

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

RESOLUTION NO. R5-2008-0086

AMENDING WASTE DISCHARGE REQUIREMENTS
ORDER NO. R5-2007-0036 (NPDES PERMIT NO. CA0079154)

CITY OF TRACY
TRACY WASTEWATER TREATMENT PLANT
SAN JOAQUIN COUNTY

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

1. On 4 May 2007, the Regional Water Board adopted Waste Discharge Requirements Order No. R5-2007-0036, prescribing waste discharge requirements for the City of Tracy Wastewater Treatment Plant, San Joaquin County. For the purposes of this Resolution, the City of Tracy is hereafter referred to as “Discharger” and the Tracy Wastewater Treatment Plant is hereafter referred to as “Facility.”
2. The Discharger owns and operates a wastewater collection, treatment, and disposal system, and provides sewerage service to the City of Tracy. Treated municipal wastewater is discharge to Old River, a water of the United States and part of the Sacramento-San Joaquin Delta (Delta). The Facility is in the process of upgrading to improve treatment and to increase capacity to 10.8 mgd (average dry weather flow). The Facility upgrades include nitrification/denitrification and tertiary filtration.
3. On 2 March 2000, the State Water Resources Control Board (State Water Board) adopted *The Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by the USEPA through the California Toxics Rule (CTR). The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control.
4. Order No. R5-2007-0036 included new final effluent limitations for dichlorobromomethane and chlorodibromomethane, which are CTR priority pollutant constituents. Table 4 in Section IV.A.1.a of Order No. R5-2007-0036, states in part the following:

IV. Effluent Limitations and Discharge Specifications

A. Effluent Limitations – Discharge Point 001 and Discharge Point 002

1. Final Effluent Limitations

Effective immediately, the discharge of treated wastewater shall maintain compliance with the following effluent limitations at Discharge Point 001, with

compliance measured at Monitoring Location M-001 as described in the attached Monitoring and Reporting Program (Attachment E, Section IV)

- a. *The Discharger shall maintain compliance with the effluent limitations specified in Table 4:*

Table 4. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Dichlorobromomethane	µg/L	6.8	--	9.5	--	--
Chlorodibromomethane	µg/L	3.6	--	7.6	--	--

5. For CTR constituents, Section 2.1 of the SIP provides that, based on a Discharger's request and demonstration that it is infeasible for an existing Discharger to achieve immediate compliance with an effluent limitation derived from a CTR criterion, compliance schedules may be allowed in an NPDES permit. Unless an exception has been granted under section 5.3 of the SIP, a compliance schedule may not exceed 5 years from the date that the permit is issued or reissued, nor may it extend beyond 10 years from the effective date of the SIP (or 18 May 2010) to establish and comply with CTR criterion-based effluent limitations.
6. Based on available effluent data at the time Order No. R5-2007-0036 was adopted, it appeared that the Discharger could meet the new effluent limitations for dichlorobromomethane and chlorodibromomethane. However, the Facility had been 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 May 2007, 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 the production of disinfection byproducts, including dichlorobromomethane and chlorodibromomethane. Since upgrading the Facility to operate in full nitrification mode, the Discharger has been unable to consistently comply with the effluent limitations for dichlorobromomethane and chlorodibromomethane. The Discharger has violated the effluent limitations for dichlorobromomethane and chlorodibromomethane seven times since converting to full nitrification mode.
7. Due to the significant change in wastewater treatment and based upon new water quality information, the Discharger, by letter dated **28 March 2008**, requested a compliance schedule to comply with the final water quality-based effluent limitations for dichlorobromomethane and chlorodibromomethane. The compliance schedule

justification included all items specified in Paragraph 3, items (a) through (d), of Section 2.1 of the SIP. This Resolution amends Order No. R5-2007-0036 to establish a compliance schedule for the new, final, water quality-based effluent limitations for dichlorobromomethane and chlorodibromomethane with full compliance required by 18 May 2010.

8. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Public Resources Code section 21000, et seq.), in accordance with CWC section 15321 (a)(2), Title 14, of the California Code of Regulations.
9. The Regional Water 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 to submit their written views and recommendations.
10. Any person adversely affected by this action of the Board may petition the State Water Resources Control Board to review this action. The petition must be received by the State Water Resources Control Board, Office of the Chief Counsel, P.O. Box 100, Sacramento, CA 95812-0100, within 30 days of the date on which this action was taken. Copies of the law and regulations applicable to filing petitions will be provided on request.

IT IS HEREBY ORDERED THAT:

Waste Discharge Requirements Order No. R5-2007-0036 (NPDES No. CA0079154) is amended solely to add a compliance schedule for meeting the final water quality-based effluent limitations for dichlorobromomethane and chlorodibromomethane. This amendment requires changes to Interim Effluent Limitations IV.A.5.e. (Table 9) and Special Provisions VI.C.4. of the Limitations and Discharge Specifications, and Section II.A., Section IV.C.3.k., Section IV.C.3.n., Section IV.D.1., Section VI.B.3.d., and Section VII.B.4. of the Fact Sheet. Order No. R5-2007-0036 shall be amended as follows:

1. Interim Effluent Limitations IV.A.5.e. (Table 9) is amended as follows:

Table 9: Interim Effluent Limitations (CTR constituents)

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Copper (total recoverable)	µg/L	--	--	19	--	--
	lbs/day ¹	--	--	1.4	--	--
<u>Dichlorobromomethane</u>	<u>µg/L</u>	--	--	<u>37.0</u>	--	--
<u>Chlorodibromomethane</u>	<u>µg/L</u>	--	--	<u>28.0</u>	--	--

¹ Based on a design treatment capacity of 9 mgd (see Section VII.F. for procedures for compliance determination)

2. Special Provisions VI.C.4. is amended by adding subsection g, as follows:
 - g. Compliance Schedule for Final Effluent Limitations for Chlorodibromomethane and Dichlorobromomethane
 - i. By 18 May 2010, the Discharger shall comply with the final effluent limitations for chlorodibromomethane and dichlorobromomethane. On 28 March 2008, the Discharger submitted a compliance schedule justification for chlorodibromomethane and dichlorobromomethane. The compliance schedule justification included all items specified in Paragraph 3, items (a) through (d), of section 2.1 of the SIP. As this compliance schedule is greater than one year, the Discharger shall submit annual progress reports in accordance with the Monitoring and Reporting Program (Attachment E, Section X.D.1.)
 - ii. Work Plan/Implementation Schedule. The Discharger shall submit to the Regional Water Board a work plan and implementation schedule to assure compliance with the final effluent limitations for chlorodibromomethane and dichlorobromomethane by 1 October 2008 and progress reports shall be submitted 1 June, annually, after approval of the work plan until final compliance.
3. Section II.A. of the Fact sheet is amended to add subsection 4, as follows:
 4. In May 2007, the Discharger modified the treatment process as part of the Phase 1 Facility upgrade (See Section II.E of the Fact Sheet) to improve treatment and expand capacity, and converted to full nitrification mode to reduce ammonia in the effluent.
4. Section IV.C.3.k. of the Fact Sheet is amended as follows:
 - k. **Chlorodibromomethane.** Based on 12 monitoring samples performed by the Discharger from January 2002 through December 2002, the observed MEC for chlorodibromomethane was 0.6 µg/L. The background ambient chlorodibromomethane was not detected (<0.5 µg/L) in 12 samples collected from January 2002 through December 2002. The Discharger collected an additional 21 samples of the background receiving water using a lower method detection limit in February and March 2006, with all samples also non-detect (<0.25 µg/L). The CTR human health criterion is 0.41 µg/L. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion of a water quality objective and effluent limitations are necessary. The ambient monitoring demonstrates the receiving water has assimilative capacity for chlorodibromomethane. A dilution credit for chlorodibromomethane of up to 20:1 can be granted, based on the available human health dilution (see Attachment F, Section IV.C.2.b.viii.). This Order contains final AMEL and MDEL for chlorodibromomethane of 3.6 µg/L and 7.6

$\mu\text{g/L}$, respectively (See Attachment F, Table F-10 for WQBEL calculations). ~~Based on current Facility performance, it appears that the Discharger can comply with these effluent limitations.~~

After upgrading the Facility in May 2007 to operate in full nitrification mode, disinfection byproducts have increased and the Discharger is unable to comply with these limitations. Based on 11 monitoring samples performed from July 2007 through January 2008, the observed MEC for chlorodibromomethane was 23 $\mu\text{g/L}$. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.D.1., an interim performance-based maximum daily limitation of 28 $\mu\text{g/L}$ was calculated.

Section 2.1 of the SIP provides that: “Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.” Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ...“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.” The Discharger provided this information on **28 March 2008**. The new water quality-based effluent limitations for chlorodibromomethane become effective on **18 May 2010**.

The Discharger is required to submit a work plan/implementation schedule for compliance with the final effluent limitations for chlorodibromomethane by **1 October 2008**. Until final compliance, the Discharger shall submit annual progress reports. The interim effluent limitations are in effect through **17 May 2010**.

4. Section IV.C.3.n. of the Fact Sheet is amended as follows:

- n. **Dichlorobromomethane.** Based on 12 monitoring samples performed by the Discharger from January 2002 through December 2002, the observed MEC for dichlorobromomethane was 2.0 µg/L. The background ambient dichlorobromomethane was not detected (<0.5 µg/L) in 12 samples collected from January 2002 through December 2002. The Discharger collected an additional 21 samples of the background receiving water using a lower method detection limit in February and March 2006, with all samples also non-detect (<0.25 µg/L). The CTR human health criterion for consumption of water and aquatic organisms is 0.56 µg/L and municipal and domestic supply is a beneficial use of the receiving water. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion of a water quality objective and effluent limitations are necessary. The ambient monitoring demonstrates the receiving water has assimilative capacity for dichlorobromomethane. A dilution credit for dichlorobromomethane of up to 20:1 can be granted, based on the available human health dilution (Attachment F, Section IV.C.2.b.viii.). This Order contains final AMEL and MDEL for dichlorobromomethane of 6.8 µg/L and 9.5 µg/L, respectively (See Attachment F, Table F-9 for WQBEL calculations). ~~Based on current Facility performance, it appears that the Discharger can comply with these effluent limitations.~~

After upgrading the Facility in May 2007 to operate in full nitrification mode, disinfection byproducts have increased and the Discharger is unable to comply with these limitations. Based on 11 monitoring samples performed from July 2007 through January 2008, the observed MEC for dichlorobromomethane was 32 µg/L. Section 2.1 of the SIP allows for compliance schedules within the permit for existing discharges where it is demonstrated that it is infeasible for a Discharger to achieve immediate compliance with a CTR criterion. Using the statistical methods for calculating interim effluent limitations described in Attachment F, Section IV.D.1., an interim performance-based maximum daily limitation of 37.0 µg/L was calculated.

Section 2.1 of the SIP provides that: “Based on an existing discharger’s request and demonstration that it is infeasible for the discharger to achieve immediate compliance with a CTR criterion, or with an effluent limitation based on a CTR criterion, the RWQCB may establish a compliance schedule in an NPDES permit.” Section 2.1, further states that compliance schedules may be included in NPDES permits provided that the following justification has been submitted: ...“(a) documentation that diligent efforts have been made to quantify pollutant levels in the discharge and the sources of the pollutant in the waste stream; (b) documentation of source control measures

and/or pollution minimization measures efforts currently underway or completed; (c) a proposal for additional or future source control measures, pollutant minimization actions, or waste treatment (i.e., facility upgrades); and (d) a demonstration that the proposed schedule is as short as practicable.”
The Discharger provided this information on **28 March 2008**. The new water quality-based effluent limitations for dichlorobromomethane become effective on **18 May 2010**.

The Discharger is required to submit a work plan/implementation schedule for compliance with the final effluent limitations for dichlorobromomethane by 1 October 2008. Until final compliance, the Discharger shall submit annual progress reports. The interim effluent limitations are in effect through 17 May 2010.

5. Section IV.D.1. of the Fact Sheet is amended as follows:

1. **Chlorodibromomethane, Copper, Dichlorobromomethane, Ammonia, and Aluminum**. The SIP contains guidance on 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 Water 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. The State Water Board has held that the SIP may be used as guidance for non-CTR constituents. Therefore, the SIP requirement for interim effluent limitations has been applied to both CTR and non-CTR constituents in this Order.

The interim effluent limitations for chlorodibromomethane, copper, dichlorobromomethane, ammonia, and aluminum established 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. In situations where the observed maximum effluent concentration (MEC) exceeds the 99.9%, the MEC is used as the interim limit.

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 effluent concentration to obtain the daily maximum interim limitation (TSD, Table 5-2).

The Regional Water 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 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.

Table F-12 summarizes the calculations of the interim effluent limitations for chlorodibromomethane, copper, dichlorobrommethane, ammonia, and aluminum:

Table F-12
 Interim Effluent Limitation Calculation Summary

Parameter	MEC	Mean	Std. Dev.	CV	# of Samples	Interim Limitation
<u>Chlorodibromomethane (µg/L)</u>	<u>23</u>	<u>16</u>	<u>3.5</u>	<u>0.21</u>	<u>11</u>	<u>28</u>
Copper (µg/L)	14	9.3	2.9	0.31	16	19
<u>Dichlorobromomethane (µg/L)</u>	<u>32</u>	<u>22</u>	<u>4.3</u>	<u>0.19</u>	<u>11</u>	<u>37</u>
Ammonia (as N) (mg/L)	42	16.6	4.1	0.25	1093	42
Aluminum (µg/L)	140	63	23	0.37	16	266

6. Section VII.B.4. of the Fact Sheet is amended to add subsection g, as follows:

g. Compliance Schedule for Final Effluent Limitations for Chlorodibromomethane and Dichlorobromomethane (Special Provisions VI.C.4.g.). On 28 March 2008, the Discharger submitted adequate justification, in accordance with Section 2.1 of the SIP, for a time schedule to comply with the final effluent limitations for chlorodibromomethane and dichlorobromomethane. The compliance schedule for chlorodibromomethane and dichlorobromomethane includes requirements that the Discharger prepares and submits a work plan/implementation schedule to assure compliance with the final effluent limitations for chlorodibromomethane and dichlorobromomethane and requires annual progress reports. Furthermore, when the compliance schedule exceeds one-year, the SIP requires interim numeric effluent limitations. Performance-based interim effluent limitations have been established for chlorodibromomethane and dichlorobromomethane in this Order. See the Fact Sheet, Section IV.D.1 for a discussion of the rationale for the interim effluent limitations.

I, PAMELA C. CREEDON, 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 **12 June 2008**.

PAMELA C. CREEDON, Executive Officer