STATE OF CALIFORNIA – CALIFORNIA NATURAL RESOURCES AGENCY EDMUND G. BROWN JR., *Governor*

DEPARTMENT OF WATER RESOURCES
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May 23, 2016

Mr. Samuel Unger
Executive Officer
Los Angeles Regional Water Quality Control Board
320 West 4th Street, Suite 200
Los Angeles, CA 90013

RE: Comments on Tentative National Pollutant Discharge Elimination System (NPDES) Permit No. CA 0059188, CI-6610, William E. Warne Power Plant

Dear Mr. Unger:
The Department of Water Resources (DWR) appreciates the opportunity to provide comments and additional information related to the tentative waste discharge requirements for renewal of the NPDES permit for the William E. Warne Power Plant (WEWPP). While we have concerns with some new requirements included in the Tentative Order, DWR does want to acknowledge and appreciates Regional Water Board staff working with DWR staff to facilitate the granting of dilution credits. DWR has the following concerns with new requirements with which consistent compliance is uncertain (a detailed discussion follows):

- The WEWPP cannot consistently comply with the proposed dissolved oxygen effluent limitation of 6 mg/L.
- While effluent data is not available, compliance with the proposed chloride limit is uncertain based on upstream State Water Project chloride data.
- It is impractical to apply all of the Santa Clara River TMDLs to the WEWPP discharge.
- A numeric toxicity limit based on the Test of Significant Toxicity (TST) and an Instream Waste Concentration (IWC) of 100% effluent is not warranted.
- Reasonable potential for bis (2-ethylhexyl) phthalate is based on a single data point from 2011 that appears to be an outlier.

In addition to these major issues, we offer some corrections and clarifications to the Tentative Order.

The mission of the CA Department of Water Resources (DWR) is *To manage the water resources of California in cooperation with other agencies, to benefit the State's people, and to protect, restore, and enhance the natural and human environments.* The department takes pride in implementing its Environmental Stewardship Policy while also supplying water to over 25 million Californians and greater than 740,000 acres of agricultural lands.

The movement of water from northern to southern CA is a tremendous effort, one requiring a system of State-built pumping and power plants, reservoirs, lakes, storage tanks, canals, tunnels and pipelines used to capture, store and convey water to 29 water agencies. Conveyance of this water requires dependable, economical power to pump water to areas served by the Project's contractors. As a result, the DWR has become one of the State's major energy consumers but also one of the State's largest energy producers. Hydropower plants throughout the project utilize water to recover the energy use of the Project. Some advantages to using hydropower include:

- Hydropower is fueled by water, making it a clean fuel source, as opposed to power plants that burn fossil fuels.
- Hydroelectric power is a domestic source of energy, allowing energy production that is not reliant on international fuel sources.
- The energy generated through hydropower relies on the water cycle, which is driven by the sun, making it a renewable power source and a more reliable and affordable source than fossil fuels.
- Impoundment hydropower creates reservoirs that offer a variety of recreational opportunities, notably fishing, swimming, and boating.
- Because hydropower plants can generate power to the grid immediately, they provide essential back-up power during major electricity outages or disruptions.

In addition to a sustainable fuel source, hydropower efforts produce a number of benefits, such as flood control, irrigation, and water supply. The WEWPP located in Castaic, CA recovers nearly 25% of the energy used to pump and lift water more than 1900 feet, over the Tehachapi Mountains, commencing the journey to southern California water users.

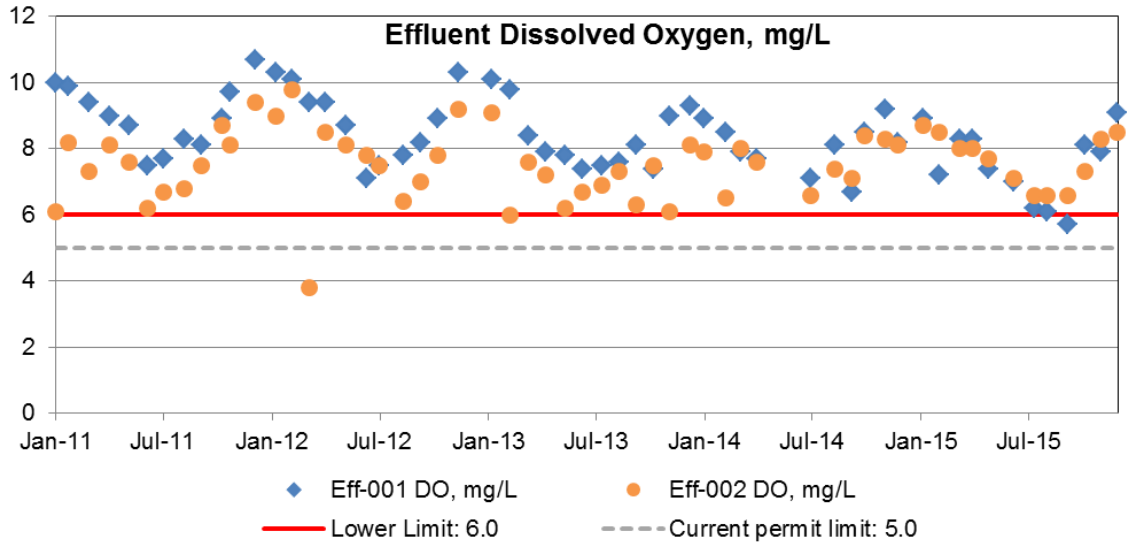
In operation since 1982, WEWPP was designed as a model of energy efficiency. The power plant is positioned to take full advantage of sunlight, built with large overhangs and insulated reflective glass windows that let in daylight while decreasing direct exposure to the sun's rays. Most of the power plant is below ground, enabling it to use the earth as an insulator. The building itself is well insulated and weather-stripped to prevent energy loss. Though most power plants use part of their own generated energy for heating, cooling, and lighting, WEWPP relies on more efficient means. Direct sunlight, waste heat, and water from Pyramid Lake provide most of the power plant's lighting, heating, and cooling.

The fact that the Power Plant has shown and continues to provide for numerous environmental efficiencies, that the Power Plant is upwards of 25-30 miles upstream from the nearest waters for which TMDLs have been imposed, and the manner in which the Power Plants effluents enter the receiving water are amongst several rationales for submittal of our comments and requests.

COMMENTS

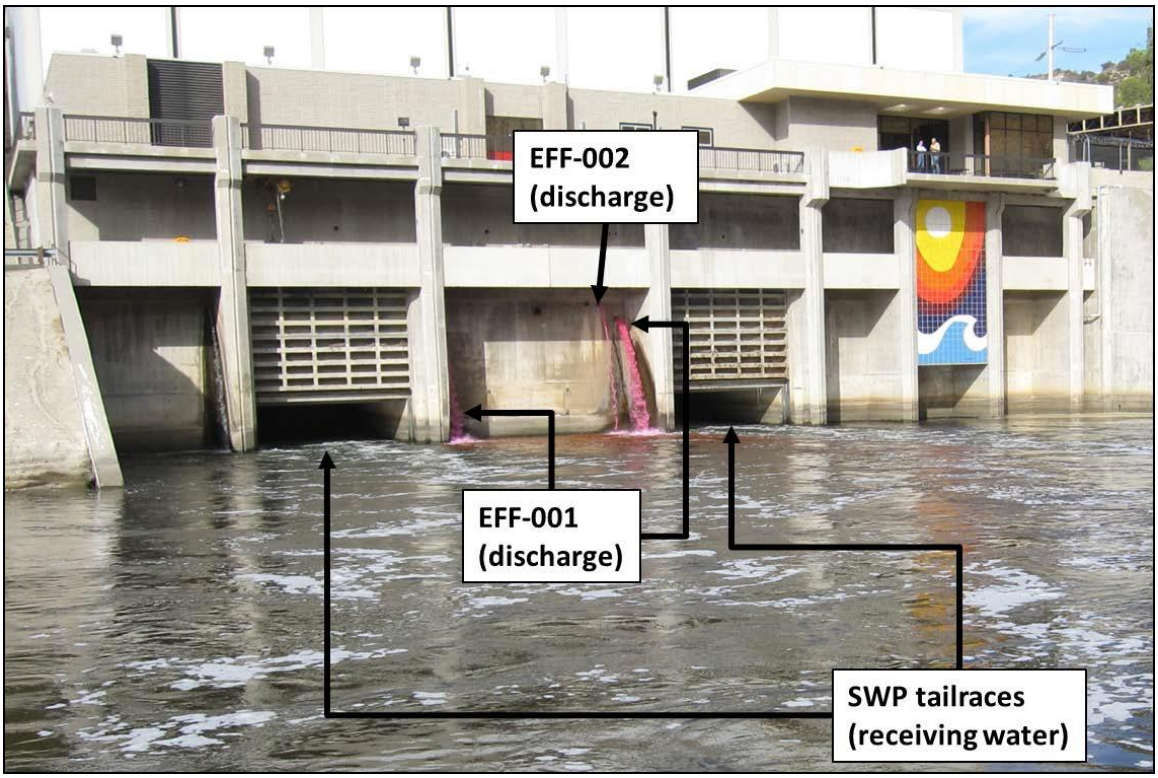
1. Dissolved Oxygen Effluent Limit should be removed because the receiving water limit provides adequate protection of beneficial uses

The current permit contains an effluent limit for dissolved oxygen (DO) of a minimum value of 5.0 mg/L. In the Tentative Order, this minimum value has been increased to 6.0 mg/L. This limit is based on the Basin Plan's water quality objective for protection of the COLD beneficial use of 6.0 mg/L. As can be seen in the figure below, the WEWPP effluent can comply with the current limit but would have difficulty consistently complying with the effluent limit of 6.0mg/L that is proposed in the Tentative Order.

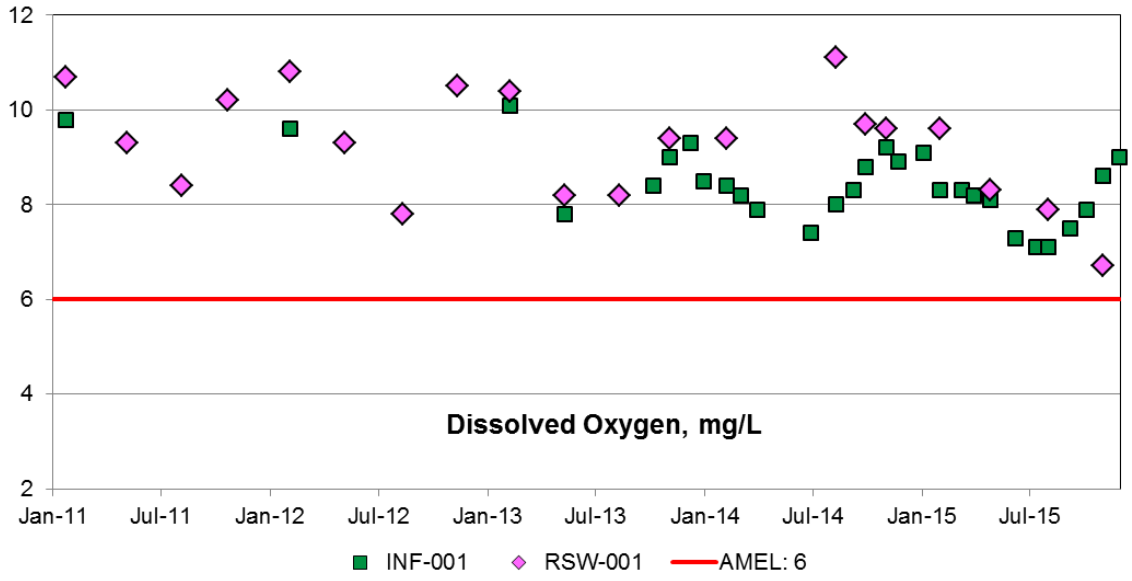


Because of the configuration of the WEWPP discharge, it is not necessary for the Basin Plan Objective to be met in the effluent in order to ensure that DO in the receiving water is not impacted. Specifically, after the point where the effluent is sampled for DO (for safety reasons, sampling occurs inside the building), the WEWPP effluent discharges approximately 8 feet above the water's surface resulting in significant aeration of the discharge before it reaches the water. Therefore, the discharge should be saturated with DO by the time it reaches the receiving water and will not adversely impact the receiving water DO levels.

The following figure shows the discharge leaving the facility and entering the receiving water. While, both EFF-001 and EFF-002 are visibly mixing with oxygen, direct measurement of the DO in the effluent after leaving the facility is not possible due to safety and access concerns with the location of the discharge. It should be noted that the pink color of the discharge is because this photo was taken during the tracer study used to evaluate the mixing zone and available dilution.



Based on influent (i.e., upstream) and downstream receiving water data (RSW-001), effluent DO levels are not adversely impacting receiving water DO levels with DO levels consistently above the objective as shown in the figure below. In fact, very often the downstream DO (RSW-001) is higher than the upstream DO. Therefore, the current effluent limit of 5 mg/L is protective of beneficial uses.



In addition, it does not appear that an effluent limit for DO is necessarily applicable to the WEWPP discharge. During a review of NPDES wastewater discharge permits adopted in Region 4 between 2014-2016 we found that there have been 7 permits adopted to date in 2016, 21 permits adopted in 2015 and 9 permits adopted in 2014. While all permits contained receiving water limits for DO, none of the permits contained an effluent limit for DO including for discharges to receiving waters with a COLD beneficial use (e.g., R4-2014-0066, R4-2014-0064, R4-2014-0062). Therefore, it appears that a receiving water limit for DO has been determined to be adequately protective of beneficial uses for similarly situated discharges elsewhere in the Region.

Imposing a limit of 6 mg/L will put the WEWPP in compliance jeopardy and will not result in a change to water quality. Because the discharge at Discharge Points EFF - 001A&B and EFF-002 are well-aerated prior to entering the receiving water and are not adversely impacting receiving water DO levels, and to remain consistent with other Region 4 permits, DWR requests that the effluent limit be removed from the permit.

To justify removal of an existing effluent limit, the Regional Board will have to make findings related to antibacksliding and antidegradation. With respect to antibacksliding, data is available that was not available when the previous permit was issued that demonstrates that DO levels and beneficial uses are not impacted by the WEWPP effluent. With respect to antidegradation, receiving water data indicates that no degradation of water quality is occurring with respect to DO as a result of the WEWPP effluent.

While it appears that a receiving water limit alone is adequate to ensure protection of beneficial uses, if it is determined that an effluent limit is needed, DWR requests that the current effluent limit for DO of 5 mg/L be retained for both discharge points.

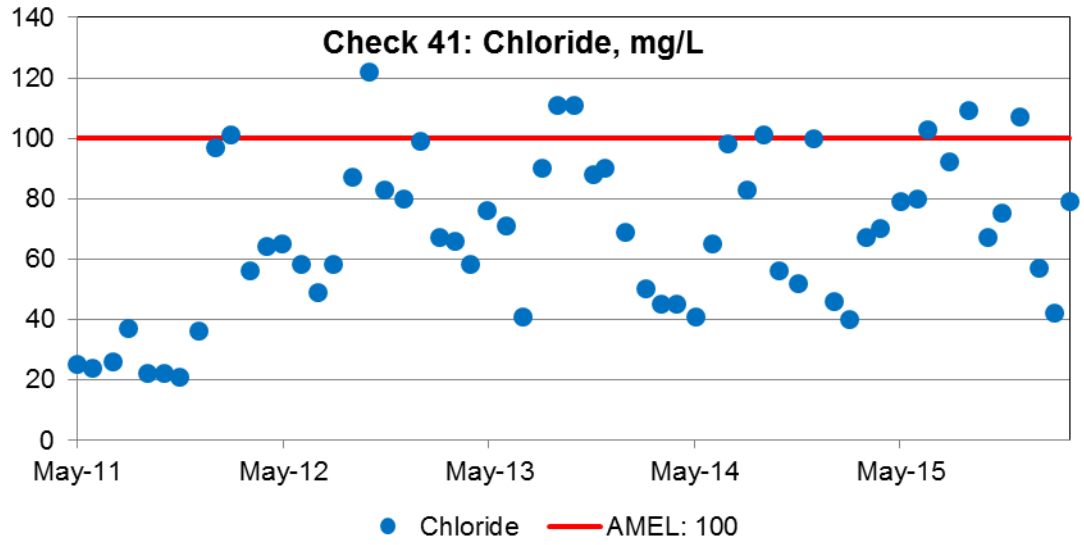
2. Effluent limits for Chloride are unlikely to result in improvements to water quality

A chloride effluent limit of 100 mg/L is included in the Tentative Order based on the Waste Load Allocation (WLA) in the Chloride TMDL for the Santa Clara River (Resolution No. R14-010). However, Pyramid Lake is not mentioned in either the Order or the Staff Report for this TMDL. As discussed in more detail below, there is substantial dilution available and the fully mixed, diluted discharge travels in excess of 25-30 miles downstream before reaching the Santa Clara River. In addition to not being mentioned in the TMDL, Pyramid Lake is not impaired for chloride.

As noted in Section II.B. on p. F-5 of the fact sheet, releases from Pyramid Lake primarily travel through the Elderberry Forebay, Castaic Lake, Castaic Lagoon, Castaic Creek before reaching the Santa Clara River at Reach 5. Water from Pyramid Lake is released to Piru Creek during the summer months to support flows in the creek. Therefore, the WLA for Reach 5 (i.e., 150 mg/L) should be applied during those times that water is not being released to Piru Creek.

There is no data available for the WEWPP effluent because monitoring for chloride has not been required previously. It is difficult to assess whether the effluent is a potential source of chloride or to determine if consistent compliance with the proposed limit is even possible.

Chloride data was reviewed for a point in the State Water Project approximately 15 miles upstream of the WEWPP (i.e., Check 41, located just before the bifurcation of the CA Aqueduct into the East and West branches). While this is a significant distance upstream, as shown below- if the chloride were to persist over this distance, it is likely that the WEWPP would have difficulty complying with the proposed effluent limitation of 100 mg/L.



Imposing effluent limits for chloride is unlikely to result in any measurable change or improvement in water quality while increasing the regulatory burden and resulting in violations with penalties for the discharger. Therefore, DWR requests that effluent limits for chloride be removed from the permit.

Alternatively, DWR requests that one or more of the following be incorporated into the effluent limit:

- Modify the effluent limit to 150 mg/L based on the TMDL target for Reach 5 of the Santa Clara River.
- Allow consideration of an intake credit because it is most likely that exceedances will be associated with chloride levels in the State Water Project (SWP).
- Allow consideration of a dilution credit of 8.2 based on the mixing zone study that was approved by the Regional Board.

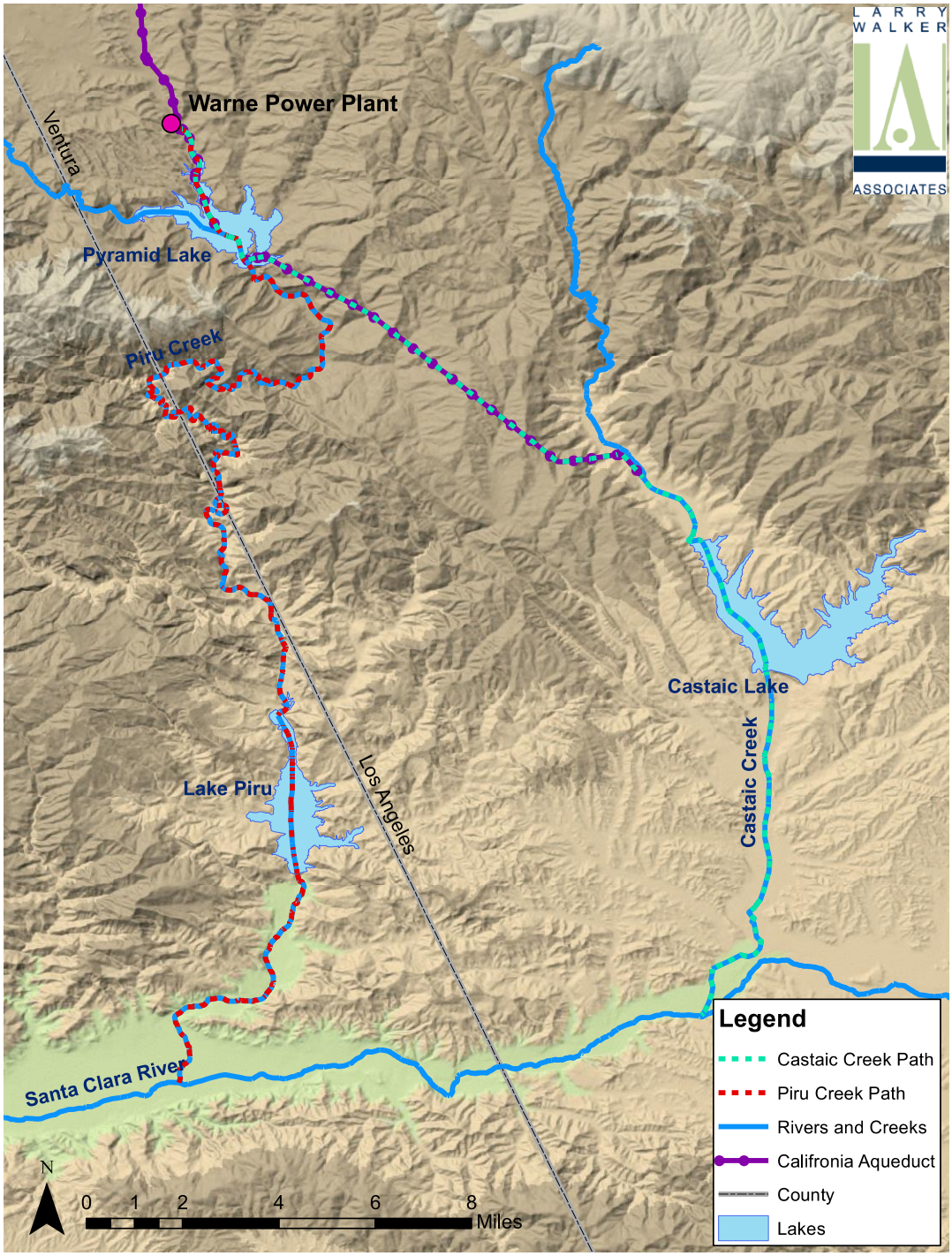
3. Effluent Limits based on Upper Santa Clara River TMDLs should not be applicable to the WEWPP discharge

The nitrate plus nitrite and E. coli limits included in the Tentative Order are new and are based on the WLAs established in the Nitrogen Compounds TMDL (Resolution No. 03-011) and the Indicator Bacteria TMDL (Resolution No. R10-006). These WLAs apply to sources of nitrogen to Reach 5 and bacteria to Reaches 3-7 of the Santa Clara River. DWR believes that these TMDLs and associated effluent limits are not applicable to the WEWPP discharge for the following reasons:

- The WEWPP discharges far upstream of the Santa Clara River and the impacts from the discharge are immeasurable by the time the discharge reaches the Santa Clara River.
- Power plant operations do not use or generate nitrogen or bacteria and they are not considered sources of these compounds.
- Pyramid Lake to which the WEWPP discharges is not mentioned in the Basin Plan Amendment or the Staff Report for the Indicator Bacteria TMDL.
- The Nitrogen TMDL targets are currently being met in the Santa Clara River without these effluent limits being imposed.

As noted on p. F-5-6, the WEWPP discharges to Pyramid Lake and Piru Creek. It should be noted that the discharge first enters Canada de los Alamos Creek at the point where the creek combines with State Water Project flows. The discharge becomes completely mixed before leaving the channel and entering Pyramid Lake. Pyramid Lake discharges to Elderberry Forebay via the Angeles Tunnel. The water continues to Castaic Lake, Castaic Lagoon and eventually flows south to Castaic Creek and from there to Reach 5 of the Santa Clara River. Discharges through Piru Creek reach the Santa Clara River after the creek 'meander[s] through Piru Canyon'. During the most frequently encountered discharge scenario for the plant, the mixing zone study determined that dilution ratios are typically as high as 177:1 based on the harmonic mean flow of the receiving water. As shown in the figure below, the distance from the WEWPP discharge point to Reach 5 of the Santa Clara River is approximately 25 miles through Castaic Lake and approximately 33 miles through Piru Creek. The completely mixed and diluted discharge resides in two reservoirs (Pyramid and Castaic Lakes) before it reaches the Santa Clara River. The path through Piru Creek includes a winding, circuitous path through Piru Canyon and also encounters Piru Lake. During this time and distance, there are multiple opportunities for introduction of bacteria and organic matter (i.e., nitrogen source) and the amount of either of these compounds associated with the WEWPP discharge would be immeasurable in the Santa Clara River.

When considering the potential for WEWPP discharges to impact the Santa Clara River, it should be noted that Pyramid Lake is not impaired for bacteria or nitrogen compounds. If the WEWPP is not contributing to an impairment of its direct receiving water, it stands to reason that it has no impact on a waterbody that is 25-30 miles away.



As described on p. F-5 of the fact sheet, the WEWPP discharge is comprised primarily of once-through cooling water (Discharge Point 001). The much smaller discharge (no

more than 20,000 gal/day compared to 1-2 MGD for 001) is comprised of backwash from potable water treatment, groundwater seepage, and compressor cooling water. These waste streams are not typically associated with bacteria.

Common sources of nitrogen compounds listed in the TMDL include municipal wastewater treatment plant discharges, agricultural runoff, storm water and groundwater discharges. It should also be noted that the recently approved Enhanced Watershed Management Program (EWMP) for the Santa Clara River Watershed does not consider Pyramid Lake to be a priority water body (Table A1-13) for either constituent. In addition, the Nitrogen TMDL is reported as being attained in the EWMP. This would indicate that significant sources have been effectively addressed.

The most significant sources of bacteria, as determined in the TMDL for the Santa Clara River, were determined to be dry-and wet-weather urban runoff discharges from the storm water conveyance system. Non-urban discharges were determined to be less significant. Another typical source of bacteria, domestic wastewater, is not discharged through the WEWPP discharge outfalls. Domestic wastewater at the facility is discharged to the sanitary sewer. Industrial sources and specifically power plants are not identified as significant sources of either nitrogen compounds or bacteria or even mentioned in the TMDLs. In addition, Pyramid Lake was not considered or mentioned in the nitrogen or bacteria TMDL Basin Plan Amendments.

Imposing effluent limits for the WEWPP discharge would result in additional regulatory burden for the discharger without resulting in any measurable improvement in water quality. Therefore, DWR requests that the effluent limits for nitrate plus nitrite and E. Coli be removed from the permit and that monitoring requirements be reduced to 2 samples per year for nitrate plus nitrite and 1 sampling event/year for E. Coli.

4. A numeric toxicity limit based on the TST is not appropriate

The Tentative Order includes a numeric effluent limit for toxicity as measured by the Test of Significant Toxicity (TST). The WEWPP discharge has not been shown to have toxicity concerns using the current approach (NOEC) and, therefore, a numeric limit is not necessary for the discharge. In addition, while DWR understands that several permits have been issued in Region 4 specifying use of the TST, other regions have chosen to defer using this method until the finalization of the Statewide Policy. Our understanding is that only Region 4 includes numeric effluent limits for toxicity with no dilution credit and requires the TST. More importantly, POTWs using the TST have reported unexpectedly high failure rates for toxicity testing using the TST. The Sanitation Districts of Los Angeles County have recently evaluated the reliability of the method based on their experience with high failure rates. Using outside laboratories, they found that *half of the non-toxic blank samples* were identified as toxic using the TST.

In addition, the In Stream Waste Concentration (IWC) is listed as 100% in Section V.A.1 (p. E-13) of the Monitoring and Reporting Program. A review of other recently adopted NPDES permits in Region 4 indicates that the IWC has been adjusted based on available dilution where applicable. (e.g., R4-2015-0123, R4-2015-0119, R4-2015-0172, R4-2015-0201). While all of these discharges are to the ocean, the principle of considering dilution in the determination of an IWC should still apply.

DWR requests that numeric effluent limits for chronic toxicity be removed and that the current method for evaluating toxicity as a trigger for additional investigation using the NOEC be retained from the current permit.

Alternatively, DWR requests that the Instream Waste Concentration be 12% effluent based on the approved dilution credit of 8.2 instead of 100% effluent as currently stated in the Tentative Order and that a reopener be included in the permit that allows for a change in the toxicity test method based on the finalization of the Statewide Policy.

5. Bis (2-ethylhexyl) phthalate

The Tentative Order includes effluent limits for bis (2-ethylhexyl) phthalate. For EFF-002, the finding of reasonable potential is based on a single detected value of 79 µg/L in February 2011. In the five years since then, all other data has been below the detection limit of 2.3 µg/L. Because the detected value is more than an order of magnitude greater than any other data and it is more than 5 years old, the detected value should be considered a statistical outlier that is not representative of the effluent quality. Therefore, DWR requests that the finding of reasonable potential and the effluent limit be removed from the Tentative Order.

6. Corrections and Clarifications

1. Table 4 on p. 4 of the Tentative Order lists the DO limit as a Maximum value. This should be changed to Minimum consistent with the Basin Plan Objective which is a value that shall not be less than a specified value at any time. Table 5, which contains the effluent limits for Discharge Point OO2, correctly lists this limit as a minimum value.
2. Table 5 on p. 6 of the Tentative Order list the AMEL and MDEL for zinc as 315 µg/L and 1006 µg/L. As discussed with your staff, there was a rounding error included in this calculation. The correct effluent limits should be 320 µg/L as an AMEL and 1023 µg/L as an MDEL.
3. The monitoring requirement for Total Trihalomethanes should be removed from Table E-4 on p.E-9 because it is redundant and unnecessary. Monitoring is required for individual trihalomethanes and, with the removal of the Total Trihalomethanes MCL from Title 22 in 2013, there is no applicable water quality standard for this constituent.
4. On p. F-5, Section II.B., - Please, modify the last sentence of the first paragraph to read ‘subsequently discharged to Canada de los Alamos Creek which flows to Pyramid Lake, a water of the United States.’

5. On p. F-20, Section IV.C.2.b. – Mixing zone/Applicable Dilution Credits. Please, add that the Mixing Zone Study report was submitted to the Regional Board as required by the TSO on May 30, 2013.

Thank you for the opportunity to provide these comments. Please, feel free to contact Diane Shimizu at 916-653-1154 or Diane.Shimizu@water.ca.gov should you have any questions or need additional information.

Sincerely,

Leah McNearney
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