

Regional Water Quality Control Board
Central Valley Region
Board Meeting – 7/8 December 2006

Response to Written Comments for City of Dunsmuir Wastewater Treatment
Plant Tentative Waste Discharge Requirements

The following are responses to written comments received from interested parties in response to the Tentative Waste Discharge Requirements (NPDES No. CA0078441) for the City of Dunsmuir Wastewater Treatment Plant issued on 21 September 2006. Written comments from interested parties on the proposed Order were required to be received by the Regional Water Quality Control Board (Regional Water Board) by 22 October 2006 in order to receive full consideration. Comments were received by the due date from the following parties:

1. California Sportfishing Protection Alliance (CSPA)

Written comments from the above interested parties are summarized below, followed by the response of the Regional Water Board staff.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

CSPA –COMMENT #1: The proposed Permit does not contain an Effluent Limitation for ammonia in violation of Federal Regulations 40 CFR 122.44 and California Water Code, Section 13377.

RESPONSE

40 CFR 122.44(d) requires effluent limits to be established for pollutants that cause, have the reasonable potential to cause, or contribute to an instream excursion above the allowable ambient concentration (reasonable potential).

40 CFR 122.44(d) also allows dilution of the effluent with the receiving water to be considered when determining if reasonable potential exists.

Wastewater treatment plants with or without specific unit processes to remove ammonia may discharge ammonia at toxic concentrations. Even if toxic concentrations of ammonia are discharged, a downstream receiving water may not contain ammonia at toxic concentrations, depending on the available dilution, the mechanics of mixing, and other factors.

The USEPA, in National Ambient Water Quality Criteria for Freshwater Aquatic Life, promulgated water quality criteria for ammonia that are dependent on pH, temperature, and whether or not early life stages of fish are present in the water. In the case of the Dunsmuir WWTP, Regional Board staff examined effluent ammonia concentrations, and upstream receiving water pH and temperature values to determine if effluent ammonia concentrations have exceeded the water quality criteria. Five effluent ammonia concentrations were available from January 2003 to June 2006 and ranged from 0.18 to 2.47 mg/L, with a median of 0.27 mg/L. Approximately 50 upstream receiving water pH values were available with a maximum (most

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conservative) value of 7.7. Nine upstream receiving water temperature measurements were available and ranged from 14°C to 18°C, with a median of 16°C. Comparing the observed maximum effluent concentration (MEC) for ammonia of 2.47 mg/L, with the calculated water quality criteria of 2.86 mg/L (chronic with fish early life stages present, maximum receiving water pH of 7.7, and maximum receiving water temperature of 18°C), no reasonable potential exists (i.e, the observed MEC of 2.47 mg/L is less than the water quality criteria of 2.86 mg/L).

It should be noted that this reasonable potential analysis was extremely conservative, as the worst case conditions of maximum pH value, maximum temperature value, and maximum effluent ammonia concentration did not actually occur at the same time. Additionally, no dilution was considered, and as stated previously, 40 CFR 122.44(d) allows consideration of dilution, and significant dilution of the effluent with the receiving water occurs year-round. Also, as opposed to chlorine, for example, ammonia is not a pollutant that is added as part of the treatment process, nor is it stored in bulk onsite, and therefore does not require an automatic effluent limit and continuous monitoring, as does chlorine. Therefore, in this case it is not appropriate to establish an ammonia effluent limit, however a late revision is proposed to increase the frequency of effluent ammonia monitoring to monthly.

CSPA –COMMENT #2: The proposed Permit does not contain an Effluent Limitation for nitrate and nitrite in violation of Federal Regulations 40 CFR 122.44 and California Water Code, Section 13377.

RESPONSE

No effluent or receiving water data exists for nitrate or nitrite. As discussed previously, the discharge does not have reasonable potential for ammonia, therefore it is unlikely that nitrate or nitrite, created by ammonia decomposition, would be a problem. The water quality standards the commenter cites are the California Department of Health Services (DHS) Primary Maximum Contaminant Levels (MCLs) of 10 mg/L for nitrate and 1 mg/L for nitrite. The MCLs are not ambient water quality standards; they are point-of-use human health standards for potable drinking water. Therefore, 40 CFR 122.44 does not apply, and its requirement for establishment of an effluent limitation is not applicable. The Basin Plan states that water designated as MUN shall not contain chemical constituents in excess of the MCLs. Furthermore, the Basin Plan, in its Policy for Application of Water Quality Objectives, requires that an order contain numerical limitations to protect beneficial uses. However, the Basin Plan does not state that effluent limitations must be used to protect beneficial uses; receiving water limitations

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may also be used. Therefore, in order to ensure that the discharge is not causing the receiving water to contain nitrate or nitrite in excess of the MCLs, late revisions are proposed to the order to require monthly downstream receiving water monitoring for nitrate and nitrite. No drinking water intakes are located in the river between the discharge point and the downstream receiving water monitoring point.

CSPA –COMMENT #3: The proposed Permit does not contain an Effluent Limitation for oil and grease in violation of Federal Regulations 40 CFR 122.44 and California Water Code, Section 13377.

RESPONSE

The wastewater treatment plant service area does not have any unusual sources of oil and grease. The proposed Order already contains receiving water limitations that implement the Basin Plan's prohibition on oil & grease that cause nuisance, result in a visual film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses. The 15 mg/L limitation cited by CSPA has been sporadically included in some past permits, without citation of a source, or justification. The origin of this limit is from a 1974 USEPA guidance document for petroleum marketing terminals, not wastewater treatment plants. It would be inappropriate to establish an effluent limit on a wastewater treatment plant based on this guidance. Also, as stated above, the proposed Order already contains receiving water limitations that implement the Basin Plan's prohibition regarding oil & grease. To ensure that Regional Board staff have sufficient information to compare the effluent quality to future water quality standards, or to apply best professional judgement, late revisions to the order are proposed to require quarterly monitoring for oil and grease in the discharge.

CSPA –COMMENT #4: The proposed Permit does not comply with the Board's Antidegradation Policy by failing to require an assessment of groundwater quality.

RESPONSE

The Dunsmuir wastewater treatment plant's grit chamber, oxidation ditch, clarifiers, and sand filters are all concrete structures. There is no reasonable expectation that groundwater degradation would occur from leaks in these structures. Furthermore, groundwater flow is toward the river from the treatment plant. There is no potential to use groundwater between the treatment plant and the river. No potable water wells could be installed downgradient of the treatment plant. The water supply for the community of

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Dunsmuir is Mossbrae Springs, approximately 4 miles north-northeast of the wastewater treatment plant—hydraulically up- and cross-gradient.

The percolation ponds located at the facility are used to provide additional protection for summertime contact recreational use in the river. Although the treatment plant's secondary effluent, coupled with the dilution in the river would protect recreational use in the river, it was deemed appropriate to remove the direct discharge to the river during these sensitive recreation periods. Use of the percolation ponds is intended to provide evaporation, seasonal storage, additional treatment for the percolating effluent, and allow more diffuse migration of the effluent into the river than can be provided by a conventional diffuser. Even if minor groundwater degradation was to occur, it would be warranted based on the benefit of eliminating the direct discharge from the facility during the peak recreation season.

CSPA –COMMENT #5: The proposed Permit fails to require tertiary treatment in accordance with the Findings in the Fact Sheet.

RESPONSE

The argument is based on semantics. The use of the term “tertiary treatment” in the permit refers to the use of sand filters and disinfection. The term “advanced secondary” has also been used for this level of treatment. The use of the term “tertiary treatment” in the permit does not refer to the formal definition found in Title 22 for water reclamation projects. No Title 22 reclamation occurs at this facility. DHS recommendations for level of treatment when contact recreation takes place are met. Dilution of the effluent with the receiving water is always greater than 20:1, in fact dilution has been roughly calculated as at least 63:1 during the minimum receiving water flow condition. Actual dilution is even greater, because effluent is not even discharged to the river during the time of year that this minimum dilution could theoretically occur. The discussion in the Fact Sheet is actually included to justify why the permit is more restrictive than the legal minimum during parts of the year.

CSPA –COMMENT #6: The proposed Permit allows for an illegal bypass of treatment processes in violation of Federal Regulation, 40 CFR 122.41(m)(1), CWC 13377 and 40 CFR 40 CFR (*sic*) 122.4 (a), (d) and (g)

RESPONSE

The permit does not allow an illegal bypass as asserted by the commenter. As discussed above, significant dilution is available year-round in the river. There is no Federal or State requirement for treatment better than secondary. Based on

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best professional judgment, this permit, consistent with previous permits for this facility, requires conventional secondary treatment during parts of the year when recreation does not occur in the river, and when dilution is at its maximum. During parts of the year when recreation is gearing up or winding down, more stringent “advanced secondary” treatment is required, including sand filters and disinfection. During parts of the year when recreation is at its maximum, no direct discharge to the river is allowed, although it is recognized that treated, percolating effluent will migrate into the river in a diffuse manner. The proposed order is already more protective than the legal minimum. There is no justification to require even more stringent limits, and require the discharger to use the highest level of treatment at all times. The Regional Board may not specify the method of compliance and require that filters and disinfection be used at all times. It is unlikely that the facility even has the capacity to operate such processes during the wet season.

CSPA –COMMENT #7: Regional Board Authority to Issue Compliance Schedules under the CTR Has Now Lapsed

RESPONSE

The commenter has made this assertion for many permits recently adopted by the Regional Board. Based on Regional Board legal staff findings, the SIP is the governing policy in California for implementing the CTR and it allows compliance schedules. USEPA approved the section of the SIP concerning compliance schedules. Although the CTR provisions for compliance schedules expired, that does not preclude the State Water Board from establishing its own version of compliance schedules since the SIP is intended to implement the CTR. The SIP allows compliance schedules that are as short as practicable, but in no case (1) allows more than 5 years for a discharger to come into compliance with CTR-based effluent limitations, and (2) allows the compliance schedule to extend beyond 10 years from the effective date of the SIP (18 May 2000) to establish and comply with CTR-based effluent limitations. The proposed Order, therefore, includes a time schedule of less than four years to comply with CTR-based effluent limitations by 18 May 2010 (10 years from the SIP effective date).

CSPA –COMMENT #8: The proposed Permit misquotes and misapplies the SIP justification requirements for including compliance schedules in a permit

RESPONSE

The quote from the SIP is accurate. The discharger recently submitted the required compliance schedule request. The discharger cannot immediately comply with the new effluent limits, and has justified the need. A compliance time schedule is appropriate.

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CSPA –COMMENT #9: The Proposed Permit contains a typographical error by leaving the “u” off the Effluent Limitations for copper, dichlorobromomethane and zinc in Table 6

RESPONSE

The permit was drafted properly, however a printer font change occurred that caused the character to be misprinted. This problem will be corrected in the final permit. The character should be a “u”, representing “micro”.

CSPA –COMMENT #10: The proposed Permit contains an Effluent Limitation for acute toxicity that allows mortality that exceeds the Basin Plan water quality objective and does not comply with Federal regulations, at 40 CFR 122.44 (d)(1)(i)

RESPONSE

The acute toxicity effluent limitations are consistent with numerous NPDES permits issued by the Central Valley Regional Water Board and throughout the state and are appropriate. The proposed Order, as a whole, contains several mechanisms designed to ensure that the discharge does not cause toxicity in the receiving water. The Order contains a Receiving Water Limitation that prohibits the discharge from causing toxicity in the receiving water. Additionally, end-of-pipe effluent limits are included for all toxic pollutants with reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. Where appropriate, these limits are developed based on aquatic life toxicity criteria.

In addition to chemical-specific effluent limitations, the proposed Order requires chronic whole effluent toxicity (WET) testing that identifies both acute and chronic effluent toxicity. WET testing is necessary because chemical-specific effluent limitations do not address synergistic effects that may occur when the effluent mixes with receiving waters, synergistic effects of mixtures of chemicals, or toxicity from toxic pollutants for which there are no aquatic life toxicity criteria. To address toxicity detected in WET testing, the proposed Order includes a provision that requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate, effluent toxicity. If the discharge exhibits a pattern of toxicity, the Discharger is required to initiate a Toxicity Reduction Evaluation and take actions to mitigate the impact of the discharge and prevent reoccurrence of toxicity.

The acute toxicity effluent limitations establish additional thresholds to control toxicity in the effluent: survival in one test no less than 70% and a median of

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no less than 90% survival in three consecutive tests. Some in-test mortality can occur by chance. To account for this, the test acceptability criteria for the acute test allow ten percent mortality (requires 90% survival) in the control. Thus, the acute toxicity effluent limitation allows for some test variability, but imposes ceilings for exceptional events (i.e. 30% mortality or more), and for repeat events (i.e., median of three events exceeding mortality of 10%).

CSPA –COMMENT #11: The proposed Permit contains an inadequate reasonable potential analysis by using incorrect statistical multipliers

RESPONSE

The proposed order was drafted using the reasonable potential analysis and effluent limit calculations according to the SIP. The SIP procedures do not utilize statistical multipliers for predicting maximum effluent concentrations.

CSPA –COMMENT #12: The proposed sampling requirement for metals in the Monitoring and Reporting Program is inappropriate

RESPONSE

We assume that the commenter feels that composite sampling for metals is needed to adequately characterize the quality of the effluent. We disagree. There are no industrial discharges to the Dunsmuir WWTP, so there is no reason to suspect that episodic slugs of metals are being discharged to the facility. Substantial compositing also occurs in the treatment train. Additionally, in many cases, a 24-hour composite sample could actually reduce the ability to detect peak concentrations of metals. Grab sampling for metals is consistent with what is required at many other treatment plants, and is adequate and appropriate for determining compliance with the permit.