. The Basin Plan’s tributary rule applies the beneficial uses of identified water bodies to its tributaries.

II. COMPARISON TO PREVIOUS REASONABLE POTENTIAL ANALYSIS

Code of Federal Regulations Title 40, Part 122.44(d)(1)(i) (40 CFR 122.44(d)(1)(i)) specifies that permits must include WQBELs for all pollutants “which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard” (have Reasonable Potential). Thus, assessing whether a pollutant has Reasonable Potential is the fundamental step in determining whether or not a WQBEL is required.

The water quality objectives (WQOs) and WQC applicable to the receiving waters for this discharge are from the Basin Plan, the U.S. EPA’s May 18, 2000 *Water Quality Standards; Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California* (the California Toxics Rule, or the CTR), and the U.S. EPA’s *National Toxics Rule* (the NTR). The applicable WQC include those for the protection of human health based on the consumption of both water and organisms as established by the Basin Plan’s municipal and domestic supply designation for the receiving waters, which is a water supply source for two drinking water districts.

The RPA previously conducted for Order No. R2-2003-0114 assumed CTR WQC for the protection of human health based on the consumption of organisms only. This Amendment revises the RPA by applying the appropriate CTR WQC for the protection of human health based on the consumption of water as well as organisms.

The revised RPA results are shown below in Table A and Attachment 1 of this Fact Sheet; however, Table A includes only those parameters whose governing WQC have been revised. The pollutants that exhibit Reasonable Potential are copper, lead, mercury, nickel, cyanide, bromoform, chlorodibromomethane, dichlorobromomethane, bis(2-ethylhexyl)phthalate, aldrin, 4,4’-DDE, dieldrin, and dioxin and furans.

Table A. Summary of Reasonable Potential Results

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL ¹ (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results ²
1	Antimony	0.8	14	0.337	N
12	Thallium	0.03	1.7	0.14	N
16	2,3,7,8-TCDD (Dioxin)	6.46E-08	1.3E-08	4.8E-08	Y
17	Acrolein	3	320	0.5	N
18	Acrylonitrile	1	0.059	0.05	N
19	Benzene	0.3	1	0.05	N
20	Bromoform	17	4.3	0.5	Y
21	Carbon Tetrachloride	0.3	0.3	0.06	N

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# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL ¹ (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results ²
22	Chlorobenzene	0.3	680	0.5	N
23	Chlorodibromomethane	2.9	0.41	0.05	Y
27	Dichlorobromomethane	1.1	0.56	0.05	Y
29	1,2-Dichloroethane	0.3	0.38	0.04	N
30	1,1-Dichloroethylene	0.3	0.057	0.5	N
31	1,2-Dichloropropane	0.3	0.52	0.05	N
32	1,3-Dichloropropylene	0.6	10	NA	N
33	Ethylbenzene	0.3	3100	0.5	N
34	Methyl Bromide	1.7	48	0.5	N
36	Methylene Chloride	2	4.7	0.5	N
37	1,1,2,2-Tetrachloroethane	0.3	0.17	0.05	N
38	Tetrachloroethylene	0.3	0.8	0.05	N
39	Toluene	0.7	6800	0.3	N
40	1,2-Trans-Dichloroethylene	0.3	700	0.5	N
42	1,1,2-Trichloroethane	0.3	0.6	0.05	N
43	Trichloroethylene	0.3	2.7	0.5	N
44	Vinyl Chloride	0.3	2	0.5	N
45	2-Chlorophenol	5	120	1.2	N
46	2,4-Dichlorophenol	5	93	1.3	N
47	2,4-Dimethylphenol	2	540	1.3	N
48	2-Methyl-4,6-Dinitrophenol	5	13.4	1.2	N
49	2,4-Dinitrophenol	5	70	0.7	N
53	Pentachlorophenol	1	0.28	1	N
54	Phenol	34	21000	1.3	N
55	2,4,6-Trichlorophenol	5	2.1	1.3	N
56	Acenaphthene	5	1200	0.005	N
58	Anthracene	0.3	9600	0.0058	N
59	Benzidine	5	0.00012	0.0015	N
60	Benzo(a)Anthracene	0.3	0.0044	0.0011	N
61	Benzo(a)Pyrene	0.3	0.0044	0.00032	N
62	Benzo(b)Fluoranthene	0.3	0.0044	0.0019	N
64	Benzo(k)Fluoranthene	0.3	0.0044	0.00093	N
66	Bis(2-Chloroethyl)Ether	1	0.031	0.3	N
67	Bis(2-Chloroisopropyl)Ether	2	1400	NA	N
68	Bis(2-Ethylhexyl)Phthalate	46	1.8	26.8	Y
70	Butylbenzyl Phthalate	5	3000	0.52	N
71	2-Chloronaphthalene	5	1700	0.3	N
73	Chrysene	0.3	0.0044	0.001	N
74	Dibenzo(a,h)Anthracene	0.1	0.0044	0.00067	N
75	1,2 Dichlorobenzene	0.3	2700	0.8	N
76	1,3 Dichlorobenzene	0.3	400	0.8	N
77	1,4 Dichlorobenzene	0.7	400	0.8	N
78	3,3-Dichlorobenzidine	5	0.04	0.004	N
79	Diethyl Phthalate	2	23000	0.24	N

# in CTR	PRIORITY POLLUTANTS	MEC or Minimum DL ¹ (µg/L)	Governing WQO/WQC (µg/L)	Maximum Background (µg/L)	RPA Results ²
80	Dimethyl Phthalate	2	313000	0.24	N
81	Di-n-Butyl Phthalate	5	2700	1.72	N
82	2,4-Dinitrotoluene	5	0.11	0.27	N
85	1,2-Diphenylhydrazine	1	0.04	0.0087	N
86	Fluoranthene	5	300	0.003	N
87	Fluorene	0.05	1300	0.0021	N
88	Hexachlorobenzene	1	0.00075	0.000053	N
89	Hexachlorobutadiene	1	0.44	0.3	N
90	Hexachlorocyclopentadiene	5	240	0.31	N
91	Hexachloroethane	1	1.9	0.2	N
92	Indeno(1,2,3-cd) Pyrene	0.05	0.0044	0.0013	N
93	Isophorone	1	8.4	0.3	N
95	Nitrobenzene	1	17	0.25	N
96	N-Nitrosodimethylamine	5	0.00069	0.3	N
97	N-Nitrosodi-n-Propylamine	5	0.005	0.001	N
98	N-Nitrosodiphenylamine	1	5	0.001	N
100	Pyrene	0.05	960	0.0025	N
102	Aldrin	0.017	0.00013	NA	Y
103	alpha-BHC	0.01	0.0039	0.000347	N
104	beta-BHC	0.005	0.014	0.000118	N
105	gamma-BHC	0.01	0.019	0.0010032	N
107	Chlordane	0.01	0.00057	0.000302	N
110	4,4'-DDD	0.01	0.00083	0.000347	N
114	Endosulfan Sulfate	0.01	110	0.0002	N
116	Endrin Aldehyde	0.01	0.76	NA	CD
118	Heptachlor Epoxide	0.01	0.00010	0.000097	N

- 1) Maximum Effluent Concentration (MEC) in bold is the actual detected MEC, otherwise the MEC shown is the minimum detection level.
 NA = Not Available (there is not monitoring data for this constituent).
- 2) RP = Yes, if either MEC or Background > WQO/WQC.
 RP = No, if both MEC or Background < WQO/WQC or all effluent concentrations non-detect and background < WQO/WQC or no background available.
 RP = CD (Cannot determine due to lack of data)

III. WATER QUALITY-BASED EFFLUENT LIMITATIONS

A. Revised WQBELs for Bis(2-Ethylhexyl)Phthalate and Aldrin

Order No. R2-2003-0114 established WQBELs for bis(2-ethylhexyl)phthalate and aldrin. These limits are based on CTR WQC for the protection of human health based on the consumption of organisms only. This Amendment revises the WQBELs for bis(2-ethylhexyl)phthalate and aldrin, based on CTR WQC for the protection of human health based on the consumption of water and organisms.

Interim effluent limitations were derived for bis(2-ethylhexyl)phthalate and aldrin in Order No. R2-2003-0114 because the Discharger showed infeasibility of complying with the respective

WQBELs, and demonstrated that compliance schedules are justified based on the Discharger's source control and pollution minimization efforts. These interim limits are unchanged and shall remain in effect until January 31, 2009. However, during the next permit reissuance, the Board may re-evaluate these interim effluent limitations and compliance deadlines.

B. Added WQBELs for Bromoform, Chlorodibromomethane, and Dichlorobromomethane

This Amendment establishes final WQBELs for bromoform, chlorodibromomethane, and dichlorobromomethane because, as shown in Table A, their respective MECs exceed the governing WQC. The governing WQC are based on the CTR's WQC for the protection of human health based on the consumption of water and organisms.

Effluent data for the period from January 2000 through February 2003 consist of one detected value out of six samples each of bromoform, chlorodibromomethane, and dichlorobromomethane. The Board finds that this small number of detected data precludes any meaningful statistical evaluation of current treatment performance, and therefore feasibility is determined using each pollutant's MEC. Table B below shows that it is feasible for the Discharger to comply with final effluent limitations for bromoform, chlorodibromomethane, and dichlorobromomethane.

Table B. Summary of Feasibility Evaluation

Constituent	<u>Unit</u>	<u>AMEL</u>	<u>MDEL</u>	<u>MEC</u>	<u>Is MEC > AMEL</u>	<u>Is MEC > MDEL</u>	<u>Feasible to Comply</u>
Bromoform	µg/l	39	77	17	No	No	Yes
Chlorodibromomethane	µg/l	3.7	7.3	2.9	No	No	Yes
Dichlorobromomethane	µg/l	5.2	10.3	1.1	No	No	Yes

IV. AMENDMENTS TO SELF-MONITORING PROGRAM

The Amendment revises Table 1 of the Self-Monitoring Program to include twice yearly monitoring for bromoform, chlorodibromomethane, and dichlorobromomethane to determine compliance with effluent limitations.

The Amendment also revises Table 2 of the Self-Monitoring Program to include Minimum Levels for bromoform, chlorodibromomethane, and dichlorobromomethane.

VI. WASTE DISCHARGE REQUIREMENT APPEALS

Any person may petition the State Water Resources Control Board to review the decision of the Regional Board regarding these Waste Discharge Requirements. A petition must be made within 30 days of the Board public hearing.

VII. ATTACHMENTS

- Attachment A:** Water Quality Objectives and Water Quality Criteria
- Attachment B:** Calculation of Final WQBELs

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Attachment A.
Water Quality Objectives
and
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Attachment B.
Calculation of Final WQBELs