Regional Water Quality Control Board
North Coast Region

Executive Officer's Summary Report
Thursday, June 16, 2016
Regional Water Quality Control Board
Santa Rosa, California

ITEM: 11

SUBJECT: Public Hearing on Order No. R1-2016-0001 to consider adoption of proposed Waste Discharge Requirements for City of Eureka Wastewater Treatment Plant, WDID No. 1B82151OHUM, NPDES No. CA0024449 *(Lisa Bernard)*

BOARD ACTION: The Board will consider adoption of Waste Discharge Requirements Order No. R1-2016-0001 (Proposed Permit). The Proposed Permit will serve as a National Pollutant Discharge Elimination System (NPDES) permit for a period of five years allowing year round discharges to Humboldt Bay surface water from the City of Eureka Elk River Wastewater Treatment Plant (Facility).

BACKGROUND: The Facility has a dry weather treatment capacity of 8.6 million gallons per day (mgd) and a peak wet weather treatment capacity of 12 mgd. Wastewater is conveyed to the Facility through an extensive sanitary sewer system consisting of 125 miles of sewer mains, 9,500 service laterals, 17 lift stations, 3 pump stations, interceptor lines, collection lines, and manholes. The system collects and conveys over 1.5 billion gallons of wastewater per year, including infiltration and inflow (I/I). Once at the Facility, wastewater undergoes primary treatment with mechanical bar screens, grit removal, and primary clarification. Biological secondary treatment is accomplished using two trickling filters, followed by secondary clarification, and chlorine disinfection. The chlorinated effluent is stored in a holding pond then dechlorinated and discharged at Discharge Point 001 to Humboldt Bay in conjunction with ebb tide cycles in order to convey the maximum volume of effluent out of the bay to the Pacific Ocean.

By design, during periods of high flow exceeding 12 mgd, excess primary treated wastewater bypasses the tricking filters and secondary clarification then combines with secondary treated water before chlorine disinfection. Disinfected wastewater in excess of the effluent holding pond capacity can be directed to the 13-acre freshwater holding marsh (Overflow Marsh) and pumped back to the effluent storage pond once flows subside. The Regional Water Board has permitted bypass of secondary treatment since 1981 for up to 20 mgd during wet weather flows at the Facility.

The State Water Board adopted Resolution 74-43, Water Quality Control Policy for the Enclosed Bays and Estuaries of California (Enclosed Bays and Estuaries Policy) on May 16, 1974. The Enclosed Bays and Estuaries Policy prohibits the discharge of municipal wastewater to enclosed bays and estuaries unless the discharge results in enhancement of the receiving waters.

The discharge of treated effluent to Humboldt Bay was originally permitted in 1981 based upon mathematical modeling, tidal monitoring, and a dye study completed in 1979. These studies indicated that discharging on the outgoing tide was expected to carry all of the effluent out of the bay to the Pacific Ocean. Based upon these findings, the Facility was thought to be in compliance with the Enclosed Bays and Estuaries Policy and has been regulated under the California Ocean Plan requirements, including allowance of a 30:1 dilution credit.

The current permit, Order No. R1-2009-0033, required the City of Eureka (City) to perform an effluent discharge study to assess the transport and fate of pollutants discharged with the outgoing tides. In 2014, the City submitted the Effluent Discharge Study modeling analysis which shows that under all simulations the effluent is never completely conveyed to the ocean, and under certain conditions up to 90% of the effluent discharged remains in Humboldt Bay. As a result of this new information, the discharge does not qualify as an ocean discharge subject to the California Ocean Plan, but rather qualifies as a bay discharge that is not compliant with the Enclosed Bays and Estuaries Policy and is subject to the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, commonly referred to as the State Implementation Policy or (SIP).

The current permit also required the City to analyze whether it is feasible to eliminate anticipated wet weather bypasses of the trickling filters and secondary clarifiers. The City submitted the Feasibility Analysis for Treating Peak Wet Weather Discharges (Utility Analysis) in 2014. The Utility Analysis provided an overview of existing hydraulic conditions at the Facility and confirms that in order to minimize or prevent bypass of secondary treatment during routine wet weather flow conditions, the Facility would require upgrades to better measure flows, improve secondary treatment capacity, manage or otherwise provide temporary storage and equalization for influent flows, and reduce infiltration and inflow (I/I) into the collection system.

ISSUES: The Proposed Permit establishes several key requirements and incorporates changes in response to comments, as detailed below.

Key Requirements. The Proposed Permit prohibits discharges to Humboldt Bay unless done in a manner compliant with the Enclosed Bays and Estuaries Policy. In addition, the Proposed Permit prohibits discharges to Humboldt Bay that do not receive full biological secondary treatment. Elimination of the routine bypass of secondary treatment is consistent with federal regulations prohibiting bypasses and is necessary for the protection of Humboldt Bay because: (1) Humboldt Bay is an enclosed bay subject to the Enclosed Bays and Estuaries Policy; (2) Humboldt Bay hosts the largest oyster production area in the country; and (3) oysters are filter feeders that may accumulate toxics and pathogens, which may be present at higher levels in effluent that does not receive full treatment.

Long Term Compliance. Compliance with the Enclosed Bays and Estuaries Policy and the elimination of routine bypasses of secondary treatment at the Facility is likely to take a substantial investment of resources and time to achieve. Since the City is unable to immediately comply with the above referenced prohibitions, a Cease and Desist Order (CDO) is proposed for adoption (Proposed CDO R1-2016-0012) concurrent with the adoption of the Proposed Permit. The CDO will require the City to identify and assess alternatives, and ultimately implement preferred alternative(s) to comply with the Enclosed Bays and Estuaries Policy and to eliminate Facility bypasses. The CDO also calls for the Climate Change Readiness Study Plan required by the Proposed Permit to be considered as part of the preferred alternative(s) for long term compliance. In the meantime, the Proposed Permit also requires the City to begin discharge 45 minutes prior to the outgoing tide (or ebb tide) in order to maximize the volume of effluent that is conveyed to the Pacific Ocean as recommended by the 2014 Effluent Discharge Study.

Effluent Limitations. The Proposed Permit continues to require technology-based effluent limitations for Biochemical Oxygen Demand (BOD), and Total Suspended Solids (TSS) based on secondary treatment regulations. Consistent with the SIP, the Proposed Permit prescribes water-quality based effluent limitations for chlorine, copper, cyanide, and ammonia. The new effluent limitations for chlorine, copper, cyanide, and ammonia are one or more orders of magnitude lower in the Proposed Permit than in the current permit because the current permit applies a 30:1 dilution credit as allowed under the California Ocean Plan.

Public Comment. We received timely comments on the draft Permit from the City and made several changes to the Proposed Permit in response to comments. The most significant change made to the Proposed Permit in response to comment was the incorporation of a Water Effects Ratio (WER) for copper. Based on the SIP and U.S. EPA technical guidance, a permittee can conduct a site-specific study to account for a difference between the toxicity of a metal in laboratory dilution water and its toxicity in the water at the site. The difference is translated into a WER. The WER can then be used to adjust the aquatic life criteria from the California Toxics Rule (CTR) to derive site-specific aquatic life criteria.

The City conducted a WER study to determine the site-specific toxicity of copper in the effluent and in Humboldt Bay. The study, submitted during the public comment period, was conducted in accordance with applicable U.S. EPA guidance. Staff's review of the study concluded that site-specific WER of 12.6 for total recoverable copper is appropriate at Discharge Point 001. This means the proposed monthly average effluent limit for total recoverable copper of 43.2 ug/L, although more than 12 times higher than the standard CTR criteria, is protective of the beneficial uses of Humboldt Bay.

The City also requested that the Regional Water Board consider granting a mixing zone in Humboldt Bay for copper, cyanide, and ammonia. Staff's analysis of likely compliance with these parameters based upon a comparison of past treatment performance and proposed effluent limitations shows that the City can substantially comply with effluent limitations established in the Proposed Permit without granting a mixing zone. A full explanation of the comments and responses is documented in the attached Response to Comments document.

RECOMMENDATION: Adopt Order No. R1-2016-0001, as proposed.

SUPPORTING DOCUMENTS:

1. Proposed Order No. R1-2016-0001
2. Staff Response to Comments
3. Comment Letters and Attachments
4. Public Notice