



May 22, 2007

Ms. Diana Messina
Senior Engineer
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Regional Water Quality Control Board,
Central Valley Region
11020 Sun Center Drive, #200
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SUBJECT: Waste Discharge Requirements for the City of Davis Wastewater Treatment Facility, Yolo County (Order No. R5-2007-XXXX, NPDES No. CA0079049)

Dear Ms. Messina:

The City of Davis (“City”) has reviewed the tentative order (“TO”) for the City’s Wastewater Treatment Facility (“WWTF”) (NPDES No. CA0079049), as circulated by the Regional Water Quality Control Board (“Regional Water Board”). We appreciate the opportunity to provide the comments below.

The City has identified a number of issues of great concern. Most importantly, the cost of compliance would be extreme. The City confronts a situation where it will be necessary to completely replace its existing secondary treatment facilities, at a cost of at least \$100 to \$110 million (see Attachment 1, *Project Memorandum for Costs for Secondary Treatment*), which includes no increase in permitted capacity. The TO also would impose further costs for addition of tertiary treatment, seemingly with no knowledge or consideration of the actual costs or cumulative costs to the City, and with no substantive consideration of the actual environmental benefit that would result. We also submit that a number of the proposed requirements of the TO are not justified technically or legally by the record. In addition, even assuming all proposed requirements of the TO are justified, the TO as proposed would put the City in immediate jeopardy for non-compliance. It would also put the City in jeopardy for non-compliance at the end of this permit term. We do not believe there is cause for creating such vulnerability, which would no doubt further exacerbate the significant burden the proposed TO would impose on our ratepayers.

The City has a strong record and well-deserved reputation as an environmental steward. However, the TO as proposed is not reasonable or justified. We recommend the Regional Water Board not adopt the TO as proposed, and request that a revised TO be developed through consultation with City and Regional Water Board staffs.

The City's comments on major issues are provided below; we have also addressed relevant issues in prior communications to the Regional Water Board staff. In addition, the City provided the Regional Water Board with a strikeout and underline version of the administrative draft order with edits as suggested by the City for issues specifically related to the tertiary treatment requirements and compliance schedules. The edits recommended by the City on the administrative draft order are still applicable to the TO and are hereby incorporated into the City's comments.

As you know, the City has provided comments related to the issues contained in the TO as part of the City's Report of Waste Discharge ("ROWD") (submitted in September 2005), in comments submitted to the Regional Water Board on the staff's draft reasonable potential analysis (submitted on January 22, 2007), and in comments submitted to the Regional Water Board on the administrative draft permit (submitted on March 26, 2007). The City incorporates by reference these and all other previous comments and communications related to the TO, which should be included in the administrative record for the ultimate adoption of the renewed WDRs and NPDES permit. In addition, as the TO constitutes the Regional Water Board's reconsideration of issues in Order No. 5-01-067 as remanded by the State Water Resources Control Board ("State Water Board") in its Order No. 2003-0018 (discussed more fully below), the administrative record for Order No. 5-01-067 should also be included in the administrative record for this Order.

I. PROPOSED REQUIREMENTS FOR TERTIARY TREATMENT

The TO would impose requirements for tertiary treatment. Upon thorough review, the City submits that the TO and accompanying record have not justified such requirements. Further, even assuming tertiary treatment is justified, the TO would impose an unreasonably short period of time for compliance that fails to take into consideration the specific facts and circumstances which confront the City.

A. The Regional Water Board Must Meaningfully Consider the Factors in Water Code Section 13241 in Determining Whether to Require Tertiary Treatment.

Water Code section 13263 provides that waste discharge requirements "shall implement any relevant water quality control plans that have been adopted, and shall take into consideration the beneficial uses to be protected, the water quality objectives reasonably required for that purpose, other waste discharges, the need to prevent nuisance, and the provisions of section 13241." (Wat. Code, § 13263.) Section 13241 requires the Regional Water Board to consider a number of factors including, among others, the water quality conditions that can be reasonably achieved through the coordinated control of all factors that affect water quality and economic considerations. (Wat. Code, § 13241.)

The proposed requirements for tertiary treatment are vastly more stringent than any water quality objective contained in the Basin Plan. It is clear, of course, that Water Code section 13241 applies to the consideration of tertiary treatment. In the City of Vacaville Order, the State Water Board found that “when a Regional Board includes permit limits more stringent than limits based on an applicable numeric objective in the relevant basin plan, the Regional Board must address the section 13241 factors in permit findings.” (WQO 2002-0015, at p. 50.) (See also *City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 627.) Water Code section 13241 additionally implements the general directive that water quality be regulated to the highest degree that is reasonable. (Wat. Code, §§ 13000, 13001.)

The TO recognizes that the permit provisions and requirements related to tertiary treatment are subject to Water Code section 13241.

... this Order includes effluent limitations for BOD, TSS, turbidity and pathogens that are more stringent than applicable federal standards, but that are nonetheless necessary to meet numeric objectives or protect beneficial uses. The rationale for including these limitations is explained in the Fact Sheet. In addition, the Regional Water Board has considered the factors in Water Code section 13241 in establishing these requirements.

(TO at p. 6.) While the TO identifies the need to consider the factors in section 13241, the City contends that this consideration is superficial and lacking in record support or necessary analysis.

B. Water Code Section 13241 Requires an Objective Evaluation of Evidence and Balancing; Administrative Law Principles Require that Findings Be Explained and Based on Actual Evidence

Water Code section 13241 was first codified in 1969 when the California Legislature adopted the Porter-Cologne Water Quality Control Act (“Porter-Cologne”). Porter-Cologne followed from the findings and recommendations contained in the *Final Report of the Study Panel to the California State Water Resources Control Board*, which was published in March 1969. The Study Panel’s *Final Report* discusses the procedures needed for the establishment and enforcement of relatively high water quality objectives. In particular, the *Final Report* clarifies that water quality objectives will be “tailored on the high quality side of needs of the present and future beneficial uses. But at the level where established, it is intended that these objectives shall be reasonable, enforceable and enforced.” (See Attachment 2, *Final Report of the Study Panel to the California State Water Resources Control Board* (March 1969) at p. 12.) Further, the *Final Report* declares that “[t]he regional boards must balance environmental characteristics, past, present and future beneficial uses, and economic considerations (both the cost of providing treatment facilities and the economic value of development) in establishing plans to achieve the highest water quality which is reasonable.” (*Id.* at p. 13.)

To ensure that this balancing occurred when water quality objectives and waste discharge requirements were adopted, the *Final Report* recommended the addition of Water Code section 13241 as well as the application of section 13241 considerations in the adoption of waste

discharge requirements pursuant to Water Code section 13263. The Chief Counsel of the State Water Board confirmed the application of the section 13241 factors, more specifically the application of economic considerations, when adopting objectives on a case-by-case basis in waste discharge requirements. “A Regional Water Board is under an affirmative duty to consider economics when adopting the water quality objectives in water quality control plans or, in the absence of applicable objectives in a water quality control plan, when adopting objectives on a case-by-case basis in waste discharge requirements.” (See Attachment 3, *Guidance on Consideration of Economies in the Adoption of Water Quality Objectives*.)

Further, the Chief Counsel advised that:

[t]he State or Regional Water Board’s rationale for determining that adoption of a proposed objective is necessary to protect water quality, despite adverse economic consequences, must be discernible from the record. . . . when objectives are established on a case-by-case basis in waste discharge requirements, the rationale must be included in the findings. (*Ibid.*)

In addition, conclusory findings are insufficient. An administrative agency “must set forth findings to bridge the analytic gap between the raw evidence and ultimate decision or order.” (*Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515.) The findings must be supported by substantial evidence in the record and the findings must support the agency’s decision. (*Id.* at p. 514.)¹

C. The TO’s Findings for Tertiary Treatment are not Supported by Substantial Evidence in the Record.

The findings section of the TO does not contain any findings with regard to tertiary treatment requirements and instead states that the rationale for including such requirements is explained in the Fact Sheet, and that the Regional Water Board has considered the factors in Water Code section 13241. (TO at p. 6.) The Fact Sheet contains the proposed rationalization for requiring tertiary treatment effluent limitations based on Title 22 of the California Code of Regulations, which is not applicable to the City’s discharges. Primarily, the Fact Sheet constitutes a series of statements that appear to be a recitation of the factors in Water Code section 13241 accompanied by a brief argument or conclusion. These findings are almost identical to the findings made in other permits that have required tertiary treatment. (See Attachment 4, City of Angels, Order

¹ Water Code sections 13263 and 13241 are applicable to all provisions of the TO, save only those specifically required by federal law. The City does not repeat discussions of these provisions in comments on each requirement of the TO, and incorporates these principles by reference into other comments. Similarly, the discussion of the Regional Water Board’s obligations under general principles of administrative law are relevant to the TO provisions on which comments follow.

The City also reserves the right to seek reimbursement for any costs incurred as a result of the Order to the extent authorized by law. (See *County of Los Angeles v. Commission on State Mandates* (Second Appellate District, No. B183981, Filed May 10, 2007.)

No. R5-2007-xxx.)² They do not reflect objective consideration of site-specific circumstances or the costs or consequences to the City and its citizens.³

For example, the Fact Sheet states that the Regional Water Board has considered the environmental characteristics of the hydrographic unit and has determined that “[t]ertiary treatment will allow for the reuse of the undiluted wastewater for food crop irrigation and contact recreation activities that would otherwise be unsafe according to recommendations from the California Department of Health Services.” (TO at p. F-31.) The Fact Sheet also states that fishable and swimmable water quality conditions can be reasonably achieved through the coordinated control of all factors that affect water quality in the area; and that the loss of beneficial uses within downstream waters without tertiary treatment requirement would result in prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes. (TO at p. F-32.)

Initially, we note that there is currently no prohibition on the irrigation of food crops in the Yolo Bypass. Nor is there a prohibition on recreation other than through restrictions on land access, closure due to potential flooding, or other factors unrelated to receiving water quality. Thus, the statement that irrigation or recreation would be prohibited in the absence of new permit requirements is puzzling. More realistically, however, such uses do not occur or do not occur in connection with undiluted effluent.

The City is not aware of evidence in the record that suggests that the Regional Water Board has considered the actual environmental impact that would result if the City discharged tertiary treated wastewater to the Willow Slough Bypass and Conway Toe Drain in lieu of secondary treated wastewater. To make this consideration, the City recommends that the Regional Water Board staff conduct an analysis similar to that undertaken by staff for the City of Biggs’ Wastewater Treatment Facility, in its recently adopted NPDES permit. (See Attachment 5, City of Biggs, Order No. R5-2007-Tentative.)⁴ The City’s discharges to the Yolo Bypass and its tributaries are similar to the City of Biggs’ discharges to Lateral K. Thus, the analysis used by the Regional Water Board for the City of Biggs appropriately applies to the City of Davis. Ultimately, the Regional Water Board concluded “[b]ased on best professional judgment (BPJ), setting a limitation of 2.2 MPN/100 mL on the discharge instead of the current 23 MPN/100 mL, will have no observable effect on the receiving water quality.” (*Ibid.*)

² The City of Angels tentative order was adopted by the Regional Water Board at its May 3/4, 2007 meeting. The final adopted order is not yet available on the Regional Water Board’s website.

³ The Fact Sheet appears to rely on one study conducted by the City of Woodland in 2000 to conclude that the Yolo Bypass has been used for water contact recreation and that there are food crops grown in the Yolo Bypass that require water to be treated to a tertiary level. (Attachment F to the TO at p. F-29.) The Fact Sheet does not provide information regarding the Regional Water Board’s consideration of section 13241 factors in the circumstances of Davis and specific downstream beneficial uses.

⁴ The City of Biggs tentative order was adopted by the Regional Water Board at its May 3/4, 2007 meeting. The final adopted order is not yet available on the Regional Water Board’s website.

Based on a similar analysis and review of data as conducted by the Regional Water Board staff for the City of Biggs, it does not appear that the discharge of tertiary treated wastewater to the City's receiving waters will impact the levels of total coliform measured in the receiving waters. (See Attachment 6, *Need for Water Quality-Based Effluent Limits—Tertiary Treatment Requirement*.)

In addition, the Fact Sheet's statements that Willow Slough, the Conaway Ranch Toe Drain and the Yolo Bypass support unrestricted recreational uses where the ingestion of water is reasonably possible are not supported. Unrestricted (i.e., REC-1) recreational uses are those "uses of water for recreational activities involving body contact with water, **where ingestion of water is reasonably possible**. These uses include, but are not limited to, swimming, wading, water-skiing, skin and scuba diving, surfing, white water activities, fishing, or use of natural hot springs." (Basin Plan at p. II-1.00, emphasis added.) It is general knowledge that the Yolo Bypass, Willow Slough and the Conaway Ranch Toe Drain support wildlife and provide important wildlife habitat. However, most of these waters have limited access to the public and the ingestion of water while viewing wildlife does not seem to meet the test of reasonably possible. Furthermore, the record fails to include evidence that suggests ingestion of the City's effluent is reasonably possible or sufficient to delineate a meaningful change in the risk between secondary and treated effluent.

Next, the Fact Sheet does not reflect any consideration of the cost to the City of tertiary treatment, let alone how such costs affect the legally required balancing that is necessary before considering imposition of tertiary treatment. As stated above, the Regional Water Board has an affirmative obligation to determine such costs. The Regional Water Board's files do not include any information or evidence that suggests any evaluation of economic considerations. A review of the Regional Water Board's records conducted on May 16, 2007, failed to find any information associated with the economic impact of requiring tertiary treatment.⁵ The Fact Sheet contains a statement that says:

[t]he economic impact of requiring an increased level of treatment has been considered. The loss of beneficial uses within downstream waters, without the tertiary treatment requirement, which includes prohibiting the irrigation of food crops and prohibiting public access for contact recreational purposes would have a detrimental economic impact. In addition to pathogen removal to protect irrigation and recreation, tertiary treatment may also aid in meeting discharge

⁵ On April 30, 2007, the City's special legal counsel sent a Public Records Act request to the Regional Water Board on the City's behalf requesting an identification and copy of all records that were used (or may be used) specifically by the Regional Water Board to develop the tertiary treatment requirements contained in the TO. The Regional Water Board staff responded to this request by identifying the Basin Plan and providing the website address for this document. In addition, the staff indicated that the other information for the requirements was available in the City of Davis case file and that it was available for public review. The City reviewed the files as identified by the Regional Water Board staff for this purpose at the Regional Water Board's offices in Rancho Cordova, California on May 16, 2007.

limitations for other pollutants, such as heavy metals, reducing the need for advanced treatment specific for those pollutants. (TO at p. F-31.)

However, the permit findings, the Fact Sheet and the Regional Water Board's files fail to identify what economic information was considered in making this statement. Typically, an economics consideration includes the construction and operation costs of a project and the potential increase in annual sewer fees and the indirect costs to the community, which includes labor income loss, business tax loss, employment loss and total output loss. (See Attachment 6, *Need for Water Quality-Based Effluent Limits—Tertiary Treatment Requirement* at p. 3.) Furthermore, the impacts should be assessed at the household level to determine the relative impacts on various income classes. (*Ibid.*)

For the City, the Regional Water Board must not only consider the cost for adding tertiary treatment but must also consider the additional cost for replacing the equivalent secondary treatment system with a conventional secondary treatment system. The Fact Sheet explains that the TO contains a limitation that requires an average 85% removal of BOD₅ and TSS over each calendar month, which is a conventional secondary treatment standard that the Regional Water Board also applies to tertiary treatment. (Attachment F to the TO at p. F-13.) Because the TO requires 85% removal for BOD₅ and TSS for tertiary treatment, the City is forced to replace its equivalent secondary system that meets a 65% removal requirement. As discussed previously, the minimum project costs for replacing the equivalent secondary treatment system are \$100 to \$110 million. (See Attachment 1, *Project Memorandum for Costs for Secondary Treatment*.) These costs are exclusive of any costs associated with building and operating tertiary treatment. As mentioned above, the City can find no evidence that these have been properly considered.

The Regional Water Board is also required to consider the need for housing and the need for recycled water. The Fact Sheet states that the "potential for developing housing in the area will be facilitated by improved water quality" (Attachment F to the TO at p. 31.) The Regional Water Board's record fails to provide any evidence that the City's discharge of tertiary effluent to the Yolo Bypass (rather than secondary effluent) will facilitate the need for housing. In fact, the opposite may be true as the costs associated with replacing the secondary treatment system would make housing less affordable.

Similarly, the City is unable to identify in the record any information that supports the Fact Sheet's conclusion that the need to develop and reuse recycled water is facilitated by the City's discharge of tertiary treated water to the receiving waters in question. The requirements as contained in the TO apply to the City's effluent that is discharged to Willow Slough and the Conway Ranch Toe Drain. The quality of water discharged to these receiving waters is unrelated to water recycling.

Due to the lack of evidentiary information that would support the proposed findings related to Water Code section 13241, and the deficiencies of findings discussed above, we believe that the Regional Water Board cannot actually find that the requirements for tertiary treatment, or its equivalent, are reasonable or appropriate.

II. COMPLIANCE SCHEDULES FOR TERTIARY TREATMENT AND OTHER PARAMETERS

To the extent that the TO's proposed requirements for tertiary treatment are appropriate and supported by the record, the five-year compliance schedule currently contained within the TO is unreasonable and unjustified. An upgrade to the City's WWTF is unlike any other upgrades previously considered by the Regional Water Board. The time associated with such an upgrade far exceeds the five years allocated in the TO. The City's current WWTF is a 7.5 mgd equivalent secondary treatment system under the federal regulations that includes a combination of facultative ponds, overland flow terraces and treatment wetlands as the equivalent to secondary treatment process. It is not a conventional secondary treatment facility where tertiary or equivalent facilities can be easily added to the existing treatment facility. As a result, the City is left in the unenviable position of needing to replace its current 7.5 mgd secondary treatment system prior to adding tertiary treatment, or its equivalent.

Because of the nature of the City's current treatment system and the unique issues raised with upgrading (essentially, overhauling) such a system, the City has spent considerable time and resources over the last several years conducting a Wastewater Facilities Strategic Master Planning Process and preparing a Master Plan for consideration by the City Council. Throughout this process, the City has made a concerted effort to keep the Regional Water Board staff informed of the City's efforts. The City's Master Planning process has included an evaluation of updating the current equivalent secondary treatment process to a more conventional biological treatment process, and the potential need to construct tertiary (filtration/disinfection) treatment facilities. This planning has proceeded even though previous permit requirements related to tertiary treatment were stayed and remanded by Order of the State Water Board. In other words, despite the continuing concerns regarding the appropriateness of requiring tertiary treatment, the City has not been idle since the time in late 2003 when the previous permit was stayed and remanded.⁶

⁶ On March 16, 2001, the Regional Water Board adopted Order No. 5-01-067, renewing waste discharge requirements and NPDES permit No. CA 007909 for the City's WWTF. Order No. 5-01-067 contained effluent limitations for coliform, turbidity, total suspended solids, biological oxygen demand, and other constituents that would have necessarily required the City to build tertiary treatment. The City appealed the Regional Water Board's adoption of Order No. 5-01-067 in part due to the requirements for tertiary treatment. The City's petition was held in abeyance because of the existence of issues in common with the City of Vacaville's petition, which was pending at the time. After the Regional Water Board adopted its Order for the City of Vacaville (WQO 2002-015), it was fairly obvious that the State Water Board would find non-compliance with Water Code section 13241 requirements in Order No. 5-01-067.

The City and the Regional Water Board then entered into a Stipulation that was adopted by, and became an Order of the State Water Board (WQO 2003-0018, SWRCB/OCC File A-1374, Stipulation for Order Resolving Petition for Review, Nov. 19, 2003). The State Water Board Order remanded Order No. 5-01-067 to the Regional Water Board for review and revision consistent with the discussion and findings in the City of Vacaville's Order. The effect of such remand, of course, is that the Regional Water Board must consider anew whether to impose tertiary treatment requirements. There can be no presumption based on Order No. 5-01-067. Further, the State Water Board's Order stayed compliance schedules, effective the date of the Regional Water Board's Order. If tertiary treatment is

The City has completed its Wastewater Facilities Strategic Master Planning Process and has presented a draft Strategic Master Plan to the City Council. In the fall of 2005, the City Council approved, in draft form, the Strategic Master Plan with the understanding that the draft Strategic Master Plan may need to be revised and updated considering the results from the treatment feasibility study, preliminary design, and environmental review. Since the City Council acted in the fall of 2005, the City and its design-engineering consultants have moved forward and completed the treatment feasibility study. The treatment feasibility study included pilot testing of a membrane bioreactor (“MBR”) to determine how this type of a treatment unit would perform for the City’s WWTF considering the quality of the City’s influent. An MBR is essentially a conventional secondary activated sludge process combined with membrane filtration in one treatment step. While performing very well on conventional secondary and tertiary treatment requirements (BOD, TSS, turbidity), the MBR pilot testing results indicated that the influent selenium is essentially soluble and therefore it passes through conventional secondary treatment processes and state-of-art ultra-filtration membrane filters. Based on the results of this study, it was determined that an upgrade directly to a membrane bioreactor was not the most appropriate treatment process for the City due to the potential need to provide additional flexibility for metals removal by adding treatment processes between the secondary and tertiary treatment steps. Thus, the City decided to first move forward with preliminary design of a conventional secondary treatment system to replace its existing secondary treatment system. The replacement of the secondary system is necessary in order to reliably and consistently meet potential new wastewater treatment and disposal regulations and is directly tied to the TO’s requirements for tertiary treatment.

In addition, in anticipation of the potential need to meet permit tertiary limitations, the City has included conventional tertiary treatment into its preliminary design process and environmental review process. The decision to consider conventional secondary and tertiary processes over a MBR process was made with full knowledge that it will result in a higher capital and operating cost. We hope this will provide a more reliable treatment process and greater flexibility to comply with any future discharge limitations.

Compounding the City’s current issues with regard to the replacement of its secondary treatment system and the potential need to include tertiary treatment (i.e., filtration) is the issue of compliance with effluent limitations for selenium. Because selenium enters the WWTF in the soluble form and is therefore not removed through the secondary biological process and filtration, the City needs to consider creative approaches for reducing selenium in order to meet the California Toxics Rule criterion of 4.4 parts per billion (ppb). One option under consideration is maintaining the current overland flow process between the new secondary treatment system and filtration. The overland flow process currently removes selenium and allows the City generally to meet its existing permit limitation as contained in Order No. 5-01-067. Filtration of overland flow effluent has not previously been done and therefore it is necessary to pilot the overland flow effluent to properly design the filtration process.

required, the appropriate schedule for compliance must be evaluated as of today, not as of the time a permit was adopted illegally.

Maintaining the overland flow would complicate the treatment processes by adding both hydraulic and solids loads that vary with the seasons. The City has very recently received information regarding the additional costs associated with sizing the filters and upsizing secondary and solids handling processes to accommodate overland flow process loadings and increased filter backwash waters. According to preliminary estimates, maintaining the overland flow may cost the City an additional \$20 million. (See Attachment 7, *Costs to Include Overland Flow*.) Because of the enormous costs associated with maintaining the overland flow process merely until a higher quality water supply becomes available as anticipated, the City is currently considering alternative capital improvements to address the selenium issue. The new alternatives under consideration include operational changes to the City's water supply system and land reuse during part of the year. The City also is pursuing improved source water quality, which may ultimately include a surface water supply. Because of current uncertainty related to which alternative will best serve the City and its residents, and the uncertainty of the timing of improvements in source water quality, the City requests a compliance schedule that is long enough to accommodate all of the alternatives. In this case, that is the compliance schedule associated with first designing and constructing secondary treatment followed by piloting of tertiary after the overland flow system.

Because of the need to pilot tertiary due to maintaining the overland flow process, the compliance schedule associated with this alternative needs to allow ten years, which is the shortest practical time to achieve compliance and within the allowable discretion of the Regional Water Board. Should the City find, after further study, that maintaining the overland flow process is not the most economical or beneficial in the long-term, the City would be able to complete improvements somewhat sooner (by mid-2015). However, should the City decide it must maintain the overland flow process, the City would be in jeopardy of violating the terms of its permit if the compliance schedule does not include the necessary ten years.

The City's design engineers have projected a schedule that is as short as practicable while being allowed by the Basin Plan, should it be necessary to maintain the overland flow process following a secondary system. (See Attachment 8, *Compliance Schedule for WWTF*.) The schedule accounts for the need to first conduct environmental review of, design and construct a 7.5 mgd conventional secondary treatment system to replace the existing 7.5 mgd land based secondary process. After the new secondary system is constructed and operating, the piloting of tertiary downstream of the overland flow process would be constructed. Finally, design and construction of tertiary treatment would follow. (*Ibid.*) The City's design engineers have also projected a schedule that would be as short as practicable should the construction of conventional secondary and tertiary treatment and the planning, environmental review, landowner/grower agreement negotiation, and permitting of seasonal agricultural reuse be combined into a joint project. (*Id.*) In either case, the City cannot viably meet secondary and tertiary treatment requirements by the end of the new permit term, assuming that the TO is adopted in June of 2007 with such requirements.

As long as the City continues to use the overland flow process, sediments picked up across the slopes will continue to cause high effluent levels of aluminum and iron. Piloting the overland flow effluent filtration performance will provide the information necessary to determine aluminum and iron removal efficiencies and the possible need for yet an additional treatment process prior to filtration. Therefore, the compliance schedules for aluminum and iron need to match the compliance schedule provisions for first constructing secondary, piloting overland flow effluent, and then constructing tertiary treatment. Table 1 below identifies the effluent limitations currently contained in the TO that are of issue and the compliance schedules necessary for the limitations.

Table 1. Final Effluent Limitations in TO and Feasible Compliance Dates

Permit Limitation	Compliance Associated w/Conventional Secondary or Tertiary Treatment	Compliance Date w/Overland Flow	Compliance Date w/Combined Secondary and Tertiary – No Overland Flow
BOD @20°C (10 mg/L average monthly, 15 mg/L average weekly, and 20 mg/L maximum daily)	Tertiary Treatment or equivalent limitation	June 2017	June 2015
TSS (10 mg/L average monthly, 15 mg/L average weekly, and 20 mg/L maximum daily)	Tertiary Treatment or equivalent limitation	June 2017	June 2015
Turbidity (2 NTU as a daily average, 5 NTU more than 5% of the time within a 24-hour period, and 10 NTU as an instantaneous maximum)	Tertiary Treatment or equivalent limitation	June 2017	June 2015
Total Coliform Organisms (2.2 MPN/100 mL, as a 7-day median, 23 MPN/100 mL more than once in any 30-day period, 240 MPN/100 mL instantaneous)	Tertiary Treatment or equivalent limitation	June 2017	June 2015
Average monthly percent removal of BOD 5-day @ 20°C and TSS shall not be less than 85%	Tertiary Treatment of equivalent Limitation	June 2017	June 2015
Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DHS reclamation criteria	Tertiary Treatment of equivalent Limitation	June 2017	June 2015
Ammonia (0.46 mg/L average monthly and 1.04 mg/L maximum daily)	Conventional Secondary Treatment Requirement	January 2013 (after completion of Secondary)	June 2015
Aluminum	WQBEL that may be met with filtration	June 2017	June 2015
Iron	WQBEL that may be met with filtration	June 2017	June 2015

All of the permit requirements identified above are new or more stringent effluent limitations for which immediate compliance is impossible or impracticable. The TO thus appropriately proposes an in-permit compliance schedule. (WQO 2007-0004 at p. 24.) Furthermore, all of the permit requirements identified in Table 1 are non-priority pollutants. Compliance schedules for these parameters thus are subject to the provisions contained in the *Water Quality Control Plan (Basin Plan) for the Sacramento River and San Joaquin River Basins*. The Basin Plan states, in part,

... the Regional Water Board may establish in NPDES permits a schedule of compliance. The schedule of compliance shall include a time schedule for completing specific actions that demonstrate reasonable progress toward the attainment of the objectives or criteria and shall contain a final compliance date, based on the shortest practicable time (determined by the Regional Water Board) required to achieve compliance. In no event shall an NPDES permit include a schedule of compliance that allows more than ten years (from the date of adoption of the objective or criteria) for compliance with water quality objectives, criteria or effluent limitations based on the objectives or criteria. (Basin Plan at p. IV-16.00.)

The limitations identified in Table 1 are considered to be new interpretations of narrative criteria. Therefore the Regional Water Board should adopt compliance schedules in the permit that is as short as practicable, up to ten years. The TO does not contain findings or analysis that would support that the currently-proposed compliance dates for these parameters are practicable. The City recommends that the Regional Water Board revise the compliance schedule provisions for the parameters listed above to be consistent with the compliance schedule dates identified in the table, subject of course to other comments concerning the appropriateness of the underlying effluent limitations themselves. Based on the table and the memorandum as prepared by Carollo Engineers, the final compliance schedule date that is as short as practicable is June of 2017. (See Attachment 8, *Compliance Schedule for WWTF*.)

Finally in this regard, the City recommends that the final effluent limitations for the parameters listed above be expressed in the permit findings versus the final effluent limitation sections of the permit. The expression of final limits in findings where the in-permit compliance schedule extends beyond the term of the permit is consistent with previous State Water Board precedential decisions.⁷ “The [] permit findings on final and alternative final effluent limitations ... comply

⁷ The State Water Board noted in footnote 111 of WQO 2007-0004 that U.S. EPA Region 9 has recently taken the position (in a letter) that the final water quality based effluent limitations must be included within the enforceable provisions of an NPDES permit. However, in that order the State Water Board did not modify its determination in WQO 2001-06 and instead noted that the State Water Board intends to address this issue in a statewide water quality control policy on compliance schedules. As the State Water Board’s position is contained in a precedential, adopted and enforceable water quality order, the State Water Board’s position as stated in WQO 2001-06 is the State’s official policy until changed otherwise via water quality order or through the formal adoption of state policy to the contrary.

with Clean Water Act requirements that the permit contain water quality-based effluent limitations when necessary to implement water quality standards.” (WQO 2001-06 at p. 61.)

III. HARDNESS VALUES USED TO CALCULATE CTR⁸ HARDNESS-DEPENDENT CRITERIA

The City has provided comments to the Regional Water Board on the appropriate methodology for selecting hardness values to calculate CTR hardness-dependent criteria. The City’s submittals go back to September 2005 when the City submitted its ROWD. Since then, the City has continued to supplement the information as originally provided. We do not repeat here the information previously submitted, but request that all of the previous information be considered by the Regional Water Board.

Based on this information, the City requests the Regional Water Board to use a hardness value to calculate CTR criteria that is consistent with these methodologies. Appropriate language for the Fact Sheet is provided in an attached technical memorandum. (See Attachment 9, *Hardness Selection for the Davis NPDES Permit*.) When the appropriate methodology is used to select hardness values, the City does not have reasonable potential for any of the CTR hardness-dependent criteria. Thus, the final water quality-based effluent limitations and all other related permit requirements must be removed.

IV. DIOXIN AND CONGENERS

The TO includes effluent limitations for dioxin and congeners. The City questions the validity of the approach used by the TO, which uses U.S. EPA toxic equivalency factors of other dioxins to find reasonable potential for 2,3,7,8-TCDD. (See Attachment 10, *Dioxin TEQ Effluent Limitations*.) The City contends that the TO’s use of the toxic equivalency factors for reasonable potential is inconsistent with the State’s *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (“SIP”) provisions regarding 2,3,7,8-TCDD equivalents. The SIP requires monitoring for the 2,3,7,8-TCDD equivalents. It does not require the Regional Water Board to conduct a reasonable potential analysis for the equivalents in accordance with the other provisions contained in the SIP. (SIP at pp. 28-29.) In fact, the State Water Board purposefully declined to implement the CTR criteria for 2,3,7,8-TCDD equivalents. “In the Implementation Policy, the Board considered implementing the CTR criteria for 2,3,7,8-TCDD as TCDD equivalents. Instead, the Board decided to implement the 2,3,7,8-TCDD criteria and to require only monitoring for the remaining 16 dioxin and furan congeners.” (See WQO 2001-06 at p. 47.) The primary reason for only requiring monitoring was because the congeners were ubiquitous, and the sources and control measures uncertain. (*Ibid.*) Consequently, the City recommends that the limitations for dioxin and the congeners be removed from the TO. At the most, the Regional Water Board should compare data for 2,3,7,8-TCDD to the applicable CTR criteria, which is consistent with the language in the SIP. (SIP at p. 29.) If there is reasonable potential for 2,3,7,8-TCDD, then it may be

⁸ “California Toxics Rule.”

appropriate to include an effluent limitation. Limits for other dioxins as compared to the 2,3,7,8-TCDD CTR criteria are inappropriate and not legally supportable. (See Attachment 10, *Dioxin TEQ Effluent Limitations*.) Furthermore, when adopting water quality based effluent limitations under state law that are considered to be more stringent than federal law, the Regional Water Board must consider economics and other factors. (Wat. Code, §§ 13263, 13241.) If the economic impact of the effluent limitations would be severe, the limitations may be made less stringent. (See *City of Burbank v. State Water Resources Control Board* (2005) 35 Cal.4th 613, 626, fn. 7.) “State law, as we have said, allows a regional board to consider a permit holder’s compliance cost to relax pollutant concentrations, as measured by numeric standards, for pollutants in a wastewater discharge permit.” (*Ibid.*, emphasis omitted.) The TO and the Fact Sheet fail to include information that suggests the Regional Water Board has considered the factors listed in Water Code section 13241 for dioxins and congeners. Therefore it cannot include effluent limits in the City’s permit without doing so.

Based on the fact that the State Water Board affirmatively decided not to implement the CTR criteria for 2,3,7,8-TCDD as TCDD equivalents, and the lack of other substantial evidence in the record to support the use of TEQs, the Regional Water Board must remove the effluent limits for all dioxins and congeners (except 2,3,7,8-TCDD if there is reasonable potential for that specific congener). At the very least, the Regional Water Board should provide for a ten-year compliance schedule as the City currently has no identifiable methods for removing dioxins and its congeners from its effluent.

V. ALUMINUM

The TO includes final effluent limitations for aluminum based on the U.S. EPA’s *Recommended Water Quality Criteria-2002*. The chronic criterion is not applicable to the waters to which the City discharges its effluent, including the Yolo Bypass. As the City has discussed in prior communications, there is no evidence that the proposed effluent limitation is necessary to prevent toxicity. In fact, the criterion itself, and all other available information, indicate that it is not. According to studies conducted by Larry Walker Associates for the Cities of Manteca, Modesto and Yuba City, projected site-specific aluminum criteria for the protection of aquatic life uses ranges from 1,975 ug/L to 6,925 ug/L. (See Attachment 11, *Aluminum Effluent Limitations*.) Based on these studies and the site-specific conditions of the City’s receiving waters (i.e., high pH and high hardness as compared to that used for the development of the criterion), Larry Walker Associates concludes that aluminum toxicity is not an issue of concern in the Central Valley. Thus, the City requests that the Regional Water Board remove the final water quality based effluent limitations for aluminum from the TO.

In prior comments, the City has requested a compliance schedule for aluminum that is consistent with the compliance schedule identified above for first constructing secondary, piloting overland flow effluent and then construction tertiary treatment. The overland flow effluent filtration pilot work will provide information necessary to determine aluminum removal efficiency. In addition, the City may consider conducting a water effects ratio if necessary.

In summary, the City first contends that the proposed limitations for aluminum are inappropriate and not supported by the evidence contained in the record. Thus, the City requests that all limitations for aluminum be removed. In the alternative, should the Regional Water Board find that such limitations are supported by the record, the compliance schedule for aluminum must be consistent with that for tertiary treatment, assuming tertiary treatment is appropriate and required.

VI. IRON

The Regional Water Board's Basin Plan requires the Regional Water Board to conduct a case-by-case evaluation to determine if the iron water quality criterion proposed for use is appropriate and applicable. (See Basin Plan at p. IV-17.00.) The TO and the Fact Sheet fail to identify any information suggesting that the Regional Water Board staff conducted the case-by-case evaluation required by the Basin Plan. The Fact Sheet merely identifies the criterion and the City's data. It provides no explanation or basis for why the ambient water quality criterion appropriately applies in this instance.⁹ In fact, the City has previously submitted information that suggests the contrary. (See Comments submitted to Diana Messina, January 22, 2007, on Draft Reasonable Potential Analysis at p. 11.) In addition, further research continues to question the applicability of the ambient water quality criterion for iron to the receiving waters to where the City discharges its effluent. (See Attachment 12, *EPA Iron Aquatic Life Criteria*.) Based on the information submitted previously by the City and the information contained in the technical memorandum attached hereto, the City questions the applicability of the U.S. EPA ambient water quality criterion for iron to the Yolo Bypass and its tributaries.

In the City's comments provided above with regard to tertiary treatment, the City has requested a compliance schedule for iron that is consistent with the compliance schedule requested for first constructing secondary treatment, piloting overland flow effluent, and then constructing tertiary treatment provisions because the piloting work will provide the information necessary to determine iron removal efficiency. However, the City principally contends that the limitations for iron are inappropriate and not supported by the evidence contained in the record. Thus, the City requests that all limitations for iron be removed. Should the Regional Water Board find that such limitations are supported by the record, the compliance schedule for iron must be consistent with that for tertiary treatment following piloting of overland flow effluent filtration.

VII. WATER QUALITY CRITERIA BASED ON THE UNITED NATIONS WATER QUALITY GOALS FOR AGRICULTURE

The City has commented previously that the Regional Water Board must consider site-specific information before applying the agricultural water quality goals contained in the *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev.1* ("United Nations Report"). In particular, the City has

⁹ As discussed previously, the Regional Water Board is required to provide findings that bridge the analytic gap between the raw evidence and the agency's ultimate decision. (*Topanga Association for a Scenic Community v. County of Los Angeles* (1974) 11 Cal.3d 506, 515.) The TO fails to provide the required findings.

continuously pointed out that the State Water Board stated in its precedential City of Woodland decision (WQO 2004-0010) that the United Nations Report “makes it clear that site-specific considerations are important in assessing irrigation water suitability.” (WQO 2004-0010 at p. 7.) The State Water Board’s decision in the City of Woodland matter applies to the Regional Water Board’s consideration of any of the agricultural water quality goals contained in the United Nations Report. In particular, the State Water Board’s Order found that “the Regional Board should consider site specific factors, such as leaching by rainfall or flooding, in selecting an appropriate EC value to implement the narrative chemical constituents objective and developing appropriate EC effluent limits for the Woodland permit.” (WQO 2004-0010 at p. 16.) The State Water Board’s Order further determined that the City of Woodland should conduct a study that evaluates soil chemistry, climate, rain and flood-induced leaching, and background water quality for the affected area and their impact on irrigation salinity requirements. (WQO 2004-0010 at pp. 7-8.) Until such a study is completed, the State Water Board determined that it was premature to adopt effluent limitations based on the agricultural water quality goals from the United Nations Report. (WQO 2004-0010 at p. 16.)

Based on the State Water Board’s decision in its City of Woodland Order, the Regional Water Board must consider site-specific conditions and state law requirements when applying the agricultural water quality goals from the United Nations Report. In the absence of relative information to make such an assessment, the Regional Water Board may direct the City to conduct a study to obtain the relevant information. However, until such a study can be conducted and the relevant information collected, the Regional Water Board must refrain from adopting final water quality based effluent limits based on the agricultural water quality goals contained in the United Nations Report.

The TO for the City currently contains final water quality based effluent limits (“WQBELs”) for boron and manganese based on the agricultural water quality goals from the United Nations Report. The TO also contains a constituent study requirement for fluoride due to effluent data that is near the agricultural water quality goal for fluoride as contained in the United Nations Report. In light of the State Water Board’s decision in the City of Woodland matter, the Regional Water Board must reconsider the requirements as contained in the TO for boron, manganese and fluoride. At this time, there is no currently available site-specific information available for the Regional Water Board to consider. In fact there is evidence to the contrary. The status of information for each of these constituents is discussed further below.

A. Boron.

The TO contains final effluent limitations for boron of 700 ug/L for both discharge points, D001 and D002. The TO also contains interim effluent limitations for boron that are 5600 ug/L for D001 and 4000 ug/L for D002. The Regional Water Board’s existing records fail to include any evidence or information regarding the site-specific considerations that may impact the suitability of the irrigation water, which includes the City’s effluent. Until such information is available and considered by the Regional Water Board, it is premature for the Regional Water Board to adopt final WQBELs for boron. Thus, the Regional Water Board must remove the final effluent limits for boron. In addition, as boron more appropriately fits into the same category as

the interim limits for salinity, the City recommends that the Regional Water Board move the interim limits for boron into Tables 7c and 7f for discharge points D001 and D002 respectively. Based on the recent meeting held between the Regional Water Board staff and the City, it is our understanding that the Regional Water Board staff has agreed with this change for boron.

B. Manganese.

With respect to manganese, the TO and Fact Sheet also do not provide any evidence of the Regional Water Board's consideration of the site-specific conditions in the Yolo Bypass. Furthermore, research recently conducted by Dr. Stephen R. Grattan, a Plant-Water Relations Specialist from the University of California, Davis indicates that, due to the type of soils predominately found within the Yolo Bypass, it is unlikely that manganese would be toxic to agricultural beneficial uses. (See Attachment 13, *The Application of Water Quality Goals for Manganese and Fluoride in the Yolo Bypass*.) Dr. Grattan's research of currently available literature leads to the conclusion that, except in rare instances, manganese toxicity is limited to acid soils. He also determined that the site-specific conditions of the Yolo Bypass are not conducive to creating manganese toxicity since the soils in the Bypass maintain a high pH (i.e., 6.2-8.4), high clay content and contain an abundance of calcium, magnesium and sulfate, which work collectively to make manganese toxicity a non-issue. (*Id.* at p. 2.)

Considering the information submitted by the City previously and the information conveyed in the memorandum by Dr. Grattan, there is no basis for applying the water quality goal for manganese to waters found within the Yolo Bypass. Thus, the Regional Water Board should not conduct a reasonable potential analysis for the City's effluent as compared to the agricultural water quality goal for agriculture. In the absence of any other appropriate water quality criteria for manganese, the Regional Water Board must remove the final water-quality based effluent limit for manganese as well as the interim limit for manganese. Should the Regional Water Board determine that there is an appropriate and legally defensible water quality criterion for manganese that is necessary to protect the beneficial uses of the Yolo Bypass, then the Regional Water Board should conduct a newly revised reasonable potential analysis based on that criterion. In the absence of any applicable criterion, the Regional Water Board must remove the final and interim effluent limitations for manganese.

C. Fluoride.

The TO contains a constituent study requirement for fluoride because the City's data were near the criterion. According to the Regional Water Board's reasonable potential analysis, the criterion used for fluoride was the agricultural water quality goal as contained in the United Nations Report. Like manganese, fluoride may be toxic to agricultural beneficial uses for crops grown in areas with acid soils. (*Ibid.*) Where there are alkaline and neutral soils, fluoride complexes with magnesium and calcium so that higher concentrations can be tolerated. (*Id.* at p. 3.) Because the soils of the Yolo Bypass are not considered to be acid soils and because of the presence of magnesium and calcium, fluoride in this area would not be considered to be of issue for the agricultural beneficial uses. Thus, the City requests that the constituent study for fluoride

be removed, as there is no applicable water quality criterion for fluoride that applies to the receiving waters in the Yolo Bypass.

VIII. BIOSOLIDS APPLICATION TO OVERLAND FLOW

The TO requires the City to cease application of biosolids to the overland flow system within one year of the effective date of the TO, once adopted. The one-year time frame is not adequate to consider different available alternatives for dealing with the City's biosolids. The City currently applies biosolids to the overland flow once a year in September. While the City understands the Regional Water Board's concerns with regard to potential groundwater impacts that may be caused by the City's application of biosolids to the overland flow, the City's groundwater data does not indicate that the City's current biosolids practices are negatively impacting local groundwater supplies. (See Attachment 14, *Biosolids Application on Overland Flow*.) Because there is not a substantial threat to the environment, the City requests additional time to develop an alternative disposal method. Thus, the City requests that the prohibition for the application of biosolids to the overland flow not go into effect until October of 2009, which allows the City time to develop an alternative plan and is consistent with the City's current practice of applying biosolids in September.

IX. DEFINITION OF AVERAGE DRY WEATHER FLOW

In our March 28, 2007 comments on the administrative draft order, the City provided the Regional Water Board with suggested language regarding what constitutes average dry weather flow ("ADWF"). While the Regional Water Board staff did incorporate certain of our suggestions from those comments, the Regional Water Board staff declined to edit the compliance language regarding ADWF. As contained in the TO, compliance with ADWF effluent limitations will be measured at times when groundwater is at or near normal and runoff is not occurring. The City contends that this compliance language is not appropriate. It is not typically used by design engineers in California. The City also understands that it is difficult to track and predict normal groundwater levels in order to determine compliance for reporting purposes. According to Carollo Engineers, the appropriate definition of ADWF is the average daily flow of the three consecutive low flow months of the year. (See Attachment 15, *ADWF Definition*.) Due to the potential difficulty in determining compliance with the ADWF compliance provisions as contained in the TO and the lack of evidence or findings supporting the proposed definition, the City requests that the language be changed to reflect the design engineering standards as practiced by design engineers in California. Thus, compliance with ADWF should be determined over three consecutive low flow (i.e., dry weather) months each year.

X. POINT OF COMPLIANCE FOR SELECTED CONSTITUENTS

At the time that the administrative draft order was circulated, the City provided comments to the Regional Water Board regarding the need for appropriate points of compliance for various constituents. (See Comments submitted to Diana Messina, March 28, 2007 at pp. 3-4.) Based on the comments received, the Regional Water Board modified the monitoring and reporting

plan to require monitoring for BOD, TSS, total coliform, settleable solids, turbidity, total residual chlorine and electrical conductivity to occur after the disinfection process. The City appreciates the Regional Water Board staff's responsiveness to our comments. Such an approach will be appropriate after the City has completed secondary and tertiary treatment upgrades (assuming tertiary treatment is required). However, as currently drafted, monitoring for these constituents after disinfection but prior to further polishing through the Davis Restoration Treatment Wetlands may hinder the City's ability to optimize the existing treatment process performance and may put the City in jeopardy of violating current performance based limits. (For further explanation of the City's current operation and optimization of its equivalent secondary treatment system, see Attachment 16, *Split Compliance*.)

To avoid such unintended consequences, the City requests that the monitoring locations for the conventional pollutants, as it applies to the City's current performance based permit limitations for an equivalent secondary treatment system, occur at the point of discharge and not after disinfection. The approach for monitoring after the disinfection process, as proposed in the TO, should apply when the City's treatment plant improvements are completed. The application of this approach should be consistent with the compliance schedules granted for treatment plant improvements. In other words, should the Regional Water Board agree to grant the City a ten-year compliance schedule that includes phasing of new secondary treatment followed by tertiary treatment, monitoring for the conventional pollutants as identified in Table E-3 of the Monitoring and Reporting Plan (see Attachment E to the TO at pp. E3-E4) should be monitored at monitoring location EFF-A when plant improvements are completed. This change in monitoring location should occur with completion of the new secondary treatment system, if it occurs prior to and before completion of tertiary treatment facilities (if required).

XI. GROUND WATER LIMITATIONS

The TO fails to include any findings relevant to the designation of beneficial uses for the groundwater underlying the City's WWTF. At most, the Fact Sheet states that the beneficial uses of the underlying groundwater are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply. (Attachment F to the TO at p. F-58.) Because the TO and the Fact Sheet fail to include any rationalization as to why these beneficial uses apply, the City must assume that the MUN designation of the groundwater is through the Basin Plan's incorporation of the State's Sources of Drinking Water Policy. (Basin Plan at p. II-3.00.) The groundwater limits proposed are for total coliform and nitrate + nitrite (as N). The City believes that the MUN designation of the groundwater underlying the City's WWTF is inappropriate for several reasons: there are no municipal or domestic wells located near or around the City's WWTF; the City's WWTF is adjacent to the Yolo County Landfill, which may impact groundwater quality; and, the City's WWTF is adjacent to the Yolo Bypass, which is a dedicated flood control facility and therefore future residential development is impossible. The application of groundwater limitations related to municipal and domestic use is therefore inapplicable and should be excluded.

Further, the Regional Water Board's application of the bacteria objective as a groundwater limitation is unfounded. (TO at p. 19.) The bacteria objective as contained in the Basin Plan

applies to ground waters used for domestic or municipal supply (“MUN”). (Basin Plan at p. III-9.00.) The ground waters underlying the City’s WWTF are not used for domestic or municipal supply. As such, the bacteria objective does not apply. The Regional Water Board has previously interpreted the word “used” to mean “designated” in this context. The City disagrees with this interpretation and contends that application of the coliform objective to groundwater not “used” for municipal purposes amounts to a new water quality objective that was not adopted in accordance with the Water Code and applicable law.

Finally, the TO requires the City to complete a background groundwater monitoring study and a best practicable treatment and control (“BPTC”) evaluation. (TO at p. 30.) The TO assumes without evidence that the unlined sludge lagoon is causing groundwater degradation and cannot be justified to meet BPTC. (Attachment F to the TO at p. F-67.) A determination with regards to BPTC is an individual evaluation that must be made from the facts for each individual discharge scenario and for each individual facility. There is no evidence in the record to automatically conclude that an unlined sludge lagoon is not BPTC, and there are no findings that support the assumption of the TO.

The burden of undertaking the groundwater and BPTC analysis as proposed in the TO is not reasonably related to the need for the information and is inconsistent with the Water Code, including section 13267 and its recent amendments. The required engineering feasibility studies are unreasonable in light of the character of the underlying groundwater and the City’s pending treatment plant upgrades.

XII. ADDITIONAL COMMENTS

In addition to comments on the primary issues as provided above, the City has identified a number of additional issues that need to be addressed in the TO. Many of the issues identified below appear to be drafting errors while others may be considered to be policy related. If not corrected, the language in the TO may put the City in jeopardy of not being able to comply with the provisions if adopted as is.

- **Final Mercury Mass Limits** – In section IV.1.d (TO at p. 10) and in section IV.2.d (TO at p. 12) the final mercury mass effluent limitation is listed at 0.001 lb/month. Based on an average dry weather flow of 7.5 mgd and 30 days per month, this would correspond to an effluent mercury concentration of 0.00053 µg/L. The CTR criterion for mercury is 0.051 ug/L. The City’s effluent does not have reasonable potential to exceed the CTR criterion for mercury. However, if an average monthly effluent limit were to be calculated for the CTR criterion, it would be 0.051 ug/L for both outfalls. Using the AMEL of 0.051 ug/L, the mass limit should be 0.096 lb/month, or 0.1 lb/month. Thus, the mercury mass limit must be revised to be consistent with this calculation. At the very least, the mercury mass limit should be re-calculated. According to the City’s calculations, the performance based mass limit should at a minimum be 0.02 lb/month.

- **Percent Removal Requirements** – The TO contains percent removal requirements for an average monthly percent removal of BOD 5-day 20°C and total suspended solids of not less than 85 percent. (TO at pp. 10, 12.) The percent removal requirements are equal to those required for conventional secondary treatment systems. The City current maintains an equivalent secondary treatment system that is subject to 65% removal requirements under the federal regulations. (40 CFR 133.105.) The interim limitation provisions in the TO that reflect the Davis WWTF’s current performance abilities fail to include a percent removal requirement that is appropriate for an equivalent secondary treatment facility. (TO at pp. 12-15.) As drafted, the City is in immediate jeopardy of violating permit limitations for the percent removal requirements. The TO must be amended to include interim permit limitations for percent removal that are reflective of the Davis WWTF’s current performance and equivalent secondary treatment system.
- **Final Effluent Limit for Silver** – The TO contains a final effluent limit for silver that is expressed as an instantaneous maximum. (TO at p. 11.) To the extent that the Regional Water Board rejects the City’s previous arguments regarding hardness and reasonable potential for silver continues to exist at D002, the effluent limit should not be expressed as an instantaneous maximum. The silver criterion is a 1-hour average, which is a criteria maximum concentration (“CMC”). Thus, the limit for silver should be expressed as a daily maximum limit and not as an instantaneous maximum.
- **Interim Salinity Limits** – Tables 7c and 7f (TO at pp. 14-15) contain interim effluent limitations for sodium and chloride that are expressed as maximum daily limits. The impact of sodium and chloride on agricultural beneficial uses is considered to be a chronic, or long-term impact. As such, maximum daily limits for these two constituents are inappropriate. The limits should be expressed as annual averages like electrical conductivity.
- **Land Discharge Specifications** – The TO contains a permit limitation that states “[p]onds shall not have a pH less than 6.5 or greater than 9.0.” (TO at p. 15.) The City is concerned with its ability to control pH levels in the ponds and requests that the limitation apply to effluent going into the pond and not the ponds themselves. This is consistent with the State Water Board’s Order for the City of Yuba City. “We conclude, ..., that the land discharge specification should be for discharges ‘into’ the ponds rather than for pH in the ponds.” (WQO 2004-0013 at pp. 20-21.)
- **Pollution Prevention Requirements** – The City requests that cyanide, boron, dioxins and congeners be removed from the pollution prevention requirements in section VI.C.1.d (TO at p. 24) and from section VI.C.3.b (TO at p. 31). Section 13263.3 of the California Water Code includes language regarding when a P2 Plan can be required. It states that a P2 Plan can be required if it is determined “that pollution prevention could assist in achieving compliance” or determined that “pollution prevention is necessary to achieve a water quality objective.” (Wat. Code,

§ 13263.3.) The intent of this section of the Water Code is to provide a mechanism for requiring a P2 Plan in the situation where there is the potential for pollution prevention to assist in achieving compliance. Pollution prevention will only assist in achieving compliance when there are controllable influent sources.

For some constituents, pollution prevention will not assist in achieving compliance and therefore P2 Plan requirements in the TO are not justified. For example, cyanide is a disinfection byproduct and is, therefore, unlikely to have influent sources. Boron is associated with the water supply and should be removed from this requirement for the same reasons as other water supply associated constituents. For dioxins it is also highly unlikely that there are controllable sources as the most likely source is atmospheric deposition. Because these constituents are not amenable to P2, there is no justification or reason for requirement such studies.

In addition, it appears that the Regional Water Board inadvertently failed to remove ammonia from the second sentence when the requirement was removed from the TO based on comments received on the administrative draft order. Thus, the second sentence of section VI.C.3.b (TO at p. 31) must be revised to delete the reference to ammonia.

- **Chronic Toxicity Numeric Monitoring Trigger** – The City requests that the language for the Numeric Monitoring Trigger for chronic toxicity be modified to clarify the use of the monitoring trigger. The City recommends the following change:

“The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring. During accelerated monitoring, it is exceedance of the toxicity threshold that triggers the initiation of, and initiate a TRE.”

Second, the City requests that the parenthetical “(where $TUc = 100/NOEC$)” be deleted from this section. Doing so makes this section of the permit consistent with D.1.a of this permit. (TO at p. E-9.) A chronic toxic unit (TUc) is defined by EPA as the reciprocal of the effluent concentration in a bioassay that causes no observable effect (NOEC) on the test organisms (i.e., $TUc = 100/NOEC$) (USEPA 1991). In calculating the TUc, the NOEC is determined through statistical hypothesis testing, the result of which can be significantly limited by the choice of dilution series. The permit does not follow published EPA guidance when defining TUc as exclusively equal to $100/NOEC$. In section 9.5.1 “Choice of Analysis” of the test methods manual (see USEPA 2002, Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms. EPA-821-R-02-013) it is clearly stated that the preferred endpoint uses a point estimation technique (e.g. IC25) not a hypothesis endpoint like the NOEC. “Note: For the NPDES Permit Program, the point estimation techniques are the preferred statistical methods in calculating end points for effluent toxicity tests.” (*Id.* at p. 41.)

Furthermore, an EPA review of toxicity testing data suggests that the 25 percent inhibition concentration (IC25) can serve as a reliable analogue to the NOEC, and states in fact that “the IC25 is the preferred statistical method for calculating the NOEC.” (See USEPA 1991 Technical support document for water quality-based toxics control. EPA 505-2-90-001.) For this reason, TUC can equal the reciprocal of the IC25 (i.e., 100/IC25). Thus, the definition of TU as strictly $TUC = 100/NOEC$ needs to be deleted. (Attachment F to TO at F-41.)

- **Groundwater Monitoring Study** – The City requests that the groundwater monitoring study as required in at section VI.C.2.d (TO at p. 29) be deleted because this study has already been conducted. The Groundwater Quality Report was submitted to the Regional Water Board on January 31, 2002. The results of this study show a decrease in EC levels in the groundwater wells and show compliance with groundwater standards.
- **Constituent Study Requirement** – The City requests that acrolein, diethyl phthalate and butyl benzyl phthalate be removed from the Constituent Study requirement as contained in section VI.C.2.b (TO at p. 26) because as shown in Table 2 below, there is no potential for these constituents to exceed the criteria, which are orders of magnitude greater than the maximum observed concentrations for these constituents.
- **EPA Method** – It appears that the Regional Water Board has incorrectly referenced EPA Method 502.2 for the list of volatile organic compound constituents. The City believes that the correct reference is likely Method 624.

Table 2. Constituent Study Requirements

Constituent	Draft Order Reason (Fact Sheet)	No. spls (Discharge 001/002)	No. detected (Discharge 001/002)	Max. conc (Discharge 001/002)	Lowest Objective/ Criteria
Acrolein	Near criteria	11/13	0/1	0.56/14	780
Diethyl phthalate	Above criteria before May 2002	10/12	10/12	0.4/0.4	120,000
Butyl benzyl phthalate	Near criteria	10/12	1/0	2/0.4	5200

XIII. MONITORING REQUIREMENTS AND FACT SHEET EDITS

The City has reviewed the monitoring and reporting requirements contained in Attachment E to the TO. In general, many of the monitoring requirements are overly stringent with regard to the required frequency. The monitoring frequencies in the monitoring and reporting plan (“MRP”) are based on monitoring that is more appropriate for a tertiary treatment facility. Because the current WWTF is an equivalent secondary land based system with longer retention times, the monitoring frequencies as proposed in the MRP are unnecessary and overly stringent. Thus, the City requests that the monitoring frequencies for the various pollutants be revised. (See

Attachment 17, *Suggested Edits to the Monitoring and Reporting Program and Fact Sheet.*) At the point that the City has replaced its equivalent secondary treatment with a conventional secondary treatment system and added tertiary treatment (if required), then it may be appropriate to increase the monitoring frequencies for some of the parameters. However, until that happens, it is not good use of public dollars to expend significant resources monitoring an equivalent secondary treatment system that will be replaced in the near future.

The City has provided additional edits and comments on the MRP as well as the Fact Sheet in an attachment. (See Attachment 17, *Suggested Edits to the Monitoring and Reporting Plan and Fact Sheet.*)

XIV. CONCLUSION

In conclusion, the City appreciates the opportunity to submit comments on the TO. We have a number of fundamental concerns with the TO and its many requirements. Most importantly, the TO does not accurately reflect the current status of facilities planning that is taking place in the City of Davis and does not reflect the practical realities associated with the City's unique situation with regards to needing to upgrade its current secondary treatment system. Due to these major issues of concern, the City believes that the TO requires substantial revisions before it can be adopted by the Regional Water Board. Because of the substantial nature of the revisions, the Regional Water Board may find it necessary to re-notice the revised TO for public review. Consequently, it does not appear to be possible for the Regional Water Board to consider the TO at its June 21/22, 2007 hearing. To avoid the adoption of a permit that puts the City in immediate jeopardy, the City respectfully requests more time to work with you and your staff to develop a revised tentative order that works with and recognizes the unique challenges faced by the City of Davis. Thank you for your consideration.

Sincerely,

Keith A. Smith
Wastewater Administrator

Attachments 1 through 17