

STATE OF CALIFORNIA  
STATE WATER RESOURCES CONTROL BOARD  
**ORDER WQ 2008-0010**

---

---

In the Matter of the Petition of  
**THE CALIFORNIA SPORTFISHING PROTECTION ALLIANCE**  
For Review of Waste Discharge Requirements Order No. R5-2007-0134  
[NPDES No. CA0079260]  
For the City of Yuba City Wastewater Treatment Plant, Sutter County  
Issued by the  
California Regional Water Quality Control Board  
Central Valley Region

**SWRCB/OCC FILE A-1895**

---

---

BY THE BOARD:

In this order, the State Water Resources Control Board (State Water Board) remands a National Pollutant Discharge Elimination System (NPDES) permit (Permit) to the Central Valley Regional Water Quality Control Board (Central Valley Water Board) for revisions. The California Sportfishing Protection Alliance (Petitioner) has raised a series of objections to the permit issued by the Central Valley Water Board for the wastewater treatment plant owned and operated by the City of Yuba City (City). The contentions addressed in this order concern Permit provisions related to mixing zones and dilution credits, diffuser monitoring and maintenance, disposal pond monitoring requirements, and effluent limitations for cyanide and diethyl phthalate.

Based on the record before the Central Valley Water Board and our technical review, we conclude that the Permit should be remanded to the Central Valley Water Board for reconsideration and revisions consistent with this order.<sup>1</sup>

---

<sup>1</sup> To the extent Petitioner raised issues not discussed in this order, such issues are hereby dismissed as not substantial or appropriate for review by the State Water Board. See *People v. Barry* (1987) 194 Cal.App.3d 158, 175-177, *Johnson v. State Water Resources Control Board* (2004) 123 Cal.App.4th 1107, Cal. Code Regs., tit. 23, § 2052, subd. (a)(1).

## I. BACKGROUND

The City owns and operates a wastewater treatment facility (Facility) which provides secondary level wastewater treatment prior to discharge to the Feather River. The Facility serves Yuba City, which has a population of approximately 52,000. The Facility treats domestic and industrial waste and hauled septage from the unsewered portions of Sutter and Yuba counties. The design flow rate of the Facility has been increased from 7.0 million gallons per day (mgd) to 10.5 mgd as an average dry weather flow. The Facility uses a treatment system that consists of bar screens, aerated grit removal, primary sedimentation, pure oxygen aeration, secondary sedimentation, chlorine disinfection, dechlorination, and pH adjustment.

Treated wastewater from the Facility normally discharges through a multi-port diffuser to the Feather River.<sup>2</sup> Alternatively, during planned maintenance of process units or in the event that permit requirements for direct discharge to the Feather River cannot be achieved, effluent can be discharged to any of six disposal ponds prior to discharge to the Feather River. The disposal ponds are constructed within the flood plain of the Feather River. There is no outlet from the ponds for intentional discharge to the river. Effluent directed to the disposal ponds either percolates to groundwater under the ponds, evaporates, or discharges to the Feather River when the ponds are inundated during high Feather River flows.

The Feather River is a major California waterway, with flows ranging from 1,000 cubic feet per second (cfs) during dry weather to 300,000 cfs in a 100-year flood and averaging approximately 3,600 cfs. Beneficial uses of the Feather River downstream of the discharge, as listed in the Central Valley Water Board's Water Quality Control Plan (Basin Plan), include municipal and domestic supply, agricultural irrigation, body contact recreation, non-contact recreation, warm freshwater habitat, cold freshwater aquatic habitat, warm fish migration, cold spawning habitat, and wildlife habitat. In addition, the Central Valley Water Board found that beneficial uses of groundwater recharge and freshwater replenishment also exist.<sup>3</sup>

The discharge is currently regulated by Central Valley Water Board Order [R5-2007-0134 \(NPDES Permit No. CA0079260\) \(2007 Permit or Permit\)](#), adopted by the Central Valley Water Board on October 25, 2007. Prior to the Central Valley Water Board's adoption of the 2007 Permit, it adopted [Order R5-2003-0085](#) (2003 Permit). The City filed a

---

<sup>2</sup> The diffuser is used to dilute the effluent discharge by spreading it through the ports across a portion of the river channel width. It is a pipe structure that is constructed in the river bed at Discharge Outfall 001 and is equipped with 40 port nozzles of three inches in diameter that are spaced four feet on center.

<sup>3</sup> Central Valley Water Board Order R5-2007-0134 (NPDES Permit No. CA0079260), at Finding II.H.

petition seeking State Water Board review of the 2003 Permit and an associated Cease and Desist Order (CDO). The State Water Board adopted Order [WQO 2004-0013](#) (2004 Order), remanding the 2003 Permit to the Central Valley Water Board. The remanded issues included calculation of effluent limitations, determination of hardness for metals criteria, and dilution credits and mixing zones. In response to the State Water Board's remand order and the City's planned expansion of the Facility, the Central Valley Water Board issued the 2007 Permit.

The California Sportfishing Protection Alliance (Petitioner) filed a timely petition requesting the State Water Board to review and vacate the 2007 Permit.

## II. CONTENTIONS AND DISCUSSION

### A. Mixing Zones and Dilution Credits

The Facility's discharge is to the Feather River, which allows for significant mixing of the effluent. In our 2004 Order, we concluded that the Central Valley Water Board should grant a mixing zone and dilution credit for acute aquatic life criteria.<sup>4</sup> The 2007 Permit allows mixing zones and dilution credits.

**Contention:** The Petitioner contends that the Permit fails to comply with the requirements regarding mixing zones in the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California* (SIP).<sup>5</sup> Petitioner contends that the Permit must be modified to define the edge of the mixing zone for each constituent.

**Discussion:** The SIP requires that if a regional water board allows a mixing zone and dilution credit, the permit shall specify the method by which the mixing zone was derived, the dilution credit granted, and the point(s) in the receiving water where the applicable criteria/objectives must be met.<sup>6</sup> In the 2004 Order, this Board discussed in detail the provisions in the SIP relating to mixing zones and dilution. We concluded there that establishment of a mixing zone for the City's discharge was appropriate, and we remanded the permit for the Central Valley Water Board to determine the specific mixing zone. The 2007 Permit properly allows mixing zones, but fails to identify the points in the receiving water where applicable

---

<sup>4</sup> State Water Board Order WQO 2004-0013, p. 23.

<sup>5</sup> State Water Board, *Policy for Implementation of Toxics Standard for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (2005).

<sup>6</sup> *Id.*, p. 17, § 1.4.2.2 (Mixing Zone Conditions).

criteria or objectives must be met (the mixing zone boundary) for acute aquatic life criteria, chronic aquatic life criteria, and human health criteria. The SIP requires such specification:

If a [regional water board] allows a mixing zone and dilution credit, the permit shall specify the method by which the mixing zone was derived, the dilution credit granted, and *the point(s) in the receiving water where the applicable criteria/objectives must be met.*<sup>7</sup>

The Permit must be modified to specify the mixing zone boundary.

In the Central Valley Water Board's response to the petition, it agreed that the 2007 Permit did not provide this information and further responded that for human health criteria, the mixing zone extended to the lip of Shanghai Falls. However, the allowance of a full dilution credit of 221:1 from complete mixing should not be applicable at that point because additional mechanical mixing occurs downstream of the waterfall as described in the record. The Permit must specify the appropriate mixing zone boundary where full dilution is obtained. Alternatively, if the mixing zone applicable to human health criteria were limited to the lip of the waterfall, then the dilution credit for human health criteria must be reduced to correspond with that boundary. If the Central Valley Water Board adjusts the mixing zone boundary in that way, there would be incomplete mixing and further technical analysis would be necessary using SIP design flow conditions.

On remand, the Central Valley Water Board must specify the mixing zone boundary within the Permit. Further, if the Board concludes that the mixing zone for human health criteria extends only to the lip of Shanghai Falls, then the Board must re-assess dilution credits for human health criteria.

**Contention:** Petitioner contends that the mixing zone analysis failed to consider that 15 diffuser ports were found to be plugged and cleared in December 2006 and the resulting mixing zone analysis, based on all portals working, is inaccurate and not protective of aquatic life beneficial uses of the receiving stream.

**Discussion:** As discussed in our 2004 Order, the Facility discharges to the Feather River through a 40-port diffuser. At the time of that order, we noted that only 25 of the ports

---

<sup>7</sup> SIP, p. 15, § 1.4.2.2.B (emphasis added).

were open, the remaining 15 being covered by river deposits.<sup>8</sup> The permit requires that at least 25 ports be kept open.<sup>9</sup>

Petitioner contends that a covered diffuser port could result in instant lethality for aquatic life, degrading the aquatic life beneficial use of the receiving water by concentrating pollutants at other ports, and also increases the size of the mixing zone. The Petitioner provides no direct evidence that instant lethality is occurring to aquatic life, nor does the Petitioner offer any independent dilution modeling for review. Therefore, Petitioner's contention is not supported. Nevertheless, the number of open ports is relevant to the dilution model used in granting the mixing zone for dilution credits and to the operational requirements for the diffuser. The number of open ports relied upon in the dilution model should be identified and should be reflected in the diffuser maintenance requirements.

The updated mixing zone analysis submitted by the City provided information demonstrating the existence of a zone of passage for aquatic life around the diffuser. The analysis assessed zone of passage conditions when either 25 or 40 diffuser ports are open. However, the final report providing dilution values, used to calculate effluent limitations, does not state whether the dilution model results are based on 25 or 40 open ports.<sup>10</sup> If the dilution model results are based on 25 open ports, then the maintenance requirements are sufficient and the dilution credits that were applied to the effluent limitations are appropriate. If the results are based on 40 open ports, then it is possible that maintaining only 25 open ports is insufficient to provide for the dilution credits that were applied to calculate the effluent limitations, and the dilution credits and effluent limitations must be revised accordingly. In that case, the effluent limitations would need to be more stringent because a smaller portion of river flow would be available for dilution.

We direct the Central Valley Water Board to confirm whether the dilution model was based on 25 or 40 open diffuser ports. If the dilution model results are based on 40 open ports, the effluent limitations in the Permit may not be adequately protective because the Permit only requires that 25 ports be kept open. The permit must be revised either: (1) to include effluent limitations that are protective in all conditions when 25 ports are open; or (2) to require maintaining up to 40 ports open when necessary to achieve adequate dilution. In either event, the fact sheet accompanying the Permit must be revised to clarify this issue.

---

<sup>8</sup> State Water Board Order WQO 2004-0013, p. 9.

<sup>9</sup> 2007 Permit, at Special Provision VI.C.4.b.

<sup>10</sup> Technical Memorandum "CORMIX Updates for 3-Year Data Window and Future Critical Flows", Mitchell J. Mysliwiec, Ph.D., Larry Walker and Associates (Jan. 29, 2007).

## B. Diffuser Monitoring and Maintenance

**Contention:** The Petitioner contends that neither the monitoring nor maintenance schedule for the diffuser ensures the diffuser ports are properly working and are protective of aquatic life beneficial uses. The petition contends that the frequency of diffuser monitoring requirements in the Permit should be monthly, not annually, especially during periods of increased sediment load at winter high flow. Petitioner also contends that that annual cleaning is inadequate because sediments, not large cobbles, are transported in significant volume during high flows to plug the ports and that annual cleaning is inadequate to address the constantly shifting sediments of the river bottom.

**Discussion:** The Permit requires that the diffuser be assessed and maintained annually to ensure at least 25 open ports.<sup>11</sup> The Permit specifies that maintenance must be conducted as soon as the river flow recedes to 3,000 cfs following April 1<sup>st</sup> each year. This river flow is three times the acute and chronic aquatic life criteria critical design flows of 1,000 cfs.<sup>12</sup> Therefore, there should be ample opportunity to perform maintenance before the river recedes to critical design flows that were used to establish effluent limitations for the protection of aquatic life. The threshold of 3,000 cfs is less than the design flow of 3,600 cfs, which was used to establish effluent limitations for the protection of human health. However, significantly more dilution occurs through mechanical mixing at a nearby downstream waterfall than at the diffuser so that there should not be significant risk posed by the maintenance requirement taking effect at 3,000 cfs.

A technical memorandum from the City's consultant, dated July 15, 2006, stated that "since the diffuser installation, the river has transported gravel and cobbles to cover the 15 ports on the left side of the diffuser."<sup>13</sup> Dates on drawings from the Report of Waste Discharge (ROWD)<sup>14</sup> indicate that the diffuser has existed since at least 1974 and the record does not indicate the diffuser received any regular maintenance. Therefore, the record suggests that it

---

<sup>11</sup> 2007 Permit, at Special Provision VI.C.4.b.

<sup>12</sup> Critical water flows are the 1Q10 and 7Q10 flows which are the lowest flows that occur for one day and seven days respectively with a statistical frequency of ten years. The mixing zone analysis determined these were equal.

<sup>13</sup> Technical memorandum "Dilution Study Zone of Passage and Prevention of Acutely Toxic Conditions", Mitchell J. Mysliwiec, Ph.D., Larry Walker and Associates (Jul. 15, 2006), at p. 2/13

<sup>14</sup> City of Yuba City "Report of Waste Discharge for Renewal of NPDES Permit No. CA0079260" (July 18, 2006).

has taken a significant period of time since diffuser installation to build up and cover the 15 ports.

In addition, the City intends to use divers to assess and maintain the submerged diffuser.<sup>15</sup> The Permit requires the City to submit a letter to the Central Valley Water Board if the Feather River flows have not reached 3,000 cfs by July 1 demonstrating the flows are unsafe for the assessment.<sup>16</sup> It is reasonable that maintenance occur when conditions are safe for workers. Monthly monitoring during wet weather flows would be of little value if the ports could not be safely serviced. At lower dry weather flows, it is not apparent that sediment movement would cover ports, since it apparently took many years of higher flows to cover the ports. Accordingly, the Permit's requirement for annual assessment and monitoring of the diffuser ports is appropriate.

### **C. Disposal Ponds and Monitoring Requirements**

**Contention:** Petitioner contends that the monitoring for the discharge from ponds at Discharge Point 002 will be conducted at Discharge Point 001 and that violates federal regulations<sup>17</sup> and is not representative of the quality of waste in the ponds.

**Discussion:** There are two discharge points from the Facility. Discharge Point 001 is the point of discharge to the Feather River directly from the diffuser. Discharge Point 002 is the point of discharge to the ponds in the floodplain of the River. The Permit requires monitoring for effluent discharged to the ponds at the same location and frequency that monitors effluent discharged from Discharge Point 001. The common monitoring point is situated prior to where the Facility directs effluent to either Discharge Point 001 or Discharge Point 002. The monitoring location is remote from the ponds, which are located in the floodplain of the River.

The Petitioner contends that monitoring for the discharge from Discharge Point 001 is not appropriate for monitoring discharges to the ponds, because the discharge from the ponds is not of the same quality as the discharge from the diffuser. The bases for this claim are the contentions that the ponds receive wastewater during periods of facility maintenance and upset, and that evaporation in the ponds increases pollutant concentrations. The administrative record

---

<sup>15</sup> Memorandum from Executive Officer Pamela Creedon, Central Valley Water Board, to Karen O'Haire (Feb. 4, 2008), at p. 11.

<sup>16</sup> 2007 Permit, at Special Provision VI.C.4.b.

<sup>17</sup> 40 C.F.R. §§ 122.44(i), 122.41, 122.48.

does not demonstrate that the discharges to the ponds are different from the discharges through the diffuser when the plant is properly operating. Thus, when the Facility is properly operating, the scheduled monitoring for Discharge Point 001 is sufficient to determine if there is compliance with the effluent limitations at both Discharge Points 001 and 002.

Although the monitoring requirements for Discharge Point 002 are appropriate when the Facility is properly operating, the City has stated that effluent will be directed to the ponds if the effluent may be of a quality that would threaten the river. There have been several instances during the recent period of record when discharges have been made to the ponds because of a threat to water quality if the discharge had been made directly to the river.<sup>18</sup> Upsets can unexpectedly occur on an infrequent basis, and it is appropriate to conduct monitoring at Discharge Point 002 under such circumstances.<sup>19</sup>

We will remand the Permit to the Central Valley Water Board to amend the monitoring and reporting program to require monitoring when there are discharges to the ponds of anything other than fully treated wastewater. In addition to the regular monitoring frequency for Discharge Point 002, monitoring is also required for Discharge Point 002 at any time wastewater is discharged to one or more of the six disposal ponds when there is a process upset, operational error, or mechanical malfunction that may result in a threat to water quality if the effluent were otherwise directly discharged to the river at Discharge Point 001.

#### **D. Effluent limitations for cyanide and diethyl phthalate**

**Contention:** Petitioner contends that the mixing zone analysis and dilution credits are inaccurate.

**Discussion:** The Petitioner makes several contentions that the mixing zone analysis and dilution credits are inaccurate. We decline to address these general contentions, but we will address the dilution credits that are applicable to effluent limitations under the Lower Yuba River Accord (Yuba Accord).<sup>20</sup> The State Water Board adopted [Order WR 2008-0025](#) on

---

<sup>18</sup> The Facility discharged to the ponds on April 21, 2005, due to problems with dechlorination equipment; on January 26, 2006, due to concerns for proper chlorination; on August 23, 2007, due to a plant upset that threatened exceedance of suspended solids limitations; and on September 29, 2007, due to an operational error that caused an upset to the treatment process.

<sup>19</sup> We do note that a technical report that will address the pond discharges is due January 25, 2009. This report will presumably address the effect of pond discharges on compliance with water quality objectives.

<sup>20</sup> The Yuba Accord consists of three separate agreements to protect the lower Yuba River. The purpose of fisheries agreement entered into by the Yuba County Water Agency, Department of Fish and Game and environmental groups is to resolve instream flow issues associated with operation of the Yuba River Development Project (Yuba Project) in a way that protects and enhances lower Yuba River fisheries and local water-supply reliability.



May 20, 2008, requiring minimum flow releases to the lower Yuba River in accordance with flow schedules for the protection of fish and other public trust resources contained in the Yuba Accord.<sup>21</sup> The Facility's point of discharge is downstream of the confluence of the Yuba and Feather Rivers. The Permit's Fact Sheet states that the City notified the Central Valley Water Board of the then-pending proceeding before the State Water Board to consider changes to water right permits to implement the Yuba Accord. The City maintained that adoption of the changes would result in a minimum increase of 500 cfs in the lower Yuba River in critical years, which would then result in a 500 cfs increase in the critical low flows for the Feather River at the Facility's point of discharge.<sup>22</sup>

The Permit specifies final effluent limitations that will be in effect before and after State Water Board adoption of the Yuba Accord.<sup>23</sup> Effluent limitations for two priority pollutants in the Permit are affected by the Yuba Accord. These effluent limitations, for cyanide and diethyl phthalate, are less stringent under the Yuba Accord. The Central Valley Water Board asserted that, following implementation of the Accord, additional minimum dilution flows from the Lower Yuba River of 500 cfs will join with minimum dilution flows from the Feather River to provide a minimum flow of 1,500 cfs for dilution of the discharge at critical conditions.

The Yuba Accord is designed to implement a complex series of minimum flows for the Lower Yuba River which are dependent on a "schedule" that characterizes water year conditions. For one of the scheduled water years, the minimum instream flow requirement for the Yuba River may only be 150 cfs in some months.<sup>24</sup> Lower Yuba River flows in several of the scheduled water years contain many months below 500 cfs and in all years there are months with flows at 500 cfs.<sup>25</sup> These are less than or equal to the 500 cfs additional dilution flow that the Permit relies on for post-Yuba Accord effluent limitations. Our prior water rights decision setting interim flow requirements for the Lower Yuba River specified minimum flows of at least 250 cfs in all but "critical" years, and even then the flow in the lowest two weeks

---

<sup>21</sup> State Water Board Order WR 2008-0025, p. 56.

<sup>22</sup> 2007 Permit, at F-23.

<sup>23</sup> 2007 Permit, Effluent Limitations and Discharge Specifications A.1 Final Effluent Limitations – Discharge Point No. 001 – Effective Until State Water Board Adoption of the Lower Yuba River Accord, p. 13, A.2 Final Effluent Limitations – Discharge Point No. 001 – Effective Upon State Water Board Adoption of the Lower Yuba River Accord, p. 15, B.1 Final Effluent Limitations – Discharge Point No. 002 – Effective Until State Water Board Adoption of the Lower Yuba River Accord, p. 17, and B.2 Final Effluent Limitations – Discharge Point no. 002 - Effective Upon State Water Board Adoption of the Lower Yuba River Accord, p. 19.

<sup>24</sup> State Water Board Order WR 2008-0025, Appendix, Figure 2 Fisheries Agreement Exhibit 1. Instream Flow Requirements. "Schedule 6" water year conditions.

<sup>25</sup> *Ibid.*

required at least 150 cfs.<sup>26</sup> The difference between pre- and post-Yuba Accord flows in the Lower Yuba River, therefore, does not support a finding that the Yuba Accord will result in an extra 500 cfs in flow past the Facility's outfall.

Further, instantaneous flows may vary to less than the applicable flow requirements of the Yuba Accord for a period of up to but no more than 48 consecutive hours.<sup>27</sup> This period is substantially longer than appropriate for implementation of acute aquatic life criteria, and constitutes half of the 4-day period allotted for implementation of chronic aquatic life criteria.

For these reasons, the Permit is remanded to delete Sections IV.A. 2. "Final Effluent Limitations – Discharge Point No. 001 - Effective Upon State Water Board Adoption of the Lower Yuba River Accord" and IV.B.2. "Final Effluent Limitations – Discharge Point No. 002 - Effective Upon State Water Board Adoption of the Lower Yuba River Accord" and to revise Sections IV.A.1. and IV.B.1. so that these are Final Effluent Limitations.

### III. ORDER

IT IS HEREBY ORDERED THAT, this matter be remanded to the Central Valley Water Board to make revisions to the Permit that are consistent with this order. Specifically, the Central Valley Water Board must do the following:

1. Amend the permit to identify the points in the receiving water where applicable criteria or objectives must be met (identify the mixing zone boundaries for dilution credits) and clarify the dilution credit applicable to human health criteria, as appropriate.
2. Confirm whether the dilution model results are based on 25 or 40 open diffuser ports. Based on this determination, revise the permit to ensure that maintenance requirements and/or effluent limitations are protective of beneficial uses.
3. Amend the Monitoring and Reporting Program to require monitoring for discharge to the ponds at Discharge Point 002 at any time wastewater is discharged to any of the six disposal ponds when there is a process upset, operational error, or mechanical malfunction that may result in a threat to water quality if the effluent were otherwise discharged to the river at Discharge Point 001.
4. Amend the Permit to delete the Sections IV.A. 2. "Final Effluent Limitations – Discharge Point No. 001 - Effective Upon State Water Board Adoption of the Lower Yuba River Accord" and IV.B.2. "Final Effluent Limitations – Discharge Point No. 002 - Effective Upon

---

<sup>26</sup> State Water Board RD-1644 (2003), p. 176.

<sup>27</sup> *Id.*, Provision 1b.

State Water Board Adoption of the Lower Yuba River Accord” and revise Sections IV.A.1. and IV.B.1 to delete all references to the Lower Yuba River Accord and state that these are the Permit’s Final Effluent Limitations. Nothing in this ordering provision precludes the Regional Board from considering new information pursuant to 40 Code of Federal Regulations section 122.62 for updated 1Q10 and 7Q10 based on updated river flows.

**CERTIFICATION**


The undersigned, Clerk to the Board, does hereby certify that the foregoing is a full, true, and correct copy of an order duly and regularly adopted at a meeting of the State Water Resources Control Board held on November 18, 2008.

AYE: Vice Chair Gary Wolff, P.E., Ph.D  
Arthur G. Baggett, Jr.  
Frances Spivy-Weber

NAY: None

ABSENT: Chair Tam M. Doduc  
Charles R. Hoppin

ABSTAIN: None

  
\_\_\_\_\_  
Jeanine Townsend  
Clerk to the Board