

Regional Water Quality Control Board  
North Coast Region

Executive Officer's Summary Report  
8:30 A.M., Thursday, August 23, 2012  
Santa Rosa

- ITEM: 4
- SUBJECT: Public Hearing on Order No. R1-2012-0069, to consider requiring the City of Ukiah Wastewater Treatment Plant to Cease and Desist From Discharging Or Threatening to Discharge Effluent In Violation of Waste Discharge Requirements, Order Nos. R1-2006-0049 and R1-2012-0068, WDID No. 1B84029OMEN, NPDES Permit No. CA0022888, Mendocino County (*Cathleen Goodwin*)
- BOARD ACTION: The Board will consider the adoption of Cease and Desist Order No. R1-2012-0069 as proposed.
- BACKGROUND: The City of Ukiah (hereinafter Permittee) owns and operates a collection, treatment and disposal system, which serves approximately 20,700 residential, commercial, and industrial users in the City of Ukiah and Ukiah Valley Sanitation District (UVSD). The UVSD serves Mendocino College, El Dorado Estates, Vichy Springs and areas contiguous to the City of Ukiah.
- The wastewater treatment facility (WWTF) is designed to provide secondary treatment for an average dry weather flow (ADWF) of 3.01 million gallons per day (mgd) and peak wet weather flow (PWWF) of 21.7 mgd and advanced wastewater treatment (AWT) for a peak wet-weather flow (PWWF) of 7.0 mgd.
- The WWTF was upgraded during the term of Order No. R1-2006-0049 and consists of a headworks facility with a new influent pumping station, bar screen and grit removal system; primary clarifiers; two trickling filters; new secondary clarifiers; coagulation; media filtration; chlorination; dechlorination; and biosolids digestion and dewatering. Disinfected secondary effluent is discharged year-round to three percolation ponds with a combined storage capacity of 115 million gallons adjacent to the Russian River. Disinfected secondary effluent is filtered to achieve advanced wastewater treatment and subsequently chlorinated and dechlorinated as needed during the winter discharge season and discharged directly to the Russian River through an outfall pipe.

## ISSUES:

Untreated domestic wastewater contains ammonia which is known to cause toxicity to aquatic organisms in surface waters, and discharges of ammonia at levels that exceed ammonia water quality objectives to surface waters violate the Basin Plan narrative toxicity objective. Monitoring of effluent discharged to the Russian River at Discharge Point 001 during the term of the Permittee's previous order, Order No. R1-2006-0049, revealed the presence of ammonia at concentrations that exceed USEPA water quality objectives for ammonia. Historic monitoring data (2000 through present) also shows that nitrate concentrations have exceeded the State and federal drinking water maximum contaminant level of 10 mg/L. During the term of Order No. R1-2006-0049, the Permittee successfully controlled nitrate, but ammonia concentrations increased to levels that clearly exceed USEPA water quality objectives.

In 2006, the Permittee began a WWTF upgrade project which was completed in June 2009. The Permittee was not aware of the need to address treatment of ammonia and nitrate at the time that the WWTF upgrade project was designed. The Permittee's WWTF utilizes trickling filters for biological treatment. Trickling filters can be modified to favor conversion of ammonia to nitrate, or in a mode that does not result in conversion of ammonia to nitrate, but this treatment technology cannot remove nitrate. Thus, the Permittee's current treatment system cannot achieve concurrent compliance with ammonia and nitrate effluent limitations. Ammonia can be converted to nitrate through a biological process called nitrification, and nitrate can be converted to nitrogen gas through a process called denitrification, but these processes need to be specifically designed into the WWTF.

The proposed NPDES permit (draft Order No. R1-2012-0068) includes final effluent limitations for ammonia, including an AMEL of 3.5 mg/L and an MDEL of 6.8 mg/L, and an average monthly effluent limitation for nitrate of 10 mg/L. The Permittee cannot immediately comply with these final effluent limitations for ammonia and nitrate concurrently and needs time to develop a method to achieve full compliance with final ammonia and nitrate effluent limitations.

The proposed Cease and Desist Order (CDO), Order No. R1-2012-0069, includes a compliance schedule for the Permittee to achieve compliance with final effluent limitations for ammonia and nitrate. The CDO also contains interim effluent limitations for ammonia,

including an AMEL of 14 mg/L and an MDEL of 20 mg/L, and an interim effluent limitation for nitrate as an AMEL of 26.6 mg/L.

During the term of the proposed permit, the Permittee proposes to evaluate methods of complying with final effluent limitations for ammonia and nitrate. The Permittee proposes to start this process with an evaluation of its WWTF to determine if there is any potential for operational modifications to remove ammonia and nitrate simultaneously. During the term of Order No. R1-2006-0049, the Permittee achieved compliance with the final AMEL of 10 mg/L, however, operational modifications that may be necessary to comply with ammonia effluent limitations can be expected to temporarily increase nitrate concentrations until such time as the Permittee is able to consistently nitrify and denitrify to remove both ammonia and nitrate to acceptable concentrations. If full compliance cannot be achieved with operational modifications, the Permittee proposes to evaluate the feasibility of other options including, a mixing zone for compliance with nitrate effluent limitations, nutrient offsets to compensate for the Permittee's nutrient load to the Russian River, and WWTF upgrades (construction of new process infrastructure).

After adoption of Order No. R1-2006-0049, Regional Water Board Staff were working on a Basin Plan amendment to include a mixing zone policy for human health criteria. A background report titled "Evaluation of a Mixing Zone Policy for Human Health Related Constituents" (January 11, 2011) was prepared and will be used to provide background information in the development of Regional Water Board staff's project description for a proposed mixing zone Basin Plan Amendment in the future. Evaluation of a mixing zone Basin Plan amendment is currently issue 8 on the 2011 Triennial Review list of Potential Basin Plan Amendments. Staff does not anticipate working on this issue during the current Triennial Review time frame (2011-2014).

The Permittee has expressed that a mixing zone amendment to the Basin Plan is important to helping them achieve compliance with the nutrient effluent limitations in the proposed Order. A mixing zone amendment could potentially allow the Permittee to maximize nitrification of its effluent (converting ammonia to nitrate to achieve compliance with ammonia effluent limitations), then requesting a mixing zone to achieve compliance with nitrate effluent limitations. Regional Water Board Staff have encouraged the Permittee to formally raise this issue for consideration during the next Triennial Review of the Basin Plan.

The proposed CDO includes a requirement for the Permittee to submit various work plans identifying detailed tasks associated with the evaluation of each potential method of compliance with final effluent limitations for ammonia and nitrate, annual progress reports, and assessment reports. The CDO requires the Permittee to achieve full compliance with final ammonia and nitrate effluent limitations by August 1, 2017.

**RECOMMENDATION:** Adopt Cease and Desist Order No. R1-2012-0069 as proposed

**SUPPORTING DOCUMENTS:**

1. Hearing Procedure
2. Proposed Cease and Desist Order No. R1-2012-0069
3. Response to Comments – Attachment 1
4. Comment Letter from the City of Ukiah – Attachment 2
5. Public Notice