

California Sportfishing Protection Alliance

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20 August 2008

Ms. Jeanine Townsend Clerk to the Board State Water Resources Control Board 1001 "I" Street, 24th Floor [95814] P.O. Box 100 Sacramento, CA 95812-010 commentletters@waterboards.ca.gov

VIA: Electronic Submission Hardcopy if Requested

RE: Comments to A-1984 – September 2, 2008 Board Meeting: Proposed Order: Petition of California Sportfishing Protection Alliance (Waste Discharges Requirements order No. R5-2007-0132 [NPDES No. CA0079049] for the City of Davis Wastewater Treatment Plant, Yolo County), Central Valley Water Board.

Dear Ms. Townsend:

On 21 July 2008 the State Board issued a Draft Order addressing CSPA's petition for review of the Central Valley Water Board's NPDES Permit for the City of Davis (Permit). The California Sportfishing Protection Alliance (CSPA) has reviewed the proposed Order in the above-entitled matter and submits the following comments.

We concur with a significant portion of the State Board's Draft Order.

We have provided specific comments for Order No. 1, regarding acute and chronic toxicity, below. However if the State Board proceeds with the Order as written, we recommend that toxicity be clearly defined; i.e., no mortality and no deviation from the laboratory control for survival, growth and reproduction.

We concur with Order No. 2 requiring the use of the lowest in-stream hardness to determine reasonable potential and develop effluent limitations for toxic metals.

We concur with Order No. 3 requiring revision of the Fact Sheet for lead, nickel and zinc based on the revised reasonable potential analysis with use of the lowest in-stream hardness. However, we reserve the right to provide comments regarding the use of statistical variability in assessing reasonable potential analyses.

We concur with Order No. 4 and 5 requiring revision of the Permit and the Fact Sheet to include an effluent limitation for copper at the Toe Drain discharge point.

We concur with Order No. 6 and 7 requiring revision of the Permit and the Fact Sheet to include an effluent limitation for silver at the Toe Drain discharge point.

Our interpretation of Order No. 8 is that the State Board is requiring the Regional Board to amend the Permit to include an effluent limitation for electrical conductivity unless specific Findings can be made justifying why such a limitation is inappropriate in accordance with applicable regulatory requirements. If this interpretation is correct; we concur with Order No. 8; if not correct we would appreciate the opportunity to provide additional specific comments. In either case we request that the time allowance granted to the Regional Board to revise the Permit regarding electrical conductivity have a specific maximum deadline.

We wish to specifically note that Footnote No. 1 of the Draft Order states in part that: "This Order does not address any groundwater issues raised by the Petitioner. The State Water Board, on its own motion, will consider those issues in a separate order." We understand the complex nature of the groundwater and accompanying Antidegradation Policy issues and do not object to the State Board's consideration of this matter on its own motion.

Our specific comments regarding the remaining surface water discharge issues are as follows:

1. The Draft Order fails to address effluent limitations for manganese, boron, dioxin and bis(2-ethylhexyl)phthalate as required by Federal Regulations 40 CFR 122.44 and the permit should remanded back to the Regional Board in accordance with California Water Code Section 13377.

Federal Regulations, 40 CFR 122.44 (d) (i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

California Water Code, § 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

The Water Quality Goal for the protection of irrigated agriculture (Westcott and Ayers) and the Water Quality Standard for human health (US EPA Ambient water quality criteria (consumption of aquatic organisms)) for manganese is $200 \,\mu\text{g/l}$ and $100 \,\mu\text{g/l}$, respectively. The wastewater discharge maximum observed 740 was $\mu\text{g/l}$. Clearly the

discharge exceeds the water quality objective. The NPDES Permit fails to include an effluent limitation for manganese.

The Water Quality Goal for the protection of irrigated agriculture for boron is 700 μ g/l. The wastewater discharge maximum observed 1800 was μ g/l. Clearly the discharge exceeds the Water Quality Goal. The NPDES Permit fails to include an effluent limitation for boron.

The CTR criterion for human health protection for consumption of aquatic organisms only is 0.014 pg/l for 2,3,7,8-tetrachlorodibenzo-p-dioxin. There are many congeners of chlorinated dibenzodioxins that exhibit toxic effects similar to those of 2,3,7,8-TCDD, including 2,3,4,6,7,8-Heptachlorodibenzo-p-dioxin (1,2,3,4,6,7,8-HpCDD). USEPA toxic equivalency factors (TEFs) express the relative toxicities of the congeners compared to 2,3,7,8-TCDD to allow these congeners to be compared to the criterion for 2,3,7,8-TCDD. As shown in the SIP, the TEF for 1,2,3,4,6,7,8-HpCDD is 0.01. The observed maximum concentration in Discharge 001 for 1,2,3,4,6,7,8-HpCDD was 13.8 pg/l, based on six samples collected between May 2002 and May 2005. The observed maximum concentration in Discharge 002 for 1,2,3,4,6,7,8-HpCDD was 3.80 pg/l, based on seven samples collected between May 2002 and May 2005. Multiplying by the TEF of 0.01, the relative toxicity of 1,2,3,4,6,7,8-HpCDD is 0.138 pg/l in Discharge 001 and 0.0380 pg/l in Discharge 002, both of which are above the CTR criterion of 0.014 pg/l. Therefore, the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for dioxin and congeners.

The CTR Water Quality Standard for Bis(2-ethylhexyl)phthalate is 5.9 μ g/l. Ambient sampling identified Bis(2-ethylhexyl)phthalate at $6.0 \mu g/l$ in the receiving waters, above the CTR Water Quality Standard. Bis(2-ethylhexyl)phthalate was detected in the wastewater effluent at 59 μ g/l, ten times above the CTR Water Quality Standard. The Permit Fact Sheet states that the receiving water sampling data for bis(2ethylhexyl)phthalate is subject to error and is being discarded. However, no supporting documentation from the laboratory quality assurance/quality control (QA/QC) documentation was provided. Dischargers are responsible for providing accurate data in accordance with established sampling protocols. The City of Davis has been required to sample for CTR constituents for years and could have easily undertaken measures to eliminate potential analytical errors including; testing plastic tubing, collecting travel blanks, sampling with proper containers, etc. It failed to do so. The Regional Board has recently exhibited a disturbing propensity to accept undocumented claims by dischargers and disregard established sampling and laboratory QA/QC methodologies in throwing out data points without providing proper documentation or justification. The burden to conduct proper sampling and analysis is on the Discharger. The presence of ten times the CTR Criterion for Bis(2-ethylhexyl)phthalate in a discharge to a low-flow ephemeral waterway should, in of itself, be sufficient to establish a reasonable potential to exceed a water quality standard. The discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion, yet fails to include a limit for Bis(2ethylhexyl)phthalate.

2. The Aquatic Life Beneficial Uses and Endangered Species discussion in the Permit is incorrect and should be remanded to the Regional Board for correction.

The Proposed Order's blunt rejection of our concerns regarding listed species is troubling, given the catastrophic collapse of pelagic and salmonid species and the intent of the State Board's recently adopted Bay-Delta Strategic Plan to aggressively take action to protect and reverse the decline of listed species. Our concerns are dismissed as having "no merit" because: a) the Regional Board inserted a statement into the Permit stating that it does not authorize any act that results in the "taking" of a threatened or endangered species and b) the California Department of Fish and Game (DFG), National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) did not provide comments or express concern about the Permit. We believe the State and Regional Boards have a greater ethical and legal responsibility for ensuring that issued permits won't impact listed species than simple disclaimers of responsibility.

The DFG, NMFS and USFWS seldom comment on NPDES permits. For years, CSPA has attempted to persuade agency staff to comment on tentative permits. The responses we receive are almost always variations on the same theme: i.e., the Regional Board seldom accepts our recommendations and we don't have the resources to waste on futile efforts. However, given the importance of the Yolo bypass as rearing and migration habitat, the presence of listed species, the historical toxicity of the effluent and the concentrations of toxic pollutants in the discharge, we believe the Permit will inevitably result in a "taking" of listed species. We believe the State Board has the authority to "condition" the permit on the City of Davis entering into consultation with the agencies or, at the very least, documenting the potential for "take" in the Permit findings.

The Permit contains discharge limitations for toxic constituents that cannot currently be met. The Permit Fact Sheet, page F-4 No. 8 finds that: "The designated beneficial uses of the Yolo Bypass include warm freshwater aquatic habitat, warm fish migration habitat, cold fish migration habitat, warm spawning habitat and potential cold freshwater aquatic habitat. The *Habitat Improvement for Native Fish in the Yolo Bypass*, states that "considering the four runs of salmon present, adult migration may occur in any month," which indicates the presence of salmonids in the Yolo Bypass year-round." Despite this Finding, the Permit fails to discuss any impacts to endangered species; to the contrary the Endangered Species Act discussion finds no impacts to endangered species. The past and present discharge of toxic constituents will continue to impact endangered species at least until compliance with the Permit is achieved and such should be documented in the Order.

Hydraulic continuity exists between the Yolo Bypass and the Sacramento River and North Delta. Permit findings regarding endangered species must recognize and discuss endangered species migration and the likely presence of these species in the Bypass. The Sacramento River and North Delta waterways are crucial habitat and migration corridors for a number species protected under federal and state endangered species acts. Species include: Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha* - federal

and state listed as threatened); Central Valley steelhead (*Oncorhynchus mykiss* -federal listed as threatened); Delta smelt (*Hypomesus transpacificus* - federal and state listed as threatened); Sacramento splittail (*Pogonichthys macrolepidotus* - California species of concern); winter-run Chinook salmon (*Oncorhynchus tshawytscha* - federal and state listed as endangered); fall/late-fall-run Chinook salmon is both a federal and California species of concern; Green sturgeon (*Acipenser medirostris*) is federally listed as threatened and is a California species of concern and longfin smelt (*Spirinchus thaleichths*), hardhead (*Mylopharodon conocephalus*) and Sacramento perch (*Archoplites interruptus*) are identified as California species of concern. Further, a number of non-special status species, including striped bass, largemouth bass, smallmouth bass, catfish and panfish are found throughout the North Delta.

Given the historical toxicity of the effluent, the Permit will likely result in an illegal "take" of listed species pursuant to Section 2080 of the California Fish and Game Code; i.e., the California Endangered Species Act (CESA). The Discharger must obtain a permit under Section 2081 or a consistency determination under Section 2080.1 of CESA. Unlike ESA, CESA requires that authorized take be "fully mitigated" and that all required measures be "capable of successful implementation." Since there are no provisions for time schedules under CESA, the Discharger must comply with protective limits as soon as possible and certainly prior to any increase in the rate of discharge. The past and present discharge of toxic constituents will continue to impact endangered species at least until compliance with the Permit is achieved. As previously stated, the Permit should be conditioned on consultation with fish and wildlife agencies and the potential impacts to listed species should, at a minimum, be properly documented in the Permit.

3. The Permit contains an effluent limitation for acute toxicity that allows mortality to aquatic life that exceeds the Basin Plan water quality objective and does not comply with federal regulations, at 40 CFR 122.44 (d)(1)(i) of the Clean Water Act.

There are two issues with respect to acute toxicity: a) the Order allows significant toxicity in the effluent and b) the Order confuses test variability of the control versus the actual toxicity of the effluent.

The historical toxicity of the effluent is indisputable. The Fact Sheet states at F-44: "[a] review of the Report of Waste Discharge indicates toxicity in the effluent" and "[w]ith a low available dilution and whole effluent testing results showing impacts to aquatic life, it is concluded that discharges from the WWTP have caused adverse effects on aquatic organisms."

Previous permits for the City of Davis have contained exact or similar effluent limitations for acute toxicity, acute and chronic WET testing, and the same receiving water limitation prohibiting the discharge of toxic constituents in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life as the present Permit.

Despite a litany of identified toxicity to fish, zooplankton and algal species and the same limitations for toxicity as contained in previous permits, the Regional Board has never undertaken any enforcement action with regard to violations of toxicity limitations. We presume that, since explicit effluent limitations are subject to mandatory minimum penalties, the Regional Board would not have overlooked enforcement of any effective and protective acute toxicity limitations in the Permit.

The Permit requires that the Discharger conduct acute toxicity tests and states that compliance with the toxicity objective will be determined by analysis of indicator organisms. However, the Tentative Permit contains a discharge limitation that allows 30% mortality (70% survival) of fish species in any given toxicity test.

With regard to Effluent Limitations US EPA's *Technical Support Document for Water Quality-based Toxics Control* states, on page 104, that:

"When setting a whole effluent toxicity limit to protect against acute effects, some permitting authorities use an end-of-pipe approach. Typically these limits are established as an LC50>100% effluent at the end of the pipe. These limits are routinely set without any consideration as to the fate of the effluent and the concentrations of toxicant(s) after the discharge enters the receiving water. Limits derived in this way are not water quality based limits and suffer from significant deficiencies since the toxicity of a pollutant depends mostly upon concentration, duration of exposure, and repetitiveness of the exposure. This is especially true in effluent dominated waters. For example, an effluent that has an LC50=100% contains enough toxicity to be lethal up to 50% of the test organisms. If the effluent is discharged to a low flow receiving waterbody that provides no more than a three fold dilution at the critical flow, significant mortality can occur in the receiving water. Furthermore, such a limit could not assure protection against chronic effects in the receiving waterbody. Chronic effects could occur if the dilution in the receiving water multiplied by the acute to chronic ratio is greater than 100 percent. Therefore, in effluent dominated situations, limits set using this approach may be severely underprotective. In contrast, whole effluent toxicity limits set using this approach in very high receiving water flow conditions may be overly restrictive."

Following US EPA's rationale, the limitations of allowing 70% survival (30% mortality) in acute toxicity tests, as is the case in the cited LC50, will result in the allowance of toxic discharges to ephemeral streams, which is representative of the receiving waters at Davis. While the State and Regional Board's method of prescribing an effluent limitation of 70% percent survival may be protective in waterbodies with significant dilution; such a limitation should be subject to a complete mixing zone analysis. However, the City of Davis' receiving stream is ephemeral and a mixing zone analysis would not be applicable

under worst-case dry stream conditions. The Order should be revised to require the Regional Board to prohibit acute toxicity (100% survival as compared to the laboratory control) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

With regard to WET testing variability; US EPA's *Technical Support Document for Water Quality-based Toxics Control* states, on page 11, that:

"In summary, whole effluent toxicity testing can represent practical tests that estimate potential receiving water impacts. Permit limits that are developed correctly from whole effluent toxicity tests should protect biota if the discharged effluent meets the limits. It is important not confuse permit limit variability with toxicity test variability" (emphasis added)

The State Board's draft Order falls into the trap of confusing test variability when discussing the effectiveness of effluent limitations as is evidenced by the following statements:

The range of permitted survivability appropriately reflects uncertainty in existing test methods. As such test results are, at best, analytical estimates that are prone to some degree of inaccuracy, due to factors beyond practicable control. This is particularly true for WET tests because of their inherent variability of test organisms and test environmental conditions, as well as other factors.

Our understanding of toxicity tests and testing methodology has significantly improved over the last decade or so and historical concerns about reliability and variability have been largely addressed. To address WET testing variability, current laboratory-testing procedures require the use of a laboratory control and extensive quality assurance and control measures. It is the comparison of the effluent tests to the laboratory control that addresses laboratory variability and, at the same time, addresses compliance while eliminating any testing uncertainty. If a WET test fails in the control sample, the test for effluent compliance is invalidated or adjusted to reflect the reduced control survival. For example, control samples in bioassays generally result in 100% survival of indicator species. If the control is below 70% survival, the test should be invalidated and the entire test redone. If the control sample survival is 70% (or above), the compliance sample survival should be similar. If the control sample survival is 100% and the compliance sample survival is only 70%, then the effluent contains significant toxicity. The compliance determination for effluent limitations is subject to satisfactory laboratory control measures. The acute toxicity test methods address State Board staff's concern regarding test method variability. But, as previously stated, test variability should not be confused with the establishment of mandated and enforceable effluent limitations.

The problem is exacerbated by the fact that the Permit only requires monthly acute toxicity testing and monthly reporting, unless there is "test failure." A "test failure" triggers requirements to resample as soon as possible, but no less than 7 days following

notification. If 10-30% mortality automatically triggered retesting, the potential problems might be lessened.

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This section of the Basin Plan further states, in part that, compliance with this objective will be determined by analysis of indicator organisms. As is confirmed by the above technical citations from US EPA for an ephemeral or low flow stream, allowing 30% mortality in acute toxicity testing of effluent allows that same level of mortality in the receiving stream and is in violation of federal regulations and contributes to a violation of the Basin Plan's narrative water quality objective for toxicity. Accordingly, the Order should be remanded to the Regional Board to be revised to simply prohibit acute toxicity (comparable survival to acceptable laboratory control survival) in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

4. The Permit does not contain a numerical effluent limitation for chronic toxicity and therefore does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i) and the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (SIP).

On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). It states that "[a] chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters."

More than three years later, the State Board subsequently adopted Order No. WQO 2003-0012 for the Los Coyotes and Long Beach wastewater treatment plants in Southern California. In WQO 2003-0012, the State Water Board noted that: a) numeric effluent limits based upon narrative criteria are legal, b) numeric limitations are generally preferred but that c) having received numerous comments regarding numeric effluent limitations, the Board would consider the propriety of including numeric effluent limitations in a subsequent regulatory setting. The Proposed Order quotes US EPA as stating in WQO 2003-0012 that:

"if a narrative effluent limitation is used, the permits must also contain (1) numeric benchmarks for triggering accelerated monitoring, (2) rigorous toxicity reduction evaluation (TRE)/toxicity investigation evaluation (TIE) conditions, and (3) a reopener to establish numeric effluent limitations for either chronic toxicity or the chemical(s)

causing toxicity."

As the Long Beach and Los Coyotes permits considered by WQO 2003-0012 already contained a numeric trigger of 1 chronic toxicity unit (TUc) for conducting accelerated monitoring and TRE/TIEs, the Board revised the permits to include an enforceable narrative effluent limitation and a reopener for numeric effluent limits for chronic toxicity, as necessary.

Two years later, the State Water Board adopted amendments to the SIP that became effective on 13 July 2005. The toxicity control and toxicity reduction language in the revised SIP is exactly the same as language in the original March 2000 SIP. It ignores Order No. WQO 2003-0012 and fails to address explicit US EPA requirements that permits must also contain "numeric benchmarks" for triggering accelerated monitoring and TRE/TIEs and a "reopener to establish numeric effluent limitations of either chronic toxicity or the chemical(s) causing toxicity."

The revised SIP continues implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. It states that:

"A chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters" and "The TRE shall include all reasonable steps to identify the source(s) of toxicity. Once the source of toxicity is identified, the discharger shall take all reasonable steps necessary to eliminate toxicity."

However, "all reasonable steps" is not a legally or scientifically defensible effluent limitation, especially for a discharge that has a long history of excessive effluent toxicity. It has been five years since the State Board first announced that it intended to revise the SIP to address chronic toxicity effluent limitations (anticipated to occur in one year) and three years since the SIP was revised.

The Regional Board is still claiming numeric limits are "infeasible" and is still using "best management practices" to comply with a narrative toxicity objective (that it forgot to put in the permit) for a discharge that has a long history of effluent toxicity that discharges into critical habitat containing endangered and threatened species.

The Fact Sheet for the City of Davis' Permit, page F-45, Chronic Aquatic Toxicity, quotes part of WQO 2003-0012 and then states:

"The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity.

Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

Numeric limits are not infeasible and are routinely included in NPDES permits all over the nation. Best Management Practices are not legally and scientifically defensible substitutes for water quality based toxicity limitations where reasonable potential has been documented.

As for the claim that "toxicity control provisions in the SIP are under revision," CSPA is unaware (having broached this issue on numerous occasions with the State Board) of any effort, funding or proceeding to clarify "the appropriate form of effluent toxicity limits in NPDES permits" or to expand and standardize "toxicity control implementation related to the NPDES permitting process" over the last five years. In the midst of collapsing fisheries and rampant toxicity in wastewater discharges, the Regional Board refuses to include legally required toxicity control limitations in any new, renewed or reopened NPDES permit.

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. There has been no argument that domestic sewage contains toxic substances and presents a reasonable potential to cause toxicity if not properly treated and, as previously observed, the City of Davis' discharge has been shown to be toxic for many years. US EPA has long advocated the use of 1 TUc as an effluent limitation for domestic wastewater discharges as detailed in the *Technical Support Document for Water Quality-based Toxics Control* and the Draft *National Whole Effluent Toxicity (WET) Implementation Guidance Under the NPDES Program (November 2004*).

The SIP, Section 4, Toxicity Control Provisions, Water Quality-Based Toxicity Control states, "A chronic toxicity effluent limitation is required in permits for all dischargers that will cause, have a reasonable potential to cause, or contribute to chronic toxicity in receiving waters." The SIP is a state *Policy* and CWC Sections 13146 and 13247 require that the Board in carrying out activities which affect water quality shall comply with state policy for water quality control unless otherwise directed by statute, in which case they shall indicate to the State Board in writing their authority for not complying with such policy. Failure to remand the Permit back to the Regional Board requiring the addition of numeric chronic effluent limitations does not comply with the requirements of the SIP and therefore CWC 13146 and 13247.

Thank you for considering these comments. If you have questions or require clarification, please don't hesitate to contact us.

Sincerely,

Bill Jennings, Executive Director California Sportfishing Protection Alliance

Cc: State Water Board Members

Interested Parties