CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL VALLEY REGION

ORDER R5-2015-0142

AMENDING WASTE DISCHARGE REQUIREMENTS
ORDER R5-2014-0070-01 (NPDES PERMIT NO. CA0079138)

CITY OF STOCKTON
REGIONAL WASTEWATER CONTROL FACILITY
SAN JOAQUIN COUNTY

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

1. On 6 June 2014, the Central Valley Water Board adopted Waste Discharge Requirements Order R5-2014-0070, prescribing waste discharge requirements for the Regional Wastewater Control Facility, San Joaquin County. The Central Valley Water Board subsequently adopted amended Order R5-2014-0070-01 on 9 October 2014. For purposes of this Order, the City of Stockton is hereafter referred to as "Discharger" and the Regional Wastewater Control Facility is hereafter referred to as "Facility."

2. The Discharger owns and operates a publically-owned treatment works. The Facility consists of tertiary level wastewater treatment. After primary and secondary treatment, the wastewater undergoes tertiary treatment in facultative lagoons, constructed wetlands, two nitrifying biotowers, dissolved air floatation, mixed-media filters, and is disinfected using chlorination/dechlorination facilities. The Facility is authorized to discharge up to an average dry weather flow of 55 million gallons per day (MGD). The average discharge for the past two years is 23 MGD.

3. Order R5-2014-0070-01 established final water quality-based effluent limitations for chlorodibromomethane (CDBM) and dichlorobromomethane (DCBM), which are California Toxics Rule (CTR) volatile organic compounds. The CTR criteria for consumption of water and organisms are 0.41 µg/L for CDBM and 0.56 µg/L for DCBM. A human health criteria mixing zone was granted in accordance with the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Policy or SIP). The mixing zone extends upstream and downstream of the discharge because the San Joaquin River in the vicinity of the discharge is tidal, resulting in flow reversals on a regular basis. The mixing zone extends 1.4 miles upstream and 8.4 miles downstream of the discharge and a dilution credit of 13:1 was allowed for calculation of the effluent limitations for CDBM and DCBM. Order R5-2014-0070, contains Final Effluent Limitations IV.A.1.a. which reads, in part, as follows:

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Dichlorobromomethane	µg/L	**7.4**	**--**	**14**	--	--
Chlorodibromomethane	µg/L	**5.1**	**--**	**14**	--	--

4. On 6 May 2013, the Discharger submitted an infeasibility analysis and request for additional time to comply with the final effluent limitations for DCBM and CDBM. The Central Valley Water Board adopted Time Schedule Order (TSO) R5-2014-0071 providing a compliance schedule for meeting the final effluent limitations with compliance required by 1 July 2018.

5. The TSO essentially includes two pathways for the Discharger to pursue compliance. The first allows the Discharger to evaluate an expanded mixing zone, dilution credit, and/or site-specific objectives for CDBM and DCBM. The second pathway is infrastructure improvements. Robertson-Bryan, Inc. (RBI) developed a technical memorandum dated 28 August 2015 that provides technical justification for revised dilution credits for CDBM and DCBM based on updated modeling and that considers the volatilization of the volatile organic compounds.

   Although the Discharger has been exceeding the final effluent limitations calculated based on dilution, CDBM and DCBM concentrations in the receiving water at the edge of the mixing zone are always well below the CTR criteria. It is presumed that volatilization is occurring in addition to mixing and/or there is more hydraulic dilution than has been estimated. The SIP does not specifically address the fate and transport of non-conservative pollutants in the mixing zone provisions. However, the SIP advises that mixing zone studies can include "…monitoring upstream and downstream of the discharge that characterize the extent of actual dilution." This type of mixing zone study would account for the fate and transport of the volatile organic compounds. Furthermore, the United States Environmental Protection Agency's Technical Support Document for Water Quality-Based Toxics Control (TSD, pgs. 83-84) provides water quality modelling recommendations for the development of waste load allocations that account for constituent loss and transformation processes (e.g., volatilization).

6. In a technical memorandum prepared by Robertson-Bryan, Inc., dated 28 August 2015 ("Revised Dilution Credit for Trihalomethane Compounds, Stockton Regional Wastewater Control Facility"), the Discharger provided an updated dilution analysis that evaluated the long-term hydraulic dilution in the San Joaquin River and the additional dilution of CDBM and DCBM occurring in the river through volatilization. Order R5-2014-0070-01 is amended to update the dilution credits and mixing zone dimensions for human health criteria based on the updated dilution analysis, resulting in revisions of the final effluent limitations for DCBM and CDBM. The revisions resolve the compliance issue, therefore, TSO R5-2014-0071 is rescinded by this Order.

7. Issuance of this Order is exempt from the provisions of the California Environmental Quality Act (Pub. Resources Code, § 21000 et seq.) ("CEQA") pursuant to Water Code section 13389, since the adoption or modification of a NPDES permit for an existing source is statutorily exempt and this Order only serves to modify a NPDES permit (*Pacific Water Conditioning Ass'n, Inc. v. City Council of City of Riverside* (1977) 73 Cal.App.3d 546, 555-556.).

8. The Central Valley 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.

IT IS HEREBY ORDERED THAT:

1. Time Schedule Order R5-2014-0071 is rescinded upon adoption of this Order except for enforcement purposes.

2. Effective immediately, Waste Discharge Requirements Order R5-2014-0070-01 (NPDES No. CA0079138) is amended to revise the human health mixing zones and revise the final effluent limitations for chlorodibromomethane and dichlorobromomethane. Order R5-2014-0070-01 is amended as shown in Items a-m below.

   a. The Order number is changed from R5-2014-0070-01 to R5-2014-0070-02.

   b. Cover Page. Modify the last paragraph as shown in underline/strikeout format below:

      I, **PAMELA C. CREEDON**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of the Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **6 June 2014**, and amended by Order R5-2014-0122 on **9 October 2014** and Order R5-2015-0142 on **11 December 2015**.

   c. **Limitations and Discharge Specifications**. Modify Table 4. Effluent Limitations, as shown in underline/strikeout format below:

      Table 1. Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorodibromomethane	µg/L	~~5.~~1 31	-	~~14~~ 86	-	-
Dichlorobromomethane	µg/L	~~7.~~4 19	-	14 38	-	-

   d. **Attachment F, Fact Sheet –** Modify section IV.C.2.c.iii.(a) Human Carcinogen Criteria Mixing Zone Studies, as shown in underline/strikeout format below:

      (a) **Human Carcinogen Criteria Mixing Zone Studies.** To support a mixing zone request for a human carcinogen criteria the Discharger submitted a mixing zone study, "Evaluation of San Joaquin River Tidal Flow Dilution at the Stockton Regional Wastewater Control Facility" (Jones and Stokes, May 2005*),* and a human carcinogenic impact study final report, "Stockton Regional Wastewater Control Facility Human Carcinogen Impact Study Phase 2A: Basin Plan Calculation of Additive Toxicity Ratio" (EOA, Inc., 17 May 2006). These studies tracked tidal movement during various tidal stages, estimated the cumulative tidal flow volume that moved past the discharge, analyzed the long-term average dilution flow, and evaluated the upstream flow at Vernalis combined with the diversions in the Old River to estimate the net flows within the vicinity of the discharges.

Additionally, the April 2013 Report of Waste Discharge included a dilution analysis (*Appendix G, Dilution Analysis for City of Stockton Regional Wastewater Control Facility Discharge to the San Joaquin River)* which used measured flow data from the USGS station during the period of 20 August 1995 through 30 December 2012 and the Delta Simulation Model II (DSM2) to develop an appropriate estimate of effluent dilution in the San Joaquin River due to mixing of the effluent with river water.

In a technical memorandum prepared by Robertson-Bryan, Inc., dated 28 August 2015 ("Revised Dilution Credit for Trihalomethane Compounds, Stockton Regional Wastewater Control Facility") (RBI 2015), the Discharger provided an updated dilution analysis that evaluated the long-term hydraulic dilution in the San Joaquin River and the additional dilution of chlorodibromomethane (CDBM) and dichlorobromomethane (DCBM) occurring in the river through volatilization. The RBI 2015 study evaluated receiving water monitoring data for CDBM and DCBM and compared actual long-term average[1] constituent concentrations with expected modeled constituent concentrations using DSM2. The DSM2 modeling only considers the conservative transport of these constituents in the river (i.e., physical mixing of the effluent in the river).[2] The actual concentrations were less than modeled concentrations in the river. The difference between actual and modeled concentrations defines the additional dilution occurring as a result of volatilization.[3] The SIP does not specifically address the fate and transport of non-conservative pollutants in the mixing zone provisions. However, the SIP advises that mixing zone studies can include "…monitoring upstream and downstream of the discharge that characterize the extent of actual dilution."[4] This type of mixing zone study would account for the fate and transport of the volatile organic compounds. Furthermore, the USEPA's Technical Support Document for Water Quality-Based Toxics Control (TSD) provides water quality modelling recommendations for the development of waste load allocations that account for constituent loss and transformation processes (e.g., volatilization). [5] Based on the findings of these studies, there is available dilution for human carcinogen criteria.

~~Table F-7 below summarizes the long-term average (LTA) effluent and receiving water fractions (as a percent), the corresponding LTA dilution ratio, and approximate distance of the DSM2 node from the Facility's outfall.~~

~~Table F-7. LTA Effluent Fraction, Corresponding Dilution Ratio and Distance from Outfall~~

~~DSM2 Node~~	~~LTA Effluent Fraction~~	~~LTA River Fraction~~	~~LTA Dilution (part river: 1 part effluent)~~	~~Approximate Distance from Outfall~~	
				~~Direction~~	~~Miles~~
~~12~~	~~0.3~~	~~99.7~~	~~332~~	~~upstream~~	~~4.4~~
~~13~~	~~1.1~~	~~98.9~~	~~90~~	~~upstream~~	~~2.8~~
~~14~~	~~4.2~~	~~95.8~~	~~23~~	~~upstream~~	~~1.4~~
~~15~~	~~11.0~~	~~89.0~~	~~8~~	~~upstream~~	~~0.4~~
~~16~~	~~9.5~~	~~90.5~~	~~10~~	~~downstream~~	~~0.7~~
~~18~~	~~10.7~~	~~89.3~~	~~8~~	~~downstream~~	~~1.7~~

~~DSM2 Node~~	~~LTA Effluent Fraction~~	~~LTA River Fraction~~	~~LTA Dilution (part river: 1 part effluent)~~	~~Approximate Distance from Outfall~~	
				~~Direction~~	~~Miles~~
~~19~~	~~11.3~~	~~88.7~~	~~8~~	~~downstream~~	~~2.4~~
~~20~~	~~10.7~~	~~89.3~~	~~8~~	~~downstream~~	~~3.1~~
~~21~~	~~8.8~~	~~91.2~~	~~10~~	~~downstream~~	~~3.9~~
~~22~~	~~8.2~~	~~91.8~~	~~11~~	~~downstream~~	~~5.0~~
~~23~~	~~8.0~~	~~92.0~~	~~12~~	~~downstream~~	~~6.3~~
~~24~~	~~7.8~~	~~92.2~~	~~12~~	~~downstream~~	~~6.9~~
~~25~~	~~6.7~~	~~93.3~~	~~14~~	~~downstream~~	~~8.4~~
~~26~~	~~5.8~~	~~94.2~~	~~16~~	~~downstream~~	~~9.0~~
~~29~~	~~4.1~~	~~95.9~~	~~23~~	~~downstream~~	~~10.4~~
~~30~~	~~2.9~~	~~97.1~~	~~33~~	~~downstream~~	~~11.7~~
~~32~~	~~1.5~~	~~98.5~~	~~66~~	~~downstream~~	~~12.8~~
~~33~~	~~1.1~~	~~98.9~~	~~90~~	~~downstream~~	~~13.8~~

Based on the findings of the above cited ~~human carcinogenic~~ mixing zone studies, ~~evaluation study and the human carcinogenic impact study, a dilution credit of 13:1 is protective of the MUN beneficial use. Therefore,~~ this Order grants ~~a 13:1 dilution credit applicable to the~~ human carcinogen criteria~~, with a~~ mixing zones that have been used for the calculation of water quality-based effluent limitations for bromoform, chlorodibromomethane, and dichlorobromomethane. The dimensions of the mixing zones and allowed dilution credits are shown in Table F-7, below. ~~that extends 1.4 miles upstream and 8.4 miles downstream of the discharge (within this section of the San Joaquin River, the downstream is wider than the upstream section).~~ The estimated sizes of the mixing zones ~~is~~are based on the DSM2 modeling that evaluated the tidal movement up and downstream from the discharge. The nearest drinking water intake is 13 ~~more than 10~~ miles ~~from~~ downstream of the discharge.

Table F-7. Human Carcinogen Criteria Mixing Zones

	Mixing Zone Dimensions	Dilution Credit
Bromoform	0.4 miles Upstream 0.7 miles Downstream	8:1[1]
Dichlorobromomethane	0.4 miles Upstream 0.7 miles Downstream	35:1
Chlorodibromomethane	1.4 miles Upstream 8.4 miles Downstream	85:1

[1] Volatilization was not considered in the dilution credit for bromoform.

Page footnotes

[1] Long-term average concentrations are appropriate for CDBM and DCBM because the CTR human health criteria are based on long-term exposures (i.e., 70 years).

[2] DSM2 modeling was used to simulate Delta flows and operations for the same period in which receiving water and effluent data were available to determine expected long-term average constituent concentrations in the receiving water.

[3] CDBM and DCBM are volatile organic compounds that are non-conservative pollutants that attenuate in the environment.
[4] SIP, section 1.4.2.1, pg. 17
[5] United States Environmental Protection Agency's Technical Support Document for Water Quality-Based Toxics Control (EPA/505/2 90 001), pgs. 83-84

e. **Attachment F, Fact Sheet –** Modify section IV.C.2.c.iv, Evaluation of Available Dilution for Human Carcinogen Criteria, as shown in underline/strikeout format below:

iv. Evaluation of Available Dilution for Human Carcinogen Criteria. Section 1.4.2.2 of the SIP, provides that mixing zones should not be allowed at or near drinking water intakes. Furthermore, regarding the application of a mixing zone for protection of human health, the TSD states that, "...*the presence of mixing zones should not result in significant health risks, when evaluated using reasonable assumptions about exposure pathways. Thus, where drinking water contaminants are a concern, mixing zones should not encroach on drinking water intakes.*" Based on the Discharger's mixing zone studies, a ~~human carcinogen criteria dilution credit of 13:1 is allowed. The~~ human carcinogen criteria mixing zone extending up to 1.4 miles upstream and up to 8.4 miles downstream meets the requirements of the SIP as follows:

f. **Attachment F, Fact Sheet –** Modify section IV.C.2.c.vi, Evaluation of Available Dilution for Specific Constituents (Pollutant-by-Pollutant Evaluation), as shown in underline/strikeout format below:

(a) Bromoform. The receiving water contains assimilative capacity for bromoform and a mixing zone for this constituent meets the mixing zone requirements of the SIP. Section 1.4.2.2 of the SIP requires that, "*A mixing zone shall be as small as practicable*.", and Section 1.4.2.2.B requires, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*." ~~As shown in the table below, based on~~ Considering existing Facility performance and the factors in section 1.4.2.2.A of the SIP, a dilution credit of 8:1 and a mixing zone extending 0.4 miles upstream and 0.7 miles downstream has been granted for bromoform. ~~, the Facility can meet more stringent WQBELs for this constituent than with the full allowance of dilution. Therefore, this Order grants an 8:1 dilution credit applicable to the human carcinogen criteria for bromoform, with a mixing zone that extends approximately 0.4 miles upstream and 1.7 miles downstream of the discharge (within this section of the San Joaquin River, the downstream is wider than the upstream section).~~This represents a mixing zone that is as small as practicable for this Facility and that fully complies with the SIP.

Dilution credits allowed in this Order are in accordance with Section 1.4.2.2 of the SIP. The allowance of a mixing zone and dilution credits are a discretionary act by the Central Valley Water Board. ~~The Central Valley Water Board has determined the maximum dilution credit on a constituent-by-constituent basis needed for this discharge is shown in the following table.~~

~~Table F-8a. Dilution Credits Associated with Performance-based Effluent Limitations~~

~~Pollutant~~	~~Units~~	~~ECA[1]~~	~~Criterion~~	~~Background~~	~~Dilution Credit[2]~~
~~Bromoform~~	~~µg/L~~	~~38~~	~~4.3~~	~~0.16~~	~~8:1~~

~~[1] Equivalent to the performance-based AMEL.~~

~~[2] The dilution credit is calculated using the steady-state mass balance equation rearranged to solve for the dilution credit, as follows:~~

~~D = (ECA – C) / (C – B)~~

~~Furthermore, the Central Valley Water Board finds that granting of the full dilution credits could allocate an unnecessarily large portion of the receiving water's assimilative capacity for these constituents and could violate the Antidegradation Policy. Although the Antidegradation Policy does not apply within a mixing zone, the allowance of a mixing zone allows an increase in the discharge of pollutants. Therefore, when a mixing zone and dilution credits are allowed, it is necessary to ensure the discharge complies with the Antidegradation Policy outside the mixing zone. The Antidegradation Policy requires that any activity that results in a discharge to a high quality water is required to meet BPTC of the discharge necessary to avoid a pollution or nuisance and to maintain the highest water quality consistent with maximum benefit to the people of the State. In this case, at minimum, BPTC is assumed to be existing Facility performance. Allowing the full dilution credit would allow the Discharger to increase its loading of these constituents to the San Joaquin River and reduce the treatment or control of the pollutants. The Central Valley Water Board has not been provided information indicating such reduced level of treatment or control would constitute BPTC pursuant to the Antidegradation Policy. Should this information be provided, dilution credits exceeding existing facility performance may be considered for the facility; provided the proposed dilution and associated mixing zone are consistent with applicable regulatory requirements.~~

(b) Chlorodibromomethane ~~and Dichlorobromomethane~~. The receiving water contains assimilative capacity for chlorodibromomethane ~~and dichlorobromomethane~~ and a mixing zone~~s~~ for thi~~s~~se constituent~~s~~ meets the mixing zone requirements of the SIP. Section 1.4.2.2 of the SIP requires that, "*A mixing zone shall be as small as practicable*.", and Section 1.4.2.2.B requires, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*." ~~As shown in the table below, based on~~ Considering existing Facility performance, and the factors in section 1.4.2.2.A of the SIP, a dilution credit of 85:1 and a mixing zone extending 1.4 miles upstream and 8.4 miles downstream has been granted for chlorodibromomethane. ~~the Facility will require the full allowance of dilution.~~ Thi~~s~~se represents a mixing zone~~s~~ that ~~are~~is as small as practicable for this Facility and that fully compl~~y~~ies with the SIP.

Dilution credits allowed in this Order are in accordance with Section 1.4.2.2 of the SIP. The allowance of a mixing zone and dilution credits are a discretionary act by the Central Valley Water Board. ~~The Central Valley Water Board has determined the maximum dilution credit on a constituent-by-constituent basis needed for this discharge is shown in the following table.~~

~~**Table F-8b. Dilution Credits Associated with Performance-based Effluent Limitations**~~

~~Pollutant~~	~~ECA~~	~~Criterion~~	~~Background~~	~~Dilution~~	~~AMEL~~	~~MDEL~~
~~Chlorodibromomethane (µg/L)~~	~~5.10~~	~~0.41~~	~~0.049~~	~~13:1~~	~~5.1~~	~~14~~
~~Dichlorobromomethane (µg/L)~~	~~7.44~~	~~0.56~~	~~0.031~~	~~13:1~~	~~7.4~~	~~14~~

~~In addition, TSO Order R5-2014-0071 (adopted 6 June 2014) established interim effluent limitations for chlorodibromomethane and dichlorobromomethane, which will be effective until 1 July 2018, prior to the expiration of this Order.~~

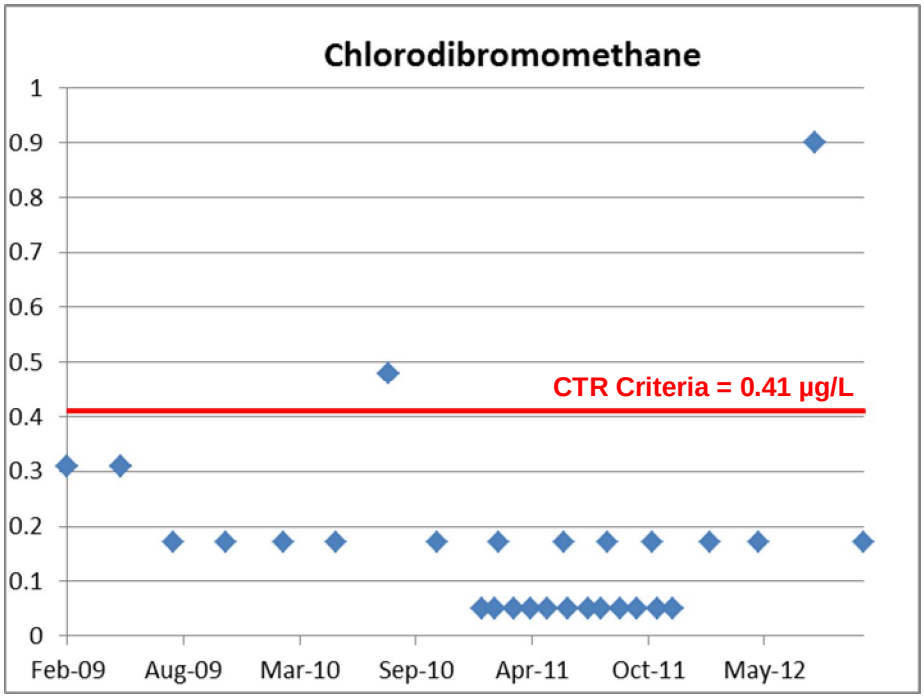
(c) Dichlorobromomethane. The receiving water contains assimilative capacity for dichlorobromomethane and a mixing zone for this constituent meets the mixing zone requirements of the SIP. Section 1.4.2.2 of the SIP requires that, "*A mixing zone shall be as small as practicable*.", and Section 1.4.2.2.B requires, "*The RWQCB shall deny or significantly limit a mixing zone and dilution credits as necessary to protect beneficial uses, meet the conditions of this Policy, or comply with other regulatory requirements*." Considering existing Facility performance, and the factors in section 1.4.2.2.A of the SIP, a dilution credit of 35:1 and a mixing zone extending 0.4 miles upstream and 0.7 miles downstream has been granted for dichlorobromomethane. This represents a mixing zone that is as small as practicable for this Facility and that fully complies with the SIP. Dilution credits allowed in this Order are in accordance with Section 1.4.2.2 of the SIP. The allowance of a mixing zone and dilution credits are a discretionary act by the Central Valley Water Board.

g. **Attachment F, Fact Sheet –** Modify section IV.C.3.d.iv, Constituents with Reasonable Potential, Chlorodibromomethane, as shown in underline/strikeout format below:

iii. Chlorodibromomethane

(a) WQO. The CTR includes a chlorodibromomethane criterion of 0.41 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed.

(b) RPA Results. One receiving water sample was detected but not quantified (DNQ) at 0.48 µg/L and one at a detected concentration of 0.9 µg/L. The two detections in the receiving water are not representative of the ambient receiving concentrations, based on 26 other values being not detected and that these are volatile compounds with no known sources in the nearby ambient environment other than the Facility's effluent (see Figure below). Therefore, the maximum background ambient concentration was set to the lowest of the individual reported method detection limits, which was 0.049 µg/L.



The MEC for chlorodibromomethane was 28 µg/L, based on 55 effluent samples (see figure below). Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for chlorodibromomethane.

(c) WQBELs. The ambient monitoring demonstrates the receiving water has assimilative capacity for chlorodibromomethane. A dilution credit for chlorodibromomethane of ~~13~~85:1 has been granted, based on the available human health dilution (see Attachment F, Section IV.C.2.c.). This Order contains final AMEL and MDEL for chlorodibromomethane of ~~5.1~~31 µg/L and ~~14~~86 µg/L, respectively (See Attachment H for WQBEL calculations).

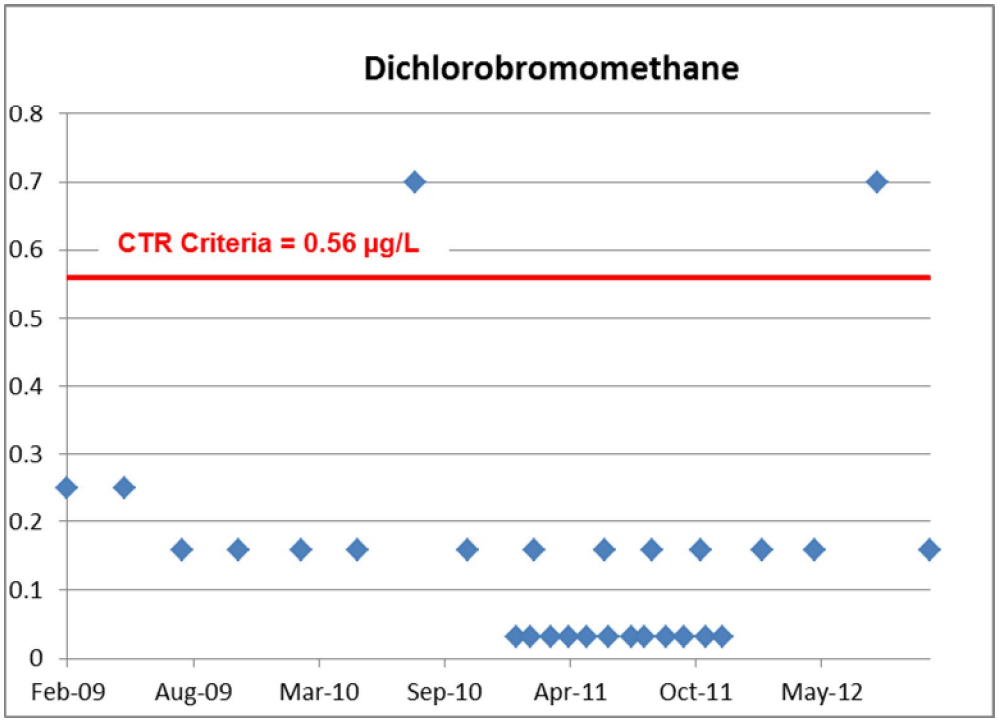
(d) Plant Performance and Attainability. The Central Valley Water Board concludes that immediate compliance with the limitation for chlorodibromomethane is feasible. ~~The Discharger has implemented measures to reduce chlorodibromomethane concentrations, and although they have been successful at reducing concentrations, not to the levels needed to consistently comply with these effluent limitations. Time Schedule Order R5-2014-0071 was adopted on 6 June 2014, which established an interim AMEL and MDEL for chlorodibromomethane of 28 µg/L and 76 µg/L, respectively, which will remain in effect until 1 July 2018.~~

h. **Attachment F, Fact Sheet –** Modify section IV.C.3.d.v, Constituents with Reasonable Potential, Dichlorobromomethane, as shown in underline/strikeout format below:

v. Dichlorobromomethane

(a) WQO. The CTR includes a dichlorobromomethane criterion of 0.56 µg/L for the protection of human health and is based on a one-in-a-million cancer risk for waters from which both water and organisms are consumed.

(b) RPA Results. Two receiving water samples were detected at a concentration of 0.7 µg/L. The two detections in the receiving water are not representative of the ambient receiving concentrations, based on 26 other values being not detected and that these are volatile compounds with no known sources in the nearby ambient environment other than the Facility's effluent (see Figure below). Therefore, the maximum background ambient concentration was set to the lowest of the individual reported method detection limits, which was 0.031 µg/L.



The MEC for dichlorobromomethane was 14 µg/L, based on 55 effluent samples (see figure below).Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dichlorobromomethane.

(c) WQBELs. The ambient monitoring demonstrates the receiving water has assimilative capacity for dichlorobromomethane. A dilution credit for

dichlorobromomethane of ~~13~~35:1 has been granted, based on the available human health dilution (see Attachment F, Section IV.C.2.c.). This Order contains final AMEL and MDEL for dichlorobromomethane of ~~7.4~~19 µg/L and ~~14~~38 µg/L, respectively (See Attachment H for WQBEL calculations).

(d) Plant Performance and Attainability. The Central Valley Water Board concludes that immediate compliance with the limitation for dichlorobromomethane is feasible. ~~The Discharger has implemented measures to reduce dichlorobromomethane concentrations, and although they have been successful at reducing concentrations, not to the levels needed to consistently comply with these effluent limitations. Time Schedule Order R5-2014-0071 was adopted on 6 June 2014, which established an interim AMEL and MDEL for dichlorobromomethane of 17 µg/L and 33 µg/L, respectively, which will remain in effect until 1 July 2018.~~

i. **Attachment F, Fact Sheet –** Modify Table F-13. Summary of Water Quality-Based Effluent Limitations, as shown in underline/strikeout format below:

Table F-13. Summary of Water Quality-Based Effluent Limitations

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Chlorodibromomethane	µg/L	~~5.1~~31	--	~~14~~86	--	--
Dichlorobromomethane	µg/L	~~7.4~~19	--	~~14~~38	--	--

j. **Attachment F, Fact Sheet –** Modify section IV.D.3, Satisfaction of Anit-Backsliding Requirements, as shown in underline/strikeout format below:

3. Satisfaction of Anti-Backsliding Requirements

The Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in the previous Order, with the exception of effluent limitations for chlorodibromomethane, dichlorobromomethane, aluminum, ammonia (as N), bis(2-ethylhexyl) phthatlate, cyanide, manganese and molybdenum. The effluent limitations for these pollutants are less stringent than, or removed from, those in Order R5-2008-0154. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

a. CWA section 402(o)(1) and 303(d)(4). CWA section 402(o)(1) prohibits the establishment of less stringent water quality-based effluent limits “except in compliance with Section 303(d)(4).” CWA section 303(d)(4) has two parts:

paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

i. For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limit based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards.

ii. For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy.

The San Joaquin River is considered an attainment water for chlorodibromomethane, dichlorobromomethane, aluminum, ammonia (as N), bis(2-ethylhexyl) phthatlate, cyanide, manganese and molybdenum because the receiving water is not listed as impaired on the 303(d) list for these constituents. As discussed in section IV.D.4, below, relaxation of the effluent limits complies with federal and state antidegradation requirements. Thus, relaxation of the effluent limitations for chlorodibromomethane, dichlorobromomethane, aluminum, ammonia (as N), bis(2-ethylhexyl) phthatlate, cyanide, manganese and molybdenum from Order R5-2008-0154 meets the exception in CWA section 303(d)(4)(B).

b. CWA section 402(o)(2). CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2008-0154 was issued indicates that aluminum, bis(2-ethylhexyl) phthatlate, cyanide, manganese and molybdenum do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Furthermore, less stringent effluent limitations for chlorodibromomethane and dichlorobromomethane have been calculated based on an updated mixing zone study, and new seasonal effluent limitations have been calculated for ammonia (as N) that are less stringent than the year-round effluent limits in the previous Order for a portion of the year. The updated information that supports the relaxation of effluent limitations for these constituents includes the following:

i. **Aluminum.** Effluent monitoring data collected between June 2011 and December 2012 indicates that aluminum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

ii. **Ammonia (as N).** This Order includes seasonal effluent limitations for ammonia as shown in the table below:

Season	AMEL mg/L Ammonia as N	MDEL mg/L Ammonia as N
April 1 – October 31	1.2	4.0
November 1 – November 30	2.3	9.9
December 1 – March 31	2.4	9.6

Previous Order R5-2008-0154 included year-round effluent limits for ammonia of 2 mg/L (as N) as an AMEL and 5 mg/L (as N) as an MDEL. Therefore, the new effluent limits from 1 November – 31 March are less stringent in this Order. These new effluent limits are based on new information. Since adoption of the previous Order the USEPA published new National Ambient Water Quality Criteria for Ammonia in August 2013. The new criteria are based on temperature and pH. Effluent pH and temperature data collected since the adoption of the previous Order were used to calculate the criteria. In addition, the Facility was upgraded to provide nitrification, so new ammonia effluent data was used to establish the statistics for calculating the water quality-based effluent limitations.

iii. **Bis(2-ethylhexyl) phthalate.** Effluent and receiving water monitoring data collected between June 2011 and December 2012 for bis (2-ethylhexyl) phthalate indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criteria.

iv. **Cyanide.** Effluent and receiving water monitoring data collected between January 2012 and December 2012 for cyanide indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR criteria for the protection of freshwater aquatic life.

v. **Manganese.** Effluent monitoring data collected between July 2007 and December 2012 indicates that manganese in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.

vi. **Molybdenum.** Effluent monitoring data collected between January 2008 and December 2012 indicates that molybdenum in the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the numeric standard that implements the narrative objective is the Agricultural Water Quality Goal of 10 µg/L.

vii. **Chlorodibromomethane and Dichlorobromomethane.** In a technical memorandum prepared by Robertson-Bryan, Inc., dated 28 August 2015 ("Revised Dilution Credit for Trihalomethane Compounds, Stockton Regional Wastewater Control Facility"), the Discharger provided an updated dilution analysis that evaluated the long-term hydraulic dilution in the San Joaquin River and the additional dilution of chlorodibromomethane and dichlorobromomethane occurring in the river through volatilization. Based on the updated mixing zone study, revised effluent limitations for chlorodibromomethane and dichlorobromomethane have been calculated.

k. **Attachment F, Fact Sheet –** Modify section IV.D.4.a, Anti-Degradation Policies, Surface Water, as shown in underline/strikeout format below:

4. Anti-Degradation Policies

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 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.

a. **Surface Water.** The permitted surface water discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 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. This Order includes less stringent effluent limits from the previous Order for chlorodibromomethane, dichlorobromomethane, aluminum, ammonia (as N), bis(2-ethylhexyl) phthalate, cyanide, manganese and molybdenum.

The Facility was upgraded to include Title 22 (or equivalent) tertiary filtration since the previous Order was issued. Based on improved effluent quality the discharge no longer exhibits reasonable potential for aluminum, manganese and molybdenum. The Discharger used improved sampling and analytical techniques for bis(2-ethylhexyl) phthalate and cyanide to demonstrate the discharge no longer exhibits reasonable potential for these constituents.

Antidegradation requirements do not apply within a mixing zone. The Discharger provided an updated mixing zone study for chlorodibromomethane and dichlorobromomethane that demonstrated hydraulic dilution, as well as, volatilization of the compounds is occurring in the receiving water resulting in greater dilution than predicted in the previous Order. Although the dilution credits have increased, the size of the mixing

zone for chlorodibromomethane has not increased and the mixing zone for dichlorobromomethane has been reduced substantially. Therefore, the less stringent effluent limitations for chlorodibromomethane and dichlorobromomethane do not correspond to increased constituent concentrations at the previously approved mixing zone boundaries. Since this Order does not authorize an increase in the discharge of pollutants as compared to previously authorized limits that would result in a greater concentration of pollutants at the edge of the mixing zones established in the prior permit, the existing antidegradation analysis is applicable.

Finally, although seasonally the effluent limits for ammonia (as N) are less stringent, the overall nitrogen requirements are significantly more stringent in this Order due to more stringent effluent limits for nitrate plus nitrite. Therefore, the small increase in ammonia is offset by the decrease in total nitrogen discharged.

The relaxation of these effluent limits is consistent with the maximum benefit to the people of the State, will not unreasonably affect beneficial uses, will not cause water quality to be less than water quality objectives, and the discharge provides protection for existing in-stream uses and water quality necessary to protect those uses.

l. **Attachment F, Fact Sheet –** Modify Table F-15. Summary of Water Quality-Based Effluent Limitations, as shown in underline/strikeout format below:

Table F-15. Summary of Final Effluent Limitations

Parameter	Units	Effluent Limitations					Basis[1]
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Chlorodibromomethane	µg/L	~~5.1~~31	--	~~14~~86	--	--	CTR
Dichlorobromomethane	µg/L	~~7.4~~19	--	~~14~~38	--	--	CTR

m. **Attachment H, Calculation of WQBELs –** Modify the table in Attachment H, as shown in underline/strikeout format below:

Parameter	Units	Most Stringent Criteria			Dilution Factors			HH Calculations			Aquatic Life Calculations									Final Effluent Limitations	
		HH	CMC	CCC	HH	CMC	CCC	ECA_{HH} = $AMEL_{HH}$	AMEL/MDEL $Multiplier_{HH}$	$MDEL_{HH}$	ECA $Multiplier_{acute}$	LTA_{acute}	ECA $Multiplier_{chronic}$	$LTA_{chronic}$	Lowest LTA	AMEL $Multiplier_{95}$	$AMEL_{AL}$	MDEL $Multiplier_{99}$	$MDEL_{AL}$	Lowest AMEL	Lowest MDEL
Ammonia (as N) – (April 1 – October 31)	mg/L	--	7.68	1.28	--	-	-	--	--	--	0.22	1.7	0.69	0.89	0.89	1.29	1.2	4.5	4.3	1.2	4.0
Ammonia (as N) – (November 1 – November 31)	mg/L	--	17.5	2.7	--	-	-	--	--	--	0.16	2.9	0.60	1.62	1.62	1.42	2.3	6.1	9.9	2.3	9.9
Ammonia (as N) – (December 1 – March 31)	mg/L	--	17.6	2.73	--	-	-	--	--	--	0.18	3.1	0.63	1.71	1.71	1.38	2.4	5.6	5.6	2.4	9.6
Bromoform	µg/L	4.3	--	--	8	-	-	37.4	3.06	115	--	--	--	--	--	--	--	--	--	38	115
Chlorodibromomethane	µg/L	0.41	--	--	~~13~~ 85	-	-	~~5.1~~ 31	~~2.71~~ 2.75	~~14~~ 86	--	--	--	--	--	--	--	--	--	~~5.1~~ 31	~~14~~ 86
Dichlorobromomethane	µg/L	0.56	--	--	~~13~~ 35	-	-	~~7.4~~ 19	~~1.91~~ 1.99	~~14~~ 38	--	--	--	--	--	--	--	--	--	~~7.4~~ 19	~~14~~ 38

Any person aggrieved by this action of the Central Valley Water Board may petition the State Water Board to review the action in accordance with Water Code section 13320 and California Code of Regulations, title 23, sections 2050 and following. The State Water Board must receive the petition by 5:00 p.m., 30 days after the date of this Order, except that if the thirtieth day following the date of this Order falls on a Saturday, Sunday, or state holiday, the petition must be received by the State Water Board by 5:00 p.m. on the next business day. Copies of the law and regulations applicable to filing petitions may be found on the Internet at: http://www.waterboards.ca.gov/public_notices/petitions/water_quality or will be provided upon request.

I, PAMELA C. CREEDON, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **11 December 2015**.

ORIGINAL SIGNED BY

PAMELA C. CREEDON, Executive Officer