CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2005-0110

AMENDING WASTE DISCHARGE REQUIREMENTS
ORDER NO. R5-2004-0028
NPDES NO. CA0081558

CITY OF MANTECA
WASTEWATER QUALITY CONTROL FACILITY
SAN JOAQUIN COUNTY

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

1. On 19 March 2004, the Regional Board adopted Waste Discharge Requirements (WDR) Order No. R5-2004-0028, NPDES No. CA0081558, prescribing waste discharge requirements for the City of Manteca, City of Lathrop, and Dutra Farms at the Wastewater Quality Control Facility (WQCF) in San Joaquin County. For the purposes of this Resolution, the City of Manteca is hereafter 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. Land disposal of effluent is maximized by discharging effluent at agronomic rates seasonally to existing City-owned property. Excess flow of treated municipal wastewater receives chlorine disinfection and dechlorination prior to discharge to the San Joaquin River.

3. Finding 31 of WDR Order No. R5-2004-0028 specifies the allowable dilution for human health-based criteria, including bromodichloromethane and dibromochloromethane. Finding 31 states, "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." In WDR Order No. R5-2004-0028, the dilution credits granted for bromodichloromethane and dibromochloromethane were 11.5:1 and 8.9:1, respectively, and were based on treatment plant performance, resulting in effluent limitations more stringent than water quality-based effluent limitations. Since the effluent limitations were based on treatment plant performance, the Regional Board found the Discharger was able meet the effluent limitations.

4. The WQCF has historically operated in a non-nitrifying or partial nitrifying mode, which typically produced an effluent with elevated levels of ammonia. Chlorine, when combined with ammonia, creates chloramines, which are effective and stable disinfectants. In November 2003, the treatment process was converted to full nitrification mode to reduce ammonia. Without ammonia in the effluent, organochloramines are formed, which are less effective disinfectants than chloramines. Consequently, more chlorine is required for disinfection, increasing disinfection byproducts, including bromodichloromethane and dibromochloromethane.

5. The effluent limitations for bromodichloromethane and dibromochloromethane included in Order No. R5-2004-0028 were based on treatment plant performance prior to converting to full nitrification. With the significant increase in the formation of disinfection byproducts after upgrading the WQCF to operate in full nitrification mode, the Discharger is unable to comply with the effluent limitations.

6. Due to the significant change in wastewater treatment, and based upon new water quality information, the Discharger, in a letter dated 20 April 2005, requested that the effluent limitations for bromodichloromethane and dibromochloromethane be modified based upon current treatment plant performance.

7. This Resolution amends WDR Order No. R5-2004-0028 by increasing the effluent limitations for bromodichloromethane and dibromochloromethane based on re-calculated dilution credits using new effluent data collected while the WQCF was operating in full nitrification mode (see Table 16). The re-calculated dilution credits for bromodichloromethane and dibromochloromethane (see Table 15) are 63:1 and 82:1, respectively, which are less than the maximum allowable human health dilution of 222:1 for the San Joaquin River. Therefore, the increased effluent limitations do not allocate the full assimilative capacity of the receiving water and are more stringent than water quality-based effluent limitations. Based on the sample results in the effluent, it appears the Discharger can meet these new limitations. In addition, the Discharger is installing ultraviolet (UV) disinfection by April 2007. Once operational, the use of chlorine for final effluent disinfection will be eliminated and the formation of disinfection byproducts will be reduced significantly. Consequently, the effluent concentrations of bromodichloromethane and dibromochloromethane will decrease.

8. Sections 402(o)(2) (33 U.S.C. section 1342(o)(2)) and 303(d)(4) (33 U.S.C. section 1313(d)(4)) of the Clean Water Act (CWA) and federal regulations at40 CFR section 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued or amended permit to be as stringent as those in the previous permit, with some exceptions where limitations may be relaxed. As discussed in Finding 7, the increased effluent limitations for bromodichloromethane and dibromochloromethane are based on new information and are more stringent than water quality-based effluent limitations. Therefore, the relaxation of the effluent limitations for bromodichloromethane and dibromochloromethane is consistent with the anti-backsliding requirements of the CWA and federal regulations and is also consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Resources Control Board Resolution No. 68-16. Any impact on existing water quality will be insignificant. Furthermore, this Resolution adds a provision to allow Order No. R5-2004-0028 to be reopened to modify the effluent limitations for bromodichloromethane and dibromochloromethane after installation of UV disinfection facilities.

9. The Discharger historically utilized drying beds to dewater biosolids with final disposal on land adjacent to the WQCF. Monitoring and Reporting Program (MRP) Order No. R5-2004-0028 requires biosolids monitoring pursuant to 40 Code of Federal Regulations (CFR) Part 503 for

disposal of biosolids to land. However, the Discharger has since changed biosolids disposal practices and currently hauls biosolids to a landfill. The 40 CFR Part 503 biosolids regulations only apply for biosolids applied to land, so the monitoring and reporting requirements for biosolids can be reduced when the Discharger hauls biosolids to the landfill. This Resolution amends MRP Order No. R5-2004-0028 for biosolids monitoring. The reduction in biosolids monitoring is consistent with the antidegradation provisions of 40 CFR section 131.12 and State Water Resources Control Board Resolution No. 68-16. Any impact on existing water quality will be insignificant.

10. WDR Order No. R5-2004-0028 contains final effluent limitations for oil and grease. However, due to an omission, MRP Order No. R5-2004-0028 does not contain a requirement for effluent monitoring of this parameter. To demonstrate compliance with the effluent limitations, the Discharger has been evaluating the effluent monthly for oil and grease and reporting the results in the Discharger self-monitoring reports (SMRs). In review of SMRs since 1 January 2000, the Discharger has maintained compliance with the effluent limitations for oil and grease. This Resolution amends MRP Order No. R5-2004-0028 to include a requirement for monthly oil and grease monitoring.

11. The action to adopt or amend an NPDES permit is exempt from the provisions of Chapter 3 of the California Environmental Quality Act (CEQA) (Public Resources Code section 21000, et seq.), requiring preparation of an environmental impact report or negative declaration in accordance with Section 13389 of the California Water Code.

12. The Regional Board has notified the Discharger and interested agencies and persons of its intent to amend waste discharge requirements for this discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.

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

14. This Order shall amend WDR Order No. R5-2004-0028, NPDES No. CA0081558, pursuant to Section 402 of the CWA (33 U.S.C. section 1342), and amendments thereto, and shall take effect upon the date of hearing, provided EPA has no objections.

IT IS HEREBY ORDERED that Order No. R5-2004-0028 is amended solely to add Table 15 and Table 16 to the Information Sheet, change Effluent Limitations B.1, B.2, and B.3 for bromodichloromethane and dibromochloromethane, add Provisions H.26, modify Finding 36 for bromodichloromethane and dibromochloromethane, modify Section 3 of the Information Sheet regarding biosolids management practices, and amend MRP Order No. R5-2004-0028 to modify

biosolids monitoring and add a monthly monitoring requirement for oil and grease. The City of Manteca, its agents, successors and assigns, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, and the provisions of the Clean Water Act and regulations and guidelines adopted thereunder, shall comply with Amended Order No. R5-2004-0028:

1. Table 15 is added to the Information Sheet for Order No. R5-2004-0028, and supercedes the needed dilution credit calculations for bromodichloromethane and dibromochloromethane in Table 12. Table 16 is added to the Information Sheet for Order No. R5-2004-0028, and supercedes the effluent limitation calculations for bromodichloromethane and dibromochloromethane in Table 13. Table 15 and Table 16 are included in Attachment A to this Resolution.

2. Effluent Limitations B.1 is amended as follows, replacing the effluent limitations for bromodichloromethane and dibromochloromethane in Order No. R5-2004-0028:

Constituents	Units	Monthly Average	Weekly Average	1- Hour Average	Daily Maximum
Bromodichloromethane	µg/l	30	---	---	47
	lb/day[3]	1.7	---	---	2.7
Dibromochloromethane	µg/l	7	---	---	16
	lb/day[3]	0.41	---	---	0.93

3 Based upon a design treatment capacity of 6.95 mgd.

3. Effluent Limitations B.2 is amended as follows, replacing the effluent limitations for bromodichloromethane and dibromochloromethane in Order No. R5-2004-0028:

Constituents	Units	Monthly Average	Weekly Average	1- Hour Average	Daily Maximum
Bromodichloromethane	µg/l	30	---	---	47
	lb/day[3]	2.0	---	---	3.2
Dibromochloromethane	µg/l	7	---	---	16
	lb/day[3]	0.47	---	---	1.1

3 Based upon a design treatment capacity of 8.11 mgd.

4. Effluent Limitations B.3 is amended as follows, replacing the effluent limitations for bromodichloromethane and dibromochloromethane in Order No. R5-2004-0028:

Constituents	Units	Monthly Average	Weekly Average	1- Hour Average	Daily Maximum
Bromodichloromethane	µg/l	30	---	---	47
	lb/day[3]	2.5	---	---	3.9
Dibromochloromethane	µg/l	7	---	---	16
	lb/day[3]	0.58	---	---	1.3

3 Based upon a design treatment capacity of 9.87 mgd.

5. Provisions H.26 shall be added to Order No. R5-2004-0028 as follows:

26. After installation of ultraviolet disinfection facilities, this Order may be reopened to modify the effluent limitations for bromodichloromethane and dibromochloromethane based on the performance of the WQCF.

6. Finding 36 of Order No. R5-2004-0028 shall be replaced as follows:

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 µg/l and 0.41 µg/l for BDCM and DBCM, respectively. The maximum observed effluent concentrations for BDCM and DBCM are 25.7 µg/l and 5.5 µg/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.

7. Section 3 of the Information Sheet in Order No. R5-2004-0028 shall be replaced as follows:

3 Biosolids Management

The City of Manteca historically dewatered biosolids in drying beds with final disposal to City-owned farmland adjacent to the treatment plant at agronomic rates, as described in the Order. New limitations on metal concentrations in sludge/soil mixtures and new conditions for sludge use as a soil amendment have been established. This new permit requires the City to reevaluate the sludge and effluent application rates to land and submit a land application plan.

The City has recently changed facility operations and currently utilizes a centrifuge to dewater the biosolids prior to hauling them to a landfill for disposal. This disposal practice requires less stringent monitoring requirements than those required if disposing biosolids to land. Therefore, Monitoring and Reporting Program R5-2004-0028 includes alternative monitoring requirements, depending on the disposal practice utilized by the City.

8. Biosolids monitoring required in MRP Order No. R5-2004-0028 shall be replaced as follows:

BIOSOLIDS MONITORING

The Discharger has historically disposed of biosolids on City-owned land adjacent to the WQCF. However, the Discharger has recently changed facility operations and currently disposes biosolids in a landfill for disposal. The biosolids monitoring requirements vary based on the method of disposal. When the Discharger disposes biosolids in a landfill, the Discharger shall comply with the biosolids monitoring requirements identified in Section A, below. If the Discharger returns to disposing of biosolids on land, the biosolids monitoring requirements identified in Section B apply. The requirements identified in Section C, apply for all methods of disposal:

A. The Discharger shall comply with the following biosolids monitoring requirements when biosolids are disposed in a landfill:

A composite sample of sludge shall be collected annually in accordance with EPA's POTW Sludge Sampling and Analysis Guidance Document, August 1989, and tested for the following metals:

Cadmium	Copper	Nickel
Chromium	Lead	Zinc

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

B. The Discharger shall comply with the following biosolids monitoring requirements when disposing of biosolids to land:

A composite sample of biosolids shall be collected in accordance with USEPA's POTW Biosolids Sampling and Analysis Guidance Document, August 1989, (or most recent edition) and tested for the following constituents:

Constituent	Units	Sample Type	Frequency
Quantity	Dry Tons	--------	Quarterly
Solids Content	% percentage	Composite	Quarterly
Disposal Location	--------	--------	Quarterly
Arsenic	mg/kg	Composite	Quarterly
Cadmium	mg/kg	Composite	Quarterly
Chromium	mg/kg	Composite	Quarterly
Copper	mg/kg	Composite	Quarterly
Lead	mg/kg	Composite	Quarterly
Mercury	mg/kg	Composite	Quarterly
Molybdenum	mg/kg	Composite	Quarterly
Nickel	mg/kg	Composite	Quarterly
Selenium	mg/kg	Composite	Quarterly
Zinc	mg/kg	Composite	Quarterly
Oil and Grease	mg/kg	Composite	Quarterly
Nitrogen	mg/kg (dry)	Composite	Quarterly
Ammonia	mg/kg (dry)	Composite	Quarterly
Nitrate	mg/kg (dry)	Composite	Quarterly
Total Kjeldahl Nitrogen	mg/kg (dry)	Composite	Quarterly
Fecal Coliform	MPN/gram total solids	Composite	See Footnote 1
Priority Pollutants_____	---	Composite	See Footnote 2

[1] The Discharger shall collect seven composite samples over a two-week period each quarter, and analyze the samples for fecal coliform (report as MPN/gm total solids). Results for each sample shall be reported along with the geometric mean of the results.

[2] **Within 90 days of the effective date of this Order, and annually thereafter**, the Discharger shall submit results of chemical analysis for the priority pollutants listed in 40 CFR 122 Appendix D, Tables II and III (excluding total phenols). Suggested methods for analysis of biosolids are provided in USEPA publications titled "Test Methods for Evaluating Solid Waste: Physical/Chemical Methods" and "Test Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater". Other guidance is available in USEPA's POTW Biosolids Sampling and Analysis Guidance Document, August 1989 (or most recent edition).

Results of monitoring shall be reported in compliance with the Reporting Section. The biosolids monitoring report shall include a statement concerning compliance with 40 CFR Part 503 biosolids disposal requirements. The report shall include, but is not limited to, an assessment of cumulative metals and nitrogen loadings from all sources, type of crop grown, nitrogen demand, and setback and runoff compliance, as well as compliance with pathogen reduction and vector attraction reduction standards.

C. The Discharger shall submit **annually, by 30 January**, the following:

1. Annual sludge production in dry tons and percent solids;

2. A schematic diagram showing sludge handling facilities and a solids flow diagram;

3. Depth of application and drying time for sludge drying beds (if applicable); and

4. A description of the disposal method(s) used at the WQCF, including the following information. If more than one method is used, include the percentage of annual sludge production disposed by each method.

   a. For **landfill disposal**, include (1) the Regional Board's WDR numbers that regulate the landfill(s) used, (2) the present classifications of the landfill(s) used, and (3) the names and locations of the receiving facility(ies).

   b. For **land application,** include (1) location of the site(s), (2) the Regional Board's WDR numbers that regulate the site(s), (3) the application rate in lbs/year (specify wet or dry), and (4) subsequent uses of the land.

   c. For **incineration**, include (1) name and location of the site(s) where sludge incineration occurs, (2) the Regional Board's WDR numbers that regulate the site(s), (3) the disposal method of the ash, and (4) the names and locations of facilities receiving ash (if applicable).

   d. For **composting**, include (1) name and location of the site(s) where sludge composting occurs, and (2) the Regional Board's WDR numbers that regulate the site(s).

9. The effluent monitoring requirements (when discharging to Surface Waters) in MRP Order No. R5-2004-0028 shall be amended to include a monitoring requirement for oil and grease as follows:

Constituents	Units	Type of Sample	Sampling Frequency
Oil and Grease	mg/l	grab	Monthly

I, THOMAS R. PINKOS, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of a Resolution adopted by the California Regional Water Quality Control Board, Central Valley Region, on 5 August 2005.

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THOMAS R. PINKOS, Executive Officer

TABLE 15
SUMMARY OF HUMAN CARCINOGENIC POLLUTANT STATISTICS
BROMODICHLOROMETHANE AND DIBROMOCHLOROMETHANE

Sample Date (Concentrations in ug/l)	Dibromochloromethane	Bromodichloromethane
April-04	5.5	25.7
May-04	0.5	14.0
June-04	0.5	17.0
July-04	0.5	17.0
September-04	3.5	15.0
October-04	3.9	17.0
November-04	2.4	13.0
December-04	1.3	7.5
January-05	1.2	9.2
February-05	1.6	9.4
March-05	2.5	14.0
April-05	2.6	14.0

Sample Count	12	12
Max. Concentration (µg/l)	5.50	25.70
Mean (µg/l)	2.17	14.40
Median (ug/l)	2	14
Std. Dev.	1.55	4.77
CV	0.72	0.33
Estimated Max. Effluent Concentration (µg/l)(1)	7.3	30.1
Human Health Criteria	0.41	0.56
Background Conc. (µg/l) (2)	< 0.3	< 0.2
Needed Dilution Credit(3)	**63**	**82**

(1) Estimated MEC calculated as the mean plus 3.3 times the standard deviation.
(2) Lowest MDL utilized for background concentration, per Section 1.4.3.2 of SIP.
(3) Needed Dilution Credit = (Est. max. conc.- HH Criteria)/(HH criteria - background conc.)

TABLE 16
PRIORITY POLLUTANT EFFLUENT LIMITATIONS FOR HUMAN HEALTH
BROMODICHLOROMETHANE AND DIBROMOCHLOROMETHANE

Description	Dibromochloromethane	Bromodichloromethane
Effluent Concentrations		
Sample Dates - Begin	Apr-04	Apr-04
Sample Dates - End	Apr-05	Apr-05
Sample Count	12	12
Count Above Reporting Limits	12	12
% of Samples Above Reporting Limits	100	100
Reporting Limits (µg/l)	0.3	0.2
Maximum Reported Concentration (µg/l)	5.5	25.7
Mean (1) (µg/l)	2.2	14.4
Std. Deviation (1) (µg/l)	1.6	4.8
Coefficient of Variation (1) (CV) (µg/l)	0.72	0.33
Background Concentrations		
Sample Dates - Begin	Jan-02	Jan-02
Sample Dates - End	Dec-02	Dec-02
Sample Count	12	12
Count Above Reporting Limits	0	0
Reporting Limits (µg/l)	0.3	0.2
Maximum Reported Concentration (µg/l)	< 0.3	< 0.2
Arithmetic mean (µg/l)(2)	< 0.3	< 0.2
Criteria	Human Health	Human Health
Basin Plan Objective (µg/l, dissolved)		
Translator (3)	n/a	n/a
Criteria (µg/l, total recoverable)(4)	0.41	0.56
Effluent Limit Calculations		
Dilution Credit(5)	63	82
Effluent Concentration Allowance (6) (µg/l)	7.3	30.1
$\sigma^2$and σ_4^2	0.42 | 0.12	0.10 | 0.03
AMEL Multiplier (7)	1.7	1.3
Average Monthly Effluent Limit (ug/l)	**7**	**30**
MDEL Multiplier (8)	3.6	2.0
Max. Daily Effluent Limit (ug/l)	**16**	**47**

General Note: Unless noted otherwise, all concentrations given as total recoverable
(1) Calculated per Section 1.4.B, Step 3 of SIP.
(2) Calculated per Section 1.4.3.2 of SIP
(3) EPA Translators used as default.
(4) The total recoverable criteria is based on the CTR.
(5) See Table 15 for applicable dilution credits for bromodichloromethane and dibromochloromethane.
(6) ECA calculated per Section 1.4.B, Step 2 of SIP.
(7) Assumes sampling frequency n=>4. Uses 95th percentile AMEL multiplier, Step 5 of SIP.
(8) Uses 99th percentile MDEL multiplier, Step 5 of SIP.