Facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

6. **Other Special Provisions – N/A**

7. **Compliance Schedules-N/A**

VIII. PUBLIC PARTICIPATION

The Regional Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Regional Water Board staff has developed tentative WDRs. The Regional Water Board encourages public participation in the WDR adoption process.

A. Notification of Interested Parties

The Regional Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through publication in The Manteca Bulletin.

B. Written Comments

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Regional Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Regional Water Board, written comments must be received at the Regional Water Board offices by 5:00 p.m. on **10 September 2009**.

C. Public Hearing

The Regional Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: **8 October 2009**
Time: 8:30 a.m.
Location: Regional Water Quality Control Board, Central Valley Region
11020 Sun Center Dr., Suite #200
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Regional Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org Only	Basin Plan	MCL	Reasonable Potential
Priority Pollutants											
Antimony	µg/L	0.5	0.2	5.6[1]	None	None	14	4300	Narrative	6	No
Arsenic	µg/L	8	1.9	10	340	150	None	None	10	50	No
Beryllium	µg/L	<0.1	0.1	4	None	None	None	None	Narrative	4	No
Cadmium	µg/L	0.09	<0.62	1.1	[2]	[2]1.1	None	None	Narrative	5	No
Chromium III	µg/L	3.2	2.4	89.6	[2]781	[2]37	None	None	Narrative	50	No
Chromium VI	µg/L	11	<5.0	11	16	11	None	None	Narrative	50	No
Copper	µg/L	4.6	14	5.6	6.8	5.6	None	None	10	10	Yes
Lead	µg/L	0.7	0.6	1.6	[2]	[2]	None	None	15	15	No
Mercury	µg/L	0.0042	0.0182	0.050	None	None	0.050	0.051	Narrative	2	Yes
Nickel	µg/L	2.2	3.1	22	[2]198	[2]22	610	4600	Narrative	100	No
Selenium	µg/L	1.3	1.8	5	20	5	None	None	Narrative	50	No
Silver	µg/L	0.86	<0.12	[2]	[2]	[2]	None	None	10	100	No
Thallium	µg/L	<0.2	<0.2	1.7	None	None	1.7	6.3	Narrative	2	No
Zinc	µg/L	14	50	50.4	[2]50.4	[2]50.4	None	None	100	5000	No
Cyanide	µg/L	<2	5	5.2	22	5.2	700	220000	10	150	No
Asbestos	MFL	7.00	9.9	<0.2	None	None	7.00	None	Narrative	7.00	No
2,3,,7,8-TCDD	pg/L	<0.337	<0.669	0.013	None	None	1.30E-08	1.40E-08	Narrative	0.00001	No
Acrolein	µg/L	<0.5	<0.8	21	None	None	320	780	Narrative	None	No
Acrylonitrile	µg/L	<0.4	<0.7	0.059	None	None	0.059	0.66	Narrative	None	No[4]
Benzene	µg/L	<0.03	<0.03	1	None	None	1.2	71	Narrative	1	No
Bromoform	µg/L	<0.07	0.2	4.3	None	None	4.3	360	Narrative	80	No
Carbon Tetrachloride	µg/L	0.1	<0.05	0.25	None	None	0.25	4.4	Narrative	0.5	No
Chlorobenzene	µg/L	<0.03	<0.03	20	None	None	680	21000	Narrative	70	No
Chlorodibromomethane	µg/L	<0.02	0.3	0.41	None	None	0.41	34	Narrative	80	No
Chloroethane	µg/L	<0.06	<0.07	16	None	None	None	None	Narrative	None	No
2-Chloroethylvinyl Ether	µg/L	<0.1	<0.2	[5]	None	None	None	None	Narrative	None	No
Chloroform	µg/L	0.9	<0.1	80	None	None	None	None	Narrative	80	No
Dichlorobromomethane	µg/L	<0.1	0.2	0.56	None	None	0.56	46	Narrative	80	No
1,1-Dichloroethane	µg/L	<0.03	<0.03	3	None	None	None	None	Narrative	5	No
1,2-Dichloroethane	µg/L	<0.07	<0.07	0.38	None	None	0.38	99	Narrative	0.5	No
1,1-Dichloroethylene	µg/L	<0.06	<0.06	0.057	None	None	0.057	3.2	Narrative	6	No
1,2-Dichloropropane	µg/L	<0.08	<0.08	0.52	None	None	0.52	39	Narrative	5	No
1,3-Dichloropropylene	µg/L	<0.05	<0.05	0.5	None	None	10	1700	Narrative	0.5	No
Ethylbenzene	µg/L	<0.02	0.08	29	None	None	3100	29000	Narrative	300	No
Methyl Bromide	µg/L	<0.07	<0.07	48	None	None	48	4000	Narrative	None	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org Only	Basin Plan	MCL	Reasonable Potential
Methyl Chloride	µg/L	0.3	0.3	11000	None	None	None	None	Narrative	None	No
Methylene Chloride	µg/L	<0.2	<0.3	4.7	None	None	4.7	1600	Narrative	5	No
1,1,2,2-Tetrachloroethane	µg/L	<0.05	<0.08	0.17	None	None	0.17	11	Narrative	1	No
Tetrachloroethylene	µg/L	<0.07	<0.07	0.8	None	None	0.8	8.85	Narrative	5	No
Toluene	µg/L	0.2	0.07	42	None	None	6800	200000	Narrative	150	No
1,2-Trans-Dicloroethylene	µg/L	<0.06	<0.06	10	None	None	700	140000	Narrative	10	No
1,1,1-Trichloroethane	µg/L	<0.04	<0.04	200	None	None	None	None	Narrative	200	No
1,1,2-Trichloroethane	µg/L	<0.1	<0.1	0.6	None	None	0.6	42	Narrative	5	No
Trichloroethylene	µg/L	<0.02	<0.02	2.7	None	None	2.7	81	Narrative	5	No
Vinyl Chloride	µg/L	<0.04	<0.04	0.5	None	None	2	525	Narrative	0.5	No
Chlorophenol	µg/L	<0.2	<0.6	0.1	None	None	120	400	Narrative	None	No[4]
2,4-Dichlorophenol	µg/L	<0.2	<0.4	0.3	None	None	93	790	Narrative	None	No
2,4-Dimethylphenol	µg/L	<0.4	<0.5	400	None	None	540	2300	Narrative	None	No
2-Methyl-4,6-Dinitrophenol	µg/L	<0.2	<0.7	13.4	None	None	13.4	765	Narrative	None	No
2,4-Dinitrophenol	µg/L	<0.1	<0.4	70	None	None	70	14000	Narrative	None	No
2-Nitrophenol	µg/L	<0.2	<0.6	150	None	None	None	None	Narrative	None	No
4-Nitrophenol	µg/L	<0.04	<0.3	150	None	None	None	None	Narrative	None	No
3-Methyl-4-Chlorophenol	µg/L	<0.2	<0.4	30	None	None	None	None	Narrative	None	No
Pentachlorophenol	µg/L	<0.2	<0.7	0.28	4.36	3.35	0.28	8.2	Narrative	1	No
Phenol	µg/L	<0.2	<0.2	300	None	None	21000	4600000	Narrative	None	No
2,4,6-Trichlorophenol	µg/L	<0.2	<0.2	2.0	None	None	2.1	6.5	Narrative	None	No
Acenaphthene	µg/L	<0.2	<0.2	20	None	None	1200	2700	Narrative	None	No
Acenephthylene	µg/L	<0.2	<0.3	20	None	None	None	None	Narrative	None	No
Anthracene	µg/L	<0.1	<0.3	9600	None	None	9600	110000	Narrative	None	No
Benzidine	µg/L	3	<0.1	0.00012	None	None	0.00012	0.00054	Narrative	None	No[4]
Benzo(a)Anthracene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]
Benzo(a)Pyrene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	0.2	No[4]
Benzo(b)Fluoranthene	µg/L	<0.2	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]
Benzo(ghi)Perylene	µg/L	<0.4	<0.3	[5]	None	None	None	None	Narrative	None	No
Benzo(k)Fluoranthene	µg/L	<0.2	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]
Bis(2-Chlorethoxy)Methane	µg/L	<0.2	<0.3	[5]	None	None	None	None	Narrative	None	No
Bis(2-Chloroisopropyl)Ether	µg/L	<0.2	<0.3	122	None	None	1400	170000	Narrative	None	No
Bis(2-Ethylhexyl)Phthalate	µg/L	2.0	2	1.8	None	None	1.8	5.9	Narrative	4	No
4-Bromophenyl Phenyl Ether	µg/L	<0.2	<0.4	122	None	None	None	None	Narrative	None	No
Butylbenzyl Phthalate	µg/L	0.3	0.2	3	None	None	3000	5200	Narrative	None	No
2-Chloronaphthalene	µg/L	<0.2	<0.5	1600	None	None	1700	4300	Narrative	None	No
4-Chlorophenyl Phenyl Ether	µg/L	<0.2	<0.4	[5]	None	None	None	None	Narrative	None	No
Chrysene	µg/L	<0.1	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]
Dibenzo(a,h)Anthracene	µg/L	<0.3	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org Only	Basin Plan	MCL	Reasonable Potential
1,2-Dichlorobenzene	µg/L	<0.08	<0.08	24	None	None	2700	17000	Narrative	600	No
1,3-Dichlorobenzene	µg/L	<0.04	<0.04	400	None	None	400	2600	Narrative	None	No
1,4-Dichlorobenzene	µg/L	0.1	<0.06	5	None	None	400	2600	Narrative	5	No
3,3-Dichlorobenzidine	µg/L	<0.4	<0.6	0.04	None	None	0.04	0.077	Narrative	None	No[4]
Diethyl Phthalate	µg/L	<0.1	<0.4	940	None	None	23000	120000	Narrative	None	No
Dimethyl Phthalate	µg/L	<0.2	<0.4	3	None	None	313000	2900000	Narrative	None	No
Di-n-Butyl Phthalate	µg/L	0.4	0.4	3	None	None	2700	12000	Narrative	None	No
2,4-Dinitrotoluene	µg/L	<0.2	<0.4	0.11	None	None	0.11	9.1	Narrative	None	No[4]
2,6-Dinitrotoluene	µg/L	<0.2	<0.4	0.05	None	None	None	None	Narrative	None	No
Di-n-Octyl Phthalate	µg/L	<0.07	<0.4	3	None	None	None	None	Narrative	None	No
1,2-Diphenylhydrazine	µg/L	<0.2	<0.5	0.04	None	None	0.04	0.54	Narrative	None	No[4]
Fluoranthene	µg/L	<0.1	<0.3	300	None	None	300	370	Narrative	None	N
Fluorene	µg/L	<0.2	<0.3	1300	None	None	1300	14000	Narrative	None	No
Hexachlorobenzene	µg/L	<0.2	<0.4	0.00075	None	None	0.00075	0.00077	Narrative	1	No[4]
Hexachlorobutadiene	µg/L	<0.05	<0.05	0.44	None	None	0.44	50	Narrative	None	No
Hexachlorocyclopentadiene	µg/L	<0.4	<0.4	1	None	None	240	17000	Narrative	50	No
Hexachloroethane	µg/L	<0.5	<0.5	1.9	None	None	1.9	8.9	Narrative	None	No
Indeno(1,2,3-cd)Pyrene	µg/L	<0.3	<0.3	0.0044	None	None	0.0044	0.049	Narrative	None	No[4]
Isophorone	µg/L	<0.2	<0.4	8.4	None	None	8.4	600	Narrative	None	No
Naphthalene	µg/L	0.4	<0.3	21	None	None	None	None	Narrative	None	No
Nitrobenzene	µg/L	<0.2	<0.2	17	None	None	17	1900	Narrative	None	No
N-Nitrosodimethylamine	µg/L	<0.5	<0.5	0.00069	None	None	0.00069	8.1	Narrative	None	No[4]
N-Nitrosodi-n-Propylamine	µg/L	<0.2	<0.7	0.005	None	None	0.005	1.4	Narrative	None	No[5]
N-Nitrosodiphenylamine	µg/L	<0.1	<0.3	5	None	None	5.0	16	Narrative	None	No
Phenanthrene	µg/L	<0.1	<0.3	[5]	None	None	None	None	Narrative	None	No
Pyrene	µg/L	<0.06	<1	960	None	None	960	11000	Narrative	None	No
1,2,4-Trichlorobenzene	µg/L	<0.1	<0.1	5	None	None	None	None	Narrative	5	No
Aldrin	µg/L	<0.002	0.005	0.00013	3	None	0.00013	0.00014	Narrative	None	N
alpha-BHC	µg/L	<0.005	<0.005	0.0039	None	None	0.0039	0.013	Narrative	None	No
beta-BHC	µg/L	0.043	<0.002	0.014	None	None	0.014	0.046	Narrative	None	No
gamma-BHC	µg/L	<0.005	<0.005	0.019	0.095	None	0.019	0.063	Narrative	0.2	No
delta-BHC	µg/L	<0.002	0.008	[5]	None	None	None	None	Narrative	None	No
Chlordane	µg/L	<0.01	<0.01	0.00057	2.4	0.0043	0.00057	0.00059	Narrative	0.1	No[4]
4,4-DDT	µg/L	<0.005	<0.005	0.00059	1.1	0.001	0.00059	0.00059	Narrative	None	No[4]
4,4-DDE	µg/L	<0.005	<0.005	0.00059	None	None	0.00059	0.00059	Narrative	None	No[4]
4,4-DDD	µg/L	<0.01	<0.01	0.00083	None	None	0.00083	0.00084	Narrative	None	No[4]
Dieldrin	µg/L	<0.005	<0.005	0.00014	0.24	0.056	0.00014	0.00014	Narrative	None	No[4]
alpha-Endosulfan	µg/L	<0.005	<0.005	0.056	0.22	0.056	110	240	Narrative	None	No
beta-Endosulfan	µg/L	<0.005	<0.005	0.056	0.22	0.056	110	240	Narrative	None	No

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
Endosulfan Sulfate	µg/L	<0.01	<0.01	0.056	None	None	110	240	Narrative	None	No
Endrin	µg/L	<0.005	<0.005	0.036	0.086	0.036	0.76	0.81	Narrative	2	No
Endrin Aldehyde	µg/L	0.01	<0.005	0.76	None	None	0.76	0.81	Narrative	None	No
Heptachlor	µg/L	<0.005	<0.005	0.00021	0.52	0.0038	0.00021	0.00021	Narrative	0.01	No[4]
Heptachlor Epoxide	µg/L	<0.005	<0.005	0.0001	0.52	0.0038	0.0001	0.00011	Narrative	0.01	No[4]
PCBs sum	µg/L	<0.1	<0.1	0.00017	None	0.014	0.00017	0.00017	Narrative	0.5	No[4]
Toxaphene	µg/L	<0.1	<0.1	0.0002	0.73	0.0002	0.00073	0.00075	Narrative	3	No[4]
Non-Conventional Pollutants											
Aluminum	µg/L	124	3300	200	750	87	None	None	Narrative	200	Yes
Ammonia	µg/L	2.1	0.08	0.9	5.6	1.1	None	None	Narrative	None	Yes
Chloride	mg/L	140	150	230	860	230				250	No
Electrical Conductivity	µg/L	827	949	1000	None	None	None	None	Narrative	900	Yes
Iron (dissolved)	µg/L	90	190	300	None	None	None	None	300	None	No
Manganese (dissolved)	µg/L	20	47	50	None	None	None	None	50	50	Yes
Methylene Blue Activated Substance	µg/L	290	None	500	None	None	None	None	Narrative	500	Yes[3]
Molybdenum	µg/L	5.7	4.1	10	None	None	None	None	10	None	No
Nitrate	mg/L	10.4	6.4	10	None	None	None	None	Narrative	10	Yes
Nitrite	mg/L	0.17	0.11	1	None	None	None	None	Narrative	1	Yes[3]

General Note: All inorganic concentrations are given as a total recoverable.
MEC = Maximum Effluent Concentration
B = Maximum Receiving Water Concentration or lowest detection level, if non-detect
C = Criterion used for Reasonable Potential Analysis
CMC = Criterion Maximum Concentration (CTR or NTR)
CCC = Criterion Continuous Concentration (CTR or NTR)
Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)
Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)
Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective
MCL = Drinking Water Standards Maximum Contaminant Level
MFL = Million Fibers per Liter
NA = Not Available
ND = Non-detect

Footnotes:
(1) NAWQQC – Water & Fish
(2) Refer to Section VI.C.2.c of Attachment F in this Order
(3) Demonstrates Reasonable Potential based on other information
(4) Analyzed using the lowest ML for approved methods
(5) No established criteria

ATTACHMENT H – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

I. **Background.** 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.waterboards.ca.gov/iswp/index.html). 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 as 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. In addition to specific requirements of the SIP, the Regional Water Board is requiring the following monitoring:

A. **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.

B. **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.

C. **Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.

D. **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 J. Pursuant to Section 13267 of the California Water Code, this Order includes a requirement for the Discharger to submit monitoring data for the effluent and receiving water as described in Attachment J.

II. **Monitoring Requirements.**

A. **Monthly Monitoring**. Monthly priority pollutant samples shall be collected from the effluent and upstream receiving water (EFF-001 and RSW-001) and analyzed for the constituents listed in Table I-1. Monthly monitoring shall be conducted for 1 year (12 consecutive samples, evenly distributed throughout the year) and the results of such monitoring be submitted to the Regional Water Board, during the fourth year of the permit term. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.

B. Semi-annual Monitoring (dioxins and furans only). Semi-annual monitoring is required for dioxins and furans, as specified in Attachment J. The results of dioxin and furan monitoring shall be submitted to the Regional Water Board with the quarterly priority data at the completion of the Effluent and Receiving Water Characterization Study, and during the fourth year of the permit term.

C. Concurrent Sampling. Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.

D. Sample type. All effluent samples shall be taken as 24-hour flow proportioned composite samples. All receiving water samples shall be taken as grab samples.

Table I-1. Priority Pollutants

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
VOLATILE ORGANICS						
28	1,1-Dichloroethane	75343	Primary MCL	5	0.5	EPA 8260B
30	1,1-Dichloroethene	75354	National Toxics Rule	0.057	0.5	EPA 8260B
41	1,1,1-Trichloroethane	71556	Primary MCL	200	0.5	EPA 8260B
42	1,1,2-Trichloroethane	79005	National Toxics Rule	0.6	0.5	EPA 8260B
37	1,1,2,2-Tetrachloroethane	79345	National Toxics Rule	0.17	0.5	EPA 8260B
75	1,2-Dichlorobenzene	95501	Taste & Odor	10	0.5	EPA 8260B
	1,2-Dichloroethane	107062	National Toxics Rule	0.38	0.5	EPA 8260B
	cis-1,2-Dichloroethene	156592	Primary MCL	6	0.5	EPA 8260B
31	1,2-Dichloropropane	78875	Calif. Toxics Rule	0.52	0.5	EPA 8260B
101	1,2,4-Trichlorobenzene	120821	Public Health Goal	5	0.5	EPA 8260B
76	1,3-Dichlorobenzene	541731	Taste & Odor	10	0.5	EPA 8260B
32	1,3-Dichloropropene	542756	Primary MCL	0.5	0.5	EPA 8260B
77	1,4-Dichlorobenzene	106467	Primary MCL	5	0.5	EPA 8260B
17	Acrolein	107028	Aquatic Toxicity	21	2	EPA 8260B
18	Acrylonitrile	107131	National Toxics Rule	0.059	2	EPA 8260B
19	Benzene	71432	Primary MCL	1	0.5	EPA 8260B
20	Bromoform	75252	Calif. Toxics Rule	4.3	0.5	EPA 8260B
34	Bromomethane	74839	Calif. Toxics Rule	48	1	EPA 8260B
21	Carbon tetrachloride	56235	National Toxics Rule	0.25	0.5	EPA 8260B
22	Chlorobenzene (mono chlorobenzene)	108907	Taste & Odor	50	0.5	EPA 8260B
24	Chloroethane	75003	Taste & Odor	16	0.5	EPA 8260B
25	2- Chloroethyl vinyl ether	110758	Aquatic Toxicity	122 (3)	1	EPA 8260B
26	Chloroform	67663	OEHHA Cancer Risk	1.1	0.5	EPA 8260B
35	Chloromethane	74873	USEPA Health Advisory	3	0.5	EPA 8260B
	Dibromochloromethane	124481	Calif. Toxics Rule	0.41	0.5	EPA 8260B

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
27	Dichlorobromomethane	75274	Calif. Toxics Rule	0.56	0.5	EPA 8260B
36	Dichloromethane	75092	Calif. Toxics Rule	4.7	0.5	EPA 8260B
33	Ethylbenzene	100414	Taste & Odor	29	0.5	EPA 8260B
88	Hexachlorobenzene	118741	Calif. Toxics Rule	0.00075	1	EPA 8260B
89	Hexachlorobutadiene	87683	National Toxics Rule	0.44	1	EPA 8260B
91	Hexachloroethane	67721	National Toxics Rule	1.9	1	EPA 8260B
94	Naphthalene	91203	USEPA IRIS	14	10	EPA 8260B
38	Tetrachloroethene	127184	National Toxics Rule	0.8	0.5	EPA 8260B
39	Toluene	108883	Taste & Odor	42	0.5	EPA 8260B
40	trans-1,2-Dichloroethylene	156605	Primary MCL	10	0.5	EPA 8260B
43	Trichloroethene	79016	National Toxics Rule	2.7	0.5	EPA 8260B
44	Vinyl chloride	75014	Primary MCL	0.5	0.5	EPA 8260B
	Methyl-tert-butyl ether (MTBE)	1634044	Secondary MCL	5	0.5	EPA 8260B
	Trichlorofluoromethane	75694	Primary MCL	150	5	EPA 8260B
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	Primary MCL	1200	10	EPA 8260B
	Styrene	100425	Taste & Odor	11	0.5	EPA 8260B
	Xylenes	1330207	Taste & Odor	17	0.5	EPA 8260B
SEMI-VOLATILE ORGANICS						
60	1,2-Benzanthracene	56553	Calif. Toxics Rule	0.0044	5	EPA 8270C
85	1,2-Diphenylhydrazine	122667	National Toxics Rule	0.04	1	EPA 8270C
45	2-Chlorophenol	95578	Taste and Odor	0.1	2	EPA 8270C
46	2,4-Dichlorophenol	120832	Taste and Odor	0.3	1	EPA 8270C
47	2,4-Dimethylphenol	105679	Calif. Toxics Rule	540	2	EPA 8270C
49	2,4-Dinitrophenol	51285	National Toxics Rule	70	5	EPA 8270C
82	2,4-Dinitrotoluene	121142	National Toxics Rule	0.11	5	EPA 8270C
55	2,4,6-Trichlorophenol	88062	Taste and Odor	2	10	EPA 8270C
83	2,6-Dinitrotoluene	606202	USEPA IRIS	0.05	5	EPA 8270C
50	2-Nitrophenol	25154557	Aquatic Toxicity	150 (5)	10	EPA 8270C
71	2-Chloronaphthalene	91587	Aquatic Toxicity	1600 (6)	10	EPA 8270C
78	3,3'-Dichlorobenzidine	91941	National Toxics Rule	0.04	5	EPA 8270C
62	3,4-Benzofluoranthene	205992	Calif. Toxics Rule	0.0044	10	EPA 8270C
52	4-Chloro-3-methylphenol	59507	Aquatic Toxicity	30	5	EPA 8270C
48	4,6-Dinitro-2-methylphenol	534521	National Toxics Rule	13.4	10	EPA 8270C
51	4-Nitrophenol	100027	USEPA Health Advisory	60	5	EPA 8270C
69	4-Bromophenyl phenyl ether	101553	Aquatic Toxicity	122	10	EPA 8270C
72	4-Chlorophenyl phenyl ether	7005723	Aquatic Toxicity	122 (3)	5	EPA 8270C
56	Acenaphthene	83329	Taste and Odor	20	1	EPA 8270C

CTR	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
57	Acenaphthylene	208968	No Criteria Available		10	EPA 8270C
58	Anthracene	120127	Calif. Toxics Rule	9,600	10	EPA 8270C
59	Benzidine	92875	National Toxics Rule	0.00012	5	EPA 8270C
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
63	Benzo(g,h,i)perylene	191242	No Criteria Available		5	EPA 8270C
64	Benzo(k)fluoranthene	207089	Calif. Toxics Rule	0.0044	2	EPA 8270C
65	Bis(2-chloroethoxy) methane	111911	No Criteria Available		5	EPA 8270C
66	Bis(2-chloroethyl) ether	111444	National Toxics Rule	0.031	1	EPA 8270C
67	Bis(2-chloroisopropyl) ether	39638329	Aquatic Toxicity	122 (3)	10	EPA 8270C
68	Bis(2-ethylhexyl) phthalate	117817	National Toxics Rule	1.8	3	EPA 8270C
70	Butyl benzyl phthalate	85687	Aquatic Toxicity	3 (7)	10	EPA 8270C
73	Chrysene	218019	Calif. Toxics Rule	0.0044	5	EPA 8270C
81	Di-n-butylphthalate	84742	Aquatic Toxicity	3 (7)	10	EPA 8270C
84	Di-n-octylphthalate	117840	Aquatic Toxicity	3 (7)	10	EPA 8270C
74	Dibenzo(a,h)-anthracene	53703	Calif. Toxics Rule	0.0044	0.1	EPA 8270C
79	Diethyl phthalate	84662	Aquatic Toxicity	3 (7)	2	EPA 8270C
80	Dimethyl phthalate	131113	Aquatic Toxicity	3 (7)	2	EPA 8270C
	Fluoranthene	206440	Calif. Toxics Rule	300	10	EPA 8270C
87	Fluorene	86737	Calif. Toxics Rule	1300	10	EPA 8270C
90	Hexachlorocyclopentadiene	77474	Taste and Odor	1	1	EPA 8270C
92	Indeno(1,2,3-c,d)pyrene	193395	Calif. Toxics Rule	0.0044	0.05	EPA 8270C
93	Isophorone	78591	National Toxics Rule	8.4	1	EPA 8270C
98	N-Nitrosodiphenylamine	86306	National Toxics Rule	5	1	EPA 8270C
96	N-Nitrosodimethylamine	62759	National Toxics Rule	0.00069	5	EPA 8270C
97	N-Nitrosodi-n-propylamine	621647	Calif. Toxics Rule	0.005	5	EPA 8270C
95	Nitrobenzene	98953	National Toxics Rule	17	10	EPA 8270C
53	Pentachlorophenol	87865	Calif. Toxics Rule	0.28	0.2	EPA 8270C
99	Phenanthrene	85018	No Criteria Available		5	EPA 8270C
54	Phenol	108952	Taste and Odor	5	1	EPA 8270C
100	Pyrene	129000	Calif. Toxics Rule	960	10	EPA 8270C
INORGANICS						
	Aluminum	7429905	Ambient Water Quality	87	50	EPA 6020/200.8
1	Antimony	7440360	Primary MCL	6	5	EPA 6020/200.8
2	Arsenic	7440382	Ambient Water Quality	0.018	0.01	EPA 1632
15	Asbestos	1332214	National Toxics Rule/ Primary MCL	7 MFL	0.2 MFL >10um	EPA/600/R-93/116(PCM)
	Barium	7440393	Basin Plan Objective	100	100	EPA 6020/200.8
	Beryllium	7440417	Primary MCL	4	1	EPA 6020/200.8

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
4	Cadmium	7440439	Public Health Goal	0.07	0.25	EPA 1638/200.8
5a	Chromium (total)	7440473	Primary MCL	50	2	EPA 6020/200.8
5b	Chromium (VI)	18540299	Public Health Goal	0.2	0.5	EPA 7199/1636
6	Copper	7440508	National Toxics Rule	4.1 (2)	0.5	EPA 6020/200.8
14	Cyanide	57125	National Toxics Rule	5.2	5	EPA 9012A
	Fluoride	7782414	Public Health Goal	1000	0.1	EPA 300
	Iron	7439896	Secondary MCL	300	100	EPA 6020/200.8
7	Lead	7439921	Calif. Toxics Rule	0.92 (2)	0.5	EPA 1638
8	Mercury	7439976	TMDL Development		0.0002 (11)	EPA 1669/1631
	Manganese	7439965	Secondary MCL/ Basin Plan Objective	50	20	EPA 6020/200.8
9	Nickel	7440020	Calif. Toxics Rule	24 (2)	5	EPA 6020/200.8
10	Selenium	7782492	Calif. Toxics Rule	5 (8)	5	EPA 6020/200.8
11	Silver	7440224	Calif. Toxics Rule	0.71 (2)	1	EPA 6020/200.8
12	Thallium	7440280	National Toxics Rule	1.7	1	EPA 6020/200.8
	Tributyltin	688733	Ambient Water Quality	0.063	0.002	EV-024/025
13	Zinc	7440666	Calif. Toxics Rule/ Basin Plan Objective	54/ 16 (2)	10	EPA 6020/200.8
PESTICIDES - PCBs						
110	4,4'-DDD	72548	Calif. Toxics Rule	0.00083	0.02	EPA 8081A
109	4,4'-DDE	72559	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
108	4,4'-DDT	50293	Calif. Toxics Rule	0.00059	0.01	EPA 8081A
112	alpha-Endosulfan	959988	National Toxics Rule	0.056 (9)	0.02	EPA 8081A
103	alpha-Hexachlorocyclohexane (BHC)	319846	Calif. Toxics Rule	0.0039	0.01	EPA 8081A
	Alachlor	15972608	Primary MCL	2	1	EPA 8081A
102	Aldrin	309002	Calif. Toxics Rule	0.00013	0.005	EPA 8081A
113	beta-Endosulfan	33213659	Calif. Toxics Rule	0.056 (9)	0.01	EPA 8081A
104	beta-Hexachlorocyclohexane	319857	Calif. Toxics Rule	0.014	0.005	EPA 8081A
107	Chlordane	57749	Calif. Toxics Rule	0.00057	0.1	EPA 8081A
106	delta-Hexachlorocyclohexane	319868	No Criteria Available		0.005	EPA 8081A
111	Dieldrin	60571	Calif. Toxics Rule	0.00014	0.01	EPA 8081A
114	Endosulfan sulfate	1031078	Ambient Water Quality	0.056	0.05	EPA 8081A
115	Endrin	72208	Calif. Toxics Rule	0.036	0.01	EPA 8081A
116	Endrin Aldehyde	7421934	Calif. Toxics Rule	0.76	0.01	EPA 8081A
117	Heptachlor	76448	Calif. Toxics Rule	0.00021	0.01	EPA 8081A
118	Heptachlor Epoxide	1024573	Calif. Toxics Rule	0.0001	0.01	EPA 8081A
105	Lindane (gamma-Hexachlorocyclohexane)	58899	Calif. Toxics Rule	0.019	0.019	EPA 8081A
119	PCB-1016	12674112	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082

	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
120	PCB-1221	11104282	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
121	PCB-1232	11141165	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
122	PCB-1242	53469219	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
123	PCB-1248	12672296	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
124	PCB-1254	11097691	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
125	PCB-1260	11096825	Calif. Toxics Rule	0.00017 (10)	0.5	EPA 8082
126	Toxaphene	8001352	Calif. Toxics Rule	0.0002	0.5	EPA 8081A
	Atrazine	1912249	Public Health Goal	0.15	1	EPA 8141A
	Bentazon	25057890	Primary MCL	18	2	EPA 643/ 515.2
	Carbofuran	1563662	CDFG Hazard Assess.	0.5	5	EPA 8318
	2,4-D	94757	Primary MCL	70	10	EPA 8151A
	Dalapon	75990	Ambient Water Quality	110	10	EPA 8151A
	1,2-Dibromo-3-chloropropane (DBCP)	96128	Public Health Goal	0.0017	0.01	EPA 8260B
	Di(2-ethylhexyl)adipate	103231	USEPA IRIS	30	5	EPA 8270C
	Dinoseb	88857	Primary MCL	7	2	EPA 8151A
	Diquat	85007	Ambient Water Quality	0.5	4	EPA 8340/ 549.1/HPLC
	Endothal	145733	Primary MCL	100	45	EPA 548.1
	Ethylene Dibromide	106934	OEHHA Cancer Risk	0.0097	0.02	EPA 8260B/504
	Glyphosate	1071836	Primary MCL	700	25	HPLC/EPA 547
	Methoxychlor	72435	Public Health Goal	30	10	EPA 8081A
	Molinate (Ordram)	2212671	CDFG Hazard Assess.	13	2	EPA 634
	Oxamyl	23135220	Public Health Goal	50	20	EPA 8318/632
	Picloram	1918021	Primary MCL	500	1	EPA 8151A
	Simazine (Princep)	122349	USEPA IRIS	3.4	1	EPA 8141A
	Thiobencarb	28249776	Basin Plan Objective/ Secondary MCL	1	1	HPLC/EPA 639
16	2,3,7,8-TCDD (Dioxin)	1746016	Calif. Toxics Rule	1.30E-08	5.00E-06	EPA 8290 (HRGC) MS
	2,4,5-TP (Silvex)	93765	Ambient Water Quality	10	1	EPA 8151A
	Diazinon	333415	CDFG Hazard Assess.	0.05	0.25	EPA 8141A/GCMS
	Chlorpyrifos	2921882	CDFG Hazard Assess.	0.014	1	EPA 8141A/GCMS
OTHER CONSTITUENTS						
	Ammonia (as N)	7664417	Ambient Water Quality	1500 (4)		EPA 350.1
	Chloride	16887006	Agricultural Use	106,000		EPA 300.0
	Flow			1 CFS		
	Hardness (as $CaCO_3$)			5000		EPA 130.2
	Foaming Agents (MBAS)		Secondary MCL	500		SM5540C
	Nitrate (as N)	14797558	Primary MCL	10,000	2,000	EPA 300.0

CTR #	Constituent	CAS Number	Controlling Water Quality Criterion for Surface Waters		Criterion Quantitation Limit ug/L or noted	Suggested Test Methods
			Basis	Criterion Concentration ug/L or noted[1]		
	Nitrite (as N)	14797650	Primary MCL	1000	400	EPA 300.0
	pH		Basin Plan Objective	6.5-8.5	0.1	EPA 150.1
	Phosphorus, Total (as P)	7723140	USEPA IRIS	0.14		EPA 365.3
	Specific conductance (EC)		Agricultural Use	700 umhos/cm		EPA 120.1
	Sulfate		Secondary MCL	250,000	500	EPA 300.0
	Sulfide (as S)		Taste and Odor	0.029		EPA 376.2
	Sulfite (as SO_3)		No Criteria Available			SM4500-SO3
	Temperature		Basin Plan Objective	°F		
	Total Disolved Solids (TDS)		Agricultural Use	450,000		EPA 160.1

FOOTNOTES:

(1) - The Criterion Concentrations serve only as a point of reference for the selection of the appropriate analytical method. They do not indicate a regulatory decision that the cited concentration is either necessary or sufficient for full protection of beneficial uses. Available technology may require that effluent limits be set lower than these values.

(2) - Freshwater aquatic life criteria for metals are expressed as a function of total hardness (mg/L) in the water body. Values displayed correspond to a total hardness of 40 mg/L.

(3) - For haloethers

(4) - Freshwater aquatic life criteria for ammonia are expressed as a function of pH and temperature of the water body. Values displayed correspond to pH 8.0 and temperature of 22°C.

(5) - For nitrophenols.

(6) - For chlorinated naphthalenes.

(7) - For phthalate esters.

(8) - Basin Plan objective = 2 ug/L for Salt Slough and specific constructed channels in the Grassland watershed.

(9) - Criteria for sum of alpha- and beta- forms.

(10) - Criteria for sum of all PCBs.

(11) - Mercury monitoring shall utilize "ultra-clean" sampling and analytical methods. These methods include:

Method 1669: Sampling Ambient Water for Trace Metals at USEPA Water Quality Criteria Levels, USEPA; and

Method 1631: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluoresence, USEPA

III. Additional Study Requirements

A. 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 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

B. Criterion Quantitation Limit (CQL). The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. 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. Table I-1 contains suggested analytical procedures. The Discharger is not required to

use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

C. **Method Detection Limit (MDL).** The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

D. **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.

E. **Reporting Protocols.** The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

1. 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).

2. Sample results less than the reported 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.

3. 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 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 (+ or – a percentage of the reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.

4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.

F. **Data Format.** The monitoring report shall contain the following information for each pollutant:

1. The name of the constituent.

2. Sampling location.

3. The date the sample was collected.

4. The time the sample was collected.

5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.

6. The analytical method utilized.

7. The measured or estimated concentration.
8. The required Criterion Quantitation Limit (CQL).
9. 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).
10. The laboratory's lowest reporting limit (RL).
11. Any additional comments.

ATTACHMENT I – DIOXIN AND FURAN SAMPLING

The CTR includes criteria for 2,3,7,8-tetrachlorodibenzo-pdioxin (2,3,7,8-TCDD). In addition to this compound, there are many congeners of chlorinated dibenzodioxins (2,3,7,8-CDDs) and chlorinated dibenzofurans (2,3,7,8-CDFs) that exhibit toxic effects similar to those of 2,3,7,8-TCDD. The USEPA has published toxic equivalency factors (TEFs) for 17 of the congeners. The TEFs express the relative toxicities of the congeners compared to 2,3,7,8-TCDD (whose TEF equals 1.0). In June 1997, participants in a World Health Organization (WHO) expert meeting revised TEF values for 1,2,3,7,8-PentaCDD, OctaCDD, and OctaCDF. The current TEFs for the 17 congeners, which include the three revised values, are shown below:

Toxic Equivalency Factors (TEFs) for 2,3,7,8-TCDD Equivalents

Congener	TEF
2,3,7,8-TetraCDD	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

The Discharger shall conduct effluent and receiving water monitoring for the 2,3,7,8-TCDD congeners listed above to assess the presence and amounts of the congeners being discharged and already present in the receiving water. Effluent and upstream receiving water shall be monitored for the presence of the 17 congeners once during dry weather and once during wet weather for 1 year within the term of the study.

The Discharger shall report, for each congener, the analytical results of the effluent and receiving water monitoring, including the quantifiable limit and the method detection limit, and the measured or estimated concentration.

In addition, the Discharger shall multiply each measured or estimated congener concentration by its respective TEF value and report the sum of these values.

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER NO. R5-2004-0028

NPDES NO. CA0081558

WASTE DISCHARGE REQUIREMENTS FOR CITY OF MANTECA, CITY OF LATHROP AND DUTRA FARMS WASTEWATER QUALITY CONTROL FACILITY SAN JOAQUIN COUNTY

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

BACKGROUND

1. The City of Manteca submitted a Report of Waste Discharge, dated 27 November 2001, and applied for a permit renewal to discharge waste under the National Pollutant Discharge Elimination System (NPDES) from the Wastewater Quality Control Facility (WQCF). Supplemental information to complete filing of the application was submitted on 14 March 2002, 5 September 2002, 17 October 2002, 20 May 2003, and 17 July 2003.

   The City of Manteca's WQCF accepts wastewater flows from certain areas of the City of Lathrop, therefore the City of Lathrop is named in this permit and is responsible for operation and maintenance of its wastewater collection system. The City of Manteca leases 150 acres of land from Dutra Farms (Assessor's parcel Nos. 241-320-01 and 241-320-02) for application of treated wastewater; therefore Dutra Farms is named in this permit and is responsible for the proper application and management of the wastewater on its land. The City of Manteca is solely responsible for the wastewater treatment facility. The City of Manteca, the City of Lathrop and Dutra Farms are hereafter individually and/or jointly referred to as Discharger.

2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the City of Manteca and the City of Lathrop. The WQCF is in Section 4, T2S, R6E, MDB&M, as shown on Attachment B, a part of this Order. The existing treatment plant is on property owned by the City of Manteca. Land disposal of effluent is maximized by discharging effluent at agronomic rates seasonally to existing City-owned property, and additional leased property as shown on Attachment A, a part of this Order. Excess flow of treated municipal wastewater is discharged to the San Joaquin River, a water of the United States, and part of the Sacramento-San Joaquin Delta (Delta) at the point, latitude 37°, 46', 45" (deg, min, sec) and longitude 121°, 18', 00" (deg, min, sec).

3. The collection system consists of two main lines servicing the City of Manteca and one line for the City of Lathrop. A separate industrial waste line has been constructed for collection of food processing waste so that it can be separately treated and disposed on land. The industrial waste

EXHIBIT B

line is not in service. All waste is currently treated in the municipal treatment plant. The treatment system consists of raw influent bar screening, flow metering, and grit removal, followed by primary sedimentation, biofiltration, conventional activated sludge and secondary sedimentation. Secondary effluent is applied to agricultural fields at agronomic rates. Excess flows are chlorinated, dechlorinated and discharged to the San Joaquin River. Biosolids are dewatered by settling and evaporation and disposed of on-site by application to the City-owned property at agronomic rates. The discharger has requested the option to dispose of biosolids in a landfill in the future. The Report of Waste Discharge and additional reports provided by the discharger describe the current City of Manteca discharge as follows:

Monthly Average Flow:	5.72	million gallons per day (mgd)
Daily Peak Wet Weather Flow:	7.21	mgd
Design Flow (dry weather):	6.95	mgd
Average Temperature:	79.5°F Summer; 63.3°F Winter	

Discharge to the San Joaquin River (Outfall 001) averages 4.89 mgd with a maximum of 6.29 mgd.

Constituent	Units	Concentration Range	lbs/day[2] average
BOD[1]	mg/l	17 (avg)/59 (max)[5]	690
Total Suspended Solids	mg/l	14 (avg)/31 (max)[5]	570
Ammonia	mg/l	ND-42.8 [3]	720
Chloride	mg/l	100-230 [3]	5600
Electrical Conductivity	umhos/cm	819-1300 [3]	
Total Dissolved Solids	mg/l	540-727 [3]	26,000
Aluminum	mg/l	0.07-0.35 [4]	6.1
Iron	mg/l	0.17-0.73 [4]	20
Manganese	mg/l	0.013-0.12 [4]	2.0
Arsenic	ug/l	11-14 [4]	0.5
Copper	ug/l	7.4-13 [4]	0.4
Cyanide	ug/l	1.5-31 [4]	0.2
Dibromochloromethane	ug/l	ND-1.2 [4]	0.02
Bromodichloromethane	ug/l	1-3.5 [4]	0.08
2,4,6-Trichlorophenol	ug/l	ND-11 [4]	0.2
Bis(2-ethylhexyl)phthalate	ug/l	0.9-7 [4]	0.16
Mercury	ug/l	0.013-0.028 [4]	0.00077

1 5-day, 20°C biochemical oxygen demand
2 Based on 4.89 mgd
3 January 1998 to December 2002 monitoring reports
4 January 2002 to December 2002 data collection
5 Form 2A of the Report of Waste Discharge

Discharge to land averages 2.0 mgd.

Constituent	Units	Concentration Range	lbs/day[2] average
BOD[1]	mg/l	6-124 [3]	530
Ammonia	mg/l	12-33.8 [3]	330
Nitrate	mg/l	0-9.8	25
Electrical Conductivity	umhos/cm	946-1354 [3]	
Total Dissolved Solids	mg/l	557-614 [3]	9800

1 5-day, 20°C biochemical oxygen demand
2 Based on 2.0 mgd
3 January 2002 to December 2002 monitoring reports

4. The municipal treatment system capacity will be expanded through the addition of primary and secondary treatment units that will be similar to and parallel to the existing units. In addition, nitrification, denitrification, tertiary filtration, and UV disinfection will be added to improve the effluent quality. The expansion will include additional sludge digestion and dewatering units, as well as improvements to buildings, pump stations, ponds, and chemical handling. Chemical additions of sodium hydroxide, lime, sodium hypochlorite, or similar products may be required to control pH, alkalinity and disinfection in the plant processes. Additional expansion of the municipal waste collection system is planned to support further development of the City. In order to mitigate thermal impacts of the discharge to the San Joaquin River, the treated municipal wastewater will be discharged only during the outgoing tide. The Report of Waste Discharge describes the proposed City of Manteca discharge as follows:

Design Flow (dry weather): 9.87 mgd municipal sanitary waste
Average Temperature: 81°F Summer; 62°F Winter

Constituent	Units	30-Day[4] Average	Daily[4] Maximum	lbs/day[2] average
BOD[1]	mg/l	10	50	820
Total Suspended Solids	mg/l	10	50	820
Ammonia (as N)	mg/l	2[3]		160
Total Dissolved Solids	mg/l	640		53,000
Total Organic Carbon	mg/l	13		1100
Chlorine Residual	mg/l		0.1	
Settleable Matter	mg/l	0.1	0.2	8
Oil and Grease	mg/l	10	15	820
Total Coliform Organisms	MPN/100 ml	2.2[5]	23[6]	
NTU	NTU units	2[7]	10[8]	
pH	pH units		6.5-8.0[9]	

Footnotes next page

1 5-day, 20°C biochemical oxygen demand
2 Based on 9.87 mgd
3 0.5 mg/l during certain low flow conditions
4 Table 5, Basis of Design Report, August 2002
5 7-day mean
6 30-day maximum
7 Daily Average
8 Maximum anytime
9 Revised to 8.0 per 17 October 2002 letter from City of Manteca

A separate industrial collection system that was constructed earlier will deliver food processing waste to an aeration basin that will be separate from the main treatment plant prior to disposal to land. Discharge to land averages 2.0 mgd, which includes up to 0.55 mgd of food processing waste, and contains the following:

Constituent	Units	Concentration average	lbs/day[2] average
BOD[1]	mg/l	143 [3]	2400
Total Nitrogen	mg/l	9 [3]	150

1 5-day, 20°C biochemical oxygen demand
2 Based on 2.0 mgd
3 Wastewater Management Plan, August 2002

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

BENEFICIAL USES/WATER QUALITY CONTROL PLANS

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

7. The beneficial uses of the Delta downstream of the discharge as identified in Table II-1 of the Basin Plan are municipal and domestic supply, agricultural irrigation, agricultural stock watering, industrial process water supply, industrial service supply, water contact recreation, other non-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.

8. The beneficial uses of the underlying ground water are municipal and domestic, industrial service, industrial process and agricultural supply.

9. Clean Water Act Section 303(a-c), required states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Regional Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that "[t]*he numerical and narrative water quality objectives define the least stringent standards that the Regional Board will apply to regional waters in order to protect the beneficial uses.*" The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains Receiving Water Limitations based on the Basin Plan numerical and narrative water quality objectives for biostimulatory substances, chemical constituents, color, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, salinity, sediment, settleable material, suspended material, tastes and odors, temperature, toxicity, turbidity, and electrical conductivity. Numeric Basin Plan objectives that are applicable to this discharge and which have been incorporated as Receiving Water Limitations include:

   a. *Dissolved Oxygen*—The Basin Plan includes a water quality objective that within the legal boundaries of the Delta, the dissolved oxygen concentration shall not be reduced below 5.0 mg/l in all Delta waters except in those waters designated otherwise. Numeric Receiving Water Limitations for dissolved oxygen are included in this Order and are based on the Basin Plan objectives.

   b. *pH*—The Basin Plan includes numeric water quality objectives that the pH "*...not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in fresh waters with designated COLD or WARM beneficial uses.*" Numeric Receiving Water Limitations for pH are included in this Order and are based on the Basin Plan objectives for pH.

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

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

   A numeric Receiving Water Limitation for turbidity is included in this Order and is based on the Basin Plan objective for turbidity.

10. The State Water Resources Control Board (State Board or SWRCB) on 16 May 1974, adopted Resolution No. 74-43 titled "Water Quality Control Policy for the Enclosed Bays and Estuaries of California". The requirements within this Order are consistent with the Policy.

11. The State Board adopted the Water Quality Control Plan for the San Francisco Bay/Sacramento-San Joaquin Delta Estuary on 22 May 1995 (Bay/Delta Plan). The Plan includes water quality objectives, which are implemented as part of this Order.

12. The Basin Plan contains the "Policy for Application of Water Quality Objectives" (Implementation Policy) that, among other policies, establishes policies for implementation of narrative water quality objectives. This Implementation Policy states, in part,

> "Where compliance with these narrative objectives is required (i.e., where the objectives are applicable to protect specified beneficial uses), the Regional Board will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives. To evaluate compliance with the narrative water quality objectives, the Regional Board considers, on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations . . ."

Narrative water quality objectives applied in this Order include (1) the "Chemical Constituents" objective, which states that "waters shall not contain chemical constituents that adversely affect beneficial uses. The Chemical Constituent objective also lists specific numeric objectives for certain constituents and incorporates state Maximum Contaminant Levels (MCLs) promulgated in Title 22 California Code of Regulations (CCR) Division 4, Chapter 15, and (2) the "Narrative Toxicity Objective", which states, in part, "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life."

13. The SWRCB Water Quality Control Plan for Control of Temperatures in Coastal and Interstate Waters and Enclosed Bays and Estuaries of California (Thermal Plan) is applicable to this discharge. For purposes of the Thermal Plan, the Discharger is considered to be an Existing Discharger of Elevated Temperature Waste.

ANTIDEGRADATION

14. State Board Resolution No. 68-16 (hereafter Resolution 68-16) and 40 Code of Federal Regulations (CFR) section 131.12 require the Regional Board, in regulating discharge of waste, to maintain high quality waters of the State until it is demonstrated that any change in quality will be consistent with maximum benefit to the people of the State, will not unreasonably affect beneficial uses, and will not result in water quality less than that described in the Regional Board's policies. Resolution 68-16 requires 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.

15. With regard to surface water, the receiving water may exceed applicable water quality objectives for certain constituents as described in this Order. However, this Order requires the discharger, in accordance with specified compliance schedules, to meet requirements that will result in the use of best practicable treatment or control of the discharge and will result in compliance with water quality objectives. Table 1 of the information sheet provides an analysis of the mass loading to the receiving water for a number of constituents based on current operations and for an expanded discharge flow following plant upgrades. This Order requires compliance with technology-based standards and more stringent water quality-based standards. In developing effluent limitations, this Order allows the use of some of the assimilative capacity of the receiving water based on the current performance of the discharger and is consistent with the SIP. Where assimilative capacity is available in the receiving water, this Order does not authorize the full use of the assimilative capacity. This Order is consistent with California Water Code section 13263(b). Any further use of the assimilative capacity would not be consistent with Resolution 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant. The total allowable discharge to surface water of 9.87 mgd has been increased from 6.95 mgd from the previous Order. The discharge is consistent with Resolution 68-16 and 40 CFR section 131.12 because this Order requires the discharger to meet requirements that will result in best practicable treatment or control to assure that pollution or nuisance will not occur prior to allowing flows to increase.

16. With regard to groundwater, domestic wastewater contains constituents such as total dissolved solids (TDS), specific conductivity, pathogens, nitrates, organics, and metals. The Discharger's use of unlined ponds and the application of wastewater and sludge to land may result in an increase in the concentration of these constituents in groundwater. Some degradation of groundwater by the Discharger is consistent with Resolution 68-16 provided that:

    a. The degradation is limited in extent;
    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 control technology (BPCT) measures; and
    d. The degradation does not result in water quality less than that prescribed in the Basin Plan, e.g., does not exceed water quality objectives.

    As further discussed in Findings 18-20 and in the Provisions, the discharge to land authorized by this Order must comply with ground water limitations, groundwater monitoring requirements, and a schedule to evaluate whether the Discharger is implementing best practicable treatment or control of the discharge. Compliance with this Order will result in use of best practicable treatment or control and will not further degrade the groundwater.

17. On 4 February 2003, the State Board adopted the 2002 California 303(d) list of impaired water bodies. The listing for the eastern portion of the Delta waterways includes the organo-phosphate pesticides (diazinon and chlorpyrifos), organo-chlorine Group A pesticides (including the organo-chlorine pesticides DDT, endrin aldehyde, and lindane), mercury, and unknown toxicity. The listing for the San Joaquin River downstream of the discharge also includes organic enrichment/low dissolved oxygen. These listings require review and assessment of effluent quality to determine if applicable effluent limitations are necessary. The USEPA requires the Regional Board to develop total maximum daily loads (TMDLs) for each 303(d) listed pollutant.

GROUNDWATER

18. 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 an assessment of all wastewater-related constituents which may have migrated to groundwater, the vertical and lateral extent of any degradation, 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. If monitoring indicates that the discharge has incrementally increased constituent concentrations in groundwater above background, this permit may be reopened and modified. 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 has been degraded by the discharge, the incremental change in waste concentration (when compared with background) may not be increased. If groundwater quality has been or may be degraded by the discharge, this Order may be reopened and specific numeric limitations established consistent with Resolution 68-16 and the Basin Plan.

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

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

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

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

20. This Order requires the Discharger to prepare technical and monitoring reports as authorized by California Water Code (CWC) Section 13267. This Order also requires that the Discharger conduct 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, and to assure compliance with this Order. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water.

BIOSOLIDS

21. USEPA has promulgated biosolids reuse regulations in 40 CFR 503, *Standard for the Use or Disposal of Sewage Sludge*, which establishes management criteria for protection of groundwater and surface waters, sets application rates for heavy metals, and establishes stabilization and disinfection criteria. The Regional Board is using the standards in 40 CFR 503 as guidelines in establishing this Order, but the Regional Board is not the implementing agency for 40 CFR 503 regulations. The Discharger may have separate and/or additional compliance, reporting, and permitting responsibilities to USEPA, which are not covered by this Order.

22. Biosolids, food processing wastewater, and treated municipal wastewater are applied to the City-owned lands. Only the treated municipal wastewater is applied to leased lands. This order requires that the City demonstrate that there is adequate capacity on the City-owned lands to agronomically apply the food processing wastes and all biosolids.

COLLECTION SYSTEM

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

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

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

26. The Discharger is expected to take all necessary steps to adequately maintain and operate its sanitary sewer collection system. This Order requires the Discharger to prepare and implement a Sanitary Sewer System Operation, Maintenance, Overflow Prevention, and Response Plan.

REASONABLE POTENTIAL

27. 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 most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to surface waters for this facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Board plan, so no effluent limitations are included in this permit pursuant to CWC Section 13263.6(a).

    However, as detailed elsewhere in this permit, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state law and regulations.

28. USEPA adopted the *National Toxics Rule* (NTR) on22 December 1992, which USEPA revised on 4 May 1995 and 9 November 1999, and the *California Toxics Rule*(CTR) on 18 May 2000, which USEPA revised on 13 February 2001. These Rules contain water quality standards applicable to this discharge. The State 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 or SIP), which contains policies and procedures for implementation of the *National Toxics Rule* and the *California Toxics Rule.*

29. Federal regulations, at 40 CFR Section 122.44 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. Water quality standards include the National Toxics Rule, the California Toxics Rule, and Basin Plan water quality objectives. 40 CFR Section 122.44(d) sets forth requirements that apply to the state to implement narrative water quality standards. 40 CFR Section 122.44(d)(vi)(A)-(C) requires the effluent limit to be based on one or more of three options, including using EPA's water quality criteria, a proposed state criterion (i.e., water quality objective), or an explicit state policy interpreting its narrative water quality criteria (i.e., the Regional Board's "Policy for

Application of Water Quality Objectives"). Based on information submitted as part of the application, in studies, and in monitoring reports, the Regional Board finds that the discharge does have a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for aluminum, ammonia, arsenic, chlorine, copper, cyanide, bis(2-ethylhexyl)phthalate, bromodichloromethane, dibromochloromethane, electrical conductivity, iron, manganese, MBAS, mercury, nitrate, nitrite, pH, temperature, total dissolved solids and 2,4,6-trichlorophenol. Final effluent limitations and/or interim performance-based effluent limitations and interim requirements with compliance schedules for the pollutants listed above are included in this Order. In addition, this Order contains provisions that:

a. Require the Discharger to conduct a study to provide information as to whether the levels of dioxins in the discharge cause or contribute to an in-stream excursion above a water quality standard, including Basin Plan numeric or narrative objectives;

b. If the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard, requires the Discharger to submit information to calculate effluent limitations for those constituents; and

c. Allows the Regional 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 California Water Code Section 13267, requiring the Discharger to prepare a technical report assessing water quality. This Order is intended to be consistent with these requirements in requiring sampling for dioxins 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.

30. As stated in the above Finding, the USEPA adopted the NTR and the CTR, which contains water quality standards applicable to this discharge. The SIP contains policies and procedures for implementation of the NTR and CTR. The SIP, Section 2.2.1, requires that if a compliance schedule is granted for a CTR or NTR constituent, the Regional Board shall establish interim requirements and dates for their achievement in the NPDES permit. The interim limitations must be based on current treatment plant performance or existing permit limitations, whichever is more stringent; include interim compliance dates separated by no more than one year, and; be included in the Provisions. The interim limitations in this Order are based on the current treatment plant performance. In developing the interim limitation, where there are ten sampling data points or more, sampling and laboratory variability is accounted for by establishing interim limits that are based on normally distributed data where 99.9% of the data points will lie within 3.3 standard deviations of the mean (*Basic Statistical Methods for Engineers and Scientists, Kennedy and Neville, Harper and Row*). Therefore, the interim limitations in this Order are established as the mean plus 3.3 standard deviations of the available data. Where actual sampling shows an exceedance of the proposed 3.3-standard deviation interim limit, the maximum detected concentration has been established as the interim limitation. When there are less than ten sampling data points available, the *Technical Support Document for Water Quality*

Based Toxics Control ((EPA/505/2-90-001) TSD) recommends a coefficient of variation of 0.6 be utilized as representative of wastewater effluent sampling. The TSD recognizes that a minimum of ten data points is necessary to conduct a valid statistical analysis. The multipliers contained in Table 5-2 of the TSD are used to determine a maximum daily limitation based on a long-term average objective. In this case, the long-term average objective is to maintain, at a minimum, the current plant performance level. Therefore, when there are less than ten sampling points for a constituent, interim limitations are based on 3.11 times the maximum observed sampling result to obtain the daily maximum interim limitation (TSD, Table 5-2). The Regional Board finds that the Discharger can undertake source control and treatment plant measures to maintain compliance with the interim limitations included in this Order. Interim limitations are established when compliance with NTR- and CTR-based effluent limitations cannot be achieved by the existing discharge. Discharge of constituents in concentrations in excess of the final effluent limitations, but in compliance with the interim effluent limitations, can significantly degrade water quality and adversely affect the beneficial uses of the receiving stream on a long-term basis. The interim limitations, however, establish an enforceable ceiling concentration until compliance with the effluent limitation can be achieved.

31. **Dilution:** As discussed in the information sheet, the Discharger developed a model to assess dilution and mixing zones. The accuracy of the model results are questionable due to a lack of site data to calibrate and validate the model, the lack of accounting for tidal cycles and recirculation, and the lack of accounting for the Brown Sand, Inc. discharge adjacent to the outfall. However, because there is no in-stream flow meter in the vicinity of the discharge to provide real-time data, this Order relies on flow information from the Vernalis monitoring station, as well as some of the model information as it is available. This Order also requires the Discharger to install a flow monitoring station in the vicinity of the outfall to provide real-time data to better assess available dilution.

    In the immediate vicinity of the outfall, little dilution is available for the side-bank discharge. In addition, the dilution is reduced due to the added discharge from the Brown Sand impoundment immediately downstream. No dilution is available for the acute aquatic criteria due to the limited mixing of the side-bank discharge near the outfall, the commingling with an adjacent NPDES discharge, the 1-hour exposure interval that the acute criteria are intended to protect, and the periods of slack tide that can occur at low river flows.

    The SIP requires that a mixing zone not dominate or compromise the integrity of the entire water body and shall be as small as practicable. The thermal modeling, while not proven to be accurate, as discussed in the information sheet, presented a spatial definition to the changes in temperature that occur in the receiving water. This was used to define a mixing zone for constituents subject to chronic aquatic criteria and dilution to be determined at the edge of this mixing zone. As discussed further in the information sheet, the mixing zone will be restricted to the surface layer of the water column in a plume hugging the eastern shore of the river and extending to 450 feet downstream of the outfall. Temperature differences at the edge of this mixing zone indicate that a 4:1 dilution exists at the edge of this mixing zone. Therefore, for constituents subject to chronic aquatic criteria, a 4:1 dilution will be applied. This mixing zone

will provide protection to the benthic community and minimize the impacts of the discharge to the river.

The overlap of the plumes from the City of Manteca and the Brown Sand impoundment will limit the extent of a mixing zone for arsenic, a constituent of mutual concern between these discharges. Additionally, the receiving water monitoring shows an average arsenic concentration of 3.0 ug/l, exceeding the USEPA recommended water quality criterion for protection of human health. The receiving water lacks assimilative capacity for arsenic. There is no dilution available for arsenic under these conditions.

The assimilative capacity of the receiving water is dependent on the background concentration of the receiving water. Data collected in 2002 indicates that the receiving water has no assimilative capacity, and therefore no dilution can be granted for aluminum, electrical conductivity, iron, manganese, and mercury.

Human health-based criteria that are based on safe-exposure levels for lifetime exposure (e.g., cancer risk estimates) utilize the harmonic mean flow to represent the receiving water flow. A steady state analysis utilizing the harmonic mean flow at Vernalis provides a dilution of 222:1. The Regional Board is not required to grant a mixing zone or allocate the full assimilative capacity of the receiving water. For limitations based on these human health criteria, dilution is limited to the amount required to maintain compliance. Where the ambient background concentrations are lower than the applicable human health criterion, the dilution credits determined in Table 12 of the Information Sheet apply for the determination of effluent limitations for carcinogens.

PRIORITY POLLUTANTS

32. **Copper:** The Report of Waste Discharge submitted by the Discharger indicates the presence of copper at levels that exceed the numeric water quality objective for copper contained in the Basin Plan (Table III-1). Based on twelve effluent samples, the maximum reported copper value is 13 ug/l, which is within a range that may cause the receiving stream to exceed the water quality objective for copper. Copper toxicity is hardness dependent and data submitted by the Discharger indicates a worst-case effluent hardness concentration of 170 mg/l as $CaCO_3$. Based on a hardness of 170 mg/l, the calculated hardness dependent copper effluent limitations are 7.9 ug/l as a monthly average and 10.4 ug/l as a daily maximum. Effluent limitations for copper are included in this Order for the protection of freshwater species, and are based on the Basin Plan objective. The determination of the final effluent limitations, which are hardness dependent, are summarized in Table 11 of the Information Sheet.

33. **Cyanide:** The Report of Waste Discharge submitted by the Discharger indicates the presence of cyanide at levels that exceed the water quality objective for cyanide contained in the Basin Plan (Table III-1). Based on twelve effluent samples, the maximum reported cyanide value is 31 ug/l, which may cause the receiving stream to exceed the Basin Plan objective of 0.01 mg/l. Effluent limitations for cyanide are included in this Order based on the Basin Plan objective and

calculations outlined in the TSD. The calculated effluent limitations for cyanide are 3.7 ug/l as a monthly average and 10.0 ug/l as a daily maximum (see Table 11 of the Information Sheet).

34. **Arsenic:** Arsenic is an inorganic priority pollutant that produces human health effects and is considered a carcinogen. Data, submitted by the discharger between January 2002 and December 2002, indicates arsenic is present in the effluent at levels that exceed the water quality objective for arsenic contained in the Basin Plan (Table III-1). The Basin Plan numeric objective for the San Joaquin-Sacramento Delta is 10 ug/l. Also, the new USEPA Primary MCL for arsenic is 10 ug/l. The maximum concentration in the effluent is 14 ug/l. The Regional Board finds that there is a reasonable potential for the discharge to cause or contribute to an excursion above the numeric water quality objective for arsenic. An effluent limitation for arsenic is included in this Order based on the Basin Plan numeric objective and the calculations outlined in Section 5.4.4 of the TSD. The effluent limitation for arsenic is 10 ug/l as a monthly average (see Table 11 of the Information Sheet).

35. **Total Trihalomethanes and Chloroform:** Information submitted by the Discharger indicate that the effluent contains trihalomethanes (THMs) and chloroform. The Basin Plan contains the "Chemical Constituent" objective that requires, at a minimum, that waters with a designated MUN use not exceed California MCLs. In addition, the Chemical Constituent objective prohibits chemical constituents in concentrations that adversely affect beneficial uses. The California's Drinking Water Standard primary MCL for total THMs is 100 ug /l. The USEPA primary MCL for total THMs is 80 ug/l, which was effective on 1 January 2002 for surface water systems that serve more than 10,000 people. Pursuant to the Safe Drinking Water Act, DHS must revise the current total THMs MCL in Title 22 CCR to be as low or lower than the USEPA MCL. The State Board, in WQO No 2003-0002, stated that the Drinking Water Standard primary MCL for total THMs, which includes chloroform, of 80 ug/l could be applied to address chloroform in the discharge regulated in that Order. In addition, 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 regional boards, departments and offices within Cal/EPA. This cancer potency factor is equivalent to a concentration in drinking water of 1.1 ug/l (ppb) at the 1-in-a-million cancer risk level with the consumption of the drinking water over a 70-year lifetime. 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 USEPA 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.

Municipal and domestic supply is a designated beneficial use of the receiving water. However, there are no known drinking water intakes on the San Joaquin River within several miles downstream of the discharge, and chloroform is a non-conservative pollutant. Therefore, to protect the MUN use of the receiving waters, the Regional Board finds that, in this specific circumstance, application of the USEPA MCL for total THMs for the effluent is appropriate, as

long as the receiving water does not exceed the OEHHA cancer potency factor's equivalent receiving water concentration at a reasonable distance from the outfall (e.g., before reaching the drinking water intakes). A review of effluent data collected from January 2002 through December 2002 showed total THMs with a maximum concentration of 17 ug/l and an average concentration of 10 ug/l. Chloroform data collected over the same period showed a maximum concentration of 12 ug/l and an average concentration of 8 ug/l. Data is not available regarding the constituent concentrations in the receiving water. Considering the available dilution based on the harmonic mean flow of the San Joaquin River, the discharge does not have a reasonable potential to cause or contribute to an in-stream excursion above the water quality objective for MUN use by causing exceedance of the USEPA primary MCL for total THMs or the chloroform OEHHA cancer potency factor's equivalent receiving water concentration. Therefore, effluent limitations for total THMs and chloroform are not included in this Order.

36. **Bromodichloromethane (BDCM) and dibromochloromethane (DBCM):** Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for BDCM and DBCM. The CTR includes standards for the protection of human health based on a one-in-a-million cancer risk for these organic constituents. The criteria for waters from which both water and organisms are consumed are 0.56 ug/l and 0.41 ug/l for BDCM and DBCM, respectively. The maximum observed effluent concentrations for BDCM and DBCM are 3.5 ug/l and 1.2 ug/l, respectively. Effluent limitations for BDCM and DBCM are included in this Order based on the CTR criteria for the protection of human health. The Discharger is able to comply with the limitations.

37. **Trichlorophenol:** Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for 2,4,6-trichlorophenol. The CTR includes standards for the protection of human health. The 2,4,6-trichlorophenol criteria for the protection of human health based on a one-in-a-million cancer risk for waters from which both water and aquatic organisms are consumed is 2.1 ug/l. The maximum observed effluent 2,4,6-trichlorophenol concentration is 11 ug/l. 2,4,6-trichlorophenol has not been detected in the upstream receiving water. Effluent Limitations for 2,4,6-trichlorophenol are included in this Order based on the CTR standard for the protection of human health. The Discharger is able to comply with the effluent limitations.

38. **Bis(2-ethylhexyl)phthalate:** Based on information included in analytical laboratory results submitted by the Discharger, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria for 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 of 1.8 ug/l. The maximum observed effluent bis(2-ethylhexyl)-phthalate concentration is 7 ug/l. Bis(2-ethylhexyl)phthalate has not been detected in the upstream receiving water. Effluent Limitations for bis(2-ethylhexyl)phthalate are included in this Order based on the CTR criteria for the protection of human health. The Discharger is able to comply with the effluent limitations,

mitigations, such as discharging during the outgoing tide, to bring the existing discharge into compliance and maintain compliance when increasing its effluent discharge rate. This Order may be reopened to include alternative limitations for temperature if a resolution is adopted in the future that provides exceptions for particular objectives of the Thermal Plan.

41. Studies by the National Marine Fisheries Service, the U.S. Fish and Wildlife Service, the California Department of Fish and Game, the University of California at Davis, et. al., have identified the Central Valley Chinook Salmon and the Central Valley Steelhead as sensitive species that are affected by elevated temperatures in the San Joaquin River. There are four runs of salmon in the Central Valley that results in there being adults and juveniles in portions of the Delta every month of the year. Generally, adults would be moving upstream in the fall, and fry and smolt moving downstream in the winter and spring. River temperatures above 68 °F are unsuitable for supporting salmonoids. Migration of adults is usually delayed when river temperatures reach this level. In a Department of Water Resources Study, adult salmon will cease migration if water temperatures are above 70 °F. At 77 °F, adult mortality may occur. The Thermal Plan does not protect aquatic life from high temperature wastewater being discharged to an elevated temperature river. However, the Thermal Plan limits incremental increases in temperature. Discharge from the wastewater treatment plant of treated effluent with an elevated temperature may affect salmon and other migrating fish in the San Joaquin River. In so far as elevated temperature is deleterious to Chinook salmon, effluent temperature must be limited so as not to cause the receiving water to be harmful to the salmon. When the assimilative capacity of the river is diminished, effluent temperature must be held to the water quality criteria. The CALFED Bay-Delta Program target is to maintain water temperatures below 68 °F in migratory routes of anadromous fish in the spring and fall. This Order requires the Discharger to study the potential impacts to the fishery associated with a discharge of effluent with elevated temperature.

42. **pH:** The Discharger requested in a 17 October 2002 letter that the effluent pH range for discharges to the San Joaquin River be restricted to pH 6.5 to 8.0. The reason for restricting the pH of the discharge is to facilitate less restrictive ammonia effluent limitations for the discharge to the San Joaquin River. These pH limits are included in this Order.

43. **Ammonia-Nitrogen:** Treated and untreated domestic wastewater, including the discharge from the WQCF, contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification to remove ammonia from the waste stream. Inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. The USEPA has developed Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life, recommending acute criteria for ammonia that are pH-dependent and chronic criteria that are pH- and temperature-dependent. The WQCF effluent has a reasonable potential to cause or contribute to an in-stream excursion above USEPA acute and chronic water quality criteria for ammonia. Consistent with 40 CFR section 122.44(d)(vi)(A) and the Basin Plan "Policy for Application of Water Quality Objectives", this Order implements the Basin Plan

narrative toxicity objective by applying USEPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life for ammonia. This Order includes effluent limitations for ammonia, based on the narrative toxicity objective and the USEPA's Ambient Water Quality Criteria for the Protection of Freshwater Aquatic Life.

Because of the seasonal variation in pH and temperature of the receiving water and the sensitivity of the ammonia criteria to these conditions, seasonal limitations are established. For the warm weather months from 1 June to 30 September, the maximum permitted monthly average effluent pH is 8.0, the maximum historical monthly average receiving water pH is 9.1, the maximum historical monthly average effluent temperature is 27.2 F, and the maximum historical monthly average receiving water temperature is 25.7 F. The pH and temperature at the edge of a 4:1 mixing zone were estimated utilizing the USEPA DESCON program. These estimations are utilized in Table 8 of the Information Sheet to calculate effluent limitations that maintain compliance with chronic aquatic criterion in the receiving water outside of the mixing zone. Effluent limitations compliant with acute criteria for conditions at the end-of-pipe are also determined, but the more restrictive chronic criteria determine the final effluent limitations. Table 8 provides a daily maximum effluent limitation of 4.4 mg/l ammonia as N and a 30-day average effluent limitation of 2.1 mg/l. As defined by the 1999 criteria, the 4-day average CCC ammonia concentration shall not exceed 2.5 times the value of the 30-day CCC. However, considering the maximum daily limitation is less than 2.5 times the CCC in all cases, the 4-day average cannot exceed the maximum daily limitation.

For the cool weather months from 1 October to 31 May, the maximum permitted monthly average effluent pH is 8.0, the maximum historical monthly average receiving water pH is 8.5, the maximum historical monthly average effluent temperature is 25.2 F, and the maximum historical monthly average receiving water temperature is 19.6 F. The pH and temperature at the edge of a 4:1 mixing zone were estimated utilizing the USEPA DESCON program. These estimations are utilized in Table 8 to calculate effluent limitations that maintain compliance with chronic aquatic criterion in the receiving water outside of the mixing zone. Effluent limitations compliant with acute criteria for conditions at the end-of-pipe are also determined. In this case, the more restrictive acute criteria determine the final effluent limitations. Table 8 show that the acute criteria using the maximum permitted effluent pH of 8.0 provides a daily maximum effluent limitation of 5.6 mg/l ammonia as N and a 30-day average effluent limitation of 2.8 mg/l.

44. **Nitrite and Nitrate-Nitrogen:** Nitrate and nitrite are known to cause adverse health effects in humans. The Basin Plan's chemical constituents water quality objective prohibits chemical constituents in concentrations that exceed drinking water Maximum Contaminant Levels (MCLs) published in Title 22 of the California Code of Regulations or that adversely affect beneficial uses. Municipal and domestic water supply is a beneficial use of the San Joaquin River. The California Department of Health Services (DHS) has adopted Primary Maximum Contaminant Levels (MCLs) for the protection of human health for nitrite and nitrate that are equal to 1 mg/l and 10 mg/l (measured as nitrogen), respectively. Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 ug/l for the sum of nitrate and nitrite, measured as nitrogen. The discharge from the WQCF has a reasonable potential to cause or contribute to an

in-stream excursion above water quality standards for nitrite and nitrate because of the nitrification and denitrification processes. Effluent limits for nitrite and nitrate are based on the MCLs. Effluent Limitations for nitrite and nitrate are included in this Order to assure the treatment process adequately nitrifies and denitrifies the waste stream to protect the beneficial uses of municipal and domestic supply.

45. **Salinity:** The discharge contains total dissolved solids (TDS), chloride and electrical conductivity. These are water quality parameters that are typically indicative of the salinity of the water. Their presence in water can be growth limiting to certain agricultural crops and can affect the taste of the water for human consumption. There are no USEPA water quality criteria for protection of aquatic organisms for these constituents. The Basin Plan "Chemical Constituent" objective incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for electrical conductivity. The secondary California maximum contaminant level (MCL) for TDS is 500 mg/l as a recommended level, 1000 mg/l as an upper level, and
1500 mg/l as a short-term maximum. The recommended agricultural water quality goal for TDS, that would implement the narrative "Chemical Constituent" objective, is 450 mg/l as a long-term average based on *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). The recommended agricultural water quality goal for chloride, that would implement the narrative "Chemical Constituent" objective, is 106 mg/l based on *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). The Basin Plan water quality objectives for electrical conductivity for the South Delta are 700 umhos/cm (from 1 April to 31 August) and 1000 umhos/cm (from 1 September to 31 March). State Board Decision 1641 (D-1641) requires that the 1000 umhos/cm objective be met year round until 1 April 2005 at which time the seasonal objectives will be effective.

A review of the Discharger's monitoring reports from January 1998 through December 2002 indicates an annual average TDS effluent concentration of 634 mg/l, a lowest monthly average of 540 mg/l, and a highest monthly average of 727 mg/l. These concentrations exceed the applicable objectives. Limited TDS data collected at receiving water sample location R1 from January 2002 through December 2002 showed a TDS concentration range from 210 mg/l to 1300 mg/l with an average of 500 mg/l in 12 sampling events. The Regional Board report *Total Maximum Daily Load for Salinity and Boron in the Lower San Joaquin River (January 2002)* presented monthly average TDS data for the San Joaquin River at Vernalis from October 1976 through September 1997. The Vernalis data showed a maximum monthly average TDS of 1024 mg/l with 57 of 252 months having monthly averages greater than 500 mg/l. This data indicates that the receiving water frequently exceeds water quality objectives to protect its beneficial uses and lacks assimilative capacity for TDS. As water exported from the Delta by the State Water Project is, in part, mixed with Colorado River water to provide municipal water supply with an acceptable TDS, any increase in salt concentration effectively reduces the available water supply in Southern California (*Metropolitan Water District of Southern California, Salinity Management Study, 1998*).

Chloride concentrations in the effluent ranged from 100-230 mg/l with an average of 138 mg/l based on 16 samples collected during 2002. Background concentrations in the San Joaquin River ranged from 51-170 mg/l with an average of 98 mg/l based on results from eleven samples collected during 2002. Both the receiving water and the effluent exceed the water quality objective of 106 mg/l based on the narrative objective.

Electrical conductivity (EC) shows reasonable potential to exceed water quality objectives in both the effluent and in the receiving water. A review of the Discharger's monitoring reports from January 1998 through December 2002 shows the annual average effluent EC is 1099 umhos/cm, the lowest monthly average is 819 umhos/cm, and the highest monthly average is 1300 umhos/cm. These levels exceed the applicable objectives. EC data collected at receiving water sample location R1 from January 2002 through December 2002 show that the conductivity in the receiving water ranged from 380 umhos/cm to 1100 umhos/cm and averaged 686 umhos/cm in 12 sampling events. Hourly EC data collected at the Department of Water Resources (DWR) Mossdale monitoring station (RSAN087) from December 2000 through September 2002 show that the conductivity in the San Joaquin River ranged from 299 umhos/cm to 1131 umhos/cm and averaged 721 umhos/cm. San Joaquin River monitoring for electrical conductivity at Vernalis between 1985 and 1998 showed frequent exceedances of the EC water quality objectives (Reference Figure 1-3, *Total Maximum Daily Load for Salinity and Boron in the Lower San Joaquin River (January 2002)*). These data show that the receiving water frequently has no assimilative capacity for EC. An Effluent Limitation for electrical conductivity is included in this Order and is based on the Basin Plan water quality objective for electrical conductivity in the South Delta.

The TDS, chloride, and electrical conductivity objectives and recommended levels are all measures of the salt content of the water. Compliance with the Effluent Limitations for electrical conductivity based on the Basin Plan seasonal water quality objectives of 700 umhos/cm and 1000 umhos/cm will be protective of the chloride and TDS recommended levels; therefore, no limitations are included for chloride and TDS.

46. **Aluminum:** Aluminum concentrations in the effluent were detected in the range of 70 ug/L to 350 ug/L in 12 samples collected between January 2002 and December 2002. Aluminum was detected in the receiving water (R-1) in the range of 420 ug/L to 2200 ug/L in 12 samples collected between January 2002 and December 2002. Dissolved concentrations of aluminum in the effluent and the receiving water were significantly less than the totals listed above. The Basin Plan's chemical constituents water quality objective prohibits chemical constituents in concentrations that exceed state MCLs or that adversely affect beneficial uses. MUN is a beneficial use of the San Joaquin River. The Primary and Secondary MCLs for aluminum are 1000 ug/l and 200 ug/l respectively. The Basin Plan contains a narrative toxicity objective. Consistent with 40 CFR 122.44(d), USEPA's ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum expressed as total recoverable are 750 ug/l (1-hour average) and 87 ug/l (4-day average), and are appropriate to implement the narrative toxicity objective. Since both the receiving water and the effluent exceed USEPA's ambient water quality criteria and the secondary MCL, no dilution can be granted. The effluent has reasonable potential to cause or contribute to an in-stream excursion above water quality objectives for aluminum.

Therefore, this Order includes an effluent limitation for aluminum of 71ug/l as a monthly average and 143 ug/l as the daily maximum.

47. **Iron:** Iron concentrations in the effluent ranged from 170 ug/l to 730 ug/l while background concentrations in the San Joaquin River ranged from 780 ug/l to 2800 ug/l based on results from 12 samples collected between January 2002 and December 2002. The Basin Plan chemical constituent objective includes a receiving water objective in Table III-1 for iron of 300 ug/l in the Delta, and the secondary MCL for iron of 300 ug/l. Both the receiving water and the effluent exceed the Basin Plan numeric objective and the secondary MCL. Therefore, effluent limitations are included in this Order based on the Basin Plan chemical constituents objective.

48. **Manganese:** Manganese concentrations in the effluent ranged from 13 ug/l to 120 ug/l while background concentrations in the San Joaquin River ranged from 82 ug/l to 220 ug/l based on results from 11 samples collected between January 2002 and December 2002. The Basin Plan chemical constituent objective includes a receiving water objective in Table III-1 for manganese of 50 ug/l in the Delta, and the secondary MCL for manganese of 50 ug/l. Both the receiving water and the effluent exceed the Basin Plan numeric objective and the secondary MCL. Therefore, effluent limitations are included in this Order based on the Basin Plan chemical constituents objective.

49. **Chlorine:** The Discharger currently uses chlorine for disinfection and has reported that it uses sodium hypochlorite for maintenance. Chlorine is extremely toxic to aquatic organisms. The Discharger uses a sulfur dioxide process to dechlorinate the effluent, but will discontinue this with the installation of the UV disinfection system. Because of the existing chlorine use and the future use of hypochlorite solutions without effluent dechlorination, there is reasonable potential for chlorine to be discharged at toxic concentrations. The Basin Plan contains a narrative toxicity objective. Consistent with 40 CFR 122.44(d), it is appropriate to use the USEPA ambient water quality criteria for chlorine for protection of freshwater aquatic life of 11 ug/l as a 4-day average (chronic) concentration, and 19 ug/l as a 1-hour average (acute) concentration to implement the narrative toxicity objective. Therefore, this Order includes water quality based effluent limitations for chlorine based on the USEPA ambient criteria to protect freshwater aquatic life.

50. **Methylene blue active substances (MBAS):** The effluent contains MBAS at levels that may cause or contribute to exceedances in the receiving waters of water quality objectives in the Basin Plan. The Basin Plan includes the "Chemical Constituents" objective that incorporates state MCLs applicable to waters designated MUN. MUN is a designated beneficial use of the San Joaquin River. The Secondary MCL Consumer Acceptance Limit is 500 ug/l for foaming agents (MBAS). The Basin Plan also includes water quality objectives that water not contain floating material or taste- or odor-producing substances in concentrations that causes nuisance or adversely affect beneficial uses. The Basin Plan identifies non-contact water recreation, which includes aesthetic enjoyment, as a beneficial use of the San Joaquin River. MBAS concentrations in excess of the Secondary MCL-Consumer Acceptance Limit produce aesthetically undesirable froth, taste, and odor. Foam has been observed on the surface of the discharge plume from the WQCF. The maximum observed effluent MBAS concentration is

1800 ug/l. The maximum observed upstream receiving water MBAS concentration is less than 20 ug/l. An Effluent Limitation for MBAS is included in this Order based on of the Basin Plan water quality objectives for chemical constituents, floating material, and tastes and odors.

51. **Molybdenum:** The recommended agricultural water quality goal for molybdenum, that would implement the narrative "Chemical Constituent" objective, is 10 ug/l based on *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). Molybdenum was not monitored in the effluent or in the receiving waters. Because of the uncertainty associated with the lack of monitoring, additional studies of this constituent are warranted to more thoroughly evaluate reasonable potential for this constituent to exceed criteria. MRP No. R5-2004-0028 specifies monitoring for this pollutant. If the monitoring shows a reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened to consider incorporation of appropriate effluent limitations.

52. **Carbofuran:** Carbofuran was detected in the effluent and receiving water at concentrations greater than the OEHHA criterion of 1.7 ug/l. Because the data was greater than the method detection limit but less than the laboratory's reporting limit, the data was flagged as "detected but not quantified". Additional monitoring is required. If the monitoring shows a reasonable potential to cause or contribute to an exceedance of a water quality objective, this Order may be reopened to consider incorporation of appropriate effluent limitations.

53. **Acute Bioassay:** The new USEPA test procedure for acute bioassays (EPA-821-R-02-012, Fifth Edition, October 2002) constitutes a more stringent acute toxicity limitation. The finding for ammonia indicated that there is a reasonable potential for the RWCF effluent to cause or contribute to an in-stream excursion above acute and chronic water quality standards for ammonia. To comply with the acute toxicity requirement of this Order and to comply with the Basin Plan narrative toxicity objective, the Discharger must reduce effluent ammonia concentrations to comply with the new effluent limitations by 31 March 2004. Monitoring Reporting Program No. R5-2004-0028 allows the bioassay to be modified to eliminate ammonia-related toxicity until 31 March 2004, at which time the Discharger shall be required to implement the test without modifications to eliminate ammonia toxicity. The time schedule is authorized to be included in the Monitoring and Reporting Program based on 40 CFR § 122.47.

54. **Chronic Bioassay:** The Discharger shall conduct the chronic toxicity testing specified in the Monitoring and Reporting Program. If the testing indicates that the discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above the water quality objective for toxicity, the Discharger shall initiate a Toxicity Identification Evaluation (TIE) to identify the causes of toxicity. Upon completion of the TIE, the Discharger shall submit a workplan to conduct a Toxicity Reduction Evaluation (TRE) and, after Regional Board evaluation, conduct the TRE. This Order will be reopened and a chronic toxicity limitation included and/or a limitation for the specific toxicant identified in the TRE included. Additionally, if the State Board adopts a chronic toxicity water quality objective, this Order may be reopened and a limitation based on that objective included.

DISSOLVED OXYGEN ISSUES

55. The dissolved oxygen (DO) objectives applicable to the San Joaquin River are as follows:

    a. The Basin Plan prescribes a minimum DO concentration in the San Joaquin River of 5.0 mg/l. This standard is applicable throughout the year.

    b. The Bay/Delta Plan prescribes a minimum DO concentration of 6.0 mg/l in the San Joaquin River inside the reach from Turner Cut to Stockton during the period 1 September through 30 November. This higher DO concentration was imposed to enhance aquatic conditions during critical migration periods for salmon.

56. The DO objectives are frequently not met in the San Joaquin River, leading to the Clean Water Act section 303(d) listing. In 1998, the Regional Board classified the DO impairment within the San Joaquin River as a Toxic Hot Spot, making it a high priority problem for correction. Since the spring of 1999, the Discharger and other stakeholders have participated in the steering committee for the development of the DO TMDL for the San Joaquin River in the Deep Water Ship Channel (DWSC). A TMDL implementation plan was submitted to the Regional Board in February 2003. Staff has developed and submitted to the USEPA in June 2003 a TMDL report for controlling the problem. The existing low DO conditions in the Stockton DWSC are partially the result of channel morphology, and point and non-point sources that are beyond the control of the Discharger. The Discharger will make a significant reduction in the magnitude of its contribution to the DO problem by implementation of more stringent ammonia and BOD effluent limitations through the construction of nitrification, denitrification, and tertiary coagulation and filtration facilities. These facilities will prevent ammonia toxicity and reduce the nitrogenous and carbonaceous biochemical oxygen demand that is presently exerted on the San Joaquin River.

    Based on the above information, further action by the Discharger to reduce its impact on the San Joaquin River DO concentration, beyond the requirements of this permit, will not be required by the Regional Board until such time as the TMDL for DO has been developed and approved by USEPA. This Order contains a provision to allow for the permit to be reopened to consider modification of effluent limitations after the DO TMDL is finalized.

DISINFECTION/FILTRATION

57. The beneficial uses of the San Joaquin River include municipal supply, water contact recreational uses and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. Recreational uses identified in the immediate vicinity of the WQCF outfall include boating, skiing, swimming, and fishing. A number of agricultural diversions have been identified through a search of the State Board, Water Rights Division database. Within an approximate one-mile radius of the outfall, there are approximately five agricultural diversions identified in the database. One of the agricultural diversions is just downstream and in the immediate vicinity of the outfall.

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. Filtration is also necessary prior to UV disinfection to prevent any solids from interfering with the performance of the UV disinfection system. The wastewater must be treated to tertiary standards (filtered) to protect contact recreation and food crop irrigation uses and to assure the reliability and effectiveness of UV disinfection.

The California Department of Health Services (DHS) has developed reclamation criteria, CCR, Title 22, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent **total coliform** levels not exceed 2.2 MPN/100 ml as a 7-day median. Title 22 is not directly applicable to surface waters; however, the Regional Board finds that it is appropriate to apply DHS' reclamation criteria because the San Joaquin River is used for irrigation of agricultural land and for contact recreational purposes. The stringent disinfection criteria of Title 22 are appropriate since the relatively 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 this Order; however, wastewater must be treated to a level equivalent to that recommended by DHS.

In addition to coliform testing, a **turbidity** effluent limitation has been included as a second indicator of the effectiveness of the treatment process and to assure compliance with the required level of treatment. The tertiary treatment process, or equivalent, is 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 would 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 establishment of tertiary limitations has not been previously required for this discharge; therefore, a schedule for compliance with the tertiary treatment requirements is included as a Provision in this Order. This Order provides interim effluent limitations for BOD, TSS, and total coliform, which the Discharger is currently capable of meeting. Full compliance with the final effluent limitations for BOD, TSS, total coliform, and turbidity are not required by this Order until completion of tertiary treatment facilities, or **1 February 2009**, whichever is first. Adequate time is provided for the Discharger to propose alternatives that are still protective of public health and irrigation uses, but at a reduced cost. The permit may be reopened at such time as the Discharger proposes an alternative that is protective of public health and irrigation uses. Alternatives to tertiary treatment, such as expanded land disposal, would require modification of

the permit.

58. 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:

a. As stated in the above Findings, the past, present and probable future beneficial uses of the receiving stream include 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.

b. The environmental characteristics of the hydrographic unit, including the quality of the available water, will be improved by the requirement to provide 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 that would otherwise be unsafe according to recommendations from the California Department of Health Services (DHS).

c. Fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area.

d. The economic impact of requiring an increased level of treatment has been considered. The Discharger has estimated that the increased level of treatment will cost approximately $5.1 million. The current monthly domestic sewer user fee is $ 11.05 (2000). The California average monthly domestic sewer user fee is $19.71 (2000). The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, which includes 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 treatment may also aid in meeting discharge limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment.

e. The requirement to provide tertiary treatment for this discharge will not adversely impact the need for housing in the area. The potential for developing 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, relatively undiluted wastewater effluent must be treated to a tertiary level for contact recreational and food crop irrigation uses. Without tertiary treatment, the downstream waters could not be safely utilized for contact recreation or the irrigation of food crops.

f. It is the Regional Board's policy, (Basin Plan, page IV-15.00, Policy 2) to encourage the reuse of wastewater. The Regional Board requires Dischargers to evaluate how reuse or land disposal of wastewater can be optimized. The need to develop and use recycled water

is facilitated by providing a tertiary level of wastewater treatment that will allow for a greater variety of uses in accordance with California Code of Regulations, Title 22.

g. The Regional Board has considered the factors specified in CWC Section 13263, including considering the provisions in CWC Section 13241, in adopting the disinfection and filtration requirements under Title 22 criteria. The Regional Board finds, on balance, that these requirements are necessary to protect the beneficial uses of the San Joaquin River, including water contact recreation and irrigation uses. .

STORMWATER

59. Federal Regulations for stormwater discharges are contained in 40 CFR Parts 122, 123, and 124. The regulations require specific categories of facilities, which discharge stormwater associated with industrial activity (stormwater) to obtain NPDES permits and implement Best Available Technology Economically Achievable (BAT) and Best Conventional Pollutant Control Technology (BCT) to reduce or eliminate industrial stormwater pollution.

60. Regulated stormwater discharges include those from facilities used in storage, treatment, recycling, and reclamation of municipal or domestic sewage, including land dedicated to the disposal of sewage sludge that are located within the confines of the facility, with a design flow of 1 mgd or more, or required to have an approved pretreatment program under 40 CFR Part 403. Not included are farmlands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with Clean Water Act Section 405.

61. The State Board adopted Order 97-03-DWQ (General NPDES Permit No. CAS000001) specifying waste discharge requirements for discharges of stormwater associated with industrial activities, excluding construction activities, and requiring submittal of a Notice of Intent by industries to be covered under the Order. This Order further specified that if an individual Order is adopted for stormwater runoff from a facility, then the General Permit would no longer apply. Since all stormwater that falls on the treatment plant site is collected and pumped to the secondary-treated wastewater storage ponds of the plant, a Stormwater Pollution Prevention Plan has not been made a requirement of this Order.

RECLAMATION

62. Wastewater is currently used to irrigate 210 acres of agricultural land owned by the City of Manteca, and 150 acres of leased land owned by Dutra Farms. DHS has established statewide reclamation criteria in Title 22, California Code of Regulations, Section 60301, et seq. (hereafter Title 22) for the use of reclaimed water, and has developed guidelines for specific uses. This Order requires compliance with applicable Title 22 requirements.

PRETREATMENT