UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105-3901

OCT 07 2010

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Return Receipt Requested

Pamela Creedon
Executive Officer
Central Valley Regional Water Quality Control Board
11020 Sun Center Drive, Suite 200
Rancho Cordova, CA 95670

Re: Tentative Order/Draft NPDES Permit for Sacramento Regional County Sanitation District, Sacramento Regional Wastewater Treatment Plant

Dear Ms. Creedon:

Thank you for the opportunity to review and comment on the tentative order/draft permit (NPDES Permit No. CA0077682) for the discharge from the Sacramento Regional WWTP to the Sacramento River. We commend your staff for their diligent work in developing the proposed permit. While we have some concerns that we believe will be straightforward to address, we strongly support the tentative order, as proposed. The new permit will result in significant improvements in water quality in the Sacramento River and Delta. Our comments focus primarily on compliance schedules, whole effluent toxicity, and the alternatives to the tentative order.

A. Compliance Schedules

1. Length

The tentative order includes 10-year compliance schedules for Title 22 requirements (BOD, TSS, total coliform), ammonia, chlorine residual, and chlorpyrifos, which may not be as short as possible, and may therefore be inconsistent with both State and Federal compliance schedule policies. Page F-99 of the fact sheet states the discharger's infeasibility report proposes a 6-year compliance schedule for chlorpyrifos, a 9-year compliance schedule for BOD, TSS and total coliform, and a 10-year compliance schedule for ammonia. As the Regional Board provides 10-year compliance schedules for all the above pollutants, it appears the compliance schedules for chlorpyrifos, BOD, TSS, and total coliform are not as short as possible. The Regional Board must justify the specific length of any compliance schedule, considering the steps needed to modify or install treatment facilities, operations or other measures and the time those steps would take. Please include this information in the fact sheet.

2. Milestones

The tentative order should include appropriate milestones for the BOD, TSS, total coliform, ammonia and chlorpyrifos compliance schedules. The CWA and its implementing regulations define a compliance schedule as, "an enforceable sequence of actions or operations leading to compliance with an effluent limitation." EPA regulations require any compliance schedule longer than a year to "set forth interim requirements and the dates for their achievement," (40 CFR 122.47). Milestones can include actions such as breaking ground, partial construction completion, or obtaining the necessary permits. By themselves, annual progress reports are generally not considered sufficient compliance schedule milestones. Please provide appropriate milestones in the tentative order for each of the compliance schedules.

B. Chronic Toxicity

1. Effluent Limit

The Regional Board should include a numeric water quality-based effluent limit (WQBEL) for chronic whole effluent toxicity. The Clean Water Act (CWA), NPDES regulations, and EPA's Technical Support Document for Water Quality-based Toxics Control (TSD, USEPA 1991a) all envision that effluent limits should be expressed numerically. An effluent limitation is a restriction imposed . . . on quantities, discharge rates, and concentrations of 'pollutants'. Limits on whole effluent toxicity are necessary when chemical-specific limits are not sufficient to attain and maintain applicable numeric or narrative water quality. (See CWA 301(b)(1)(C) and 502(11); 40 CFR 122.44(d)(1)(iv) and (k) and 122.2).

EPA does not object to WQBELs for toxicity serving to trigger initiation of a toxicity reduction evaluation/toxicity identification evaluation (TRE/TIE) process, but those WQBELs must be enforceable. Following 40 CFR 122.44(d)(1), without WET limits, permitting authorities cannot assure that water quality standards for chronic toxicity will be attained.[1]

Pending adoption of a toxicity policy amendment to the State Implementation Plan, the Regional Board has been following State Water Resources Control Board guidance by including a narrative chronic toxicity effluent limit in permits where there is reasonable potential for the discharge to exceed water quality standards and requiring accelerated monitoring. The TRE/TIE accelerated monitoring requirements in the existing permit did not result in the identification of the sources of toxicity in the effluent;

[1] In the preamble to 40 CFR 122.44(d)(1), EPA stated: "EPA requires [WET] limits where necessary to meet water quality standards. EPA does not believe that a whole effluent toxicity trigger alone is fully effective because it does not by itself, restrict the quantity, rate, or concentrations of pollutants in the effluent." 54 Fed. Reg. 23868, 23875. In the Great Lakes Initiative (GLI) rulemaking, EPA rejected both narrative WET limits and alternative WET assessment procedures applied in lieu of WQBELs. Current EPA methodologies for calculating WQBELs for WET lead only to numeric WQBELs (e.g., Technical Support Document for Water Quality-based Toxics Control (EPA/505/2-90-001, 1991) and GLI). In response to comments that permits should include monitoring with a TRE trigger and any limit should serve only as the objective for a TRE, EPA replied: "While EPA agrees that TREs are valuable tools in identifying and eliminating whole effluent toxicity, EPA does not agree that TREs can be used as a substitute for WET limits in permits."

however, as the Regional Board described in the Aquatic Life and Wildlife Preservation issue paper, pyrethroid pesticides are present in toxic amounts in the effluent and ammonia toxicity is a major concern. As all sources of toxicity in the effluent have not been identified, the Regional Board should impose an enforceable numeric chronic toxicity effluent limit in this permit.

2. Reopener

Please update the whole effluent toxicity reopener provision to reflect the State's upcoming *Policy for Whole Effluent Toxicity Assessment and Control*. The current WET reopener states the permit *may* be reopened to include a numeric chronic toxicity effluent limitation based on the new provisions. The reopener should state the permit *will* be reopened as necessary to include or amend numeric effluent limits for toxicity and implementation provisions for major POTWs.

3. Ammonia Modification

The tentative order allows the discharger to remove ammonia during acute and chronic WET testing while the compliance schedule for ammonia is in effect (until 2020). However, it is unclear whether the discharger has performed any toxicity identification evaluations (TIE) to determine the causes of acute and chronic effluent toxicity, and whether the discharger has provided evidence to show ammonia treatment will not cause removal of other constituents contributing toxicity. The permit should require the discharger to perform at least a Phase 1 TIE, according to the WET methods and TRE/TIE manuals, which lay out procedures to follow when ammonia toxicity is suspected. The discharger should determine and document all constituents causing toxicity in the effluent, and that treatment of WET samples to remove ammonia, for the purpose of revealing the contribution to toxicity of other constituents, does not remove those constituents. If the results of this evaluation confirm the WET test modification allowed in the tentative order is appropriate, we recommend the Regional Board require the discharger to thereafter periodically repeat the Phase 1 TIE during the 10-year ammonia compliance schedule to continue to show the WET test modification is only removing ammonia.

C. Reopener for Updated Ammonia Criteria

EPA is updating its CWA Section 304(a) ammonia criteria to include additional criteria for waters when freshwater mussels are present (*Draft 2009 Update Aquatic Life Ambient Water Quality Criteria for Ammonia – Freshwater*). It appears the updated criteria will be more stringent than the current criteria, upon which the final effluent limitations for ammonia are based. The revised criteria will be applicable to the discharge, due to the presence of mussels in the receiving waters. Therefore, the tentative order should include a specific reopener providing the permit will be reopened once the updated criteria are available. This reopener will provide the discharger clear guidance to design the nitrification / dentrification treatment system to meet the new criteria.

D. Thermal Plan Exceptions

The tentative order includes in the new permit exceptions to the thermal plan that were included in the previous permit as effluent and receiving water limits. However, the receiving water limits in the new permit appear to allow for a temperature mixing zone. The exceptions, as quoted in the fact sheet, do not include any reference to a zone of initial dilution (mixing zone). As we were unable to identify a mixing zone provision in the Thermal Plan, it appears that allowance of a temperature mixing zone, in addition to the exceptions, conflicts with Thermal Plan requirements. The Regional Board should clarify how a temperature mixing zone is consistent with the Thermal Plan.

E. Studies

The tentative order requires the discharger to conduct studies for perchlorate, ammonia and nitrogen, hyalella azteca, and temperature, which have open-ended time schedules for completion. The Regional Board should include more specific time schedules with final deadlines.

F. Constituents of Emerging Concern

We recommend the Regional Board include a special study for constituents of emerging concern (CECs). CECs, including pharmaceuticals and personal care products, are increasingly being detected at very low concentrations in POTW effluents, surface waters, fish tissue, and drinking water. A recent study found CECs to be present in the Sacramento River downstream from the outfall (*2009 Report to the State Water Board on Pharmaceuticals and Personal Care Products in the Sacramento River, by Schaefer, M & Johnson, M.L., University of California, Davis*). There is concern that these constituents may have a detrimental effect on aquatic life and human health, even at very low levels.

CEC monitoring already occurs in some recycled water Waste Discharge Requirements issued by the Los Angeles and Santa Ana Regional Water Boards. In recently issued NPDES permits, the Los Angeles Regional Water Board required POTWs to conduct special studies to evaluate the presence and concentrations of CECs in effluent. The permit language currently used by the Los Angeles Regional Water Board is attached. We recommend the Regional Board require the discharger to conduct a special study for CECs similar to that required by the Los Angeles Regional Water Board for POTWs.

G. Alternatives

We strongly support the staff recommendations in the tentative order. With the exception of alternatives for dilution, there is insufficient information in the record to support findings that the tentative options/alternatives to the tentative order are sufficient to meet water quality standards. Therefore, we may object to their adoption.

1. Dilution

Although unclear, it seems none of the dilution alternatives decrease the stringency of the effluent limitations imposed in the tentative order. Alternative #1 would apply no dilution, thereby increasing the stringency of the effluent limitations in the tentative

order, and EPA would therefore support the adoption of this alternative. We are concerned the mixing zone justifications in the fact sheet are not sound. In justifying the allowance of mixing zones, the Regional Board determined the mixing zone "shall not produce undesirable or nuisance aquatic life; result in floating debris, oil, or scum; produce objectionable color, odor, taste, or turbidity; cause objectionable bottom deposits; cause nuisance" due to the Title 22 tertiary filtration requirements imposed by the order, but these requirements are not fully in effect for 10 years. Allowing a mixing zone for the next five-year permit term should not be justified by requirements that will not be met during the next permit term.

Although the Regional Board justifies the allowance of mixing zones for both chronic aquatic life and human health criteria, the Regional Board does not apply dilution credits in deriving WQBELs for each pollutant, except for dibenzo (a,h) anthracene, due to antidegradation concerns, and instead, applies performance-based effluent limitations. We prefer alternative #1; however, since the facility will be limited, at minimum, to current performance to comply with the antidegradation policy, we can also support alternatives #2 and 3 and the tentative order, as proposed.

2. Disinfection

We strongly object to the disinfection alternative. The disinfection alternative removes the Title 22 tertiary filtration requirements and imposes secondary treatment effluent limitations for BOD, TSS, and less stringent total coliform limits. The Regional Board must require the discharger to provide tertiary filtration, which is necessary for the protection of beneficial uses, specifically municipal and domestic supply (MUN). Without this requirement, the permit will not meet water quality standards.

3. Ammonia and Nitrate Removal

We strongly object to the ammonia and nitrate removal alternatives, which significantly relax the effluent limitations from those proposed in the tentative order. Based on the discharger's antidegradation analysis, at current performance, the discharge is using up to 15% of the assimilative capacity of the Sacramento River for ammonia. This depletion of the assimilative capacity causes serious antidegradation concerns. The current loading is contributing to the ammonia toxicity occurring in the Sacramento San Joaquin River Delta, as documented by numerous researchers. We support the Regional Board staff's conclusion not to allow a mixing zone for ammonia and to require nitrification / denitrification as best practicable treatment and control (BPTC).

We appreciate the opportunity to provide input on the tentative order/draft permit. Pursuant to 40 CFR 123.44, we reserve the right to object to issuance of this permit if provisions or alternatives that do not meet Clean Water Act requirements are incorporated in the final permit. We are committed to working with the Regional Board to ensure the permit effectively protects water quality and complies with NPDES requirements. If you would like to discuss these comments, please call David Smith at (415) 972-3464 or refer staff to Elizabeth Sablad at (415) 972-3044.

Sincerely yours,

Alexis Strauss 7 October 2010

Alexis Strauss, Director
Water Division

Attachment: Example Language for CEC Special Study

(As used in Los Angeles Regional Water Board NPDES Permits)

2. Special Studies, Technical Reports and Additional Monitoring Requirements

a. Special Study - Constituents of Emerging Concern in Effluent

Background

Advancements in analytical technology over the last decade have dramatically increased the number of chemicals that can be detected and greatly decreased the concentrations at which chemicals can be detected. This new ability to detect trace levels of chemical concentrations has expanded the existing understanding of the kinds of contaminants present in the water and wastewater. Many man-made chemicals, particularly pesticides, pharmaceuticals and personal care products, have been found in waters across the United States.

Collectively, these compounds are referred to as Emerging Constituents (ECs) or Constituents of Emerging Concern (CECs) because their presence is starting to be revealed by rapid advances in analytical technology. Despite recent improvements in analytical science, there is still scarcity of data and lack of robust methodologies for measuring most CECs. CECs are part of the unregulated chemicals, for which no water quality standards have been established.

Recent publications and media reports on CECs have increased public awareness of the issue, providing an impetus for CEC investigations around the country, including efforts by the City of Los Angeles and Southern California Coastal Water Research Project (SCCWRP). For instance, starting in 2009, the City of Los Angeles has been conducting a special study as part of the Order No. 2005-0020, whose results suggest that the presence of natural and synthetic estrogen hormones has caused feminization of male fish (hornyhead turbot) in Santa Monica Bay, especially near the Hyperion Treatment Plant outfall. In January 2010, SCCWRP convened a workshop where 50 scientists, water quality managers, and stakeholders discussed and collaborated on developing an effective CEC monitoring and management strategy that is protective of water quality. Anticipated outcomes of this workshop include recommended lists of CECs for monitoring in recycled water (for groundwater concerns) by end of 2010, and for monitoring in ambient waters by summer 2011.

In recent years, the Los Angeles Regional Water Board has incorporated monitoring of a select group of CECs into the NPDES permits issued to POTWs.

CEC Special Study Requirements

1. The Discharger shall initiate an investigation of CECs in the Discharger's effluent by conducting a special study. Specifically, within 6 months of the effective date of this Order, the Discharger shall develop a CEC Special Study Work Plan (Work Plan) and submit for approval by the Executive Officer of this Regional Water Board. Immediately upon approval of the Work Plan, the Discharger shall fully implement the Special Study.

   This Special Study Work Plan shall include, but not limited to, the following:

i. Identification of CECs to be monitored in the effluent, sample type (e.g. 24-hour composite), sampling frequency, proposed sampling month, and sampling methodology. Table 18 identifies the minimum parameters to be monitored and the minimum monitoring frequency.

Table 18 - Effluent Monitoring of CECs

Parameter	Units	Sample Type	Minimum Sampling Frequency	Analytical Test Method and (Minimum Level, units)
17a-Ethinyl Estradiol	ng/L	To be proposed	Annually	To be proposed
17b-Estradiol	ng/L	To be proposed	Annually	To be proposed
Estrone	ng/L	To be proposed	Annually	To be proposed
Bisphenol A	ng/L	To be proposed	Annually	To be proposed
Nonylphenol and nonylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Octylphenol and octylphenol polyethoxylates	ng/L	To be proposed	Annually	To be proposed
Polybrominated diphenyl ethers	ng/L	To be proposed	Annually	To be proposed
Acetaminophen	ng/L	To be proposed	Annually	To be proposed
Amoxicillin	ng/L	To be proposed	Annually	To be proposed
Azithromycin	ng/L	To be proposed	Annually	To be proposed
Carbamazepine	ng/L	To be proposed	Annually	To be proposed
Caffeine	ng/L	To be proposed	Annually	To be proposed
Ciprofloxacin	ng/L	To be proposed	Annually	To be proposed
DEET	ng/L	To be proposed	Annually	To be proposed
Dilantin	ng/L	To be proposed	Annually	To be proposed
Gemfibrozil	ng/L	To be proposed	Annually	To be proposed
Ibuprofen	ng/L	To be proposed	Annually	To be proposed
Lipitor (Atorvastain)	ng/L	To be proposed	Annually	To be proposed
Meprobamate	ng/L	To be proposed	Annually	To be proposed
Sulfamethoxazole	ng/L	To be proposed	Annually	To be proposed
Trimethoprim	ng/L	To be proposed	Annually	To be proposed
Salicylic acid	ng/L	To be proposed	Annually	To be proposed
TCEP	ng/L	To be proposed	Annually	To be proposed
Triclosan	ng/L	To be proposed	Annually	To be proposed

Once the SCCWRP's recommended list of CEC monitoring in ambient waters is finalized, the above list of minimum parameters to be monitored by the Discharger and the sampling frequency may be re-evaluated and modified by the Executive Officer. At such time, upon request by the Executive Officer, the Discharger shall monitor the requested CEC parameters at the specified frequency. In the Special Study Work Plan, the Discharger may also propose, for consideration and approval by the Executive Officer, surrogate or indicator

CECs that may contribute towards a better understanding of CECs in its effluent.

Sample Type - The Discharger shall propose in the Work Plan the appropriate sample type (e.g. grab or composite) for each constituent.

Sampling Period - At minimum, the Discharger shall monitor the specified CECs once per year. The Work Plan shall propose the appropriate sampling month or quarter for each year, consistent with the goals of the analyses. The rationale for selecting the particular sampling month or quarter shall be explained in the Work Plan.

Proposed Sampling Month - The Discharger may choose a fixed month for sampling or vary the sampling month over the duration of the special study in order to examine possible temporal associations.

Analytical Test Methodology - The Discharger shall review and consider all available analytical test methodologies, including but not limited to those listed in USEPA Methods 1694 and 1698, and methodologies approved or utilized by U.S. Geologic Survey, California Department of Public Health, and other federal or State agencies. Based on its review, the Discharger shall propose the most appropriate analytical methodology, considering sensitivity, accuracy, availability, and cost.

ii. Characterization of existing CEC data (data collected previous to Special Study). The Discharger shall propose a characterization of all existing CEC data (associated with its effluent or receiving water) that have been collected for various purposes in the past. At minimum, the characterization shall include:

- an identification of all CECs monitored to date (outside of this Special Study);
- monitoring duration, frequency, and date(s) (for example, from 2000-present, annually);
- analytical methodologies employed;
- RL, MLs and MDLs achieved for each methodology used; and
- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of CECs.

iii. Evaluation of CEC data collected as part of this Special Study. The Discharger shall propose an evaluation of CEC data (associated with its effluent) to be collected as part of this special study. At minimum, the characterization shall include:

- an identification of CECs that have been monitored;
- monitoring duration, frequency, and date(s);
- RL, MLs and MDLs achieved for each methodology used;
- a brief update on any improvements (or change) in the analytical methodologies and associated RL, MLs and MDLs achieved for each methodology used; and

- If detected, temporal/seasonal trend analyses (using both statistical and graphical demonstration) of cumulative CEC data collected as part of this special study.

2. Reporting – By April 15th of each year (starting April 15, 2012), the Discharger shall submit to the Executive Officer of this Regional Water Board, an annual report summarizing the monitoring results from the previous year. For example, the annual report due April 15, 2012 shall include CEC monitoring data from January to December 2011. Each annual report shall include a compilation of effluent monitoring data of CECs listed in the approved Work Plan, MLs, sample type, analytical methodology used, sampling date/time, QA/QC information, and an evaluation of cumulative CEC data collected to date as part of this special study (see above for further details on CEC data evaluation). In addition, the first annual report (due April 15, 2012) shall include a characterization of existing CEC data- i.e. all data collected outside of this special study (see above for further details on existing CEC data characterization).